
BETWEEN:

SCHWEYER ELECTRIC AND MANUFACTURING COMPANY ..... } PLAINTIFF;

AND

NEW YORK CENTRAL RAILROAD COMPANY ..... } DEFENDANT.

1933

Jan. 23, 24, 25, 26, 27, 30, & 31.
Feb. 1 & 2.
Nov. 8.

Patent—Infringement—Abandonment of invention—Non-user of patented invention—Filing date—Patent Acts 1906 and 1923

The patent in suit is for new and useful improvements in Automatic Train Control Apparatus. The Court found there was no infringement and further held:

1. That the abandonment of his invention by an inventor can only be inferred from such conduct as clearly denotes the voluntary surrender to the public of his rights in some form or other.

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2. That non-user of a patented invention is not fatal to a patent.
3. That the Commissioner of Patents in the exercise of his discretion, having granted a patent under the Patent Act of 1923, the Court will not now hold that the filing date given to the applicant should be changed to another date and thus render the application subject to certain provisions of the Patent Act of 1906.
4. That the Patent Act of 1923 does not affect the operation of the Act of 1906 in respect of applications for patents made under that Act or to affect any right or privilege acquired by an applicant for a patent under that Act.
5. That s. 50 of the Patent Act means, that if a person has acquired in some way or other, something which was the subject of an application for a patent by another who is presumably the first inventor, but for which a patent had not yet issued, he, the former, should have a continuing right to use and vend the same notwithstanding the issue of the patent to the other person.

ACTION by plaintiff to have it ordered and adjudged that defendant is infringing its patent No. 316,852.

The action was tried before the Honourable Mr. Justice Maclean, President of the Court, at Ottawa.

R. S. Smart, K.C., O. M. Biggar, K.C., and *M. B. Gordon* for the plaintiff.

W. L. Scott, K.C., and *V. W. Price* for the defendant.

The facts and questions of law raised at the trial are stated in the reasons for judgment.

THE PRESIDENT, now (November 8, 1933) delivered the following judgment:

In this action, the plaintiff alleges that the defendant is infringing a patent of invention, no. 316,852, granted to D. H. Schweyer on November 3, 1931, which was a reissue of patent no. 290,748 granted to the same patentee on June 25, 1929, upon an application made on August 31, 1923; the plaintiff by assignment became the owner of the patent. The alleged invention is said to relate to "new and useful improvements in Automatic Train Control Apparatus". The offending apparatus is a system of automatic train control, in use in Canada, on the line of the Michigan Central Railroad Company, which is owned or controlled by the New York Central Railroad Company, the defendant, and was installed by the General Railway Signal Company of Rochester, N.Y., which company I assume is the real defendant in the action. The trial of the action occupied thirteen days and a very considerable

amount of technical evidence was tendered by both sides; and very intricate issues of fact and law developed during the trial and altogether the case presents many points of complexity and difficulty.

The history of Schweyer's alleged invention was calculated to beget confusion and difficulties. Schweyer claims to have made his invention in 1916, and in that year he filed an application for a patent therefor in the United States, but that application was, on direction of the Patent office, divided, and in September, 1921, a patent issued to Schweyer in respect of one division of his application, that relating to brake appliances. Schweyer, for some reason or other, did not at once proceed to prosecute his application for a patent in the United States for the invention described in the other division of his application, that relating to his automatic train control apparatus, the subject-matter of the patent here in suit, and it was not till August 10, 1922, that he filed an application in the United States in respect of that portion of his invention. That application was there treated as a fresh one, upon the ground that his application of 1916 had been abandoned, at least that is the way I understand it. A corresponding application was filed in Canada by Schweyer on August 31, 1923,—seven years after the date of his alleged invention—and as already stated a patent issued thereon on June 25, 1929; in the interval many amendments were made to the specification and its claims. The specification of the patent issued to Schweyer in 1929 contained some thirty-four claims; the reissue patent of course embraces a description of the invention, which, I think, is substantially if not precisely the same as in the surrendered patent, but the claims of the specification were extended almost four-fold and now number one hundred and twenty-one. Prior to the date of Schweyer's application in Canada, one Howe applied for a patent in this country for what is described as an "automatic train control system," which is substantially the same as the defendant's automatic train control system, the alleged infringing device; and the General Railway Signal Company, as assignee of Howe, applied for Letters Patent in Australia, France, and England, for Howe's alleged invention, and the invention appears to have been there published or advertised prior to the date of Schweyer's application in Canada. The General Railway Signal Company also pub-

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licly demonstrated and tested Howe's train control system, or something substantially the same, on a United States railway; and this system was described in a technical journal published there, all of which was prior to the date of Schweyer's application for a patent in Canada. To further complicate the situation, there came into force in Canada, the day following the filing of Schweyer's petition for Letters Patent, the Patent Act of 1923, which repealed the Act of 1906, and from this fact arises several controversial points. In the circumstances it would be strange if there did not emerge from this unusual history many debatable points of which the defendant avails itself.

I cannot forbear saying that it does appear to me to be a most undesirable state of affairs which makes it possible for a period of many years to intervene between an application for Letters Patent and the granting of the same. The patent rule relating to patent applications apparently requires that the applicant proceed with his application with due diligence, and it is the spirit of the rule that the application be proceeded with within a period of one year from the date of the acknowledgment of the filing of the application, and for failure to do so, the rule states, the application shall be held to be abandoned unless the Commissioner is satisfied the delay was not the fault of the applicant. A practice has apparently grown up which does not discourage dilatoriness in the prosecution of a patent application, and it appears that the Patent Office generously treats almost any sort of a communication as a step in the application, which apparently suffices for another year's inaction by the applicant if he is so inclined; this practice affords an applicant the opportunity for pursuing dilatory tactics and for observing any developments in the particular art concerned, with the inevitable temptation to seek doubtful amendments to the specification and its claims, which may prove unjust to other workers in the same field of invention, and possibly to the public as well. I have no doubt there are many cases where considerable delay is unavoidable, both on the part of the applicant and the Patent Office, but such are not the cases I have in mind. Probably one method of minimizing this abuse would be to provide that the patent shall bear the date of the application, which I understand is the law in many countries.

I can hardly refrain also from commenting upon the practice which has unfortunately grown up in Canada of inserting in the patent specification an unnecessary number of claims, and this is exemplified in the fact that the claims in the patent in suit number one hundred and twenty-one, which I am quite satisfied was altogether unnecessary in order to state what it was Schweyer claimed to have invented, and to state the claims in such numbers was not, in my opinion, to state them *distinctly* as required by the Patent Act. But I have not Schweyer particularly in mind. The practice of multiplying claims unnecessarily is becoming too common in this jurisdiction and some way should be found of preventing this. If one has really invented something, he should know what it is, and it should not take many words to state in clear language what it is he claims to have invented. Terrell in his excellent work on Patents, discussing this very matter, remarks:

> It must be remembered that the object of the claim is to give a perfectly clear statement of the invention claimed. Of late years a superstition has arisen that a patent is more valid and has a greater hold over infringement if every possible permutation and combination of the elements entering into the invention is separately claimed, and it has become a practice to file claims which are copies of those used in American specifications. American claims may be very useful in dealing with American law, but in English law such prolixity does not help a Court which, whether in considering subject-matter, novelty or infringement, invariably seeks to obtain an answer to the broad question, "What has this man invented?"

That, I think, would be a perfectly fair and just comment to make in respect of the claims in many patents issued in Canada, and it is quite correct to say that it is a pure superstition to think that a patent is more valid because every possible permutation and combination of the elements entering into the invention is separately claimed. In England, this point came before both law officers of the Crown on the interpretation of rule 4 of the English Patent Rules, 1905 (rule 14, 1920), in the case of *J. S. Bancroft's Application* (1). The English Patent Rule requires that the claims be stated in *clear and distinct terms*. The Attorney General pointed out that certain kinds of inventions might be such as to justify a large number of claims. He stated:

> So long as the statement of each claim is in itself clear and succinct, and so long as there is an absence of repetition in the separate claims, we do

(1) (1905) 23 R.P.C., p. 89.

