

(No Model.)

2 Sheets—Sheet 1.

M. E. HASTINGS.
SHEET METAL FOLDER.

No. 412,254.

Patented Oct. 8, 1889.

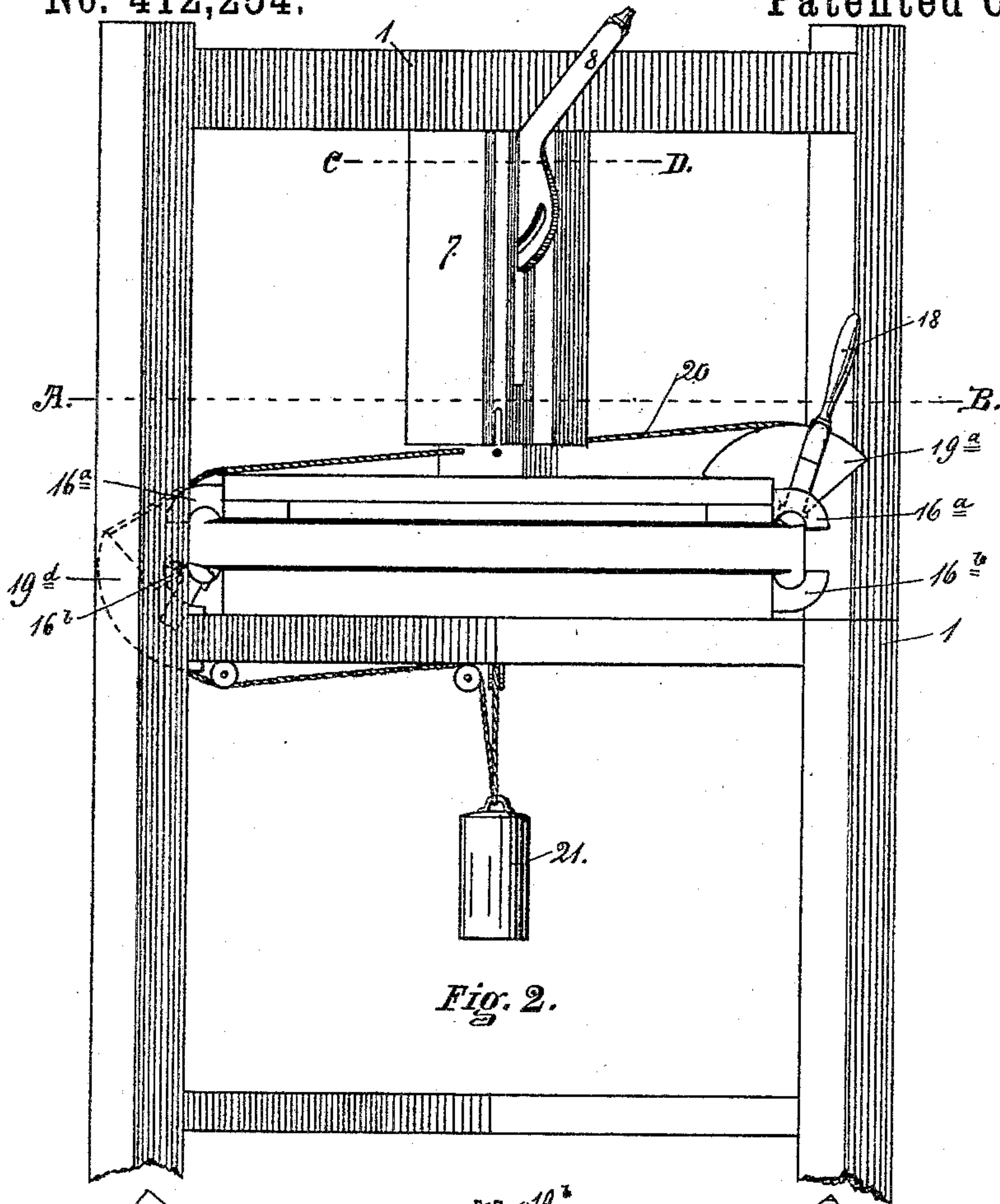


Fig. 2.

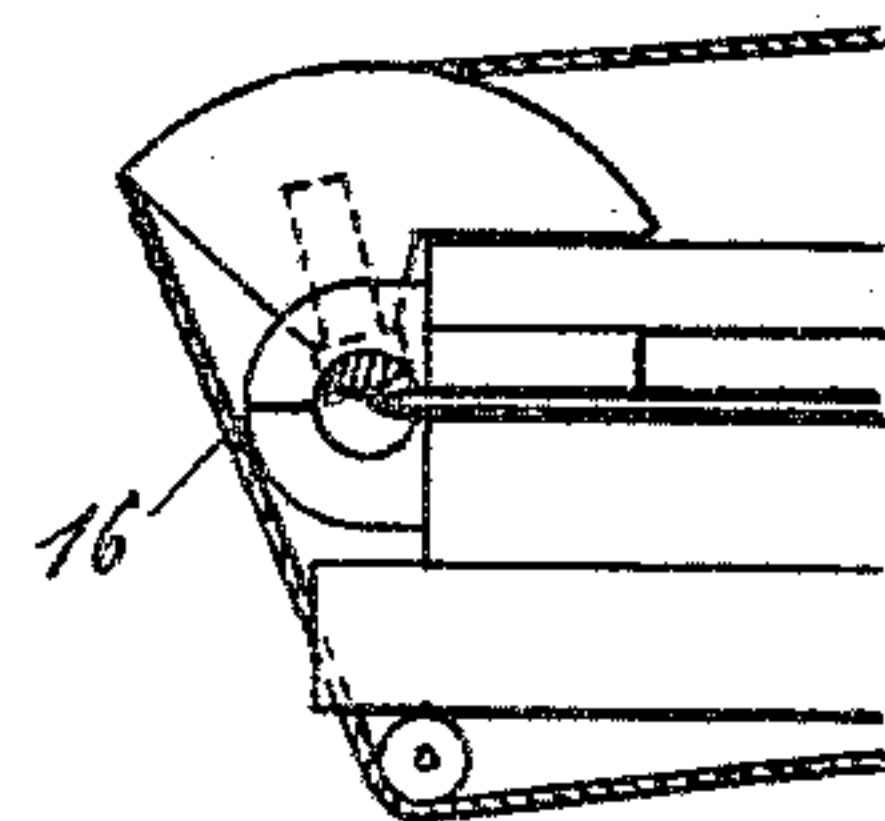


Fig. 3.

