

(No Model.)

W. & S. SYKES.
SAND MOLDING MACHINE.

No. 380,300.

Patented Mar. 27, 1888.

Fig.1.

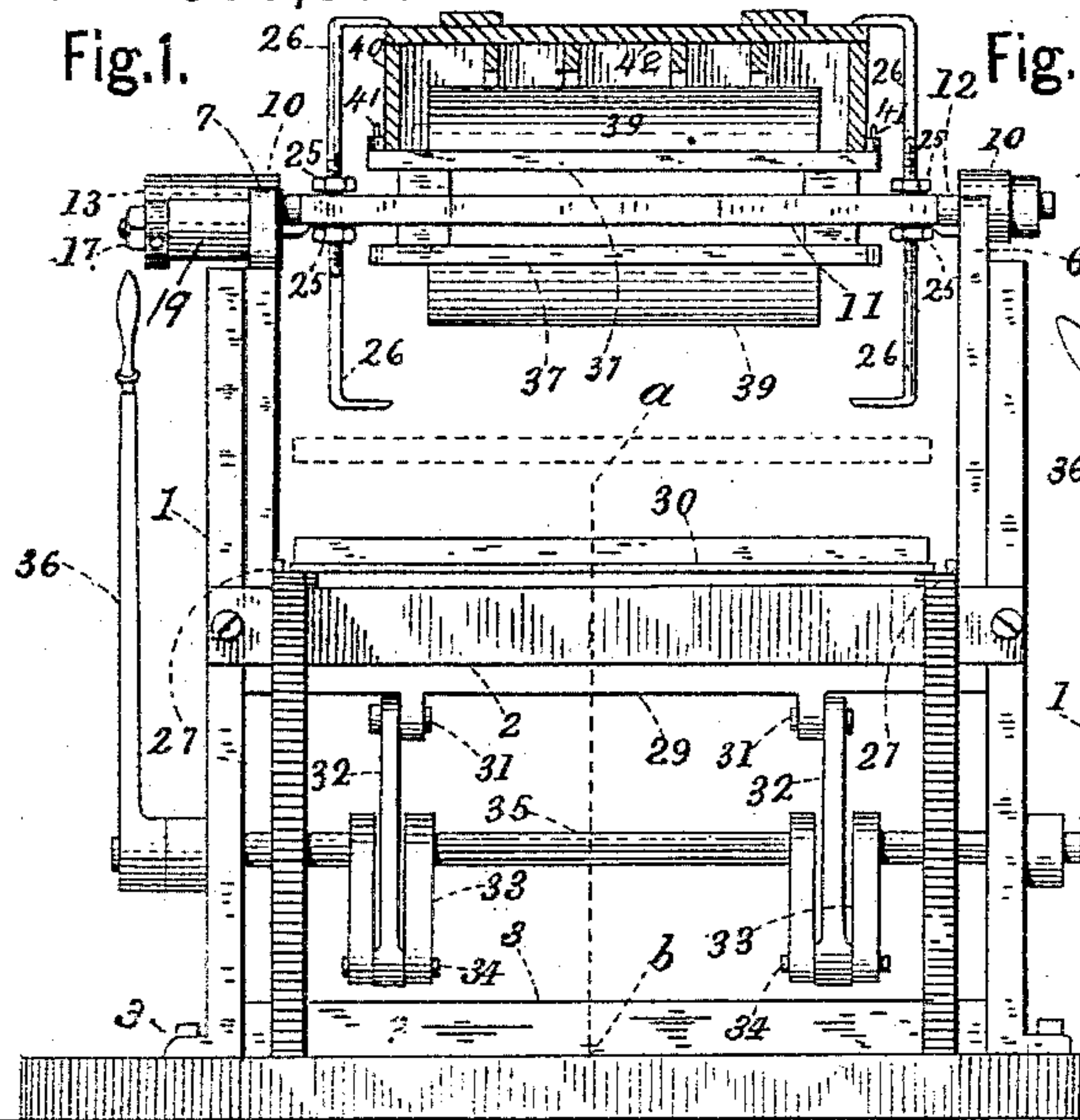


Fig.2.

