

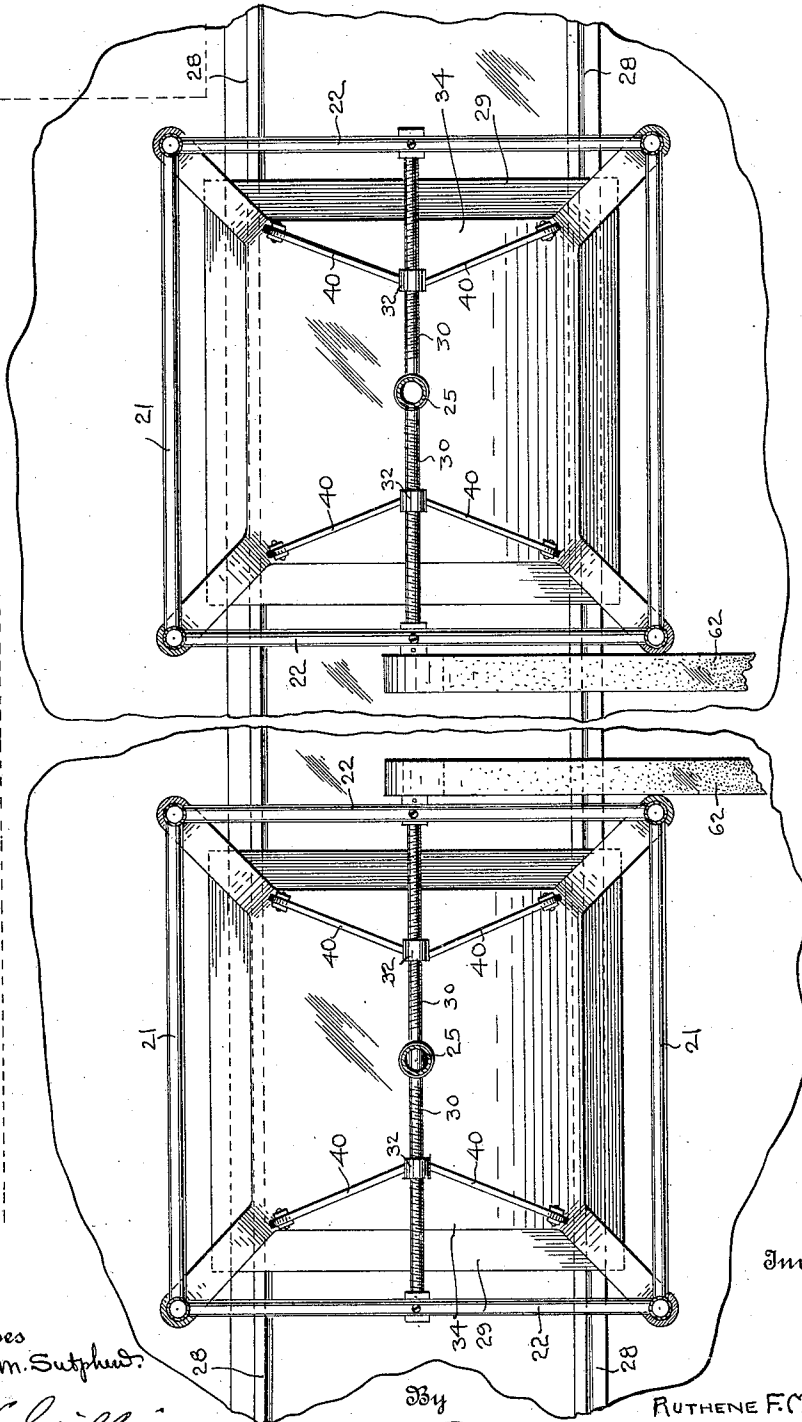
R. F. MARSH.
MOLDING MACHINE.
APPLICATION FILED MAR. 6, 1912.

1,056,808.

Patented Mar. 25, 1913.

4 SHEETS-SHEET 1.

Fig. 1



Witnesses
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RUTHENE F. MARSH

By *E. C. Vrooman*, his Attorney.

