

BETWEEN:

1940
Sept. 5 & 6.
1941
March 1.

MERCO NORDSTROM VALVE COM-
PANY AND PEACOCK BROTHERS } PLAINTIFFS;
LIMITED

AND

J. F. COMER.....DEFENDANT.

Patent—Infringement action—Common knowledge—Old principle—Invention—Subject-matter—Combination patent.—Necessity of claiming invention for subordinate parts as well as for the whole.

The action is one for infringement of Patent No. 270,557 granted to the plaintiff, Merco Nordstrom Valve Company as assignee of Sven Johan Nordstrom, the inventor. Peacock Brothers Limited, is the licensee of Nordstrom Valve Company under the patent. The invention claimed in the patent relates to an improvement in valves, and more particularly to an improvement in plug valves of the type in which lubrication of the bearing or seating surfaces of the valve is effected by forcing lubricant under pressure into the contact point between the plug and the valve seat in the casing.

The Court found that the common knowledge of the art at the date of the letters patent here in issue was such that the invention relied on could not be said to disclose any new principle or method of attaining a new result.

Held: That in order for a patentee to claim for a combination and any part or parts of it separately, he must set forth clearly his claim for invention for the subordinate integers entering into the whole.

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2. That the plaintiff must be limited by his claims to the precise mechanism described, and there can be no infringement since the defendant's combination and parts are distinguishable in essential particulars from those of the plaintiff and constitute a different method of attaining an old object or result.
3. That every subordinate integer in plaintiff's combination was well known or was obvious, as was the function to be performed by them separately or in combination, and that there was no invention in combining them together.

ACTION by plaintiffs herein to have it declared that patent No. 270,557 owned by them is valid and has been infringed by the defendant.

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

R. S. Smart, K.C. for plaintiffs.

E. G. Gowling for defendant.

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

THE PRESIDENT, now (March 1, 1941) delivered the following judgment:

This is an action for infringement of a patent, numbered 270,557, granted in May, 1927, to the plaintiff Merco Nordstrom Valve Company, the assignee of Sven Johan Nordstrom, the inventor, the application therefor having been filed in August, 1926. The plaintiff Peacock Brothers Ltd. is the licensee of the plaintiff Nordstrom Valve Company under the said patent. Two other patents were sued upon at the same time but action upon those patents was later abandoned. It will be convenient at times to refer to the patent in suit as "Nordstrom," and to the infringing article as "Milliken."

The invention in question relates to an improvement in valves, and more particularly to an improvement in plug valves of the type in which lubrication of the bearing or seating surfaces of the valve is effected by forcing lubricant under pressure into the contact joint between the plug and the valve seat in the casing.

The specification states that:

The pressure lubrication principle as applied to plug valves has heretofore been largely restricted to the heavier and more expensively constructed plug valves, but since pressure lubrication assures a properly

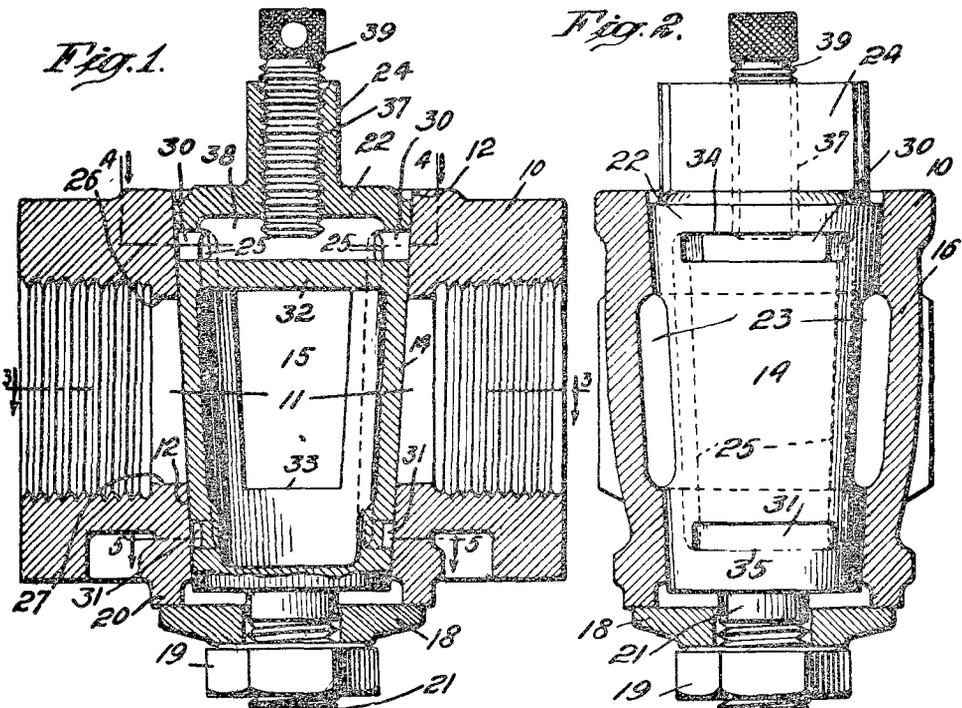
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lubricated and positively non-leakable valve, it has been proposed that this principle be applied to plug valves of the cheapest and lightest construction, such as are used for gas and similar service. One of the requirements of this kind of service is that the valve be absolutely non-leakable. To prevent the valve from leaking it has been necessary to lap or grind carefully the bearing or seating surfaces between the plug and its seat. Thus, of course, adds to the cost of the valve.