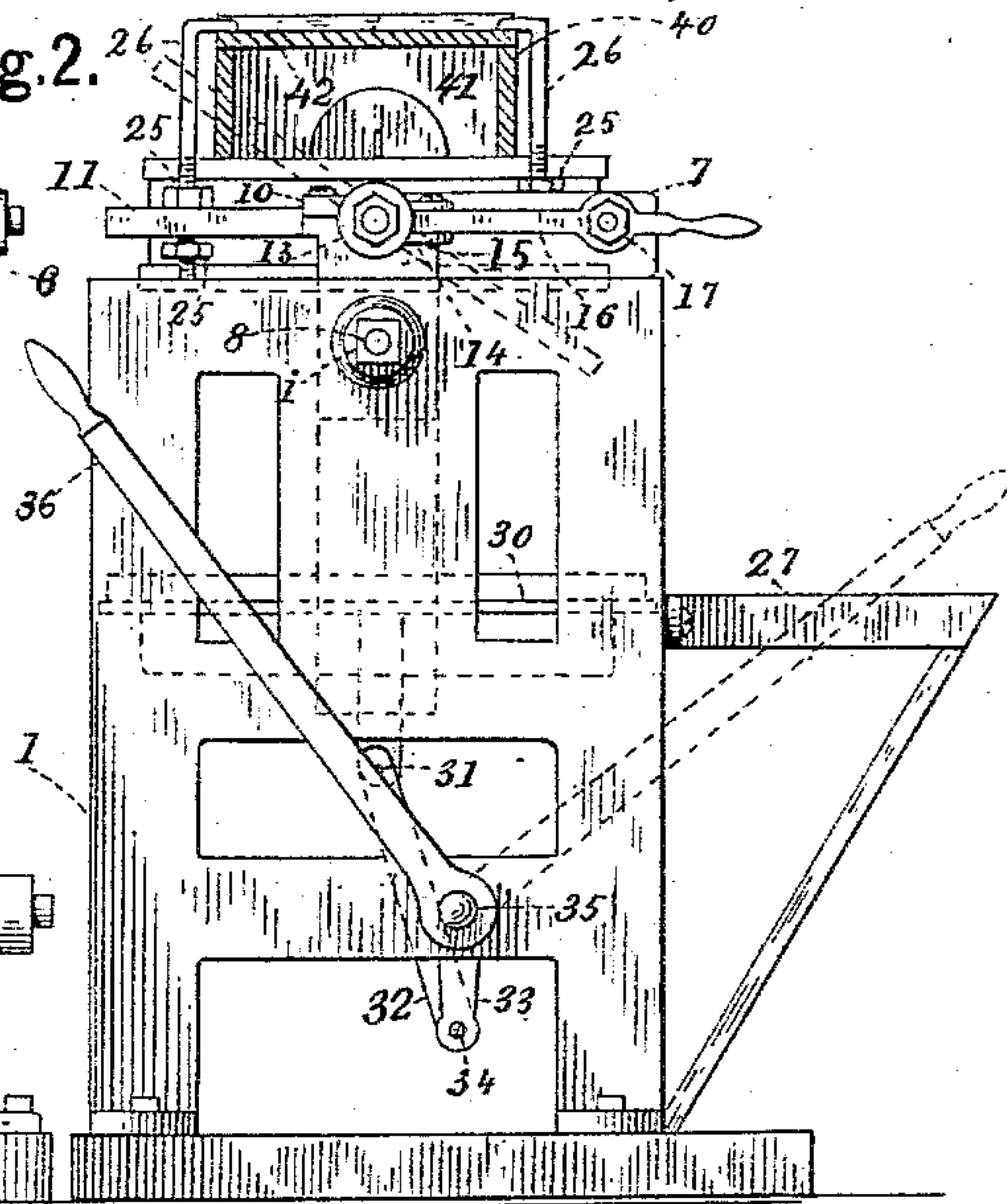


Fig.3.