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not think that there is necessarily any infringement of this rule. . . . But in the present case we think that the decision of the Chief Examiner was right . . . An attempt is made to deal with every possible contingency. . . . I must say that I deprecate very much the multiplication of claims by the system, which seems to have prevailed in America, of attempting to deal with every possible contingency. I do not think it results in clearness. I think that the system of claims with which we are more familiar in this country is really clearer in the result, and that those who have American patents and who desire protection in this country, in bringing forward their claims, must endeavour to conform to the practice which has prevailed in this country.

I quite concur in the remarks of the Attorney General, who was then Sir Robert Finlay, and they are equally applicable to Canada. Prolixity and repetition in patent claims have also been frequently condemned in the Courts of the United States. If the provisions of the Patent Act are not in terms sufficiently clear to enable the Patent Office to prevent a useless and confusing multiplicity of claims, and repetition in the separate claims, I would very respectfully suggest to the Commissioner of Patents that he urge that the Patent Act be so amended as to bestow ample power upon the Patent Office to curtail the abuse to which I refer, and which is calculated to bring the whole law of patents into disrepute. I need hardly observe that my remarks are not applicable to all applications for patents filed in Canada, perhaps only to a relatively small number, but in my own experience I have frequently noticed that claims are allowed which appear to me to be objectionable because of repetition in the separate claims, and the practice, in my opinion, should not be permitted to gather weight. A good illustration of the distinction between the British practice—the preferable practice I think—and that which frequently obtains in Canada, is afforded by the British patent granted to the General Railway Signal Company, the inventor being Howe and whom I have already mentioned, wherein the claims of the specification are stated in nine paragraphs, whereas the corresponding Canadian patent granted to Howe contains ninety claims. The question always is: What has the patentee invented? After the patentee has described his invention, and its operation or use as contemplated by him, it should not be difficult to state in comparatively brief terms what it is he claims as his invention and for which he seeks a monopoly. If the specifications are framed clearly, and in language which is unmistakable, part of the difficulty of patent cases would disappear.

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Turning now to the patent in suit. The specification at the very beginning describes the invention in general terms thus:

It is an object of the invention to provide novel inductive devices between the vehicle and track for obtaining clear, caution and danger or other signals or conditions in an efficacious manner when passing the controlling points or stations of the track.

Another object is the provision of such inductive devices so arranged and means controlled thereby whereby a predetermined condition is obtained whenever the vehicle or train passes a controlling station or point of the track, with other conditions possible under selective control from the track. Thus, a danger condition will be established whenever the vehicle passes a controlling station, for stopping or retarding the vehicle, unless clear or caution conditions are brought about at the same time.

A further object is to provide such apparatus in which the source of electrical energy is carried by the vehicle, and in which batteries or other sources of current for the track devices are not required, to the end of obtaining a saving in the cost of maintenance.

A still further object is the provision in such an apparatus of a novel differential induction responsive device for controlling the vehicle equipment or translating means and controlled by suitable inductive devices on the track or adjacent to the path of movement of the responsive device.

The invention has for another object the provision of novel means controlled by the responsive inductive devices for the control of the vehicle equipment from the controlling devices on the track.

With the foregoing and other objects in view, which will be apparent as the description proceeds, the invention resides in the construction and arrangement of parts, as hereinafter described and claimed, it being understood that changes can be made within the scope of what is claimed, without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawing, wherein the Figure is a diagrammatical view of the apparatus, showing the vehicle equipment passing a controlling station or point of the track under clear conditions.

Briefly outlined, the present apparatus comprises in its main and more important essentials, armatures 16 or magnetic devices on the track or roadway at the control stations or locations, a primary inductor 19 on the vehicle responsively affected whenever passing an armature, control relays or devices on the vehicle for obtaining clear, caution and danger conditions, a controller or switch device 45 on the vehicle controlled by the primary inductor 19 for changing the circuit connections of said control relays or devices whenever passing a control station and initiating a danger condition of said control relays or devices, secondary inductors 68 and 69 and relays 78 and 80 controlled thereby on the vehicle controlling said control relays or devices during such change in circuit connections, controlled inductors 2 and 3 on the track or roadway associated with said armatures for influencing said secondary inductors during such change in circuit connections to avoid the danger conditions and either maintain the existing running condition of the vehicle equipment or changing from a clear to a caution condition, and manually controlled means for restoring clear conditions of the vehicle equipment. The essential apparatus

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as outlined, with the necessary electrical circuits, is more simple than the complete apparatus as illustrated, such complete apparatus also including several features of safety which are not compulsory.

Then follows a description of the track equipment, the vehicle equipment, the intermediate responsive devices, the selective responsive devices and the electrical circuits; and following that there is described the method of operating the apparatus under *clear, caution,* and *danger* conditions. The claims relied upon are sixty-three in number, but they are represented, it was said, by the following five claims:—

12. An apparatus of the character described including a movably mounted differential inductive device including a core and inductively related coils thereon, an armature adjacent to the path of movement of said device with which said core is inductively co-operable for obtaining magnetic disturbance in said core when passing said armature, said coils being in direct current energized electrical circuits and creating opposing magnetic flux in said core so that the current in one coil is affected when passing the armature, and translating means controlled by the circuit of said coil.

37. An apparatus of the character described including a movably mounted differential inductive device energized by different direct current circuits, a relay in each of said circuits, and the relay in one circuit controlling the current in the other circuit, translating means controlled by said relays and means adjacent to the path of movement of said device and with which said device is inductively cooperable to affect the currents in said circuits for deenergizing one of said relays.

43. An apparatus of the character described including a movably mounted differential inductive device having direct current energized inductively related coils, one of which produces a magnetic flux weaker than and in opposition to the magnetic flux created by the other coil, a stick relay in series circuit with the coil producing the weaker magnetic flux, inductive means adjacent to the path of movement of said device with which said device is cooperable for reducing the current flowing in the first-named coil to deenergize said stick relay and translating means controlled by said stick relay.

66. In a railway traffic controlling system, the combination, a railway track, magnetic devices on the trackway at intervals, a vehicle on the track, an inductor on the vehicle aligning with said magnetic devices and passing in inductive relation thereover by the movement of the vehicle along the track, a primary circuit including a protection relay connected with said inductor and energized by direct current, a secondary circuit energized by direct current, and including a detector relay controlling its own circuit and inductively coupled through said inductor with said primary circuit, said primary circuit being connected to said inductor so as to deenergize said detector relay when said inductor is in inductive relation with said magnetic device, said secondary circuit controlled by said protection relay and a translating device controlled by said detector relay.

91. In a railway traffic controlling system, in combination, a railway track, an armature on said track, a vehicle on said track, an inductor on said vehicle moved by the movement of said vehicle into inductive relation with said armature, a primary coil on said inductor energized by direct current, a secondary coil in a secondary circuit including a relay

controlling its own circuit energized by direct current and inductively coupled by said inductor so that said primary coil effectively deenergizes said relay when said inductor is influenced by said armature, an electrically operated braking mechanism on said vehicle, a second relay controlling its own circuit, controlling said braking mechanism and controlled by the relay in said secondary circuit and a manually operated switch for establishing an energizing circuit for said second relay.

It will be convenient at this stage to describe with some detail, and as best I can, Schweyer's alleged invention, the defendant's train control system which is said to infringe Schweyer, and to point out in what respects they are similar, and in what respects they differ. Automatic train control as known to-day is the culmination of a prolonged development having for its object the control of trains, whereby they might be operated with increased despatch, and, at the same time, with increased safety. The first form of control developed was the *block system,* in which the railway track was divided into sections. A manually operated semaphore was located at each block, and the locomotive engineer operated his train in accordance with those signals, which were, and, in fact, still are, usually arranged to indicate three conditions: Clear—no train for two blocks ahead; Caution—a train on the second block ahead; and Danger—a train on the next block ahead. The next forward step was the substitution of automatic operation for manual operation of the semaphores, this being done electrically by means of what are called *track circuits.* The semaphore is automatically set to show either clear, caution, or danger conditions, according to the position of the preceding train. The latest development, and that to which this case has reference, was the provision of means whereby the electrical currents in the track circuit which automatically sets the semaphore at its different positions, will at the same time, automatically cause a registration of the same signals in an apparatus or device mounted on the locomotive, this apparatus being associated with the braking mechanism of the locomotive in such a way as to cause the brakes to apply, and the train to be automatically stopped when the track circuits have set the semaphore at *danger.*

The plaintiff's patentee, Schweyer, contemplates what is called a *three position* system, involving the transfer of the three indicated semaphore conditions, clear, caution, and danger, to the locomotive. On receipt of a caution signal,

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it is expected that the train will automatically reduce its speed to some predetermined number of miles per hour, while on receipt of a danger signal it will automatically come to a full stop. The defendant's arrangement is, what is described as a *two position* system, and contemplates the transfer of only two semaphore conditions, clear, and danger, to the locomotive, *caution* being combined with *danger* to show as *danger*. The registration of the danger signal in the locomotive acts in the same way as in the three position system, and results in the automatic stopping of the train unless the engineer takes steps to cancel the same.