The objects of the invention are stated in the specification to be the following:

One object of the present invention is to incorporate the pressure lubrication principle in plug valves of the very cheapest and lightest construction so that these valves may be manufactured even more cheaply than heretofore and yet be properly lubricated and positively non-leakable. Another object of the invention is to arrange the lubrication system of the valve in such manner that the plug may be turned completely round, that is, through an angle of 360°, without exposing the lubricant under pressure to the fluid passing through the valve. A more specific object of the invention is to provide a plug valve of this type with a system of lubricating grooves of such arrangement that when the plug is in closed position the grooves on each side of the passageway through the valve seat co-operate to constitute a continuous groove which may be filled with lubricant under pressure to positively prevent leakage past the plug. To the accomplishment of these objects the invention consists in the improved plug valve more fully described hereinafter and particularly pointed out in the appended claims.

The specification describes the invention in considerable detail and as I propose to recite fully that description as it appears in the specification it will assist in understanding the same if Figs. 1 and 2 of the drawings be reproduced, and they are as shown hereunder.



The patentee described the construction and operation of his invention in the manner following:

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The improved valve as illustrated in the drawings comprises a body part or casing 10 having a longitudinal passageway 11 therethrough and a tapered valve seat 12 formed transversely of the passageway 11. Seated in the tapered valve seat 12 is a tapered plug 14 having a hole 15 adapted to register with the passageway 11 when the valve is open, as shown in Fig. 3. These parts are formed as usual, but it will be observed from a consideration of the figures that the plug and the casing are of the lightest and cheapest construction. The side walls 16 of the casing are made as thin as practicable, and the plug 14 is hollowed out leaving only the relatively thin concentric walls 17 in its middle part. The longitudinal recesses 23 in the valve seat 12 facilitate reaming the valve seat and so reduce the cost of manufacture. The parts are formed in this manner by casting.

The tapered valve seat 12 extends entirely through the casing 10. The plug 14 is held in the valve seat by means of a collar 18 and a nut 19. The collar 18 bears against a circumferential flange 20 formed on one side of the casing and the nut 19 is threaded onto a stem 21 projecting from the smaller end of the plug. The larger end 22 of the plug closes the larger end of the tapered opening through the casing. Projecting outwardly from the larger end of the plug is a valve stem 24 flattened to accommodate a wrench by which the plug may be manipulated to open and close the valve. It will be observed that this arrangement of parts and the means for holding the plug against its seat is of the simplest, and is correspondingly cheap to produce. Usually the plug 14 is lapped or ground into its seat in order to make a tight joint between them. According to the present invention the necessity for making a tight joint by protracted lapping or grinding is eliminated, since by means of the present invention the joint between the plug 14 and the valve seat 12 is lubricated under pressure and any irregularities in the seating or bearing surfaces of these parts are filled with lubricant and a tight joint thereby established. Moreover, according to one of the features of the invention, when the plug is in closed position a seal of lubricant is established completely surrounding the passageway through the casing, thereby positively preventing any leakage from one side of the line into the other.

The means provided by the present invention for lubricating the contact joint between the plug and the valve seat and for positively sealing this joint and the passageway through the casing, when the plug is turned to closed position, as shown in Fig. 1, comprises a plurality of longitudinally arranged lubricating grooves 25 formed longitudinally in the bearing surface of the valve seat 12. These grooves are V-shaped in cross section and are preferably cast in the casing to save the cost of machining. In the illustrated embodiment of the improved valve there are four longitudinal grooves 25 spaced substantially 90° apart. Each groove is located adjacent to one of the lateral sides of the passageway 11 through the valve seat. The upper and lower ends of the grooves 25 extend above and below the upper side 26 and the lower side 27, respectively, of the passageway 11. (The use of the terms "upper" and "lower" with respect to various parts of the valve is understood to be relative only and refers to the position of the valve as shown in the drawings) Formed in the bearing surface of the upper or larger end of the plug and on opposite sides thereof are two transverse lubricating grooves 30, each groove being substantially 90° in length.

