No. 699,963. Patented May 13, 1902.

R. J. LINES.

REVERSING DEVICE.

(Application filed Nov. 21, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

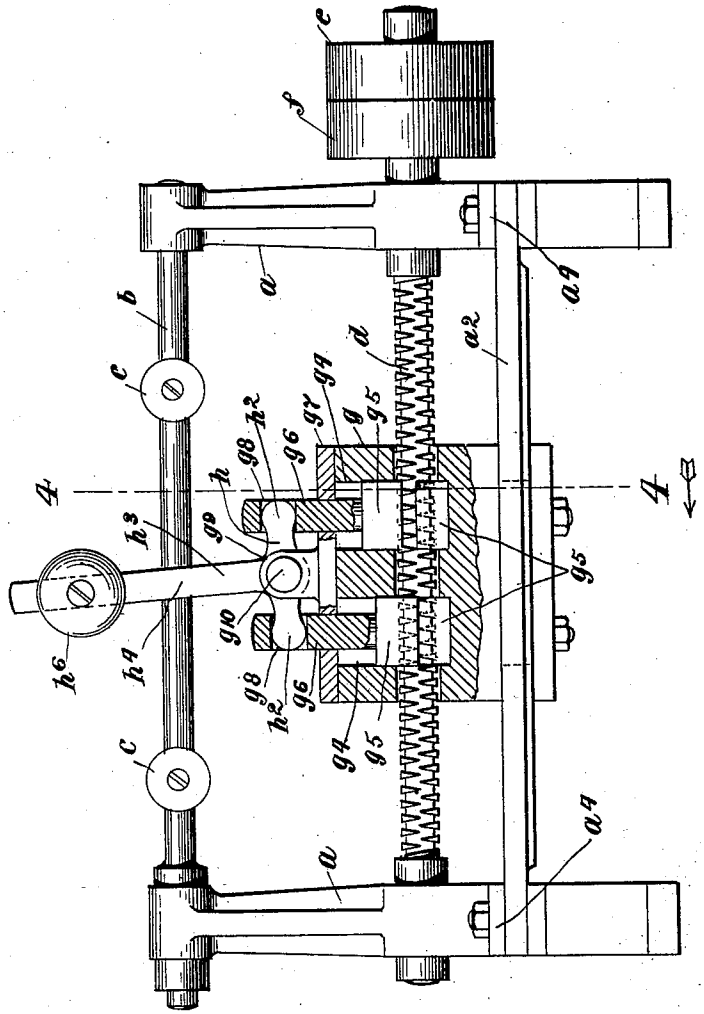
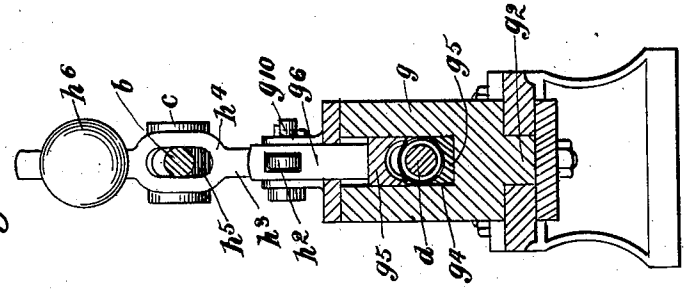


Fig. 4.



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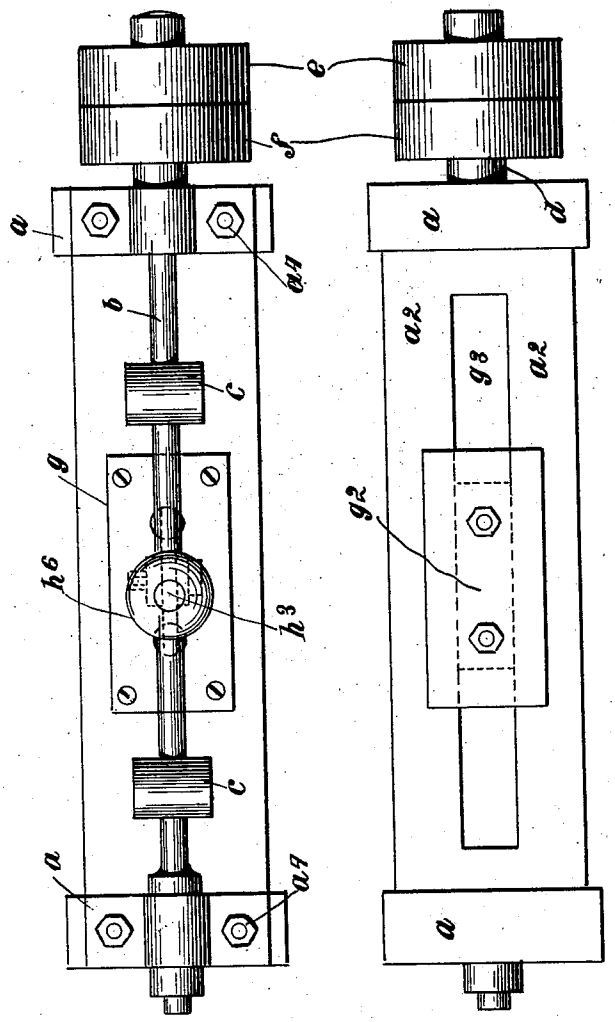


Fig. 2.

Fig. 3.