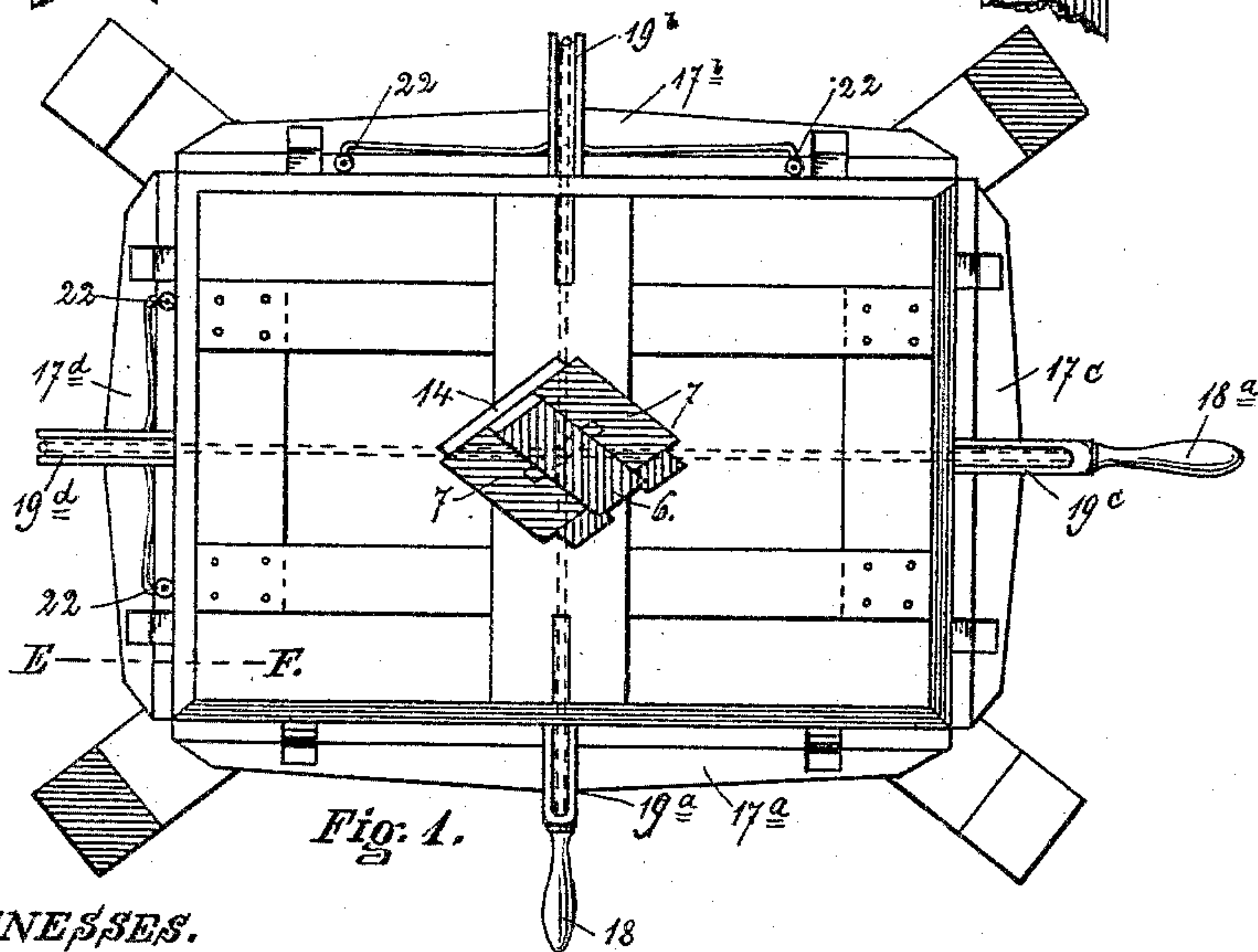


Fig. 4.

