

(No Model.)

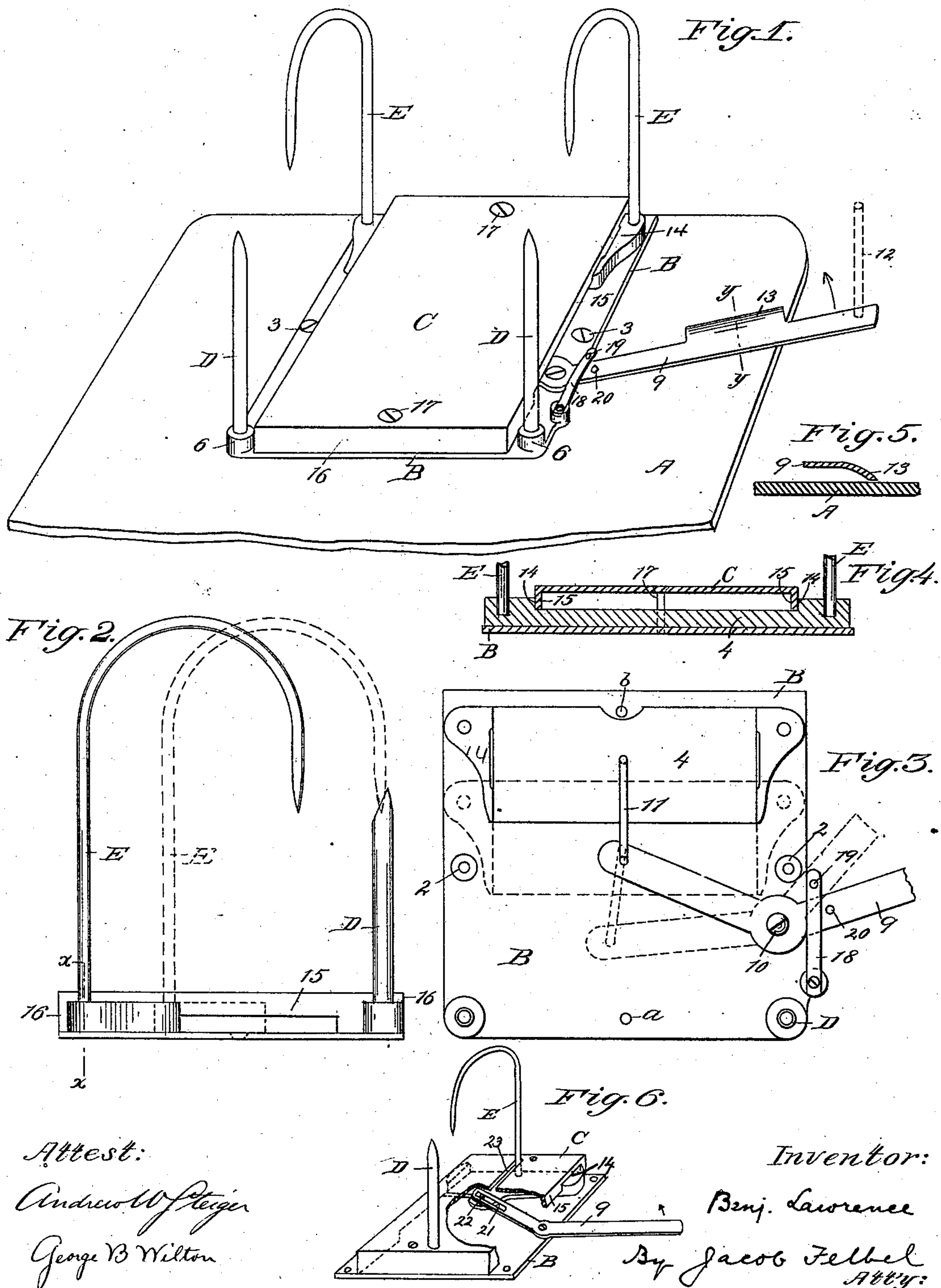
2 Sheets—Sheet 1.

B. LAWRENCE.

LETTER FILE.