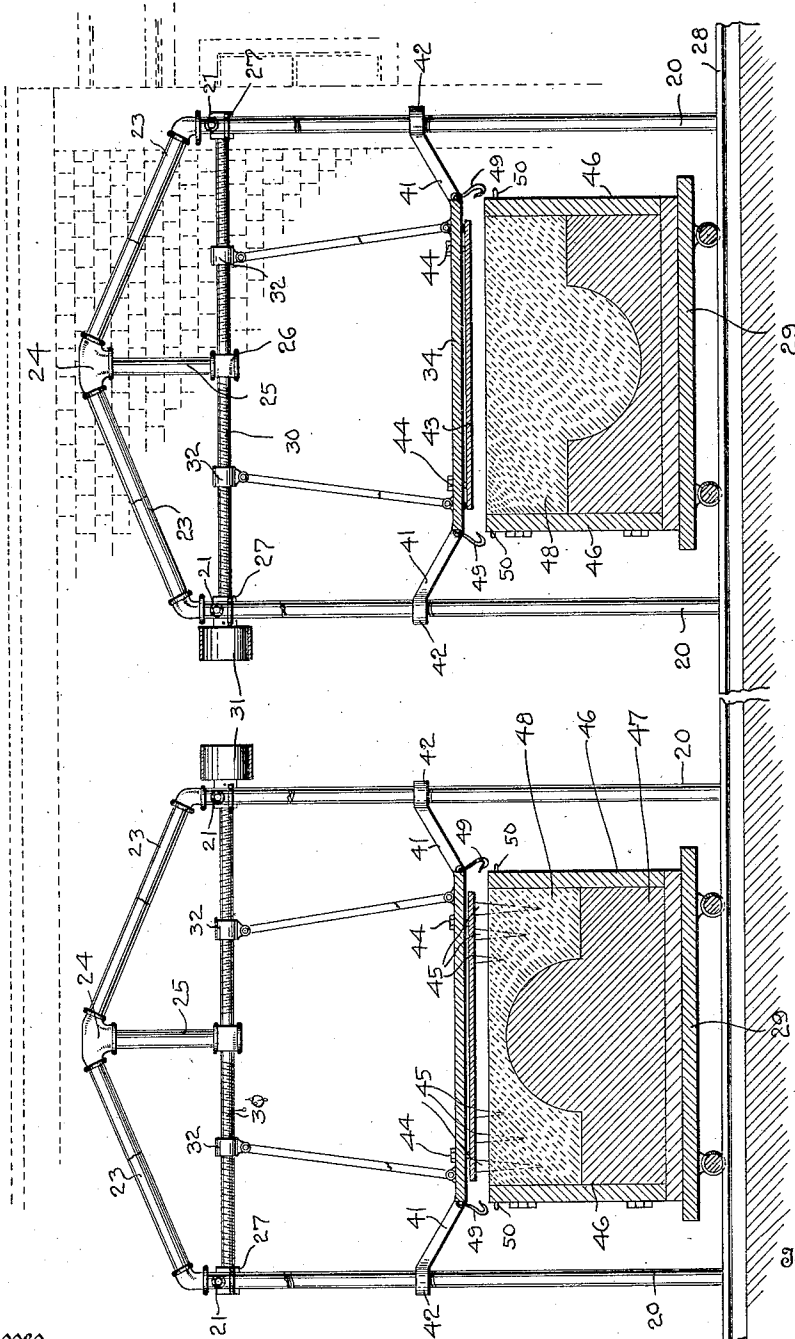
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Fig. 2