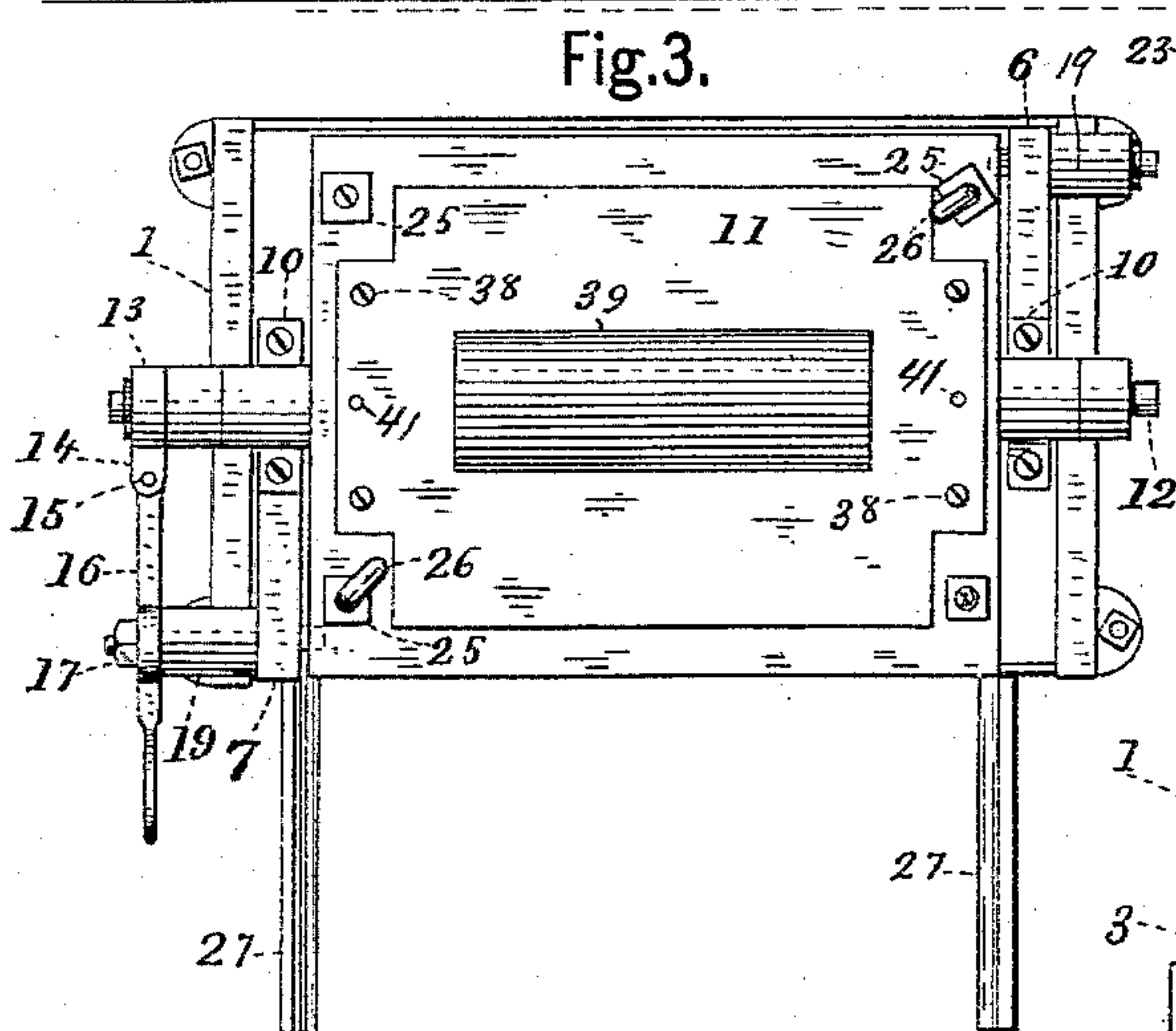


Fig.4.