Both systems employ the same general principle of magnetic induction, which was old, to communicate the signal from the trackway to the apparatus on the locomotive. For this purpose a U-shaped electromagnet, referred to as a *receiver,* is attached to the locomotive, and on the trackway at each semaphore or signal position are located armatures of iron, so positioned relative to the track that the receiver or receivers on the locomotive will pass directly over them with a clearance of about $1\frac{1}{2}$ inches. These armatures are also referred to as transmitters or inductors. The U-shaped electromagnet of the receiver has wound on it two or more coils, one set being called the *primary,* which strongly magnetizes the yoke of the receiver, and the other called the *secondary,* which is to be influenced by the track signal. In operation, whenever a receiver passes over an armature, a momentary cycle of electric current is generated in the secondary coil, which, under caution, or danger conditions, operates an electric device on the locomotive, called the *detector relay,* and which, in turn, brings into play succeeding electrical circuits and apparatus whereby the brake mechanism of the train is intended to be controlled. The strength of the pulse or cycle of current generated in the secondary coil depends both on the speed of the train and on the clearance between the armature and the receiver. The faster the train is moving, or the closer the receiver is to the armature when it passes over it, the stronger is the current. The effect produced by the passing of the U-shaped magnet over an armature is to increase momentarily the strength of the magnetism in the yoke of the receiver, or, as frequently expressed, to increase the *flux* in the yoke of the magnet during the instant the

passage is taking place, and as a result, and in accordance with the laws of electricity, if a coil of wire, called the secondary, is wound on the magnet, the magnetism, while it is in course of change, will cause a cycle of current to be generated in this secondary coil.

We again come to another principle of electricity common to both systems. If the trackway armature itself has a coil of wire wound around it, and the ends of this coil are connected together, there is then produced in the armature a choking effect, with the result that if the receiver passes over such an armature with its coil closed or short circuited, the increase in the strength of the magnetism in the receiver will be materially less than when it passed over with the choke coil open, and as a result, if the secondary coil on the receiver is connected with a relay, this provides an arrangement whereby a signal may be communicated from an armature on the trackway to a moving locomotive; when a clear condition prevails, the armature choke coil is short circuited, and due to the comparatively small change in the magnetism of the receiver, when it passes over the armature, the current generated in the secondary coil is not sufficiently strong to operate the relay mechanism, whereas in the danger position when the inductor coil is interrupted or open the change in the magnetism is sufficient to create a current sufficiently strong to operate the detector relay and bring its associated devices, and finally the brake mechanism, into action.

Numbers of relays are used in Schweyer, and in the defendant's train control system, and it might be desirable to describe this device. A relay consists of a coil of wire wound around a magnetic yoke, below which is an iron armature so arranged on a hinge that when an electric current of sufficient strength is passed through the yoke, the yoke becomes magnetized, and the hinged armature is drawn up. Associated with this armature are contacts, and the energization of the relay causes these contacts to close and thus provide means of controlling other electrical cirsuits. A *stick relay* is one which controls its own circuit through a contact operated by its own armature, that is to say, if the energizing current which magnetizes the relay is interrupted, the falling of the armature introduces a second interruption in the energizing circuit and that circuit cannot again become operative to work the relay until

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the armature is re-set by some other means. I was informed that I might visualize a *stick relay* as something in the nature of the indicator or annunciator associated with the ordinary door-bell; when the button is pressed, the annunciator falls, but once down, it is for the time being beyond the control of the button, and will not again function until re-set by some other means.

The Schweyer train control system as described in the patent, contemplates, as already mentioned, a three position system, using three receivers on the locomotive and three associated armatures at each trackway signal or semaphore position; one of the armatures, which Schweyer calls the centre armature, is uncontrollable, whilst the other two, which may be called the side armatures, are controlled by virtue of the choke coils with which they are equipped. The locomotive first passes over the centre armature which is shown located in the middle of the trackway, and then over the side armatures which are located one near either rail and which, it was suggested in evidence, might be located 160 feet further along the trackway from the centre one. For the first or centre receiver which passes over the centre armature, Schweyer's system employs an electromagnet with two primary coils energized from a direct current generator. On the intermediate part of the core of the magnet is wound a secondary coil which forms part of a circuit comprising a stick relay, called the detector relay, and a battery. The secondary coil is so connected, that the magnetic flux generated in the core of the receiver by the current from the battery, through the secondary coil, opposes the stronger flux generated in the same yoke by the current in the two primary coils.

The detector relay is normally energized by a battery, and its contacts, when the relay is energized, complete another circuit which controls a plunger switch arrangement, 45, referred to as a *translating switch*, which in turn controls the connections of further relays and circuits, and which eventually operate the mechanism which applies the brakes of the train. The function of the translating switch, would appear to be intended to complete circuits whereby the control of the air-brake operating mechanism is placed under two relays, 78 and 80, and which I shall refer to as the side relays, which are energized by alternating currents supplied by a special alternating current generator (as dis-

tinct from the direct current generator or the battery) and are controlled by the two side receivers mounted on either side of the locomotive, and are, I presume, generally similar to the receiver which is associated with the centre armature except that they are not provided with a secondary coil. On the trackway at each signalling position are established the two side armatures, 2 and 3, so arranged as to register with the two side receivers which I have just mentioned. These armatures are equipped with choke coils which may be opened or short circuited in sympathy with their associated semaphore, and the signals are thereby transmitted to the locomotive, and, the translating switch having performed its function, the air-brake mechanism is operated, (1) in a caution position, to reduce the speed of the train; and (2) in a danger position, to stop the train. On the other hand, if the semaphore shows a clear condition then the armatures will likewise show a clear condition (choke coils short circuited) and the side relays remain closed and no brake application will occur.

Since the centre armature has no choke coil to control it, the detector relay must function each time the centre receiver passes over a centre armature and it accordingly has to be re-set before the next centre armature is reached. To secure this end, a time element is introduced in the translating switch whereby the latter is made to take approximately 20 seconds to pass from its upper to its lower position. At the end of that time, another set of contacts comes into play completing further circuits whereby the detector relay is re-energized. This in turn re-energizes the translating switch, which returns to its original upper position, and the whole system is once more set ready to receive a signal.

It is to be noted that for the system of Schweyer to be practically operative the train must pass over the two side armatures within twenty seconds of the time it passes over the associated centre armature of the group. The function of the centre armature would appear to be to set a mechanism ready to respond to either a caution or a danger signal, which in turn is to be received by the two side receivers. The apparatus and its circuits as shown in the patent are very complicated, but its general object would appear to be the provision of an automatic master control of the train whereby its speed is reduced, or the

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train is completely stopped by the mechanism, irrespective of any action on the part of the engineer.