Witnesses
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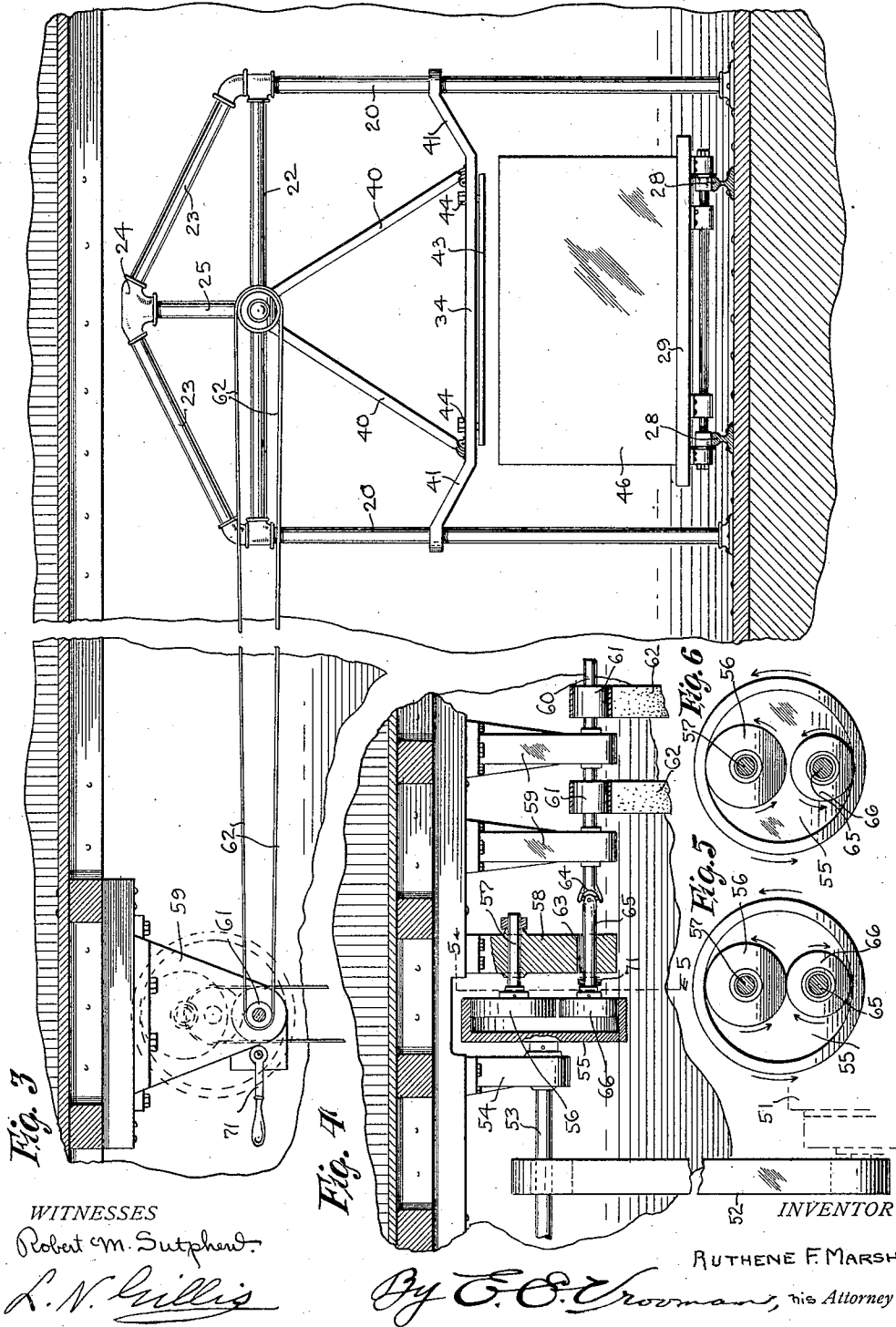