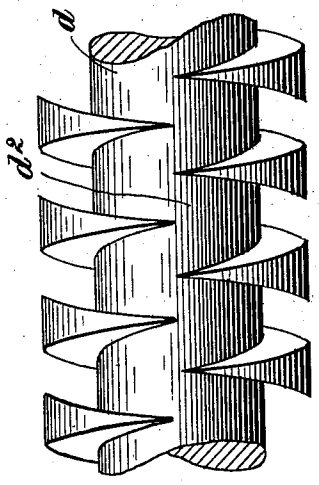


Fig. 5.

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UNITED STATES PATENT OFFICE.

REUBEN JOHN LINES, OF NORTHAMPTON, ENGLAND.

REVERSING DEVICE.

SPECIFICATION forming part of Letters Patent No. 699,963, dated May 13, 1902.

Application filed November 21, 1901. Serial No. 83,088. (No model.)

To all whom it may concern:

Be it known that I, REUBEN JOHN LINES, a subject of the King of Great Britain, residing at Northampton, England, have invented certain new and useful Improvements in Reversing Devices, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

The object of this invention is to provide improved means for reversing a tool-carrying device or devices for carrying work to be operated upon by tools; and with this and other objects in view the invention consists in a device or apparatus of the class specified constructed as hereinafter described and claimed.

In the drawings forming part of this specification, in which the separate parts of my improvement are designated by the same reference characters in each of the views, Figure 1 is a sectional side elevation of a machine or apparatus embodying my invention; Fig. 2, a plan view thereof; Fig. 3, a bottom plan view; Fig. 4, a section on the line 4 4 of Fig. 1, and Fig. 5 a side elevation of a right and left threaded shaft which I employ.

In the practice of my invention, as shown in the drawings, I provide any suitable frame or support comprising upright end portions a and a base-plate a^2, said end portions and said base-plate being securely bolted together, as shown at a^4, and in the top of the end portions a is secured a rod b, which is provided adjacent to each end thereof or at a predetermined distance from and on the opposite sides of the center thereof with transverse stops c.

Mounted centrally of the frame and above the base-plate a^2 is a shaft d, provided at one end with a loose pulley e and a driving-pulley f, and said shaft d is provided with a right-hand thread of a size and pitch required, and on and through this right-hand thread is cut a left-hand thread of the same pitch and size if the reciprocating motions are to be equal, but of a different pitch and size if the reciprocating motions are to be unequal.

Mounted on the shaft d and movable longitudinally thereon is a reciprocating frame or member g, the bottom of which is provided with a member g^2, which moves in a slot g^3 in the base-plate a^2, this construction forming a guide for the frame or member g.

The frame or member g is designed to carry tools of any kind or class or to carry material to be worked upon by tools of any kind or class, and said frame or member is provided with two vertically-arranged chambers g^4, in the bottom of each of which is mounted a half-nut g^5, and the corresponding halves of the nuts g^5 are placed on the shaft d and are each provided with a spindle g^6, and these spindles g^6 pass upwardly through the top g^7 of the frame or member g and are provided in their upper ends with a vertically-arranged slot g^8, and the top g^7 of the frame or member g is provided centrally with an upright g^9, in which is pivoted at g^{10} a lever h, provided at its opposite ends with a head h^2, and the heads h^2 fit in and work in the slots g^8 of the spindle g^6.

The lever h is provided with a supplemental upright lever h^3, which is provided with a central enlargement h^4, having a vertically-arranged slot or opening h^5, through which the rod b passes, and said supplemental lever h^3 is provided at its upper end with a weight h^6. The separate parts of the nut g^5 in one of the chambers g^4 are provided with a left-hand thread, which corresponds with the left-hand thread on the shaft d, and the separate parts of the nut g^5 in the other chamber g^4 are provided with a right-hand thread, which corresponds with the right-hand thread on the shaft d, and it will be understood that the bottom parts of said nuts are always in engagement with the shaft d, and the movement of the frame or member g, which constitutes the reciprocating member, will depend upon the position of the lever h and the supplemental lever h^3 and on which the upper halves of said nut are in connection with said shaft.

If the parts be in the position shown in Fig. 1 and the shaft d be turned, the reciprocating frame or member g will be moved to the left until the supplemental lever h^3 strikes the stop c at the left end of the rod b, when said supplemental lever will be reversed and the upper half of the nut g^5 in the left-hand chamber g^4 will be raised from the shaft d and the upper half of the nut g^5 in the right-hand chamber g^4 will be depressed into said shaft. This movement of the parts will at

once reverse the movement of the frame or member g, and said frame or member will move to the right until the supplemental lever h^3 strikes the stop c near the right-hand end of the rod b. It will therefore be seen that the frame or member g will be given a constantly-reciprocating motion or movement back and forth in opposite directions on the shaft d as long as said shaft is turned by the pulley f, and this will be true no matter in what direction the said shaft is turned.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a machine of the class described, a frame, a rotatable shaft mounted therein and provided with reverse threads, a reciprocating member mounted on said shaft and provided with two nuts through which the shaft passes, the said nuts being divided horizontally into two separated parts or halves, one of said parts or halves being provided with a left-hand and the other with a right-hand thread and means for alternately raising and lowering the upper halves of said nuts as the reciprocating member is operated, said reciprocating member being adapted to be operated by the turning of said shaft, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 4th day of November, 1901.

REUBEN JOHN LINES.

Witnesses:
ERNEST THOMAS BUTLIN,
WALTER MAY.