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It will be observed by reference to Figs. 1 and 2 that the grooves 30 are located above the plane passing through the upper edge 32 of the hole 15 and that the lower grooves 31 are located below the plane passing through the lower edge 33 of the hole 15. The upper edges 34 of the grooves 30 are substantially in the same plane as the upper ends of the longitudinal grooves 25, and the lower edges 35 of the grooves 31 are substantially in the same plane as the lower ends of the longitudinal grooves 25, as clearly shown in Figs. 1 and 2. The two sets of grooves 30 and 31 are cast in the plug 14 to save the cost of machining.

By means of this arrangement of lubricating grooves the novel mode of operation and the advantages of the improved valve are attained. It is possible to turn the plug through an angle of 360° without exposing a groove or grooves in which there is lubricant under pressure to the fluid passing through the line. It is possible to seal the passageway through the casing by surrounding the passageway with continuous grooves filled with lubricant under pressure when the plug is in closed position. And it is not necessary to accurately lap or grind in the contact joint between the plug and the valve seat because the travel of the plug past the longitudinal grooves 25 causes the plug to take up lubricant and smear it over the valve seat 12, thereby filling the irregularities of the incompletely machined surfaces, with the result that the bearing surfaces are effectively lubricated.

When the valve is closed with the plug turned so that the hole 15 is arranged transversely of the passageway 11 and the side 17 of the plug closes the opening through the valve seat, the two upper transverse grooves 30 span the upper ends of the two pairs of longitudinal grooves 25 and the lower grooves 31 span the lower ends of the longitudinal grooves 25, thus establishing around each end of the opening through the plug and the valve seat a continuous groove adapted to be filled with lubricant under pressure. And on the other hand, when the valve is open with the plug turned so that the hole 15 is in alignment with the passageway 11, the upper transverse grooves 30 span and bring into communication the upper ends of the two grooves 25 on each side of the casing, in Fig. 4, as shown, and the lower transverse grooves 31 span and bring into communication the lower ends of the two grooves 25 on each side of the casing, as clearly indicated in Fig. 5. But in any intermediate position of the plug, the grooves 30 and 31 can be in effective communication with only two diametrically disposed longitudinal grooves 25. The diametrically disposed pairs of longitudinal grooves 25 with which the transverse grooves 30 and 31 are in communication while the plug is in its intermediate positions are never exposed to the fluid passing through the line, because the grooves 30 and 31 are arranged parallelly with the hole 15. The other pair of diametrically disposed grooves 25, the pair with which the grooves 30 and 31 are not in communication, are exposed to the fluid passing through the line. But since these longitudinal grooves are cut off from the transverse grooves at this time, only the small amount of lubricant that is in the exposed grooves can pass into the line or be attacked by the fluid passing through the valve. Thus by the present construction it is possible to stop the plug at any point in its 360° of rotation and put the lubricant in the grooves under pressure without forcing any of the lubricant into the line. And there is no waste of lubricant, except the relatively small amount which may be dissolved or washed out of the exposed grooves.

The means for introducing the lubricant under pressure into the grooves comprises a reservoir consisting of a hole 37 formed axially in the valve stem 24 and cored hole 38 formed transversely in the upper or larger end of the plug 14 and connecting at its outer ends the two opposite

transverse grooves 30, as shown in Fig. 4. The hole 37 in the valve stem 24 is threaded to receive a pressure screw 39 by which the lubricant in the various connected passageways and grooves is put under pressure.

I should perhaps attempt to describe Nordstrom in more general terms, however imperfectly that may be done. Nordstrom comprises a body part, usually referred to as a "casing," having a longitudinal opening running through it and a tapered plug seat which extends entirely through the casing and formed transversely of the opening, and wherein is seated a tapered plug. The plug has also an opening running through it adapted to register with the opening in the casing. The assembled valve, which is called a plug valve, is adapted for pipe lines conveying liquids such as gas or oil, or as the case may be, and when the valve is open and a liquid is being conveyed through the pipe line it will pass through the openings in the casing and plug, which are then in alignment, to its intended destination. By rotating the plug the opening therein is put out of alignment with the opening in the casing and the valve is then said to be closed and the flow of liquid ceases. In Nordstrom the plug may be turned completely around in its seat, that is, through an angle of 360°. In such a valve it is necessary to lubricate the bearing surfaces between the plug and its seat in order to avoid rust and so that the plug will revolve easily in its seat, and at the same time it is desirable that these bearing surfaces be exposed as little as possible to the fluid passing through the valve. This was accomplished prior to Nordstrom by the use of certain communicating grooves or recesses formed in the plug and plug seat, or in the plug only, into and through which a lubricant might move under pressure from a pocket or chamber provided in one end of the plug, usually, and first, into circumferential or transverse grooves and from there into vertical grooves, and by rotating the plug the bearing surfaces of the plug and plug seat would be lubricated. A patent had many years back issued to Nordstrom, or his assignee, in which he disclosed the use of two vertical grooves in the plug seat and transverse grooves in the end of the plug nearest to and in communication with the lubricant source, and such a plug valve was for many years commercially produced and marketed. In the construction of the present Nordstrom there are four vertical grooves, 90° apart, in the seat of the casing, and two