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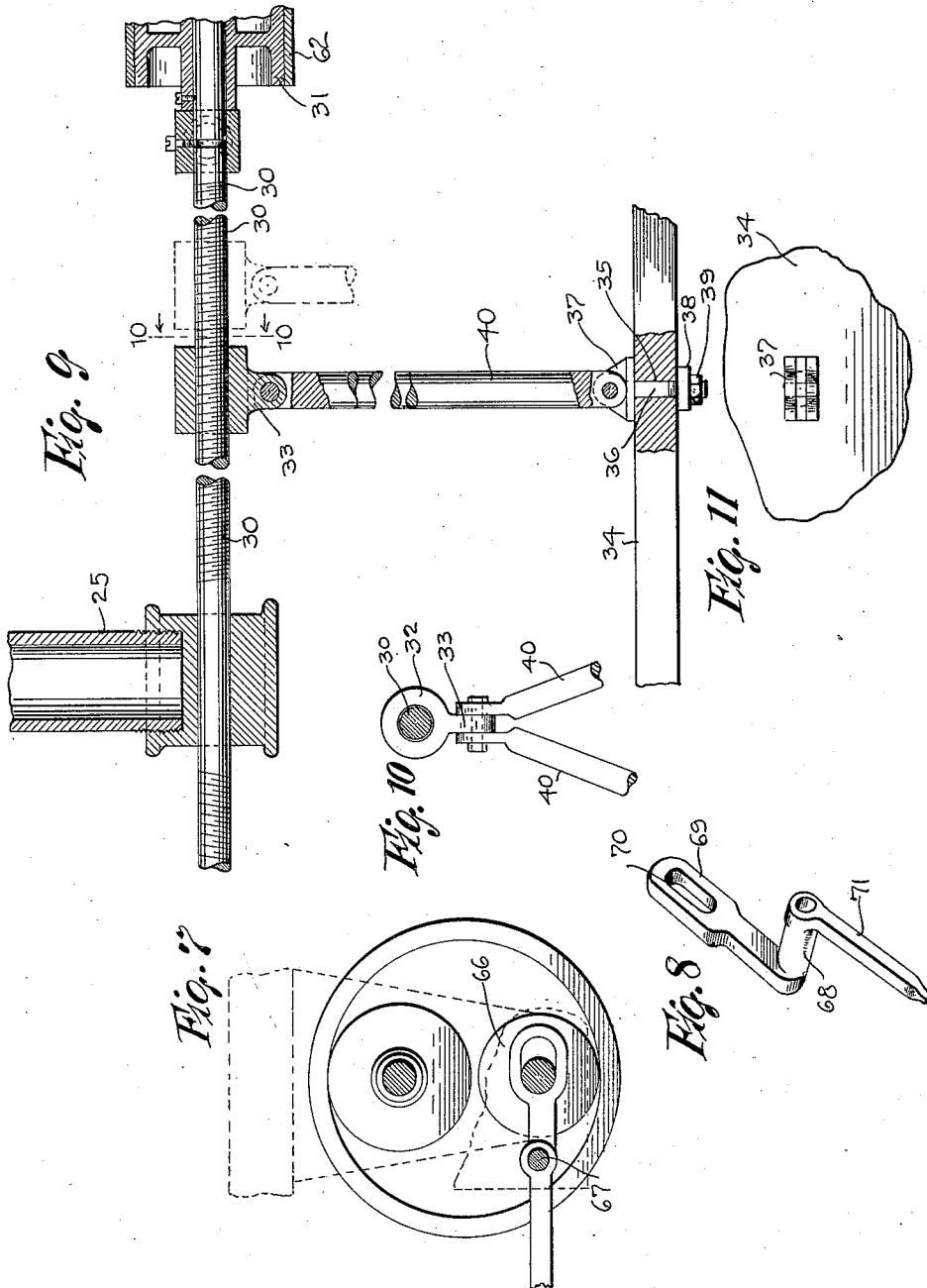