No. 369,065.

Patented Aug. 30, 1887.



(No Model.)

2 Sheets—Sheet 2.

B. LAWRENCE.

LETTER FILE.

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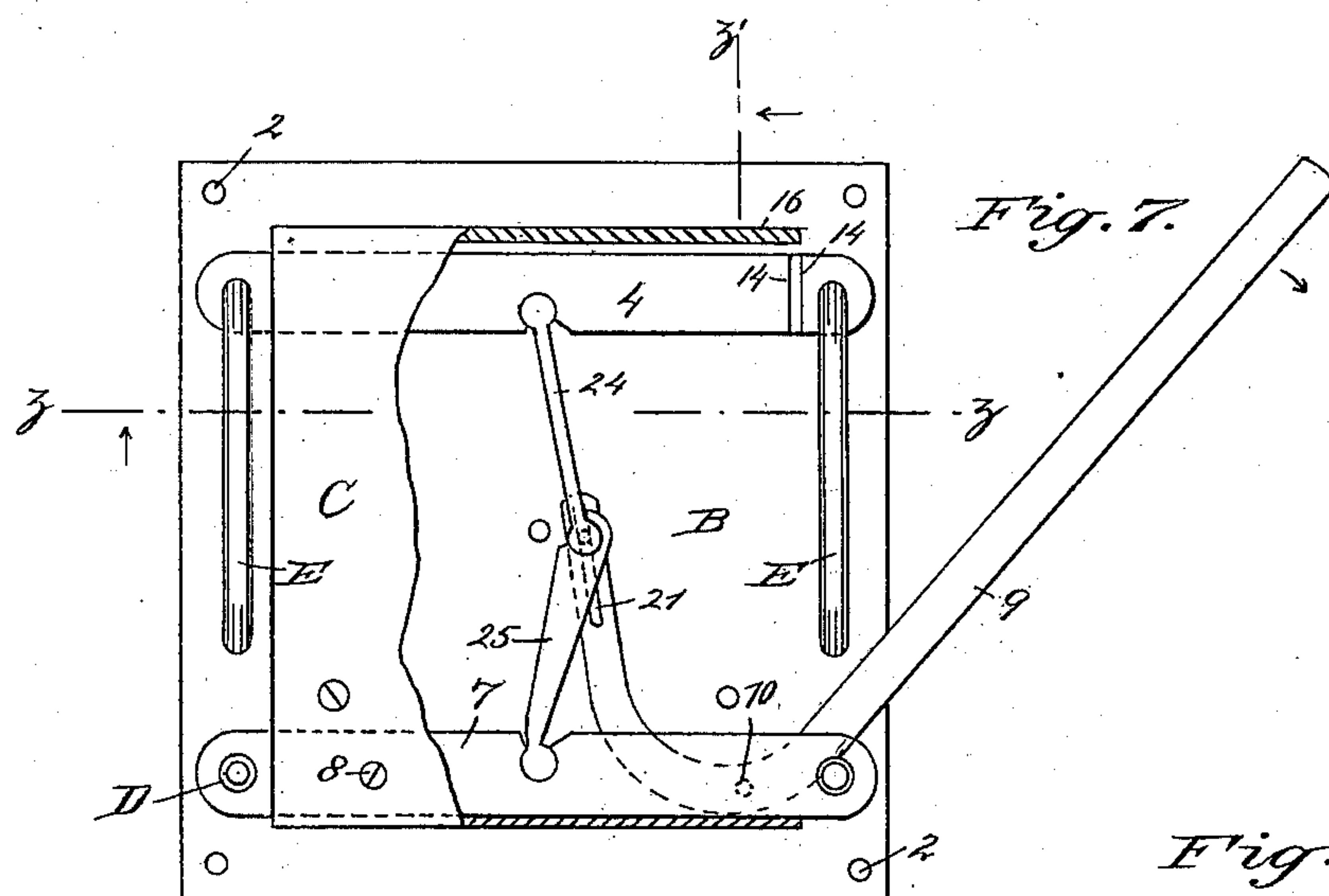


Fig. 7.