Referring now to the defendant's system of train control. As already explained, the defendant's system is a two position system, clear, and danger, there being no provision for a caution position. One armature only is used at each signal point. This armature is controllable, that is to say, it is provided with a choke coil whereby its effect on the locomotive receiver may be nullified when the coil is short circuited, which automatically occurs when the associated semaphore shows clear. The receiver on the locomotive consists of a U-shaped electromagnet on which are wound two coils, the first, the primary, is connected with a direct current generator which serves to magnetize the yoke, and the second, the secondary coil, is connected in circuit with the same generator, and a detector relay. The secondary coil is so connected that the current passing through it from the generator assists or intensifies the magnetic flux created by the primary coil. The detector relay controls other relays, which, in turn, operate the air-brake valve mechanism, and a whistle valve. The system being a two position system, provides only for clear and danger conditions, but means are provided whereby the engineer may, in certain circumstances, anticipate the operation of the automatic system and retain full control of the locomotive. This means is called the *acknowledging* contactor, or *forestalling switch.*

The functioning of the defendant's system in practice is as follows: When the receiver on the locomotive passes over a trackway armature set at clear (that is with the choke coil on the armature short circuited) the momentary current generated in the secondary coil of the receiver is not sufficiently strong to cause the detector relay to open and there is accordingly no operation of the automatic mechanism. On the other hand, if the signal on the trackway is at either caution or danger the choke coil circuit on the armature is automatically opened by the trackway relay, and the passing of the receiver across the armature creates a momentary current in the secondary coil of sufficient magnetism to de-energize the detector relay, which, in turn, brings into action the succeeding relays and eventually the brake mechanism which stops the train. Now it would not be practicable to have the train come to a full

stop at every caution signal, so, in practice, the defendant's system provides means whereby the automatic effect may be nullified by the engineer, if he is alert. This is done by means of the forestalling switch, whereby the engineer of a train approaching a semaphore set at caution, or danger, can, provided he closes this particular switch within fifteen seconds of reaching the associated track armature, and provided he releases it before the fifteen seconds have expired, remain in control of the train. However, should he fail to re-open the switch before the fifteen seconds have expired, then the automatic apparatus functions irrespective of anything he may do, the brakes automatically apply, and the train comes to a stop. The defendant's system may be described as one in which the engineer is intended to be in full control of the train at all times, but if for any reason he should fail to keep sufficiently alert, or should some emergency arise whereby he becomes incapable of performing his duties, then the system will, when either caution or danger conditions are present on that section of the trackway, automatically bring the train to a stop.

Comparing then the two systems we thus far find that Schweyer, as is set out in the patent, is a three position system, calling for three transmitters or armatures on the trackway at each semaphore position, two of which are controllable. The defendant's system is a two position system, calling for only one controllable transmitter at each semaphore position. Both systems employ the same general induction principle for the transference of the signal from the trackway to the locomotive, namely, a U-shaped electromagnet on which is wound a secondary coil, and this secondary coil in both cases controls a detector stick relay, but, in the case of Schweyer there are employed three receivers, the second and third being equipped with a primary coil only, and an alternating current not direct current is used to energize them and the relays immediately associated therewith.

From this point on the mechanism of the two systems would appear to differ very materially. In the defendant's system the detector relay controls circuits which include the manually operated forestalling switch and which finally operate the electric pneumatic valve which controls the air-brakes, three relays being used in all. In Schweyer, the detector relay controls the translating switch, which, in

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turn, completes the connection of the circuits controlled by the two side receivers, which through relays energized by alternating current, and a number of other relays, finally operates the air-brake valve to slow down the train under a caution condition, or to stop it under a danger condition. In all Schweyer shows thirteen relays in his device, as compared with three in the defendant's. The Schweyer system is provided with a switch, whereby, it was stated, the mechanism of the system can be reset once the brakes have been applied, but the patent shows no device which corresponds to the manually operated forestalling switch of the defendant, and in the defendant's system there is not, I think, any apparatus which corresponds to the translating switch of Schweyer, nor does the defendant use alternating current to operate any of the relays or other apparatus. In Schweyer, as stated in the patent, the relays which take the caution and danger signals from the armature on the track are energized by alternating current. In the defendant's device this is done by direct current operated relays and there is here a fundamental difference between the two systems. I do not think it is fair to assume that Schweyer contemplated a device which did not demand alternating current for its successful operation.

To recapitulate, the difference, between the arrangement disclosed in Schweyer's patent and that used by the defendant are as follows: In Schweyer there is a combination of three armatures, one uncontrollable, and two controllable by the trackway circuits; in the defendant's system there is but one armature at each semaphore position controllable by the trackway circuits. In Schweyer there are three receivers on the locomotive, one energized by direct current, the other two by alternating current; in the defendant's system there is but one receiver on the locomotive and which is energized by direct current. Schweyer has a translating switch to transfer circuits so that the two side receivers may control the brake mechanism; the defendant's arrangement has no translating switch. Schweyer has an alternating current generator while no alternating current is used in the defendant's arrangement, both however have a direct current generator. Schweyer has no forestalling switch, while in the defendant's arrangement there is a manually operated forestalling switch. Schweyer employs thirteen relays while the defendant's arrangement has

but three, and finally Schweyer has a governor speed control switch while the defendant has no such part in its arrangement.

Plaintiff's counsel contended that Schweyer contemplating a three position system, naturally required much more apparatus than the defendant, and a diagram was put in evidence which purported to show Schweyer simplified to a two position system, and, as a result, we find eliminated the two side armatures, the two side receivers, the alternating current generator and all alternating current circuits and relays, the translating switch, many of the other relays, and the governor speed control switch. This is a very material change in Schweyer's arrangement, eliminating as it does the alternating current feature on which the patent appears to rely in securing actual control. I am not satisfied that this can fairly be said to represent what Schweyer would have developed had he been confronted at the time with the problem of providing a two position instead of a three position system, and I think it might—as was suggested by counsel for the defendant—be equally reasonable to suppose that faced with that problem, he might just as readily have adopted the expedient of merely eliminating the particular side armature and receiver and its associated relays and apparatus, which, in his patent, are intended to give the *caution* control.

It will be convenient here to discuss another point of some importance. It was contended on behalf of the defendant, that if the secondary coil on the receiver was connected as described in Schweyer, it would not function to deenergize the relay associated therewith and that therefore Schweyer lacked utility. This is a very technical point and I have given it a most anxious consideration. As I understand it, the effect of a direct current energized receiver, of the type under discussion, passing over an armature is to create a cycle or wave current in the secondary coil of the receiver, and if this coil already has a direct current passing through it from a battery, it will depend entirely upon how the coil is connected, as to whether the magnetism created by the battery current assists or opposes the stronger magnetism of the primary coils, and consequently whether the battery current in the secondary and detector relay circuits is first implemented and then reduced or vice versa. In the arrangement described by Schweyer,

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and in that used by the defendant, an increase in the current is of no value, as such an increase merely results in the associated relay being more strongly magnetized and holding its armature up more tightly. A decrease in the current, however, if sufficiently great, results in the relay losing its magnetism. Its armature then drops the contacts open, and the control system, as a whole, functions. The defendant contends that Schweyer describes in his specification exactly how the primary and secondary coils are to be connected. The specification states:—

> The coils 20 (primary coils) provide a strong magnetic flux in the core 21 in one direction, opposing the magnetic flux of less strength established in the immediate (or intermediate) portion of the core 21 in the opposite direction by coil 22 (the secondary).

And again,

> The magnet 33 and the coil 22 are thus energized in series by the battery 40, and the feeble magnetic flux created by the energization of the coil 22 opposes but does not balance the stronger magnetic flux created in the core 21 by the coils 20. . . .

Counsel for the defendant contended that as a result of this method of connection, the current produced in the secondary causes first a rise in the detector relay energizing current followed by a fall or drop and that it does not function to produce the result described in the patent and which reads as follows:—

> The effect of the change in the number of lines of force is the induction, into the circuit including the battery 40, coil 22 and magnet 33, of a single cycle of alternating current, of which the first half opposes the battery 40, causing the magnet 33 to become deenergized.

In the defendant's system, the method of connection is reversed, that is to say, the magnetism created by the energizing current in the secondary coil supplements the stronger magnetism created by the primary coils, with the result that in this case the cycle of current is the reverse of that which would be obtained if connected as described in Schweyer, and it causes first a fall or drop in the detector energizing relay current followed by an increase or a rise. One of the plaintiff's witnesses, in discussing this point, testified that even if this difference did exist Schweyer would still get the desired dip in the second half of the cycle, and that if the detector relay did not open on the first half, it would do so on the second. The defendant produced technical evidence to show that owing to the electrical characteristics of the circuits involved, the second half of the cycle is as a matter of fact largely non-existent,

and would not cause sufficient change in the steady current in the relay to operate such relay. This is an important point, in that if Schweyer, connected as described in the patent, does result in an increase followed by a decrease in current,—and I am satisfied from the evidence that that result is produced by this connection—and if the defendant's further contention that there is no appreciable second half cycle is true, then Schweyer is inoperative and will not function successfully, but I do not propose to express any definite opinion upon this point. The defendant put in evidence what are called oscillograph curves, the result of a test made at the plant of the General Railway Signal Company, by persons in its service, to verify this contention. These curves bear out this contention and no conclusive evidence was given to show that they did not reasonably represent the variations of the current in the defendant's system when connected, first as in actual use, and again as recommended and described in the Schweyer patent, that is to say, in the first case the dip occurs in the first half of the cycle and there is a small rise in the second half, while in the second case with the magnetism opposing one another, the rise occurs first, followed by a negligible dip in the second half.