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transverse grooves each 90° in length, and opposite one another, in both the top and lower ends of the plug, that is, two transverse grooves, each one-quarter of the circumference of the plug and arranged opposite one another, at both the top and the bottom of the plug. These vertical and transverse grooves are so arranged that when the valve is in closed position the two upper transverse grooves span the upper ends of two pairs of the vertical grooves and the two lower transverse grooves span the lower ends of the two pairs of the vertical grooves, thus establishing a continuous groove surrounding the two openings in the casing and adapted to be filled with lubricant under pressure, that is to say, by rotating the plug a certain pair of the vertical grooves and a certain pair of the transverse grooves are moved into continuous communication with one another, which results in the formation of a continuous groove, a parallelogram in shape, entirely surrounding each of the two opposite openings in the casing, so that they may be filled with lubricant under pressure, and it is only when the grooves are in that connected position that they can all be filled with lubricant under pressure. On the other hand, when the valve is in open position and the openings in the casing and the plug respectively are in alignment for the passage of the fluid, two sets of continuous or connected grooves are similarly formed opposite one another but now they appear between the two openings in the casing, and there appears but one vertical groove on each side of these openings; in that position the upper and lower transverse grooves do not appear around the valve openings because they have been moved to the right and left of the openings to form the intermediate communicating grooves and are thus "cut-off" from the vertical grooves appearing on each side of the valve openings and by reason of this "cut-off" there can be no movement of the lubricant under pressure around the valve openings while a fluid is passing through the same. In that position only two of the vertical grooves are at all exposed to the fluid, and it is claimed that the lubricant in those vertical grooves acts as a barrier against the fluid entering beyond that point or past the plug; and as stated in the Specification of Nordstrom only small amounts of the lubricant in the exposed grooves can pass into the pipe line or be attacked

by the fluid passing through the valve, and this is called a "sealing" of the valve. It is this "sealing" and the arrangement of the "cut-off" when the valve is open that is claimed to be the chief merit in the invention of Nordstrom. The lubricant, I might add, used in plug valves is of a viscous or plastic character, called "hard oil" by some, and it is because it is of this character that it may act as a barrier against the possible flow of fluid between the bearing surfaces of the plug and the plug seat. It is not necessary to describe in further detail the construction of Nordstrom except to mention that as Nordstrom is manufactured and sold two additional grooves are formed in the plug, leading downwardly from the two lower transverse grooves, so that the lubricant may move into a small recess or pocket under the extreme end of the plug, which when filled with lubricant has the effect of elevating the plug somewhat, thus preventing it from sticking or jamming in the bottom of the seat. But the patent itself makes no provision for this particular feature of the valve and it is not there mentioned or described. This is called "jacking" the plug, and it is said by the defendant to be necessary in Nordstrom because a tapered plug within a tapered seat has a tendency to jam—which, I think, is quite true—and apparently this is not so liable to occur in a cylindrical plug valve such as Milliken; this difference in the shape of the plug and plug seat of the rival valves is relied upon by the defendant as one of the grounds for distinguishing them, and in resisting the charge of infringement.

I may now attempt to describe Milliken, the infringing valve. In this case the plug is cylindrical in shape and consequently the valve seat is of the corresponding formation. The means of lubrication consists of four vertical grooves on the plug and at equal distance from one another, and two annular or transverse grooves also on the plug, one of which completely encircles the top of the plug and the other the bottom of the plug. These annular and vertical grooves are connected with one another save that two of the diametrically opposite vertical grooves are incomplete and stop a little short of the bottom annular groove and at the extreme top the same vertical grooves are considerably attenuated, and are called "dwarf" or "scratch" grooves, that is to say, these two vertical grooves