Fig. 8.

Fig. 9.

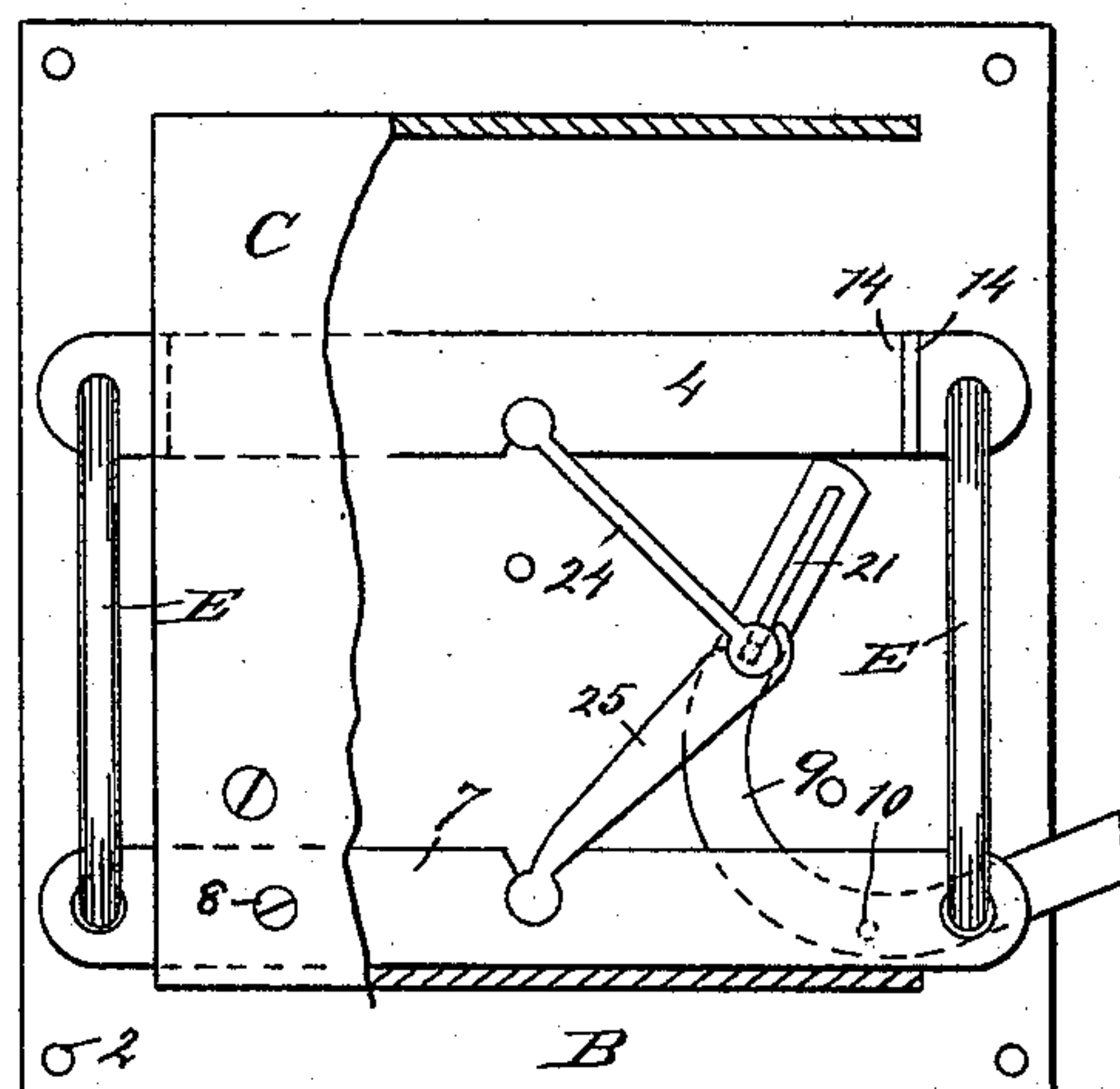