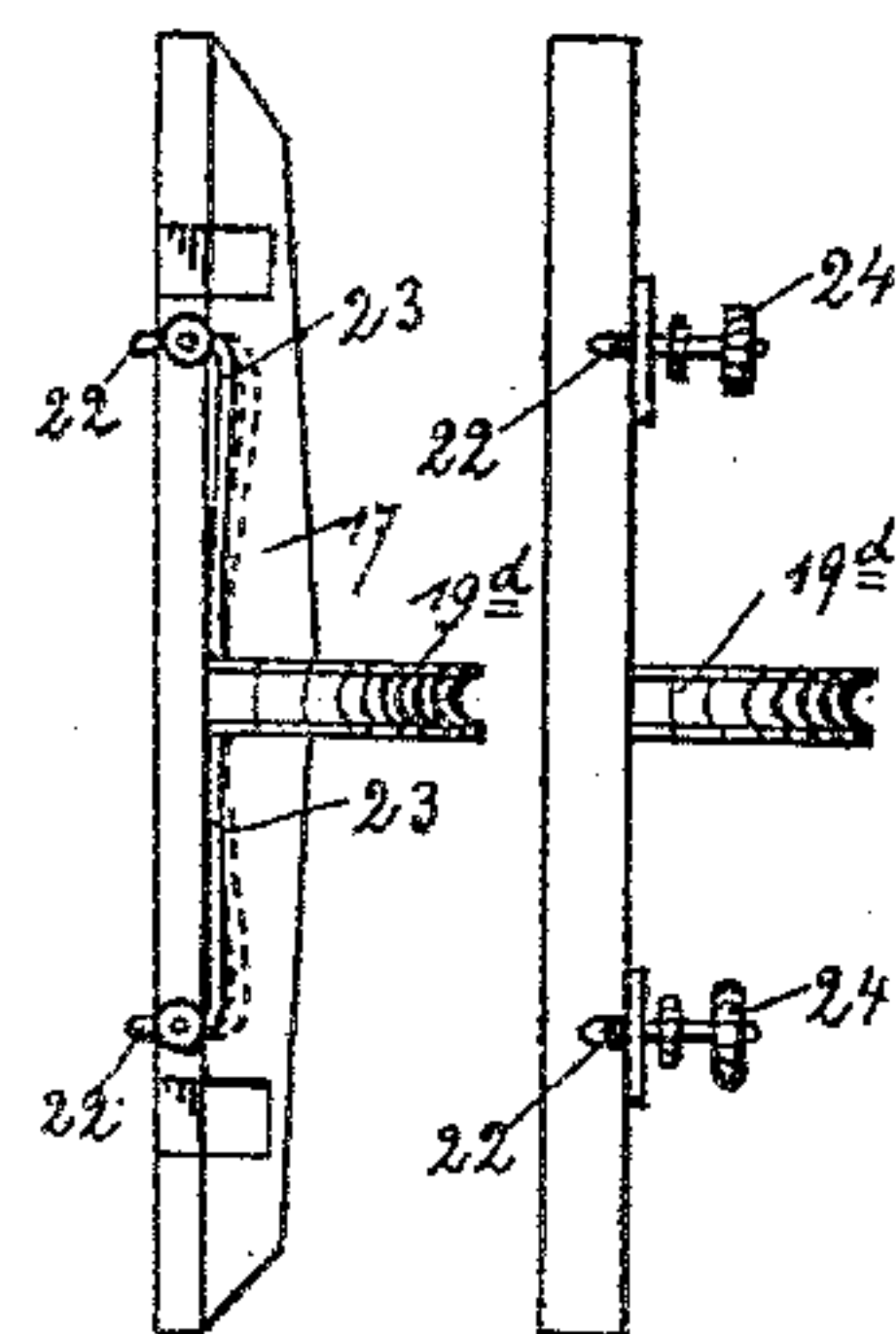


Fig. 5.

WITNESSES.

Rich. George.
M. Robinson

INVENTOR.

M. E. Hastings
By R. S. Perry
attys

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2 Sheets—Sheet 2.

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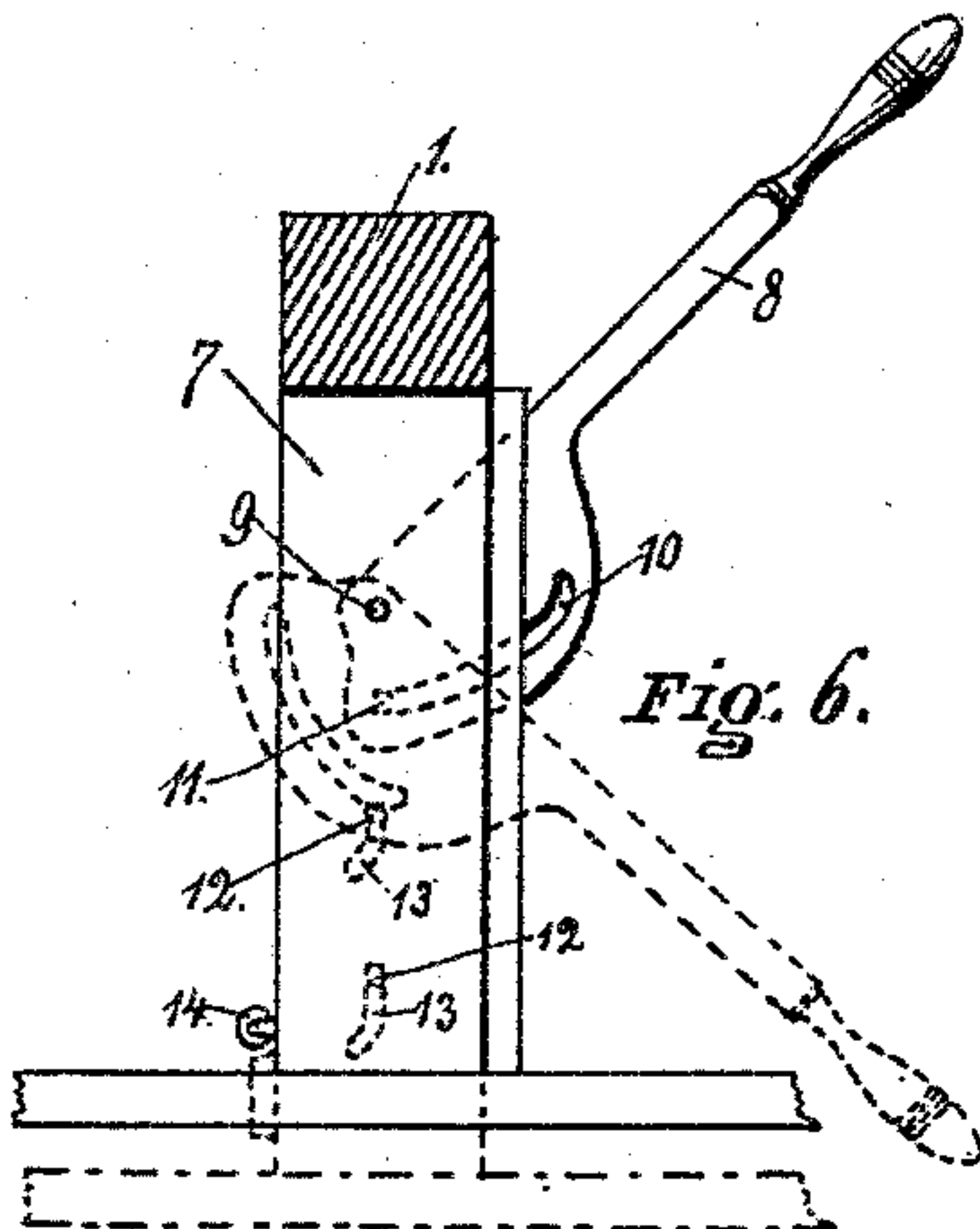


Fig. 6.