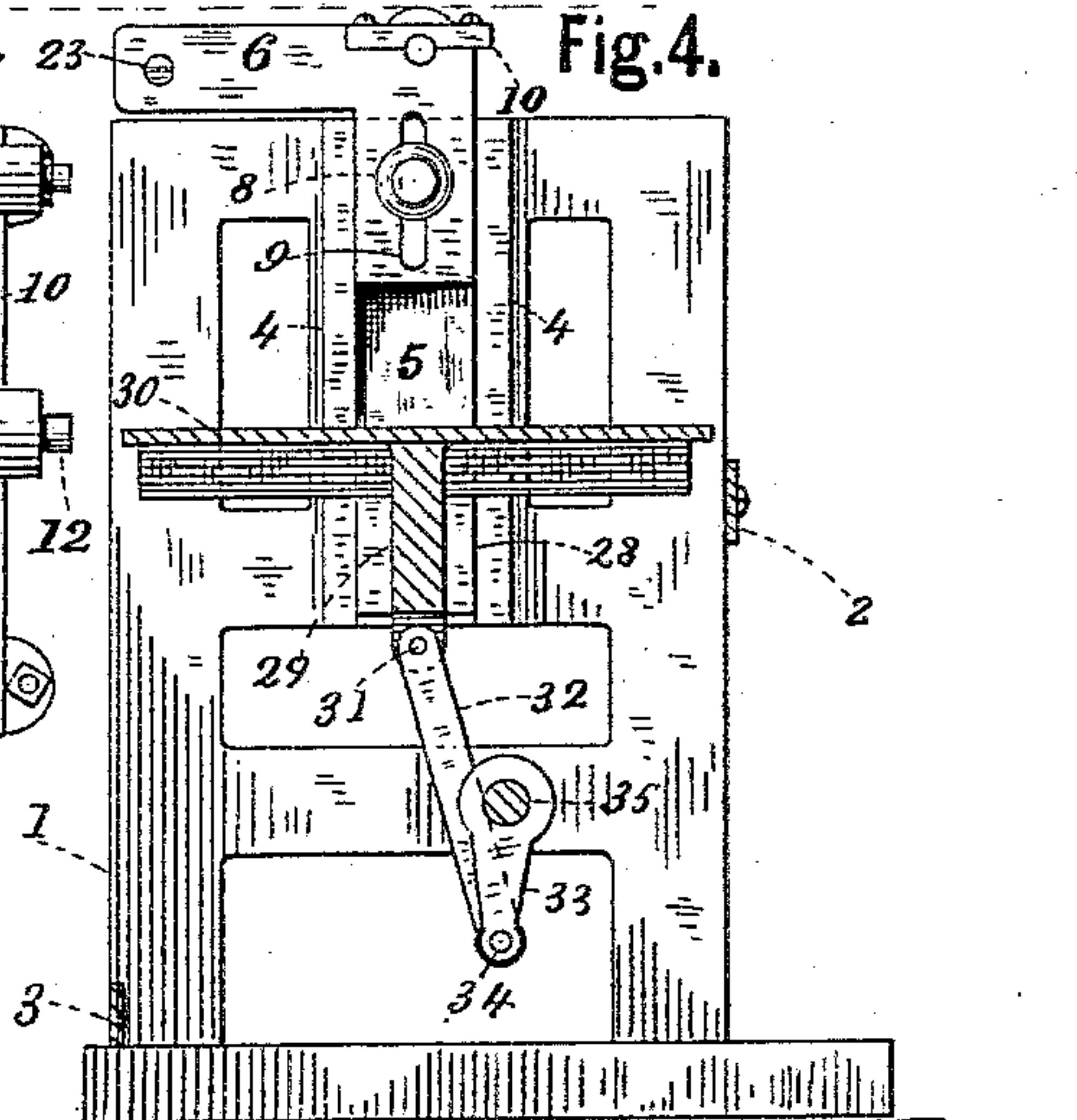


Fig.5.