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4 SHEETS—SHEET 4.



WITNESSES
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MOLDING-MACHINE.

1,056,808.

Specification of Letters Patent.

Patented Mar. 25, 1913.

Application filed March 6, 1912. Serial No. 682,078.

To all whom it may concern:

Be it known that I, RUTHENE F. MARSH, a citizen of the United States, residing at Delphos, in the county of Allen and State of Ohio, have invented certain new and useful Improvements in Molding-Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to molding machines and has special reference to the type used for molding coacting members of an incomplete structure as for instance the upper and lower halves of pipe molds such as are commonly held in the cope and drag of a flask.

One object of the invention is to provide a mold of this character which will dispense with the usual flask when molding the finished article.

Another object of the invention is to improve the general construction of molds of this character so that pressure may be applied to gradually increasing force.

25 Another object of the invention is to provide means whereby the flask in which the mold is primarily made may be transported conveniently to an oven for baking the mold or drying the same out.

30 A still further object of the invention is to improve the machinery which drives the presser plates or molds of this character.

With the above and other objects in view the invention consists in general of certain novel constructions and arrangements of parts, hereinafter fully described, illustrated in the accompanying drawings, and specifically claimed.

In the accompanying drawings, like characters of reference indicate like parts in the several views, and Figure 1 is a plan view, partly in section of a pair of molds of the improved form. Fig. 2 is a longitudinal median section through a pair of such molds. Fig. 3 is an end elevation of one of the molds with a portion of the operating machinery. Fig. 4 is a side elevation of part of the operating machinery, the view being partly in section. Fig. 5 is a detail view on the line 5—5, Fig. 4, the view showing one position of a certain reverse mechanism. Fig. 6 is a view similar to Fig. 5 showing a second position of the reverse mechanism. Fig. 7 is an enlarged detail view showing a certain lever used in con-

nection with the mechanism illustrated in Figs. 5 and 6. Fig. 8 is an enlarged detail perspective view of said lever. Fig. 9 is an enlarged view showing a portion of the mechanism by means of which the presser plates are raised and lowered. Fig. 10 is a section on the line 10—10, of Fig. 9. Fig. 11 is a plan view of a certain clip used for attaching certain links to the presser plates.

In carrying out this invention I preferably employ two presses of like characteristics, one of the presses being employed for making the top portion of the mold and the other press for making the other portion thereof. Each of these presses includes a framework which consists of the corner posts 20 extending vertically upward and arranged in rectangular position so that along the sides of the rectangle the posts are connected by means of side rods 21 and end rods 22. Extending diagonally from one corner post to the opposite corner post are rods 23 which unite in the center of the structure in a pipe fitting or other connecting device as at 24. These rods 23 are inclined upward from the corners and depending from the connecting device 24 is a hanger 25 carrying on its lower end a bearing 26. Bearings 27 are also carried on the end members 22. All of the frame thus formed is preferably of piping so that the connections can be readily made with the ordinary pipe couplings or unions. Between the posts 20 there is arranged a pair of rails 28 spaced to form a track whereon cars 29 may be run. These rails 28 run continuously from one of the braces to the other and may if desired be carried to any suitable place for the delivery of the sand to the molds and from thence may be carried to a suitable furnace or oven for baking.

Supported in the bearings 26 and 27 is a right and left handed screw 30 which carries on one end a belt pulley 31. On this screw are collars 32 which are internally threaded and provided with downwardly extending ears 33. Beneath the shaft 30 of each of the braces is a presser plate 34. Each of these presser plates 34 is provided with suitably spaced openings 35 arranged adjacent the corners of the presser plates and in each opening there is a swiveled bolt 36 having a forked head 37, the sides of the head being provided with aligned perforations. Beneath the plate each bolt is

equipped with the usual washer 38 and nut 39 for the purpose of retaining it in position.

Pivotaly connecting the lugs 33 and the bolts 36 are links 40. Extending from each corner of the plates 34 are upwardly inclined arms 41 terminating in guide eyes 42 which fit the respective corner posts 20.

Now, if the right and left handed screw 30 be rotated in one direction the sleeves 32 will be drawn closer together and in consequence the respective plate 34 will be raised. If, on the contrary, the said screw be rotated in the opposite direction the sleeves 32 will separate and will depress the plate 34 until the members 40 extend perpendicularly downward in side elevation, although, of course, they are inclined toward the screw in end elevation. Movement of this character is permitted by reason of the swiveled bolt 36 being capable of turning around its axis as the respective sleeve 32 travels along the screw. It will be obvious that starting from the time when the sleeves are closely adjacent the member 26, that the pressure due to the movement outward of these sleeves will be such as to gradually increase if the plate 34 rests upon an object since the downward movement of the plate 34 and the linear movement of 32 along the screw will be in a constantly decreasing ratio.