In a hand book published by the General Railway Signal Company, and which is in evidence, the curve is shown with a symmetrical rise and fall, and on being asked to explain this, one of the defendant's witnesses, in the employ of the General Railway Signal Company, stated that this curve as there shown was intended to be purely theoretical, because at the time it appeared no oscillograph was available to tell exactly what was happening in the circuit, and that since its system (the defendant's system) depended on securing the fall in current first, they were not interested in the second half, as by the time that occurred, the relay had opened, and the current was interrupted. The plaintiff, in reply, attempted to develop the fact that while the defendant's arrangements of yoke and coils and the casing of defendant's receiver might give a curve like the oscillograph curve, a different arrangement of these elements might be designed so as to produce a dip of adequate value in the last half of the current cycle to operate the detector relay.

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The plaintiff objected to the reception of the oscillograph curves in evidence, on the ground that in so technical and complicated a point as this, the test should have been made only after an invitation had been extended to the plaintiff or its counsel to be present on the occasion of the proposed test. It would of course have been much more satisfactory if such test had been made in the presence of both parties, or in the presence of persons not associated in interest with either party, and on whom the Court could confidently rely for an impartial statement. I do not, however, suggest that those who made the test, the technical engineers of the General Railway Signal Company, and who gave evidence of the test, did in any way misrepresent the manner of making the test or in describing the actual results, in fact they impressed me as being very frank indeed and I have no reason whatever to doubt their evidence. However, I am satisfied that if the defendant's train control system was connected as described in the Schweyer patent, it would be inoperative, and would not give the desired or practical results. And I am also satisfied that the defendant's device, without the forestalling switch, or some corresponding similar arrangement, would not be an acceptable system in practice, and that its utility, from the standpoint of safety would be seriously impaired if this particular piece of apparatus were omitted.

Turning now to another aspect of the case: What is the invention described by Schweyer and what construction is to be placed upon the specification of his patent? If there be invention in Schweyer, it seems to me it is to be found in the whole combination, that is, in the particular arrangement of parts described in the specification and not in any subordinate integer or combination. The specification states that

> the invention resides in the construction and arrangement of parts as hereinafter described and claimed,

and I cannot but think that this statement of the invention when first made was intended to relate to the whole apparatus.

Mr. Biggar, in his submission, stated that the system of train control disclosed in Schweyer was a complete system and that it comprised a number of things: (1) a track armature, (2) a tripping arrangement operated through a receiver which co-operates with the armature on the track,

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(3) an apparatus for cancelling the effect of the tripping action brought about by the armature, and (4) a translating device; and he stated that of these parts really one only was defined in the claims sued upon, and that of the 63 claims in suit and represented by the five claims already mentioned, all were directed to what he called the *tripping mechanism,* because, he stated, the armature on the track was not new, the cancelling features of the arrangement as a whole were not new, but the tripping mechanism was new and it was the tripping mechanism as it occurred in a complete system together with the other features just mentioned, that the claims relied upon were alone directed; and it was those parts he contended that the defendant had taken, and that the action did not relate to other parts comprised in the whole system, and which were not here claimed. Therefore, he argued, we were not to compare the systems as a whole and that the invention infringed was the combination of the tripping mechanism with certain other parts but not the whole of the system. I hope I have not misunderstood the substance of Mr. Biggar's contention.

I visualize the complete system as a train of mechanism all set up and ready to function so as to apply the brakes of the locomotive immediately some lever or trigger in the locomotive is tripped, and as the first mechanical part to function to this end, in both Schweyer's system and that of the defendant's, is the armature of the detector relay, which is associated with the receiver, I think we may assume that this is the part, which when tripped, causes the complete mechanism to function; and that which causes it to trip is the pulse of current which is generated in the secondary coil of the receiver when the receiver passes over the trackway armature in a danger condition on the trackway.

In seeking the true construction of the specification, and in a consideration of the submission of Mr. Biggar which I have just stated, it is of course necessary to refer to the prior art. We find that early inventors sought to develop a mechanical trip, that is to say, some kind of a trigger—to employ the term used by one patentee—attached underneath the locomotive in such a position that when it passed over what I might call a tripping lever located on the trackway, it would be tripped and the brake mechanism

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would function. This line of development was not considered satisfactory and workers in the art accordingly sought more satisfactory means, and soon the principle of magnetic induction was suggested and disclosed and that is the basic idea employed in the systems of both Schweyer and the defendant. Induction is one of the fundamental principles of electricity and it simply means that if the strength of the magnetism or flux in any magnetic yoke be in any way suddenly increased or decreased a pulse or cycle of electric current is induced or created in a coil of wire wound around the yoke. Applied to train control, an electromagnet on the locomotive runs over an iron armature on the trackway and at the moment the passage is actually taking place there is a change in the strength of the magnetism, a pulse or current is induced in the coil, which is intended to operate the detector relay. It is immaterial in so far as the general principle of magnetic induction is concerned whether the magnet is carried on the train or installed on the trackway.

The earliest prior art cited appears to be Wiley (U.S.A.) no. 526,598, filed January 31, 1894, and which shows a magnetic induction system. In this patent the trackway armature is a controllable electromagnet and the train carried receiver is a plain iron yoke equipped with a coil of wire connected to a detector relay, the tripping relay. In danger conditions trackway circuits are closed which cause the armature to become magnetized by a battery on the track, and when the locomotive receiver passes over the armature in this condition, there is produced the desired sudden change in the magnetism and the resulting pulse of current in the coil on the receiver which serves to operate the detector relay. On the other hand, if track conditions are clear, the trackway circuits are interrupted, the armature has no magnetism, and when the locomotive passes over it, there are no changes in the magnetism in the receiver and the detector relay is not affected. The next patent to be mentioned is that of du Chambon (French), applied for on December 3, 1913. The same induction principle is here again described. Du Chambon shows a trackway armature which can similarly be magnetized, and on the locomotive he shows a receiver which consists of an electromagnet energized from a direct current source (a battery) and on

the yoke of this is wound a secondary coil, which, in turn, is connected to the detector relay. The resulting action is similar to Wiley, namely, that when the trackway armature is magnetized under *danger* conditions, a pulse of current is generated in the secondary coil when the locomotive passes over the armature, and causes the relay to function. In Dodgson and Howe (U.S.A.), a patent applied for November 27, 1905, and issued in 1909, the patentees arrive at the same end in a slightly different way. The armature on the track is so mechanically arranged that it is elevated when *danger* conditions exist and it makes use of the principle that the amount of change in the strength of the magnetism in a yoke depends, as I think I have earlier stated, not only on the speed with which the receiver passes the armature, but also on the distance between them when they are in opposition one to another; if this separation is large, the pulse of current induced in a secondary coil would be very weak, whereas if it is only a matter of an inch or so, the pulse would be very much stronger. Under *danger* conditions Dodgson and Howe arrange to elevate mechanically the trackway armature, materially reducing the separation, thereby producing under these conditions a pulse of current strong enough to operate the detector relay as the receiver passes over it. Oler (U.S.A.) no. 1,116,320, applied for on March 1, 1913, shows another variation of the same principle. Having considered the principle of magnetic induction we will now consider other pertinent factors.