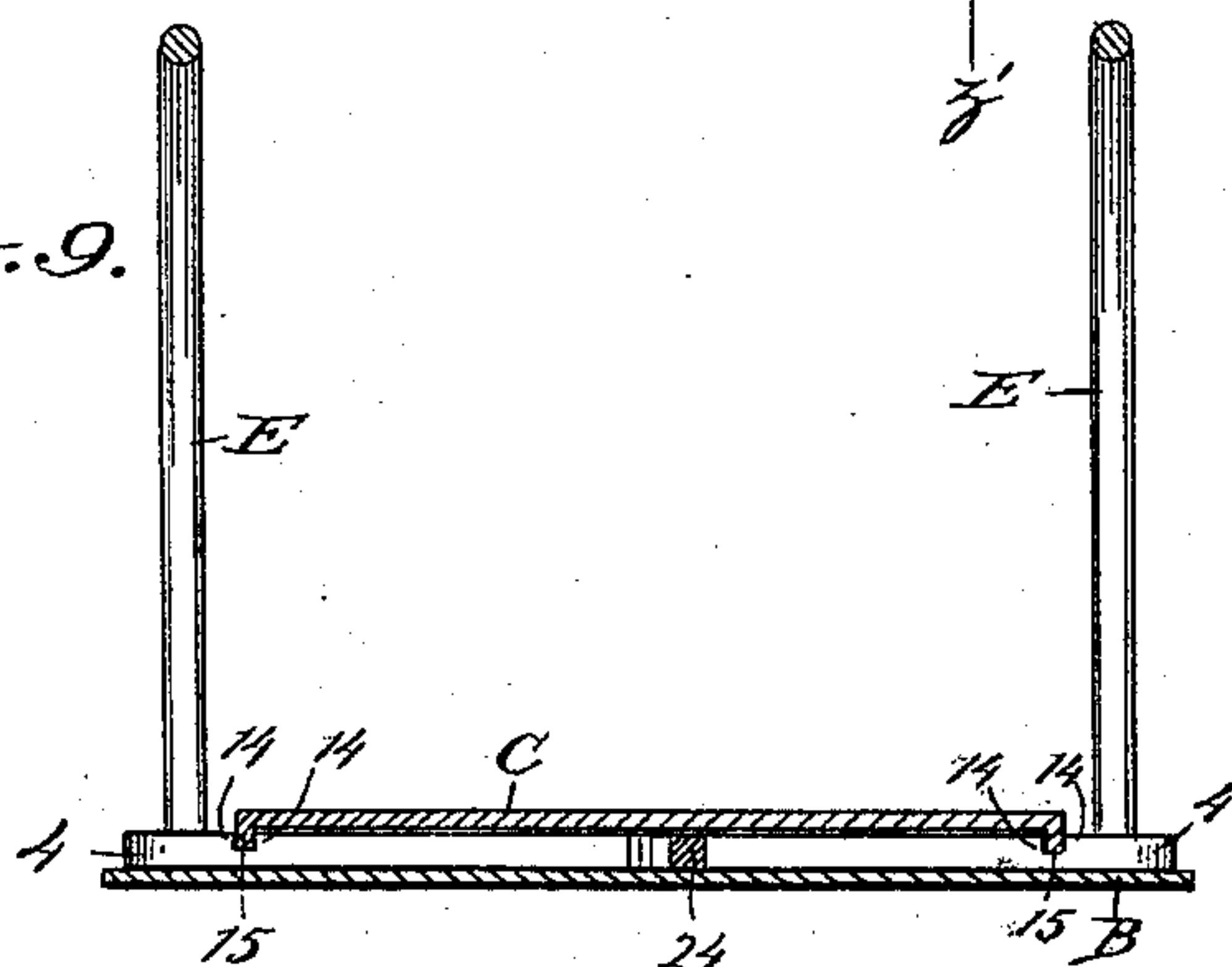