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are much narrower and shallower at the extreme top than elsewhere. It is only the two incomplete grooves that cross the valve openings, in opening or closing the same. As I understand it, the idea of the incomplete groove with the "dwarf" end is to restrict the flow of the lubricant in such grooves because they alone cross the flow of the fluid when the valve is being opened or closed. In Milliken, the plug revolves only 90° when it is checked by stops on the top of the casing and on the stem of the plug. The lubricant is inserted in a well or pocket at the top of the plug and by means of a screw and other means it is compressed outwards into the top annular groove, thence into the vertical grooves and from there into the lower annular groove. The lubricant thus moves under pressure into the annular groove in the top of the plug and from there into the vertical grooves, and thence into the lower annular groove, save as to the two vertical grooves which do not quite reach the lower annular groove, as I have already explained. There are no grooves leading from the bottom annular groove towards the bottom of the plug as in Nordstrom, and there is no "jacking" of the plug. The degree of pressure to be applied upon the lubricant is something to be determined by experience and, it is said, it should be greater, if possible, than the line or fluid pressure. Such are the main structural features of Milliken. It is to be observed particularly that in Milliken the communication between the vertical grooves and the annular grooves, and between the annular grooves and the lubricant supply, are never interrupted in any way by the rotation of the plug. The lubricant grooves being all on the plug alone they could not be made to appear in any other position than that in which they are actually recessed on the plug. Whether the valve is open or closed the grooves appear always in the same form and position, that is to say, the two annular grooves and the vertical grooves are always in continuous communication, except that two of the latter stop a little short of the lower annular groove as I have already explained. It is claimed that there is in Milliken no "cut-off" of the annular grooves from the lubricant supply, or from the vertical grooves, as in Nordstrom.

The main structural and functional differences between Nordstrom and Milliken may more clearly appear if stated in the manner following. In Nordstrom the plug and plug seat are tapered while in Milliken they are cylindrical; in Nordstrom the vertical grooves are located on the plug seat and therefore immovable and the transverse grooves are on the plug and may be moved by rotating the plug, whereas in Milliken all the grooves are recessed on the face of the plug, in fixed relation to one another, and all must move together with the rotation of the plug; in Nordstrom there are two transverse grooves at both the top and the bottom of the plug, each 90° in length, and diametrically opposite one another, while in Milliken the transverse grooves completely encircle the top and bottom of the plug; in Nordstrom, on opening the valve for the passage of the fluid, the transverse grooves are moved by the rotation of the plug and are cut off from communication with the vertical grooves on either side of the openings through the casing, whereas in Milliken all the grooves are in fixed position on the plug, always in communication with one another, and they surround the openings through the casing, and their relation to one another cannot be altered nor can they be cut off from one another on the rotation of the plug, in opening or closing the valve; in Nordstrom there is no lubricant check valve but in Milliken there is means for preventing the backward flow of the lubricant; in Nordstrom the plug turns through an angle of 360° and this, so the Specification states, without exposing the lubricant under pressure to the fluid passing through the valve, while in Milliken the plug, due to the provision of stops at the top of the plug seat and plug stem, revolves only one-quarter of the way round the plug, or 90°, and two of the vertical grooves, the incomplete pair thereon, are more or less exposed to the fluid passing through the valve as they must cross the face of the openings through the casing, both in opening and closing the valve; and finally, it might be mentioned, in Nordstrom as commercially produced there is provision for "jacking" up the plug—though it is not mentioned in the patent—while in Milliken there is no corresponding provision and apparently there is no necessity for it.

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It will be convenient at this stage to refer to the Claims in Question. The Claims 1 to 5 inclusive are sued upon but it will be sufficient to mention the following:

3. A valve comprising, a casing having a passageway therethrough and a tapered valve seat formed transversely of the passageway, a tapered plug seated in the valve seat and having a hole adapted to register with the passageway, longitudinal and transverse grooves in the seating surface of the valve arranged to form when the plug is in its open and closed positions two diametrically opposed closed circuit grooves, a reservoir for containing plastic substance, connections between the reservoir and all the grooves when the plug is in its open and closed positions only, and means for putting the plastic substance under pressure.

4. A valve comprising, a casing having a passageway therethrough and a tapered valve seat formed transversely of the passageway, a tapered plug seated in the valve seat and having a hole adapted to register with the passageway, longitudinal and transverse grooves in the seating surface of the valve arranged to form when the plug is in either its closed or open position two diametrically opposed closed circuit grooves, and means for introducing a plastic substance under pressure into the grooves, the longitudinal grooves being so arranged that they are only supplied with lubricant under pressure when they are not exposed to the fluid passing through the valve, but are cut off from the supply of lubricant under pressure when they are exposed to the fluid passing through the valve.