It is to be kept in mind that the pulse of current generated in a secondary coil is only momentary, and while it is sufficient to trip the armature of the relay, arrangements must be provided whereby this armature remains tripped, otherwise the brakes would only apply for an instant. Wiley, Oler, and du Chambon, show connections which meet this end, but this in turn demands some reset means to restore the original arrangement of the mechanism, otherwise it would not be ready to take another signal at the next semaphore position. This requirement in the three instances of the prior art just mentioned, was met by means of a push button arrangement or switch. A simple switch, however, had not proven acceptable in practice, since an engineer could render the whole safety system use-

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less merely by keeping his switch closed. Another important factor was that of reliability. In Wiley and du Chambon, for example, the entire mechanism on the locomotive is dead until the pulse of current from the receiver operates the detector relay, and accordingly should any defect develop in this system whereby it would not function when the pulse of current became present, the engineer would receive no signal, the brakes would not apply, and an accident might readily occur. To overcome this, there was developed what is known as the *closed circuit* principle, in which the whole system is normally energized, and is de-energized to apply the brakes, that is to say, if a defect occurred in the wiring or mechanism, the system would become de-energized and the brakes would apply; in this way the possibility of receiving a false *clear* signal would be largely minimized. The closed circuit principle is disclosed in Dodgson and Howe, and in Oler. In the former, the electromagnet which controls the train brakes is normally energized and applies the brakes when it is de-energized through the opening of its electrical circuit by the armature of the detector relay, while in Oler, both the detector relay and the brake actuated mechanism are normally energized, and the effect of the pulse of current from the receiver is to de-energize the detector relay, thereby causing its armature to drop and open the controlling contact of the electromagnet controlling the braking mechanism. Incidentally, a second contact opens the detector relay's own circuit; this type of relay is referred to as a stick relay, that is one which controls its own circuit. Therefore, it seems to me, the idea or principle of a closed circuit tripping arrangement had been anticipated. I do not think there could ordinarily be invention in doing this in any particular way.

In the light of this discussion we will again examine Schweyer. The trackway armature arrangements are not in question and we will therefore confine our attention to the arrangements on the locomotive. In Schweyer the receiver on the locomotive is an electromagnet energized from a direct current source carried on the locomotive. On the yoke of this electromagnet is wound a secondary coil which is connected through a battery to the windings of a detector stick relay. The detector relay in turn controls a

translating switch, which in turn functions to complete the circuits of two side receivers energized by an alternating current, and these in turn function to operate the brakes when they pass over their associated side armatures on the trackway. The connections are made to give a closed circuit arrangement, that is to say, the complete system is normally energized. It would therefore appear that Schweyer uses the general principle of magnetic induction to transfer the signal from the trackway to the locomotive, a principle admittedly old in the art. His receiver consists of a locomotive carried electromagnet energized from a direct current source which is disclosed in Dodgson and Howe, and a secondary coil which is disclosed in du Chambon, and he uses a closed circuit arrangement of connections, including a stick relay which was disclosed in Oler.

The automatic communication of signals from a semaphore to a locomotive by the principle of magnetic induction was not a new idea or principle in 1916, and there was no novelty in the parts to be employed such as inductive devices, relays, electrical circuits, etc.; all this was known and had been broadly described in the prior art, and I should say was well known to workers in the particular art in question. It was unlikely that devices of this general nature would, when in principle known, come at once into actual use because it is probable that until comparatively recent years railways were not receptive, on many grounds, to the idea of installing such devices, and therefore it is difficult to say how practical they were, or how much or how little was necessary in the way of detail improvement to produce a perfectly satisfactory train control system; probably these improvements would readily be made by any one working in the art and possessing a knowledge of the underlying principles, and with the opportunity of carrying out actual tests on a railway. What I have in mind particularly to say is, that the failure of adoption by railways of train control systems in the early stages of the art is not of importance in a consideration of the prior art. I think it is correct to say that prior to 1916 the idea or principle of communicating signals from track to locomotive by magnetic induction and the use of electromagnets with primary and secondary windings and through that the operation of relays which would influence contacts, was well known. The particular tripping arrangements of Schweyer,

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employing a closed circuit, was not new, because Oler had described the same arrangement. In 1916—and I am assuming that to be the date of Schweyer's alleged invention—the field was not open, in my opinion, to any great invention or discovery in the matter of automatic train control systems. Therefore whatever degree of invention is to be accorded to Schweyer, it cannot be said that he unfolded any new principle in connection with automatic train control systems, nor can I see invention in any of the elements or integers or subordinate combinations, which go to make up his whole system. Both Schweyer and the defendant's train control systems start with the well known principle of magnetic induction, and then each employs virtually the same mechanism—disregarding for the moment Schweyer's differential connection—to de-energize the detector relay which was known prior to 1916, and from that on they seem to substantially diverge as I have already pointed out in the means and their arrangement, before they arrive at the electromagnet which controls the brakes. The most, I think, that can be attributed to Schweyer in the way of invention is that he disclosed a particular arrangement of known co-operating parts, to achieve certain ends in a certain way, and probably that was all that was open to any worker in the art to do.

Therefore, I think, that all that can be claimed by Schweyer is the precise train control mechanism or combination described in his specification and that, I think, is the true construction of the specification. The next question then to determine is whether the defendant's system infringes Schweyer. I have described the arrangement or construction of each, and I have pointed out wherein they differ in construction, arrangement, and operating results, and it appears to me that the two systems of train control, considering each as a whole, represent different conceptions in the arrangement of means and in the precise ends to be obtained, and they are, I think, in this respect quite substantially distinguishable. They are, I think, both based upon principles and means that were known to the prior art, and if that be correct, no one should be precluded from attaining a known object, in a particular way, provided it was not, in patent law, the equivalent of another known way. There is one fundamental difference in the defendant's train control system and that of Schweyer,

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which, I think, I have already suggested. The defendant has developed a system of train control whereby the locomotive engineer will always be in control of his train, but should he become negligent and fail to properly operate the forestalling switch when his train passes a signal set at either caution or danger, or should he be unable from some untoward cause to perform his duties, then the train would automatically be brought to a stop, and it could not be re-started until the re-set switch, which can only be worked from the ground with the train at rest, was operated. Schweyer contemplates a system of train control which, irrespective of what the engineer may do, will under caution conditions reduce the speed of the train to some predetermined number of miles per hour, and in a danger condition bring the train to a stop. Schweyer contemplates, I might further add, the use of opposing polarities in the receiver, and this is set out in the patent thus:

> A still further object is the provision in such an apparatus of a novel differential induction responsive device for controlling the vehicle equipment or translating means and controlled by suitable inductive devices on the track or adjacent to the path of movement of the responsive device.

A difference of opinion prevailed between counsel throughout the trial, in regard to the meaning of the word *differential*. So far as I have been able to ascertain it is a term occasionally used in electrical practice, for example, a *differential* winding in an electric generator is described as a method of connecting the field coils of the generator so that these magnetic fields oppose one another, and I think that Schweyer's system must be limited to a receiver connected in this manner. The defendant on the other hand uses a winding that is the reverse of Schweyer, a cumulative one. In the one case the magnetisms are in opposition to one another, in the other the magnetisms are cumulative. Therefore if the defendant's receiver was connected in the manner described in Schweyer, which point I have already discussed, and would not function—and I have expressed the opinion that it would not—that, if I am correct, conclusively corroborates the view that the two systems or arrangements are substantially and vitally different, and that one is not the mechanical equivalent of the other, and that there is no infringement. On the issue of the infringement it is therefore my opinion, for the foregoing reasons, that the plaintiff must fail.

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Now here, in the circumstances, I might stop, but I have had very elaborate arguments from counsel on both sides on other points chiefly involving the interpretation of certain provisions of the Patent Act,—and most of these points are quite difficult—and I think in fairness to counsel, and by way of precaution in case I am wrong in the conclusion I have reached and expressed upon the main issue, and as an appeal from this judgment is more than probable, I ought to discuss these several points and express my views concerning them.