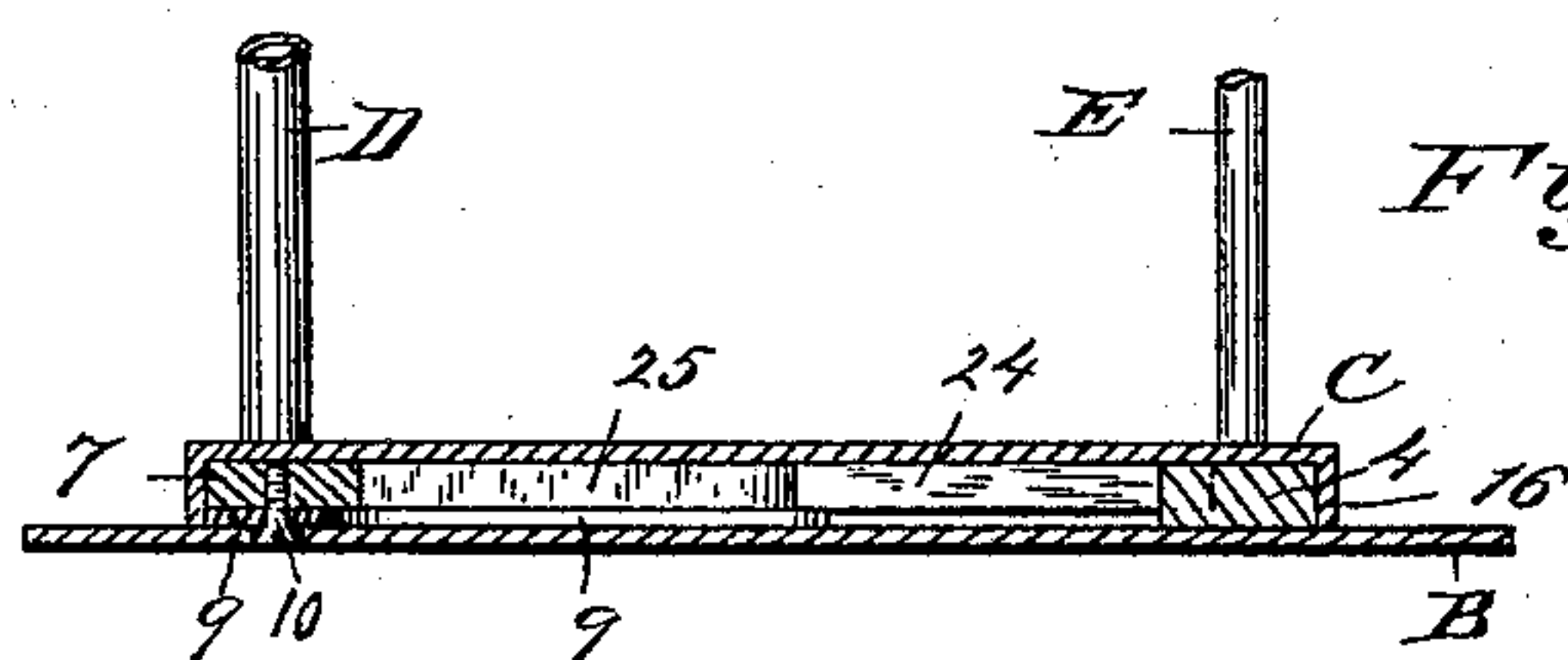