Two defences only were put forward at the hearing of the action, namely, non-infringement, and, that the patent in question is invalid for want of subject-matter. The defence of non-infringement is based on the proposition that Nordstrom, construed in the light of the common knowledge in the art at the date of the letters patent, is a patent only for the precise mechanism described and claimed, and that the Claims cannot therefore cover mechanical equivalents for the mechanism described. Mr. Gowling particularly stressed the point that Nordstrom is expressly limited by the Specification to a tapered plug and plug seat, as distinguished from the cylindrical construction of the same elements in Milliken, and that this of itself marks such a difference between the construction or combination described and claimed by Nordstrom and that of Milliken as to preclude the plaintiffs from maintaining infringement against the defendant. This view, he urged, was supported not only on a fair construction of the Specification, but on other grounds which I am about to mention. He pointed out that Nordstrom in an earlier United States patent, corresponding to the one here in suit, described and claimed a tapered plug and plug seat but in two reissues of that same patent the plug and plug seat were not restricted to a "tapered" form, that is to

a cylindrical or a tapered plug and plug seat. Further, say, they were so described and claimed as to include either it was pointed out that the assignee of Nordstrom was granted a patent in Canada, subsequent to the one in suit, referable to precisely the same subject-matter, and in that patent the plug and plug seat are described and claimed without limitation as to form or shape, the word "tapered" being eliminated from that Specification. This patent was one of the three originally sued upon in this action, but, as already mentioned, by an amendment to the Statement of Claim, infringement in respect of this patent, and another, was abandoned, and the action for infringement thus became restricted to the patent presently under discussion; it was urged that this indicated that the plaintiffs themselves distinguished the particular combination described and claimed in the patent in suit from that described and claimed in the patent just referred to and upon which action for infringement was abandoned, and that by electing to sue upon the patent in which the invention is limited to that particular combination which comprises a tapered plug and plug seat the plaintiffs are to be limited strictly to the precise combination described, and, it was claimed, that these several circumstances virtually operate as a disclaimer of any Claim for the use of any other form of plug and plug seat, or for mechanical equivalents for the mechanism described. Mr. Gowling urged also that there is no "cut-off" in the arrangement of the lubricating grooves in Milliken, at least in the sense described by Nordstrom, and that this very materially differentiates the two valves in question. On those two grounds particularly it was contended that the rival valves were to be distinguished and that consequently there was no infringement of Nordstrom by the defendant. But it was also urged that the plaintiffs, because of the tapered plug and plug seat in Nordstrom, were obliged to adopt measures for "jacking" the plug, by the means and for the reason I have already mentioned, very shortly after going into the commercial production of Nordstrom, and that this fact should be regarded as evidence of a material and practical distinction between Nordstrom as described and Milliken, and that the adoption of a cylindrical plug and plug seat construction in Milliken was because it afforded a practical improvement over the tapered plug

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and plug seat, and added to its general utility. These were the principal grounds on which it was urged that in any event there was no infringement of the patent in suit by the defendant; other grounds of a similar nature were advanced but I do not think they need be mentioned.

Assuming there to be subject-matter, Nordstrom is not, I think, the kind of invention which consists in the discovery of any new principle, or for a method of attaining a new result the novelty of which is part of the merit of the invention, in which case the claims may be construed to cover mechanical equivalents of the mechanism described. The common knowledge of the art at the date of the letters patent here was such that it would be hardly possible, in my opinion, to say that Nordstrom discloses any new principle or a method of attaining a new result, but in any event, in such a class of invention, the principle or the new result must be definitely stated in the claims, and there is no suggestion of that here. It seems to me that all that is claimed here is the combination of parts as described, and nothing else. There is no claim for invention for any of the subordinate integers entering into the whole, and if a patentee is going to say that the claim is for the combination, and any part or parts of it separately, then it must be made clear that the patentee had this in mind. That does not seem to be the case here as there is no claim for any part or parts of the combination, as well as of the whole. In fact, I do not think such a view was advanced by Mr. Smart, and it would be rather difficult to conceive how a valid claim could in the facts of this case be worded to claim any one part independently of its special position and working in the group of parts constituting the combination. The Claims here are directed to the combination only, and they are only for an improved method of attaining an old object, in which case the use of other methods is not contemplated by the patentee, and the monopoly is limited to the particular mode described, and it is only by making use of the particular mode described by the patentee, or by means substantially the same, will a man be held to have infringed. In connection with the propositions I have just stated, I might refer to *Ridd Milking Machine Co. Ltd. v. Simplex Milking Machine Co. Ltd.* (1); *Ackroyd and Best Ltd. v. Thomas* (2); the judgment of Fletcher-Moulton L.J. in

(1) 1916 33 R.P.C. 309

(2) (1904) 21 R.P.C. 737.

British United Shoe Machinery Co. Ltd. v. Fussell & Sons Ltd. (1); the judgment of Lord Cairns in *Clark v. Adie* (2); *Curtis v. Platt* (3); and Terrell on Patents (4). Therefore, in my opinion, Nordstrom is limited by his claims to the precise mechanism described and he must abide by the result of his limitation, and there can be no infringement unless the defendant has taken the same thing and attains the same result in substantially the same way.

