

equivalent of cylinder and case. A difference in the method of operation is that "in Bates' patent the piston controls the admission and exhaust at both ends of the valve, * * * whereas in the defendant's apparatus the piston operates to open and close the inlet and exhaust ports at one end of the valve only, the movement of the latter in one direction being produced by pressure constantly applied to one end of the valve." This difference is immaterial.

A far more serious question respecting infringement depends upon the construction which shall be given to the word "controlling," in claim 3. In the Bates machine, the valve directly operates to cause the return stroke of the piston by means of live-air passages leading from the valve chamber to the opposite end of the piston chamber, which alternately admit live air to and exhaust it from the piston chamber. The defendant further says that in its machine there are no similar air passages from the valve, but the return movement is created or is started by the piston, which itself opens and closes the air passages in the lower end of the cylinder. The defendant's further position is that the specification of the Bates patent demands that its valve shall be so connected with ports and passages as to be the direct means of admitting air at each end of the cylinder, by the assertion that the precise location of the valve is not important "only so it is separate from the piston, B, and operates to admit air at either end of the cylinder, as set forth." The conclusion of the defendant is that claim 3, in regard to the controlling action of the valve, should be construed to require that air must be admitted at each end of the cylinder by the action of the valve. It is true that the piston of the Boyer tool is driven downward by the action of the valve, and that, when it has reached a certain point, its stem moves in front of and closes an exhaust port communicating with the lower part of the piston chamber, and at the same time uncovers an inlet port. Thus, the piston alone, having been driven downward by the initial action of the valve, opens and closes the live-air and exhaust ports at the lower end of the cylinder, an action which is necessary in order to enable it to make its return stroke.

The complainant's reply to this part of the defense of noninfringement is threefold:

First. That the stem of the Boyer piston is a supplemental valve or a relay valve, and that the alteration separated the Bates valve into two parts, which co-act with and by means of each other. It is true that the stem of the Boyer piston is itself a valve, and may be called a relay or subsidiary valve, but it is also a part of the piston, and the objection to a construction of the claim which shall permit a part of the piston to be a part of the valve is that the specification and the claim insist upon the absolute separation of one from the other.

The second reply is that the valve of the Boyer tool does indirectly control the opening and closing of the ports at the lower end of the cylinder, because the initial action of the valve sends the piston upon its downward stroke, and thus the prior movement of the valve makes the piston effective, and causes the introduction of

live air below it. The complainant's expert states his point as follows:

"In the sense of indirect actuation, the valve of the defendant's tool clearly does control the inlet and exhaust for the lower end of the piston chamber, since, although the stem carried by the piston directly opens and closes such inlet and exhaust ports, the movement it must necessarily have for effecting this result is impressed upon it by the prior movement of the valve itself; and, without such prior movement of the valve, the piston would be wholly ineffective for opening and closing such ports."

The objection to this form of statement is that it gives to the word "controlling" a meaning which is too vague and general. The action of the piston in closing and uncovering ports is its own act, and the initial action of the valve in starting the piston is too indirectly connected with the office which the piston subsequently performs to be properly characterized as "controlling" the piston.

The complainant says also, and says truly, that the Boyer valve does intervene to enable the piston to take its upward stroke, because it opens the exhaust port at the upper end of the piston chamber, which is an essential to the upward movement of the piston, as that air should be admitted on its lower side, for "if the valve did not, prior to the up stroke, move to the proper position for opening the exhaust at the upper end, the piston could not move upward, even though air were admitted below it." This, however, though it shows the kindred character of the Bates and Boyer valves, does not answer the question whether the requirements of the Bates specification do not demand that its valve must so act as to admit air at each end of the cylinder. The quoted requirement that, wherever located, it must operate "to admit air at either (which must here mean at each) end of the cylinder, as set forth," seems to assert that the valve must have, as its appropriate function, the admission of air at the forward end of the piston chamber. Another clause of the specification is as follows:

"All the ports and channels which feed live air to the different ports of the tool communicate with valve chamber, D, and by the action of valve, J, the proper ports are alternately opened and closed, or alternately opened to the live-air chamber and to the exhaust ports, for the purpose of reciprocating said valve and the piston, B."

We are aware that this paragraph does not in terms compel the direct communication of live air from all the live-air ports to the valve chamber, so that they must be opened and closed by the action of the valve; yet it gives some color to a conclusion which is more directly stated in the other quoted clause of the specification.

Our conclusion is that the doubts in regard to infringement which arise from that difference in the mode of operation of the respective valves which has been stated are such as to require a denial of the motion, and a postponement of a definite decision until the respective theories of the parties have been subjected to the test of more stringent investigation than can be made by the aid of affidavits. The order of the circuit court is reversed, without costs of this court.

SHAW ELECTRIC CRANE CO. v. HENRY R. WORTHINGTON et al.

(Circuit Court, D. New Jersey. January 22, 1897.)

1. PATENTS—INVENTION—ELECTRIC TRAVELING CRANES.

In view of the previous employment of electric motors in propelling street cars and driving various kinds of machinery, there was no invention, in the year 1888, in merely applying electric motors to traveling cranes.

2. SAME.

The employment of three independent electric motors controlled from a common point, for the purpose of moving the several parts of the old overhead traveling crane, does not involve invention.

3. SAME.

The Shaw patent, No. 430,487, for improvements in electric cranes, held invalid as to claims 1, 2, and 10, for want of patentable invention.

This was a suit in equity by the Shaw Electric Crane Company against Henry R. Worthington, an incorporated company, and others, for alleged infringement of a patent relating to electric traveling cranes.

Francis Forbes and F. H. Betts, for complainant.

John R. Bennett, for defendants.

ACHESON, Circuit Judge. This suit is brought for the infringement of letters patent No. 430,487, dated June 17, 1890, for "improvements in electric cranes," granted to Alton J. Shaw, upon an application filed June 25, 1888. The defendants are charged with the infringement of the first, second, and tenth claims of the patent. These claims are as follows:

(1) In combination with a supporting track, a bridge mounted and movable thereon, a trolley or car mounted and movable upon the bridge, a hoisting drum or pulley carried by the trolley, and three independent electric motors, each in communication with a source of electricity, one of said motors being carried by, and serving to propel, the bridge, and the other two being carried by the trolley, and serving, respectively, to propel the trolley, and to actuate the drum or pulley.

(2) In combination with a supporting track, a bridge mounted and movable thereon, a trolley or car movable upon the bridge, a hoisting drum or pulley carried by the trolley, an electric motor carried by the bridge, and serving to impart motion thereto, a second electric motor carried by the trolley, and serving to propel the same, and a third electric motor, also carried by the trolley, and serving to actuate the hoisting drum or pulley; the several motors being wholly independent of one another, and all capable of reversal, whereby the attendant is enabled to cause a travel of the bridge in either direction, a movement of the car or trolley forward or backward, and a raising or lowering of the hoisting chain or cable simultaneously or at different times, and to perform each of said operations regardless of the others.

(10) In a traveling crane, the combination of a bridge, a trolley movable thereon, a hoisting drum or pulley carried by said car, three separate motors, one carried by and serving to propel the bridge, another carried by and serving to propel the trolley, and the third also carried by the trolley, and serving to actuate the drum or pulley, said motors being independently supplied with power from a source wholly outside the traveling crane.

The case, I think, turns upon the question whether these claims embrace anything that was patentable at the date of Shaw's alleged invention, in the year 1888. Now, the style of crane described and illustrated by this patent, and here involved, is none other than the ordinary overhead traveling crane (an old and well-known style of