Fig. 10.



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UNITED STATES PATENT OFFICE.

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LETTER-FILE.

SPECIFICATION forming part of Letters Patent No. 369,065, dated August 30, 1887.

Application filed June 25, 1887. Serial No. 242,425. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN LAWRENCE, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Letter-Files, of which the following is a specification.

Previous to my invention letter and bill files and temporary binders of the kind employing one or more puncturing-wires and one or more transfer-wires have been made in a variety of ways. In some constructions the transfer-wires have been hinged, in others they have been arranged to rotate or turn about their vertical axes, and in others the puncturing-wires or the transfer-wires have been arranged to slide bodily back and forth to open and close the file.

My invention relates more particularly to the last-mentioned type of structures, and has for its main objects to improve the construction and operation of the same; and it consists in the features of construction and combinations of parts, hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a perspective view of a letter-file embodying my invention, the lower portion of the board or tablet being broken off to economize in space on the sheet of drawings. Fig. 2 is an elevation of the same, taken at the left-hand side and omitting the board. Fig. 3 is a plan view of the contrivance with the top plate or cover and the transfer-wires removed. Fig. 4 is a vertical cross-section taken at the line $x x$ of Fig. 2. Fig. 5 is a vertical section taken at the line $y y$ of Fig. 1. Fig. 6 is a perspective view of a "single-wire" file involving a modification of my invention, the top plate being broken away to show the construction. Fig. 7 is a top view of another modification of my invention with the top plate of the file broken away. Fig. 8 is a similar view thereof to illustrate the positions of the parts when the file is closed. Fig. 9 is a vertical section taken at the line $z z$ of Fig. 7, and Fig. 10 is a vertical section taken at the line $z' z'$ of Fig. 7.

In the various views the same parts will be found designated by the same letters and numerals of reference.

A represents the usually-employed board or tablet for supporting the letters, bills, or other papers, and upon which the filing contrivance is secured.

B designates a bed-plate or support; C, a top plate or cover; D, the puncturing or impaling wires, and E the transfer-wires.

The bed-plate B is provided with perforations 2 at suitable points to enable its securement by screws 3 or otherwise to the board A.

The transfer-wires are curved at their upper ends, as usual, and are connected at their lower ends to a cross-bar, 4, which is adapted to slide longitudinally of the board.

The puncturing wires or tubes may be secured either in the board, the bed-plate, or the cover. In Figs. 1, 2, and 3 the puncturing-wires are shown fixed in perforated ears 6 on the upper surface of the bed-plate at its front corners. In Fig. 6 the puncturing-wire is attached to the cover, while in Figs. 7, 8, and 10 the puncturing-wires are mounted rigidly in the ends of a cross-piece, 7, which, by means of rivets or screws 8, is attached to the cover or top plate.

9 represents a lever for actuating the transfer-wires.

Referring, now, particularly to Figs. 1, 2, 3, 4, and 5, it will be observed that the lever is pivoted to the base-plate at 10, and is connected at its inner shorter arm to the cross-bar 4 by a link or connecting-rod, 11. The outer longer arm of the lever projects preferably slightly beyond the side edge of the board and may be provided at its extremity with an upright, post, or head, 12, to facilitate the operation of the lever. This outer arm of the lever is also preferably formed or provided with a downwardly-extending lip or flange, 13, for the purpose of directing the papers or letters when upon the transfer-wires over the top of the lever when the latter is vibrated in the direction of the arrow at Fig. 1.

The cross-bar 4 is cut away or hollowed out between its ends to form shoulders or bearing-surfaces 14, to slide against the parallel depending side flanges, 15, of the cover C, and by which means the transfer-wires are guided in right lines in their movements to and from the puncturing-wires. The cover, as will be seen, is made of a width slightly less than the

distance apart of the shoulders 14, and in addition to the side guiding-flanges is provided with end flanges, 16, for its support, and with perforations for the insertion of screws 17, to effect its securement in position. The point of the forward screw engages with the threaded hole *a* in the bed-plate and the point of the rear screw with the threaded hole *b* therein, the back edge of the cross-bar 4 being notched out for this purpose. Instead of thus fastening the cover it will be understood, of course, that it may be secured in position in some other way or by different means.

In order to hold the points of the transfer-wires close against the puncturing-wires when the two sets of wires are brought together, and thus avoid any liability of the accidental opening of the arches during the transference of papers, I provide the following means: A flat spring, 18, is made fast at one end, preferably to the bed-plate, and is formed at its opposite free end with a hole or perforation, 19, which springs upon or over a conical pin, 20, projecting upwardly from the lever 9, at the termination of the stroke of the latter in the direction of the arrow at Fig. 1 and when the transfer-wires have been moved to engage with the puncturing-wires, as indicated by the dotted lines at Fig. 2. At the start of the lever to move in the opposite direction the conical pin readily raises the point of the spring and frees itself from the perforation therein. I have found in practice that these simple devices serve admirably the purpose for which they are employed.