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I have already endeavoured to describe the chief differences in the plug valves of Nordstrom and Milliken respectively. In some cases distinctions between two mechanisms may be quite marked and yet these distinctions may have no significance in determining whether or not there is infringement, and on the other hand, there may be a general resemblance between two mechanisms, and in many of their parts, and yet they may be so distinguishable that one could not be an infringement of the other. The structure and function of a plug valve is such that at the date of the letters patent here in question one would not expect to find any very conspicuous distinctions between any two of such devices. The two major elements in a plug valve, the casing with its plug seat and the plug, must more or less conform to the conventional type because of their very purposes or functions; all systems of lubrication under pressure of the surfaces of the plug and plug seat by means of grooves in the plug seat and plug, or in the plug alone,—which in principle was not novel— must inevitably bear a general resemblance to one another, but that might but point to the narrowness of the field open for invention, if any at all, in the patented plug valve, and that fact would render it all the more necessary to see that the patentee should not extend very largely the interpretation of the particular means which he has adopted for carrying his invention into effect, and that must not be overlooked in an invention such as Nordstrom. I have already pointed out with some particularity the differences between Nordstrom and Milliken, and I do not propose to repeat them. The main distinction between them, I think, lies in the arrangement, operation and functioning, of the lubricating grooves which each adopts. In Nordstrom the vertical grooves are on the plug seat and the transverse grooves

(1) (1908) 25 R.P.C. 631.

(2) (1877) A.C. 315.

(3) (1863) 3 Ch. D. 135.

(4) 7th Ed Chap 7.

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on the plug itself, and their respective positions are so arranged that they may be put into or out of communication with one another manually, by rotating the plug, much like the passageways in the casing and the plug are put into or out of registration. In Milliken the grooves are all on the plug in a fixed relation to one another and being immovable they cannot be put into any different relationship by rotating the plug, and therefore could not be any part of the conception of means or operation disclosed in Nordstrom. It seems to me that this constitutes a material distinction between the two plug valves in respect of the arrangement and functioning of the means of lubrication, and represents a different conception of means for accomplishing particular results. Then, I think, there is no such thing as a "cut-off" in Milliken in the sense disclosed by Nordstrom, in fact the vertical grooves in Milliken cannot possibly be cut off from the annular grooves because they are all recessed on the exterior face of the plug, nor are any of them at any time cut off from the lubricant supply. Moreover, in Milliken two of the vertical grooves, the incomplete ones, must cross the flow of the fluid in opening or closing the valve, and therefore be directly exposed thereto, something which Nordstrom seems to claim to avoid altogether, and he appears to make this the chief merit of his invention. There may be an identity of results produced by the two valves but the distinctions which I have just pointed out, constitute, I think, material differences in important particulars between the rival methods or means for accomplishing this. There are other distinctions in the construction and operation of the two valves, but I have already sufficiently indicated them. I have reached the conclusion that while there is a general resemblance in the two complete combinations and their parts yet they are distinguishable in essential particulars and constitute different methods of attaining an old object or result. I am of the opinion, therefore, that there is no infringement of Nordstrom by Milliken and that the latter has not taken the particular means described and claimed by the former.

Having found that there is no infringement I might here rest, but upon reflection I have concluded that the case is one in which I should proceed further and express my opinion upon the other point in the case, the validity

of Nordstrom, and this, I think, I may do in fairly brief terms. I may begin by saying that there is nothing novel in the application of the lubrication pressure principle to plug valves, in some form or other, and which is said to assure a properly lubricated and positively sealed or non-leakable valve. This would appear to be conceded in an early paragraph of the Specification of Nordstrom. It is next to be pointed out that in 1925 Nordstrom was granted a patent in Canada, No. 248,356, the object of the invention therein described being the production of a valve that was tight and non-leakable, and to this end Nordstrom proposed that the seating surface of the valve, or the plug, or both, be provided with a groove or grooves encircling the passageway through the valve and adapted to be filled with an insoluble sealing substance, such as a viscous lubricating grease, from a reservoir located in the valve structure. Nordstrom, in his evidence in the present case, stated that the valve described in that patent disclosed a continuous lubricant channel or groove completely encircling the passageway through the valve, which he called a "seal," so that the encircling channel or groove, when filled under pressure with an insoluble lubricant substance, prevented leakage past the seal when the valve was closed; and he also stated that the only difference between the valve structure disclosed in that patent and the one in suit was that the latter had the "cut-off" means which the former did not have. So, therefore, it would appear that the only novel element in the patented combination in suit is the so-called "cut-off," the operation and function of which I have already explained.