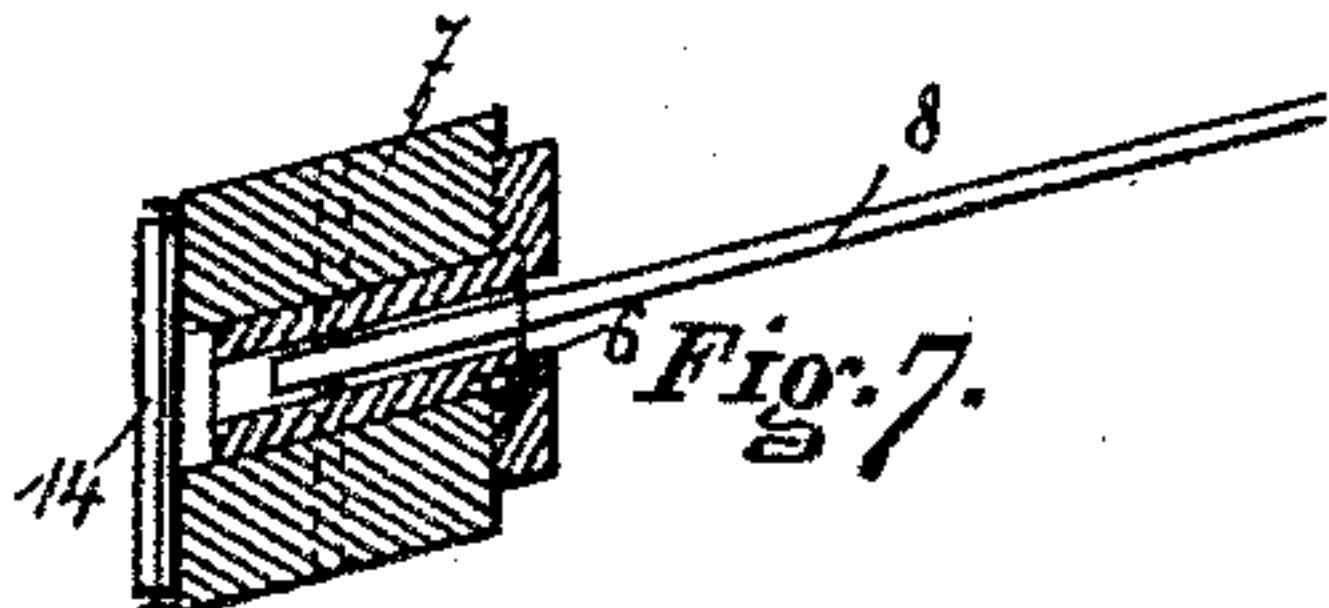


Fig. 7.

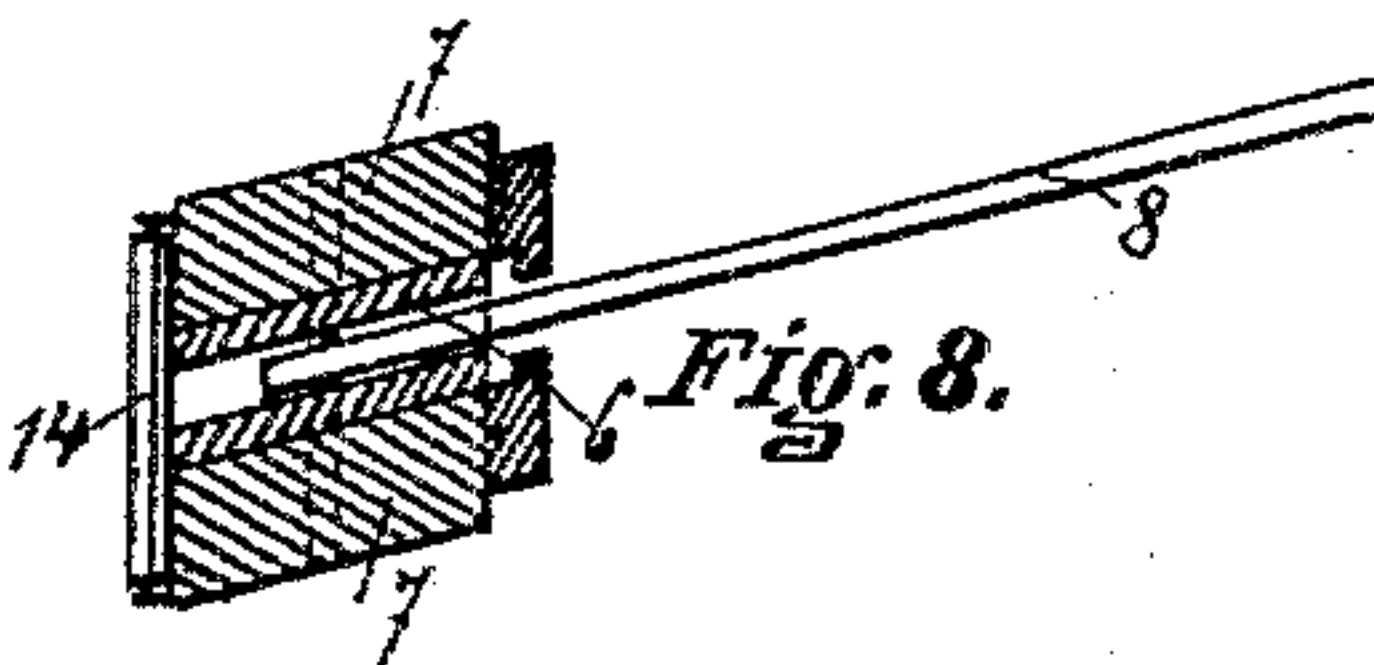


Fig. 8.