The plate 34 carries a wear plate 43 which is adjustable with respect to the plate 34 by means of the bolts 44 and this wear plate is the plate that comes in contact with the mold when performing the molding operation. This wear plate 43 may either have a plain undersurface or may be provided with a series of depending wedges 45 for the purpose of better packing the sand used.

In using the device a mold 46 is placed on the car 29 and within the mold or flask is placed the pattern 47. Sand is then filled in as at 48 and the car run underneath the presser plate 34. The screw 30 has previously been rotated to bring the members 32 in juxtaposition. This screw is now rotated in the opposite direction and the plate 34 will descend, and if the wear plate be provided with wedges 45 these wedges will enter the sand as shown at the left of Fig. 2 and pack the sand closely about the pattern 47. Finally the wear plate will come in contact with the sand and force the same solidly down against the pattern.

In order to operate the device it is sometimes necessary to lift the molds from the cars and to this end each of the presser plates is provided with hooks 49 which engage eyes 50 on the mold.

For the purpose of operating the screws and causing the same to rotate in either direction there is provided a suitable motor 65 connected by a belt 52 to a pulley wheel on

a counter-shaft 53 supported in a bearing 54. On the end of this countershaft is an internal friction gear 55 which is constantly in mesh with a gear 56 on a jack shaft 57 supported in a hanger 58. Carried in hangers 59 is a jack shaft 60 whereon are pulleys 61, each of which connects by a suitable belt 62 with a pulley 31 of a respective molding machine. The lower end of the hanger 58 is slotted as at 63, and the jack shaft 60 is connected by means of a universal joint 64 with a short shaft 65 whereon is fixed a friction gear 66. Pivoted to the hanger 58 by means of a pin 67 is a rack shaft 68 having a rock arm 69 provided with a slot 70 wherethrough passes the shaft 65. The rock shaft 68 is also provided with a handle lever 71 so that by the movement of this lever the gear 66 may be brought either into contact with the gear 55 or the gear 56.

Now, by reference to Figs. 5 and 6 it will be seen that if the shaft 53 with the gear 55 rotates continuously in the direction of the arrows outside of said gear, the gear 56 will likewise rotate in the same direction. Now, if the gear 66 be brought into contact with the gear 55 as in Fig. 6 all three gears will rotate in a like direction. If, however, the gears 66 and 56 be brought into contact, as in Fig. 5, the gear 66 will rotate in a direction opposite to the other gears. Now since the rotational direction of the gear 66 determines the rotation of the pulleys 61, the position of these gears will also determine the direction of rotation of the screws 30 so that these screws can be caused to rotate in either direction at will by the movement of the hand lever 71.

There has thus been provided a simple and efficient device of the kind described and for the purpose specified.

It is obvious that many minor changes may be made in the form and construction of this invention without departing from the material principles thereof, and it is therefore not wished to confine the invention to the exact form herein shown and described but it is wished to include all such as properly come within the scope claimed.

Having thus described the invention, what is claimed as new, is:—

1. In a molding press, a presser head, a right and left hand screw supported above said presser head in a plane at right angles to the path of movement of said head, threaded collars on said screw, pairs of links, each pair having its upper end pivoted to a respective collar, and swiveled bolts connecting said links to respective corners of the presser head whereby movement of the collars in one direction from a given position will raise said head and movement in the opposite direction will lower the head.

2. In a molding press, a presser head, a right and left hand screw supported above

said presser head in a plane at right angles to the path of movement of said head, threaded collars on said screw, pairs of links, each pair having its upper end piv-
5 oted to a respective collar, and swiveled bolts connecting said links to respective corners of the presser head whereby movement of the collars in one direction from a given position will raise said head and movement in

the opposite direction will lower the head, 10 and a reversing gear operatively connected to said screw.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

RUTHENE F. MARSH.

Witnesses:

CORA A. LOCHHEAD,
HENRY E. FISHER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."