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For many years a plug valve was manufactured under a patent granted to Nordstrom, in 1916 I think, and which patent expired just a few years before the patent in suit was applied for and granted. In this valve there were but two vertical grooves in the plug seat, one each appearing on the right hand side of the inlet and outlet of the passageway in the casing. As I understand it, there were transverse grooves on and near the top of the plug, but none at the other end of the plug, and the vertical grooves were or might be put in communication with the transverse grooves. In the patent in suit, as already explained, Nordstrom places a vertical groove on each side of the inlet and outlet of the passageway in the casing, making

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four altogether, and transverse grooves at the top and bottom of the plug. Nordstrom explained in his evidence how he came to adopt the additional vertical grooves in his valve. He testified that in the use of a single vertical groove on the right hand side of each end of the passageway in the casing he had observed that the lubricant therein prevented any leakage past that point when the valve was open, while on the other side of the passageway where there was no vertical groove there would appear to be a leakage, that is to say, he observed that the lubricant in the vertical groove acted as a seal against the flow of the fluid beyond that point. He stated it was "obvious" therefore, that if a vertical groove were placed on both sides of the inlet and outlet of the passageway, they would act as a complete seal against leakage when the valve was closed and thus make a tight joint around the passageway. It is fair to assume that what was "obvious" to Nordstrom would also be obvious to some of the numerous users of Nordstrom's old valve, but, in any event, the idea or object of sealing, and a means for so doing, were described and disclosed by Nordstrom in his 1925 Canadian patent, and there would therefore be nothing novel in the idea of "sealing" at the date of his invention of the patent in suit, or in the means he adopted.

In the patent in suit it is therefore only the feature of the "cut-off" that can be claimed as novel in the integers comprising the patented combination, that is to say, Nordstrom shows how the transverse grooves may be cut off from the vertical grooves when the valve is in a certain position. There would not, I think, be invention in so arranging his grooves in the plug and plug seat, so that those in the former could be put out of communication with those in the latter, once the idea was conceived. That, I think, would be obvious to any person competent in the art and any such person on being asked to make such an arrangement of grooves would, I think, be able to do so without having to do any serious experimental work. To cut off transverse grooves, of a limited length, on a plug from vertical grooves in a plug seat would be much the same as arranging that the openings in the plug be put in or out of registration with the passageway in the casing, by rotating the plug. I would not think that such a statement was open to the criticism that it

was wisdom coming after the event. If it be said that there was invention in the idea of the "cut-off" then it is to be observed that the same idea was quite clearly disclosed in the United States patent, No. 1,365,116, to one, Martin, in 1921, and which patent related to improvements in plug valves. The complete combination of Martin might not be an anticipation of the combination of Nordstrom but the former does disclose plainly the idea, and also the means, for cutting off communication between transverse lubricating grooves in a plug and vertical grooves in a plug seat, and so control the movement of the lubricant. I do not think there is any inventive step in the idea of a "cut-off," or the means for effecting this, if one desired to incorporate such idea and means in a plug valve, the practical utility of which is possibly much exaggerated.

I do not think that the patented combination of Nordstrom required such an exercise of the creative faculties of the human mind as to merit the distinction of invention or a claim to monopoly. It has been authoritatively stated that the art of combining two or more parts, whether they be new or old, or partly new and partly old, so as to obtain a new result, or a known result in a better, cheaper, or more expeditious manner, is valid subject-matter if there is sufficient evidence of presumption of thought, design, or skillful ingenuity in the invention and novelty in the combination. I do not think that Nordstrom reaches up to this requirement. If there be no invention—and I do not think there was—in providing an arrangement of grooves and means, whereby the transverse grooves might be put into or out of register with the vertical grooves, then, in my opinion, there is nothing novel in any of the several parts of the combination, and in that event it is hardly conceivable that there could be invention in uniting these old parts with one another so that the combination would function as a plug valve. Every slight difference in the application of a well known thing should not and does not constitute ground for a patent and there would be no end to the interference with trade and with the liberty of adopting any mechanical contrivance if such were the case: See Lord Westbury in *Harwood v. Great Northern Railway* (1). I am of the opinion that every subordinate integer in Nordstrom was either well known,

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(1) (1865) 11 H.L. Cases at p. 682.

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or was obvious, as was the function to be performed by them separately or in combination, and that there was no invention in combining them together. It seems to me that what was done here represents more nearly an ingenious effort to prolong the life of a monopoly that would shortly expire rather than the production of a new and useful device that required the exercise of the inventive faculty. I therefore am of the opinion that there is no invention in Nordstrom.

In the result the action of the plaintiffs is dismissed and with costs.

Judgment accordingly.