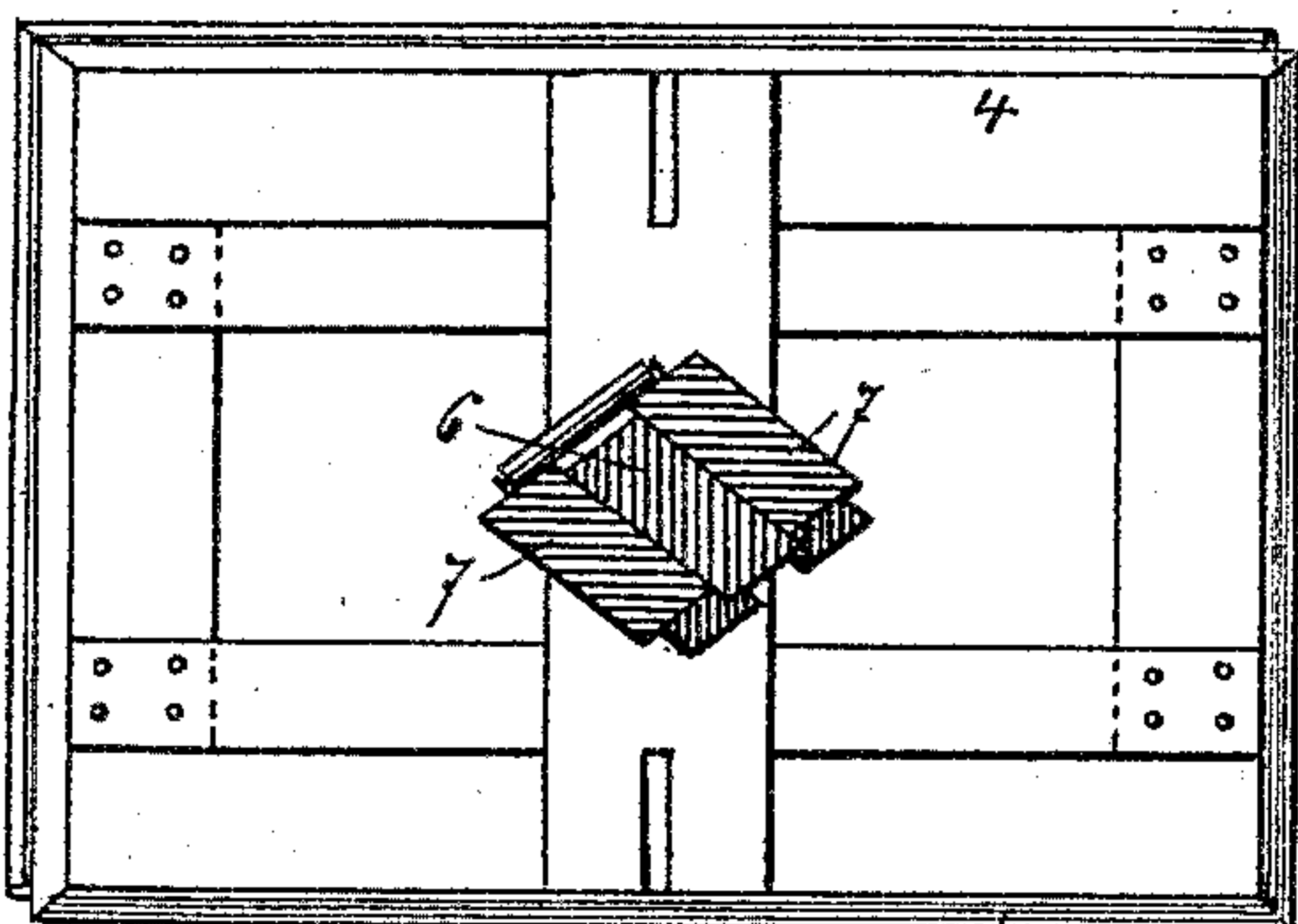


Fig. 5.

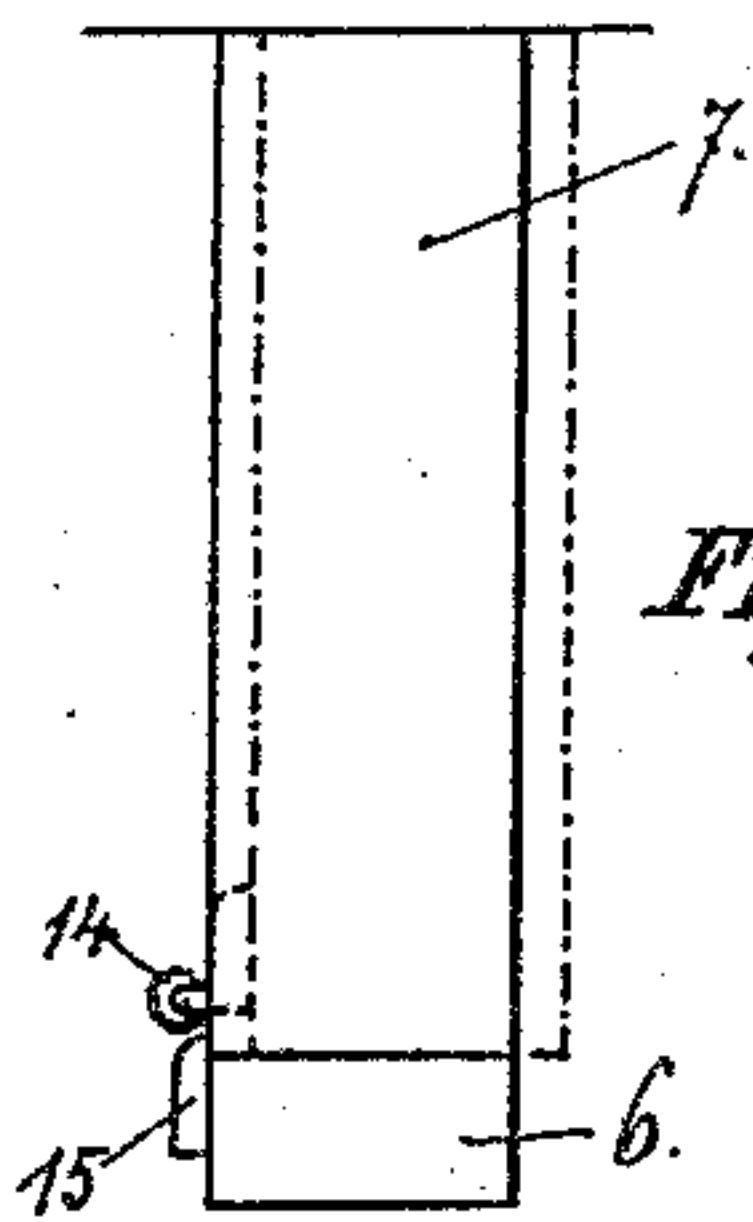


Fig. 6a.