One point raised by the defence was this: It was urged that Schweyer had abandoned his invention, at least I so understood it, by reason of the fact that he delayed six years in proceeding in the United States Patent Office with that portion of his divided application of 1916 which related to his automatic train control system, and that his Canadian application was not made until seven years after the date of his alleged invention; it will be remembered that Schweyer's United States application of 1922 was not treated as a divisional application by the Patent Office there, but rather as a fresh application. This contention does not appear to be founded on any provision of our Patent Act. Subject to possible exceptions, I know of no penalty against mere dilatoriness on the part of a first inventor in applying for a patent in this country. There is apparently warrant for the doctrine of abandonment in the United States, because there the Patent Act provides that a patent for invention may be refused if abandonment is proven. There is not, in our statute, any authority for such a doctrine, although some similar doctrine may be found within the common law. It is conceivable that in a state of facts pointing to unexplained delays by an alleged inventor in applying for a patent, associated with other facts, certain inferences might be drawn, for example, that the alleged inventor had not consummated his alleged invention at the alleged date, but I hesitate to so hold upon the facts here before me, although there may be some grounds for such an inference. Whether or not there has been abandonment by an inventor could only be inferred from such conduct as clearly denotes the voluntary surrender to the public of his rights in some form or other. The facts revealed here would not indicate an intention on the part of Schweyer to dedicate his alleged invention

to the public, nor is there any indication of abandonment by publication, public use, or sale. In Canada, the first inventor could, at the time material here at least, successfully apply for a patent many years after his invention if he establishes priority of invention, regardless of the fact that independent inventors had earlier applied for a patent of the same invention, if in the intervening period he had not in some way given it to the public. Patent Rule no. 10 provides that an applicant shall proceed with his application with due diligence and upon his failure to proceed with the same within one year after the date of the acknowledgment of the filing of his application the same shall be held to be abandoned unless the Commissioner is satisfied that the cause of the delay was not the fault of the applicant. If that rule is a valid one, its only effect in Canada would be that the inventor could not obtain letters patent for his alleged invention and consequently could not commence infringement proceedings, but if he was the first inventor he could successfully resist infringement proceedings brought against him by another patentee of the same invention. The question of the abandonment of an application for patent does not arise here. In fact Schweyer did not abandon his Canadian application for a patent, and we are not concerned with what occurred elsewhere. An abandonment of an application is one thing and an abandonment of an invention is another thing. The rule does not prescribe that an inventor must file his application promptly upon making his invention, nor does the Patent Act require this. In the circumstances therefore I am of the opinion that whatever it was that Schweyer invented in 1916, if anything, he had not abandoned it in so far as Canada was concerned.

Then, I understood Mr. Scott to contend that because Schweyer's described train control system had not so far gone into use upon any line of railway, that this afforded evidence adverse as to its utility. In my opinion such a contention, standing by itself, is without substance and is fundamentally unsound. We might assume that Schweyer had a very satisfactory train control system, but it would require a demand from some railway company before it could be put into actual use, and as Mr. Biggar suggested, it would be absurd to expect that Schweyer, or the plaintiff, should build a railway, in order that he or it might install

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the automatic train control device described by Schweyer in his patent to demonstrate its utility. Inventions of the character here involved, as I have already suggested, are not easily marketed with railway companies until public opinion or some public authority compel their adoption. In any event non-user of a patented invention is not fatal to a patent. It would appear contrary to principle and common sense if such should be the case. Non-user by the public of a patented article, might be corroborative of other evidence pointing strongly to lack of utility, but that is not, I think, quite this case. The Patent Act makes provision for the compulsory licensing of a patented invention if the patentee does not meet the public demands for the thing patented, but it does not require that potential users must use the invention.

Another ground of attack against Schweyer is that it was invalid because it was described in certain printed publications more than two years prior to the date of the filing of Schweyer's application for a patent in Canada, and this involves the rather novel question as to what was the true filing date of Schweyer's application in Canada. Both Mr. Scott and Mr. Biggar were in agreement that this point was only of force if it was the Patent Act of 1923, which came into force on the 1st day of September of that year, that was applicable to Schweyer's application, and not the Patent Act of 1906, which expired on the previous day, August 31, 1923, which happened to be the day on which Schweyer filed his petition for the patent in question. Schweyer's petition as already stated was accompanied by a specification describing the invention, the oath and the prescribed fee but no drawings accompanied the application; a letter accompanying the application stated that the drawings would follow, and in fact they did in the course of a week or so. In the state of facts obtaining, the oath was not quite in the prescribed form but it is hardly necessary to state just in what respect it was defective.

Sec. 7 (1) of the Patent Act of 1923 provides that

> any person who has invented any new and useful art, process, machine manufacture . . . not known or used by others before his invention thereof and not patented or described in any printed publication in this or any foreign country more than two years prior to his application . . . may, on petition to that effect . . . obtain a patent granting to such person an exclusive property in such invention.

The corresponding provision of the Patent Act of 1906 makes no mention of the description of an invention being published in this or any other country, or for any period, prior to the application. It therefore will be seen that sec. 7 of the Act of 1923 provides that if an invention is patented, or described in any printed publication in any country, more than two years prior to an application for patent therefor, that constitutes a bar to the granting of a patent, while sec. 7 of the Act of 1906 is silent upon the matter of the publication of a description of an alleged invention prior to an application for patent therefor. I perhaps should state that sec. 17 of the Act of 1906 provided that the Commissioner might object to grant a patent in any one of six enumerated cases, one of which reads thus:

When it appears to him that the invention has been described in a book or other printed publication before the date of the application, or is otherwise in the possession of the public.

Mr. Scott and Mr. Biggar were in agreement that if the Commissioner did not exercise his discretion to refuse a patent under this provision of the Act of 1906, from which there was an appeal to this Court had he refused, that this provision could not be invoked in an infringement action later brought under the patent when issued, and that this provision was not to be read as qualifying sec. 7 of the Act; if sec. 17 (*d*) of the Act of 1906 were to be otherwise construed, I must say, it would appear to qualify seriously the effect of sec. 7 of that Act as construed by the Courts; it would mean that the first inventor would lose his right to a patent if a subsequent and independent inventor described the same invention in a printed publication at any time prior to the application of the first inventor for a patent, which is the rule in England and I think in most other countries. Sec. 17 of the Act of 1906 does not appear in the Act of 1923; however in view of the agreement of counsel as to the effect of sec. 17 (*d*) of the Act of 1906 I do not intend to express any definite opinion as to its interpretation or effect. It affords at least some room for argument.

It would probably be a serious matter for Schweyer if it is the Patent Act of 1923, and not that of 1906, that governs his application, and that depends upon what was the true filing date of his application. The question then falls for decision as to what filing date is to be given to the application of Schweyer. The Patent Act of 1906 required that

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before a patent could be obtained the inventor must make an oath to the effect that he believed himself to be the inventor of the invention for which a patent was asked, and the specification must correctly and fully describe the invention. In the case of a machine, or in any other case in which the invention admitted of illustration by means of drawings, the Act required that the applicant *shall also with his application,* send in drawings in duplicate, showing clearly all parts of the invention, but the Commissioner might dispense with any drawings if he saw fit to do so. Schweyer's application was undoubtedly prepared with reference to a definite drawing and it contains scores of numeral references to that drawing, and obviously that drawing was intended to form a part of the descriptive portion of the specification. It is arguable that the invention described in the specification, without the drawings, would not be intelligible even to those skilled in the art, and it is also arguable that a patent granted on that specification unaccompanied by the drawings would be void for insufficiency of description. It may appear rather strange that the Patent Office should have given to the application the filing date of August 31. The natural course to follow, one would think, would be to inform the applicant or his agent that no further action would be taken in respect of the application until the drawings were received. Patent Office Rule no. 25, in force on September 11, 1923, states that applications for patents unaccompanied by the fee, petition, oath and specification provided by law will receive no recognition and shall not be filed or numbered and shall be "pigeon holed," but prior to that date the corresponding rule merely stated that applications unaccompanied by the fee would not receive recognition. In the work of Fisher and Smart on Patent Law, there appears as an appendix bearing the date of 1913, a publication concerning Canadian Patent Office Practice, and it contains what is said to be definitions for guidance in preparing and presenting applications relating to patents, and this publication was no doubt circulated in its time; it purports to have been published by a senior officer then in the Patent Office, and in fact his name appears in the record concerning the patent in suit. One paragraph of this publication relates to the date to be given to applications for patent and it reads thus:

Under the present practice of the Patent Office, the filing of the Petition, Oath and Power of Attorney (if an attorney is employed) together with the statutory fee, payable at par, at Ottawa, will ensure for the applicant a filing date as of the day they are received at the Patent Office. The specification and drawings to follow with as little delay as possible; but no reference to the Examiner will be made until the application is complete in every particular.