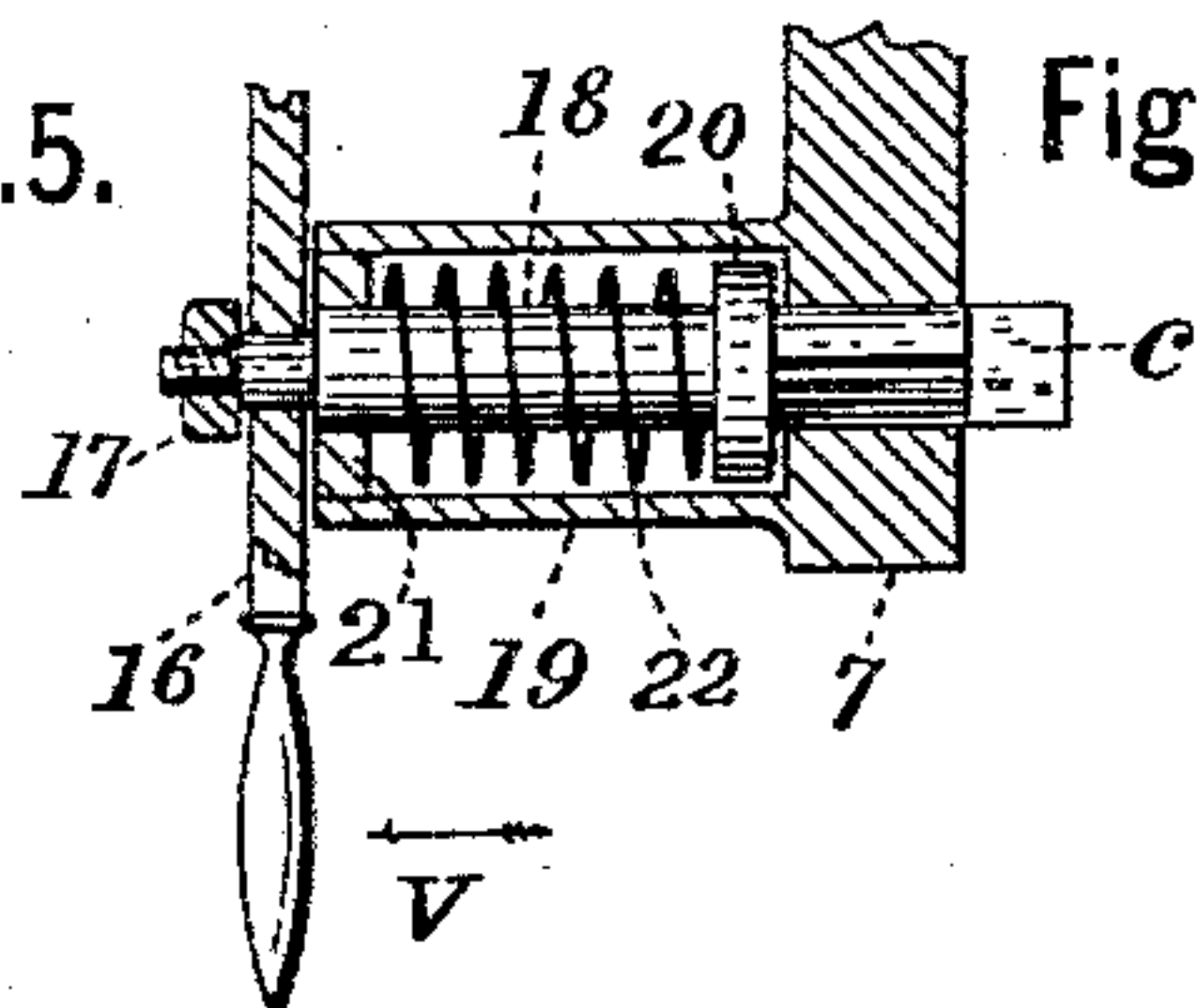


Fig.6.