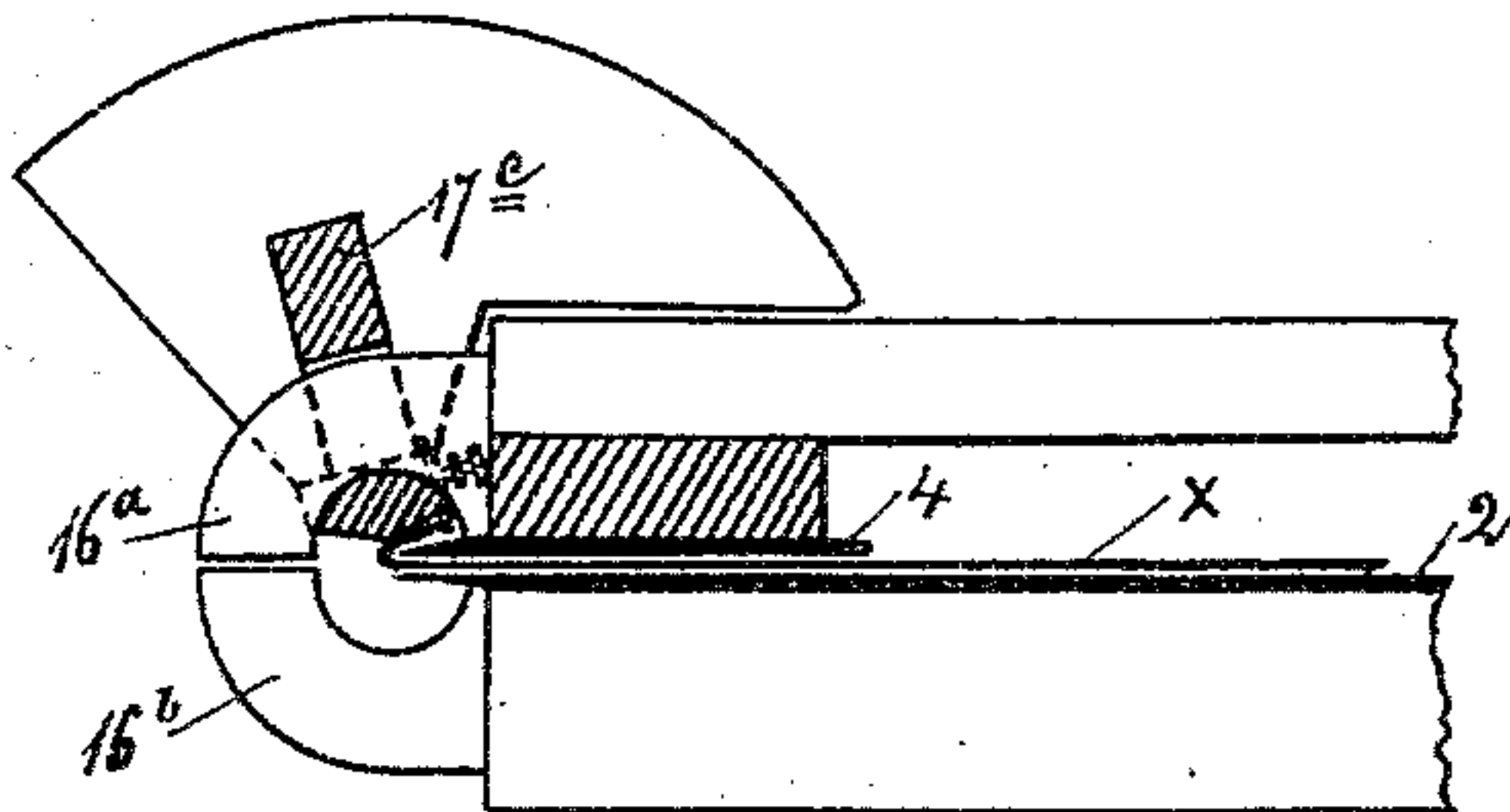


Fig. 10.

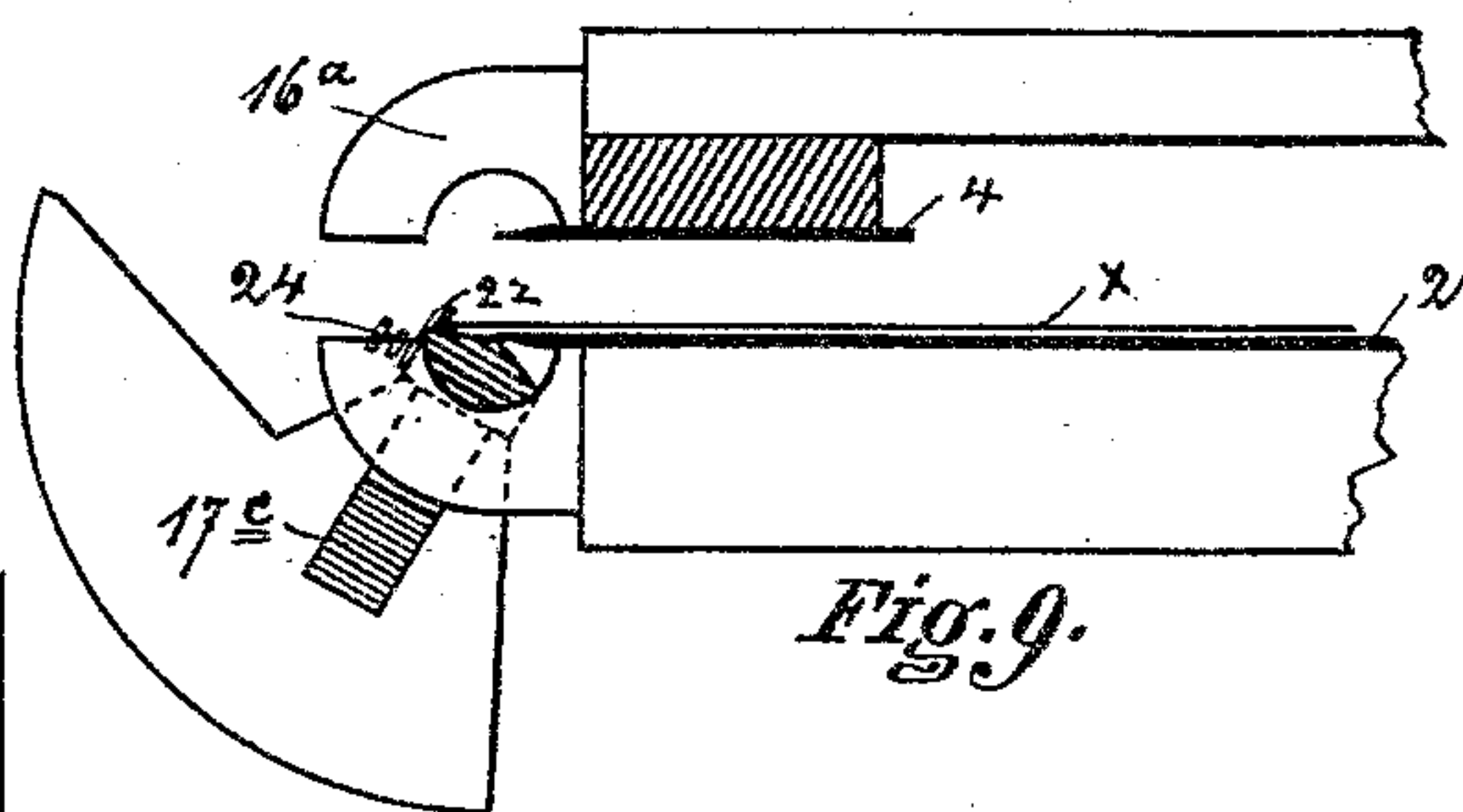


Fig. 9.