That means that a filing date would be given applications merely upon receipt of the petition accompanied by the oath, a power of attorney and the statutory fee. Such a practice, if it prevailed at the material time here, would be without authority and contrary to the statute; however this case is somewhat different because the application was complete with the possible exception of the drawings. While it seems to me that the practice of giving a filing date to an obviously incomplete application is inherently an objectionable one, yet there may be reasons to the contrary which do not at the moment come to me. However, in this case, the Patent Office did give the filing date mentioned to the application in question, and in due course a patent issued, as many others may have done in similar circumstances. I do not think I can now go back and alter the record and hold that the true filing date was a week later, when the drawings were supplied. I am not prepared to hold that the specification was so incomplete that it was no specification at all, and that Schweyer should not have been given the filing date of August 31. There was filed a specification which may have amply described and disclosed the alleged invention to those skilled in that art, and it may well be that the delayed drawings, which would soon follow, would merely clarify and elaborate the specification. The Commissioner having exercised a discretion, and having granted a patent for the statutory period, and apparently under the Patent Act of 1906, I am not convinced that I should now hold that the filing date given to Schweyer should now be changed to another date and thus render the application subject to certain provisions of the Patent Act of 1906. In respect of the inaccuracy in the affidavit accompanying the petition, I am not disposed to attach much importance to that. The affidavit was amended, because it was defective, and I think that was permissible. The statute is also open to the interpretation that the oath may be filed at any time prior to the granting of the patent.

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It was contended also on behalf of the defendant that even if Schweyer was properly entitled to the filing date of August 31, 1923, yet his application had to be dealt with under the provisions of the Patent Act of 1923 which came into effect on the day following. Sec. 66 of the Act of 1923 repealed the Act of 1906, and certain amending statutes, but it provided,

> that any patent issued prior to the passing of this Act which could successfully have been impeached for violation or non-compliance with any provision of the Acts heretofore in force may with like effect be so impeached after the passing of this Act, and in any action for the infringement of any such patent any such violation or non-compliance which could have been set up as a defence may with like effect be so set up after the passing of this Act.

Then sec. 67 provides that

> no relief, right or privilege granted to or acquired by any patentee or other person in respect of any patent or application for the same under chapter forty-four of the statutes of 1921 shall be affected by the repeal of said Act but such relief, right or privilege shall continue as if said Act had remained in force.

The importance of these two sections is that they reveal an intention to preserve certain rights and remedies in respect of certain issued patents, and applications for patents, notwithstanding the repeal of the Act of 1906. Then sec. 68 (1) provides that on the coming into force of the Act of 1923, patents issued prior thereto under the Act of 1906 should become subject to the provisions of the Act of 1923, but nothing in that Act was to be construed as reviving or restoring any patent that was void when that Act came into force nor to avoid any patent that was valid at such time. It appears to me that the making of patents issued under the Act of 1906 subject to the provisions of the Act of 1923 is hardly relevant to the point under discussion because here the question is what was the true date of the application, and what Act is applicable to the application, and this is distinguishable from the question as to what Patent Act shall apply to the patent itself when issued and not before. Mr. Biggar argued that the repeal of the Act of 1906 did not affect any right or privilege which that statute gave Schweyer on the date of his application for a patent; he argued that the receipt of an application one day before the repeal of the Act would be in no different position from one that had been in the Patent Office years before the repeal of the Act of 1906, and he relies on sec. 19 of the Interpreta-

tion Act to sustain that contention. That section in part provides that

> where any Act or enactment is repealed or where any regulation is revoked, then, unless the contrary intention appears, such repeal or revocation shall not, save as in this section otherwise provided, (*b*) affect the previous operation of any Act, enactment or regulation so repealed or revoked, or anything duly done or suffered thereunder, or (*c*) affect any right, privilege, obligation or liability acquired, accrued, accruing or incurred under the Act, enactment or regulation so repealed or revoked.

If the application of Schweyer was properly given the filing date of August 31st, then he had acquired a right or privilege equally as secure as if it had been received one year prior to the repeal, and, I think, it could hardly be said that in such circumstances the application would not be governed by the Act of 1906. I do not think that it appears from the Act of 1923 that there was an intention to affect the operation of the Act of 1906 in respect of applications for patent made under that Act or to affect any right or privilege acquired by an applicant for a patent under that Act.

Another point raised on behalf of the defendant is that in any event its use of its train control system is protected by sec. 50 of the Patent Act. That section is as follows:

> Every person who, before the issuing of a patent has purchased, constructed or acquired any invention for which a patent is afterwards obtained under this Act, shall have the right of using and vending to others the specific article, machine, manufacture or composition of matter patented and so purchased, constructed or acquired before the issue of the patent therefor, without being liable to the patentee or his legal representatives for so doing; but the patent shall not, as regards other persons, be held invalid by reason of such purchase, construction or acquisition or use of the invention, by the person first aforesaid or by those to whom he has sold the same, unless the same was purchased, constructed, acquired or used for a longer period than two years before the application for a patent therefor, thereby making the invention one which has become public and in public use.

I think the evidence shows that the defendant's train control system was installed in the latter part of 1930, or early in 1931, on the Michigan Central Railroad, in Canada. That, I think, has been satisfactorily established. I cannot construe sec. 50 of the Patent Act to mean what Mr. Scott contended it does mean. The section is confusing and its meaning should be clarified. This statutory provision appeared in Chap. 34 of the Statutes of Canada for 1859, and also in Chap. 24 of the Statutes of Canada for 1848-9; which statutes related to patents, and the meaning and purpose of the provision was, I think, more clearly expressed

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in those statutes than in sec. 50 of the Patent Act. It seems to me that section means and was intended to mean, that if a person has acquired in some way or other, something which was the subject of an application for a patent by another who is presumably the first inventor, but for which a patent had not yet issued, he, the former, shall have a continuing right to use and vend the same notwithstanding the issue of the patent to the other person. That is the only interpretation I can put upon the section. Now the patent to Schweyer issued in 1929, which was prior to the date of the installation of the defendant's train control system in Canada, and that is the date, I think, that must be looked to and not the date of the reissue patent, in a consideration of sec. 50. Sec. 50 of the Patent Act is not therefore, in my opinion, applicable to this case, and does not constitute a ground of defence available to the defendant.

Finally, the defendant contends that the reissue patent here in suit is void chiefly because of the addition of new claims which were not mentioned in the surrendered patent, the omission of which in the surrendered patent could not be attributable to inadvertence, accident or mistake; the grounds of attack on this point are those usually mentioned whenever the validity of a reissue patent is put in issue. The statute states that whenever any patent is deemed defective or inoperative by reason of insufficient description or specification, or by reason of the patentee claiming more or less than he had a right to claim as new, and it appears that the error arose from inadvertence, accident or mistake, without any fraudulent or deceptive intention, the Commissioner may, upon surrender of the old patent cause a new patent to issue in accordance with an amended description and specification. The description of the invention in the surrendered patent, and in the reissued patent, so far as I can see, are the same. If the Patent Office grants a reissue patent, after its examiners have passed upon the application, it becomes extremely difficult for a Court,—without the assistance of evidence—except in the most brazen infractions of this particular provision of the Patent Act, to say that the reissue patent is void upon the grounds alleged here. It would, I think, be possible to devise some more satisfactory way of amending patents than that now prescribed by the Patent Act. That there

should be an opportunity for a patentee to amend his patent goes without saying, but, I think, it should be upon an application duly advertised, so that others interested might have an opportunity of contesting the application if thought necessary, or some similar procedure, so that the step of amending a published patent should be regarded as something serious and not a mere routine affair. My view in this particular case is that the reissue patent cannot be disturbed. I cannot say upon the evidence that there was not inadvertence, accident, or mistake, in the preparation of the original specification, or that there was any fraudulent or deceptive intention on the part of Schweyer in applying for a reissue of his patent, particularly upon the ground of his not having claimed all that he thought he had a right to claim; the only departure in the reissue patent from the surrendered patent entirely relates to the claims. The claims in the reissue patent have been greatly extended in numbers, but the additional claims are substantially, in my opinion, in the surrendered patent; they have been merely repeated in other forms, and I should doubt if the new claims have upon any true construction of the specification gone further than the old claims. Even though some of the claims were bad on the ground of envisaging something that was old, or something that was not within the ambit of the described invention, I should doubt if that would invalidate the reissue patent, and it is the patent itself, and not any of its claims, that is said to be void.

In the result therefore it is my opinion that the plaintiff must fail with the usual consequence as to costs.

Judgment accordingly.