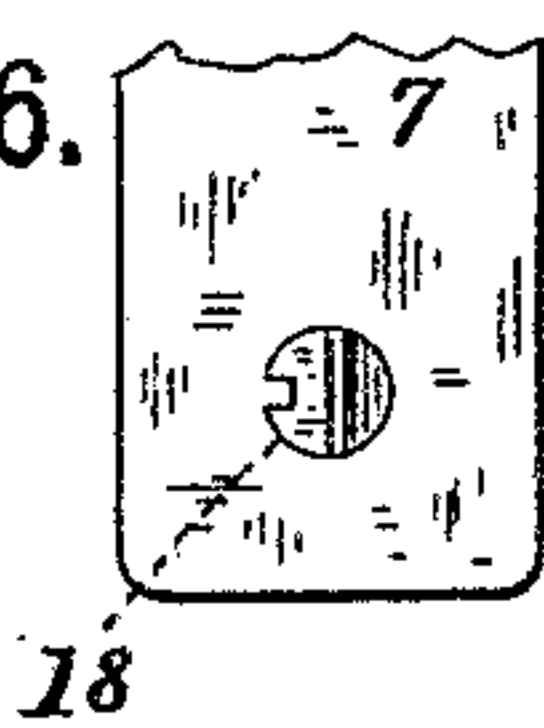
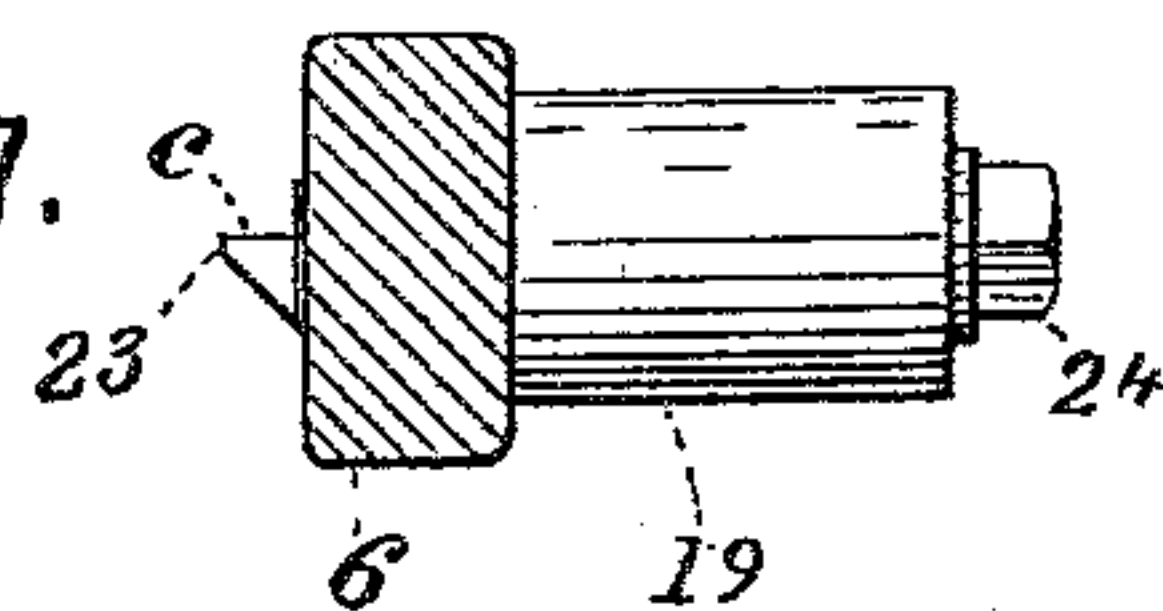


Fig.7.



Witnesses.

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WILLIAM SYKES AND SQUIRE SYKES, OF BUFFALO, NEW YORK.

SAND-MOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 380,300, dated March 27, 1888.

Application filed February 10, 1888. Serial No. 263,622. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM SYKES and SQUIRE SYKES, both citizens of the United States, residing in Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Sand-Molding Machines, of which the following is a specification.

Our invention relates to certain improvements in machines for molding in sand, and will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of the machine, showing also a vertical longitudinal section through a flask connected thereto. Fig. 2 is a side elevation of the machine and a vertical cross-section through a flask in position to receive the sand. Fig. 3 is a top plan view. Fig. 4 represents a vertical central section through a portion of the frame in line *ab*, Fig. 1. Fig. 5 is an enlarged sectional elevation showing a spring-bolt and a portion of the parts connected with it for holding or releasing the oscillating molding-plate. Fig. 6 is a small portion of the machine, showing an enlarged end view of the spring-bolt. Fig. 7 represents a side elevation of the rear spring-bolt for preventing the reversible molding-table from moving in one direction, while permitting it to turn freely in the opposite direction, showing also a vertical cross-section through the portion to which it is attached.

The frame 1 of the machine is preferably made of cast-iron, but any other suitable material may be used. It is secured together by cross-pieces 2 3.

On the inner sides of each of the frame-pieces 1 are two ribs, 4, leaving a slideway, 5, between them, into which the angular head-pieces 6 7 are secured by bolts 8, which pass through slots 9 and screw into the side frame-pieces, 1, or pass through and are secured by nuts *i*. (See Fig. 4.) The slots 9 permit the head-pieces to be adjusted vertically at any point up or down, and when so adjusted they are rigidly secured by the bolts 8. These head-pieces 6 7 are each provided with boxes 10, in which the bearings 12 of the reversible molding-table 11 are mounted. By this construction it will be seen that the reversible table 11 may be adjusted vertically up or down

by means of the bolts 8, so as to answer for molding-flasks of different heights.

Upon the box 10 at one side of the table is rigidly secured a collar, 13, having a projecting portion, 14, to which is pivoted by a pin, 15, an arm, 16. This arm 16 is connected by a nut, 17, with a spring-bolt, 18, inclosed within the portion 19. (See Figs. 5, 6, in which an enlarged section of the spring-bolt and its several parts is shown.) The bolt 18 passes through the portion 7 until stopped by the collar 20.