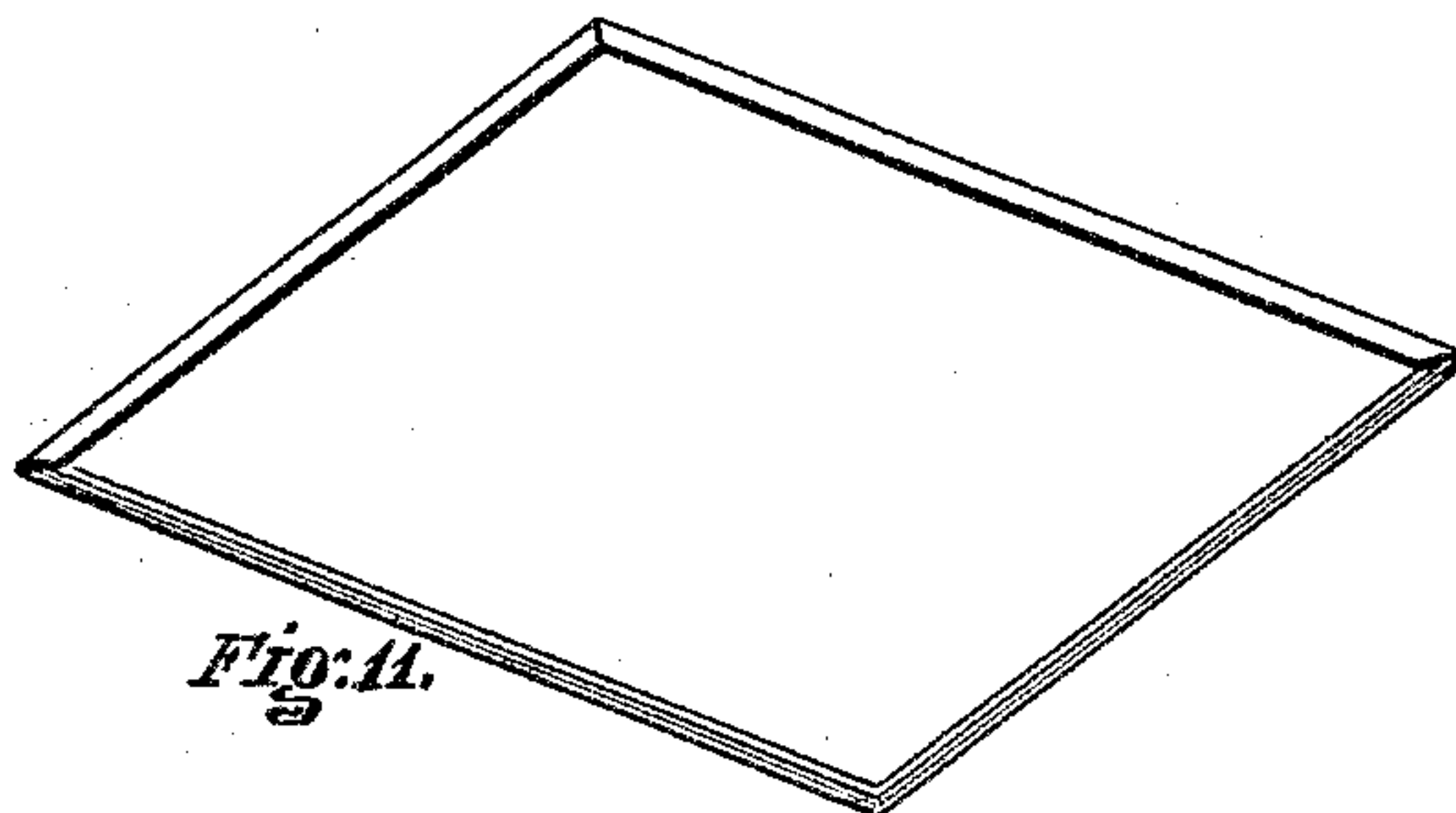


Fig. 11.

WITNESSES.

Rich. George.

McRobinson

INVENTOR.

M. E. Hastings
By R. B. Perry
Atty.

UNITED STATES PATENT OFFICE.

MATTHEW E. HASTINGS, OF NEW YORK MILLS, NEW YORK, ASSIGNOR OF
ONE-HALF TO W. STUART WALCOTT, OF SAME PLACE.

SHEET-METAL FOLDER.

SPECIFICATION forming part of Letters Patent No. 412,254, dated October 8, 1889.

Application filed May 2, 1889. Serial No. 309,333. (No model.)

To all whom it may concern:

Be it known that I, MATTHEW E. HASTINGS, of New York Mills, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Sheet-Metal Folders; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates to a machine for folding sheet metal.

In the drawings which accompany and form a part of this specification, and in which similar letters and figures of reference refer to like parts in the several figures of the drawings, Figure 1 shows a plan view of the working parts of the machine and a section substantially on a line with A B of Fig. 2, the "brakes" being partially turned down. Fig. 2 is a side view of the machine, certain parts being omitted to better illustrate features. Fig. 3 shows a portion of the machine, showing portions of the table, presser-plate, and brake. Fig. 4 shows a side and edge view of the brake removed from the machine. Fig. 5 shows a plan view of the presser-plate, and is especially designed to show a movement thereof relative to the table and a sheet of metal thereon. Fig. 6 shows a portion of the machine, showing the mechanism for operating the presser-plate. Fig. 6^a is supplemental to Fig. 6, and is intended to show the movement of the post carrying the presser-plate. Figs. 7 and 8 are sections on line C D of Fig. 2, showing movements of presser-plate post. Fig. 9 shows a portion of the table, presser-plate open or removed from the table, the brake, and a sheet of metal introduced preparatory to being operated upon by the machine, the same being taken substantially on line E F of Fig. 1. Fig. 10 shows the same parts after their movements and the folded edge of metal. Fig. 11 shows a sheet of metal after it has been operated upon by my machine.

In constructing my machine I provide a suitable frame 1, upon which is mounted a

table 2. The table 2 is provided with a projecting edge 3. A presser-plate 4 is adapted to descend upon the table 2, and is provided with a projecting edge 5. The presser-plate 4 is operated by a lever 8, which is pivoted at 9 in guides 7, and is provided with a cam-groove 10, in which groove the pin 11 in the post 6 engages the lever 8. The post 6 is also provided with pins 12 12, affixed therein, which engage in angle-slots 13 13 in guides 7. The post 6 has also affixed thereto a projection 15, having its upper end rounded and adapted to work against a roller 14, affixed to guides 7. Projecting from the edges of the presser-plate 4 are parts 16^a of the halved bearings 16, and from the edges of the table 2 project the complementary part 16^b of the bearings 16. Mounted in bearings 16 are what I term "brakes." (Shown at 17^a, 17^b, 17^c, and 17^d in Fig. 1. See Figs. 3, 4, 9, and 10.) Brakes 17^a and 17^c are provided with handles 18 18^a for operating them. The several brakes are also provided with segments of a pulley, as 19^a, 19^b, 19^c, and 19^d. A cord or band, as 20, is secured to 19^a and passes to 19^b, to which it is secured, and thence over a suitable roller to the weight 21. A cord similar to 20 is secured to 19^c, and passes over and is secured to 19^d, thence to weight 21. (The cords are omitted from Fig. 1 and one of them from Fig. 2.)

Upon the brakes 19^b and 19^d are adjustably movable stops 22, which are mounted upon or are a part of the springs 23, which springs are secured to the brake at or near the segment of the pulley. A stop 22 projects out of a slotted opening in the brake, and is adjustable therein by means of set-screws 24 in the slot.

The sheet of metal upon which the device operates is indicated by X.

The device is operated as follows: The presser-plate being raised from the table, as shown in Fig. 2, a sheet of metal is inserted from the front of the machine, which is indicated by Y in Fig. 5 upon the table 2. It will be observed that while the presser-plate and table are separated two of the brakes—that is, 17^a and 17^c—are in the upper half of the bearing 16, and are held therein between edge 5 of presser-plate 4 and the half of bearing 16 by cord 20, and two of them—i.

e., 17^b and 17^d—are in the lower half of 16^b of bearing 16. After the sheet of metal has been inserted between the table and presser-plate, handle 8 is brought down into the position shown in dotted lines in Fig. 6, which movement forces presser-plate 4 down onto the metal sheet upon the table and secures it there. When this is done, handles 18 and 18^a are turned down a little more than a quarter of a circle from the position shown in Fig. 2. They may be turned down together or separately. As the action of the brakes is the same in all except as to whether they turn up or down, the action thereof will be understood by reference to Figs. 9 and 10, in which X indicates the metal upon the table, and in Fig. 9 the presser-plate is shown raised and the brake in its normal position before movement. In Fig. 10 the presser-plate is shown after it has descended upon the metal sheet and the brake in the position it assumes upon the completion of its movement and before it has returned to its normal position. The two parts 16^a and 16^b of the bearing 16 are shown together in Fig. 10, making a complete bearing when it is required. The manner in which the edge of the sheet is folded will also be understood from the figures. After the completion of the last-described movement the brakes are returned to their normal position, as shown in Fig. 6^a. When the brakes are in the normal position of the brakes on opposite sides, one is in the upper half 16^a of the bearings and moves with the presser-plate and one is in the lower half 16^b of the bearing 16. After the brakes have been returned to the normal position the presser-plate is raised by throwing up lever 8, and it will be noticed that when the presser-plate is relieved from the sheet upon the table, and immediately upon its beginning its upward movement, it is moved from the position shown in *a* in dotted lines in Fig. 5 to the position shown in full lines. This movement is caused or facilitated by the roller 14 (see Figs. 6 and 6^a) engaging on the upper inclined or rounded surface of the projection 15 on the presser-plate post, is permitted and facilitated by the angle in the slots 13, and removes the edge of the presser-plate from under the folded edge of the sheet and allows it to be raised from the table without carrying the sheet therewith.

When the presser-plate is fully raised, the sheet, having its edges folded, as shown, may be removed and a new sheet inserted, when the machine is ready for a repetition of the processes described.

In placing the sheets upon the table stops 22, provided upon the brakes that remain in the part of the bearing 16 secured to the table while the presser-plate is raised, facilitate the proper location thereof, and these stops are adjustable by means of screws 24 to accommodate variations in sizes of sheets.

It is evident that springs might be provided for returning the brakes to their normal positions, that the cords connecting the brakes

may be omitted, and means for operating each brake independently of the others or all together provided. The vertical and horizontal movement of the presser-plate with reference to the table may be distributed between the table and presser-plate—as, for instance, the table may have one of the movements and the presser-plate the other, or both may be made in the table—and that other means might be employed for producing the horizontal diagonal movement of the presser-plate with reference to the table, all of which I should consider the equivalent of my construction, and other alterations and modifications in and from the construction described may be made without departing from the spirit of my invention or the equivalents of my construction.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a sheet-metal-folding machine, the combination of a quadrilateral table, a presser-plate, substantially of the size and form of the table, adapted to descend thereon, brakes upon the two adjacent sides of the table, adapted to work by or around its edge, and brakes upon the two adjacent sides of the presser-plate, being the opposite sides to those having the brakes on the table, the brakes upon the presser-plate being adapted to work by or around its edge, substantially as set forth.

2. In a sheet-metal-folding machine, the combination of the table having a partial bearing affixed thereto, a presser-plate having the complement of the bearing affixed thereto, and the brake working in the bearings.

3. The combination of the table, the presser-plate adapted to descend upon the table and having a vertical and horizontal movement, and the bearings, parts of which are affixed to the presser-plate and table, respectively, and adapted to be brought together when the presser-plate descends upon the table, and the brakes in said bearings.

4. In a sheet-metal folder, the combination of the table, the presser-plate adapted to descend upon the table and mounted upon a post movable within guides, the angular slot in the guides, and pin in the post engaging in the slot.

5. In a sheet-metal folder, the combination of the table, the presser-plate adapted to descend upon the table and mounted upon a post movable within guides, the roller upon the guides, and the projection upon the post having a rounded or beveled edge and adapted to engage the roller upon each upward movement, whereby sidewise movement is given to the presser-plate to withdraw it from the fold, substantially as set forth.

In witness whereof I have affixed my signature in presence of two witnesses.

MATTHEW E. HASTINGS.

Witnesses:

EDWIN H. RISLEY,
M. E. ROBINSON.