Between the collar 20 and the removable end piece, 21, is a spiral spring, 22, and the back of the bolt passes through the arm 16, and is then secured by the nut 17, as above mentioned. The top portion, *c*, of the end of this bolt is flat, while its under side is beveled. At the opposite side and end of the table is another spring-bolt, 23, secured to the portion 6 in a similar case, 19, and constructed exactly in the same way, with the exception that it has nothing at the outer end but the nut 24. From this construction it will be seen that by moving the arm 16 in the direction of the arrow *v* the end of the bolt 18 will be drawn in, so that the side of the molding-table at the front of the machine can be turned down, and, as on the opposite side, the end of the table rests on top of the end of the bolt 23, and merely moves away from it. The tables may in this manner be easily turned over.

The end of that side of the molding-table at the rear of the machine striking against the under beveled side of the bolt 23 presses it in until the edge of the table passes by it, when the spring forces it forward just under the edge of the table, so that both sides of the molding-table at the front and rear are supported and securely held by the ends of the two spring-bolts until released by moving the arm 16, as before mentioned.

To the molding-table are secured by nuts the clamping-irons 26, for holding the molding-flask. They are arranged two on each side of and at opposite corners of the table and diagonally from each other, as will be seen. At the front of the machine are two slideways, upon which the board or table for holding the flask is moved out and off from the machine.

In the lower portions of the slideways 5 are

guide-pieces 28, (one of which is shown in Fig. 4,) forming a portion of the cross piece 29, upon which is secured the vertically-movable table 30.

5 To the under side of the cross-piece 29 are pivoted by pins 31 two connecting-rods, 32, having their opposite ends pivoted to cranks 33 by pins 34. These cranks are secured to a shaft, 35, mounted in bearings on the frame of
10 the machine. To one end of the shaft 35 is rigidly secured a hand-lever, 36. It will be seen from this construction that by turning this hand-lever the table 30 may be moved vertically up or down, as may be desired. The
15 mold-board 37 is secured to the reversible table by screws 38. To this mold-board is secured in any well-known way any pattern or series of patterns that may be desired—the pattern 39, for instance. In Figs. 1 and 2 we
20 have shown an ordinary flask, 40.

The operation of the machine is as follows: The mold-board, provided with a series of patterns or with a pattern, 39, is secured to the reversible molding-table, as above men-
25 tioned. The flask 40 is now put on, as shown in Figs. 1, 2, the holes in the ears of the flask fitting over the pins 41. The sand is now rammed in by hand in the usual way and leveled off. A board, 42, is then put on and the
30 whole secured to the reversible table by the clamping-bars 26. The molding-table is now reversed and secured by the bolts, which operation brings the flask, mold, and pattern be-
low and the other half of the pattern at the
35 top of the table in the proper position for another mold. The mold already made and below the table is taken off and the pattern removed by raising the table 30 up to meet it. The clamping portions of the bars 26 are now
40 removed, and by tapping the top of the reversing table slightly when required and let-

ting the table 30 down the mold is removed from the pattern or patterns more easily and steadily than can be done in the usual way by hand. The mold is now removed from the
45 machine and a new flask put on, and the operation repeated as often as a mold is made and the molding-table reversed.

We claim as our invention—

1. In a sand-molding machine, the combina- 50
tion of a reversible molding-table provided with clamping-irons on each side and mounted in bearings at the top of the machine, two spring-bolts, one at each side of the molding-
table, for keeping it in position, a hand-lever 55
pivoted to the machine for releasing one of the bolts when reversing the table, and a vertically-movable table below the reversing table,
mounted in slideways in the frame, and con-
60 nected by connecting-rods and cranks to a crank-shaft provided with a hand-lever, substantially as and for the purposes described.

2. In a sand-molding machine, the combina-
tion of a reversible molding-table mounted in
vertically-adjustable bearings, spring-bolts se- 65
cured to the vertically-adjustable bearing-supports for holding the table in position when reversed, a hand-lever pivoted to the machine
for releasing one of the spring-bolts prepara-
70 tory to reversing the table, and a vertically-movable table below the reversing table,
mounted in slideways in the frame, and connected by connecting-rods and cranks to a
crank-shaft mounted in bearings in the frame
and provided with a hand-lever for operating 75
it, substantially as and for the purposes described.

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Witnesses:

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