The operation of the file illustrated at Figs. 1 to 5 of the drawings requires now only brief description. In Fig. 1 the file is shown open and the fixed wires adapted for the impalement and removal of letters, bills, &c. To close the file, either for the purpose of preventing the accidental detachment of the papers or to enable the user to transfer the papers or a portion of them to the wires *E*, the lever is vibrated in the direction of the arrow, and through the connection described the cross-bar and the transfer-wires thereupon are slid along toward the puncturing-wires until the points of the transfer-wires join or lap those of the puncturing-wires and the spring engages with the pin upon the lever, all as represented by the full and dotted lines at Figs. 2 and 3. Should it be desired now to effect the removal of some paper below the top of the pile on the puncturing-wires, all those papers above it are lifted up and over onto the transfer-wires. The outer arm of the lever is then swung downwardly and its inner arm caused to push backward the transfer-wires and the papers upon them, whereupon the desired paper upon the puncturing wires may be removed. To return the transferred papers to the puncturing-wires again, move the lever as per the arrow at Fig. 1 to close the file, and then turn the papers over and down upon the puncturing-wires.

If the papers upon the transfer-wires extend all the way down to the cover and are of a

width approximating to that of the board, their outer rear portions or edges will sag, and would foul the lever in the last-mentioned movement were not some means provided for raising and directing the same over the top of the lever. The lip 13 obviates this difficulty effectually.

I have shown at Fig. 6 as a substitute for the link 11 a pin-and-slot connection, the lever 9 being slotted at 21 and the cross-bar 4 being provided with a pin, 22, to engage therewith. This view shows, also, the application of my invention to a file having only one puncturing-wire and one transfer-wire, the lower portion of the latter being adapted to slide in a slot or opening, 23, formed longitudinally of the cover.

At Figs. 7, 8, 9, and 10 I have shown another form of connection that may be used in lieu of the link 11, which is, however, the means I prefer to employ.

The lever is slotted at 21 for the accommodation of a pin projecting from an arm, 24, that is pivoted or fulcrumed in the cross-bar 4. An arm, 25, is jointed at its inner end to the arm 24, and at its outer end is arranged to turn in a socket or seat in the cross-piece 7. At Fig. 7 of the drawings the file is shown open, and may be closed by turning the lever in the direction of the arrow thereat, the arms 24 and 25 operating as toggles and moving into the position illustrated at Fig. 8.

In the various modifications the cover is provided with side flanges, 15, which guide the cross-bar laterally and hold it against vertical movement and insure the proper reciprocation of the movable wires.

So far as the main feature of my invention is concerned it is immaterial whether the transfer-wires or the puncturing-wires be arranged to move. It is possible, though in my opinion not so desirable, to mount the puncturing-wires upon a sliding cross-bar, as 4, and arrange the lever to move the latter back and forth to cause the puncturing-wires to meet and depart from fixed transfer-wires. It is also immaterial whether the base-plate be used, because the puncturing-wires may be fastened to the board, the lever pivoted directly upon the board, and the cross-piece carrying the transfer-wires arranged to slide upon the board; and it is also immaterial whether the cover be used, as some other means may be employed for holding the movable wires in position and guiding them in their movements back and forth. I prefer, however, to use the base-plate and the cover, as they make a better structure and enable me to pack and ship the files proper and the boards or tablets separate, and thus greatly economize in bulk and cost of transportation.

The main feature of my invention rests in the employment of the lever to effect the reciprocations of the movable wire or wires, and thus avoid the necessity for pushing or pulling directly upon the latter and the liability of destroying the alignment of the puncturing and transfer wires. To obviate the necessity of

handling the movable sliding wires to open and close the file, it has been suggested heretofore to employ a knob at the rear side of the cross-bar; but the objection to this construction is that it is awkward to get at and operate, particularly when the papers are swung over onto the transfer-wires.

The lever employed by me is out of the way when the papers are on the puncturing-wires and on the transfer-wires, and affords a ready means for conveniently, quickly, and easily opening and closing the file, and requires the use of one hand only for the purpose.

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

1. In a letter-file, the combination, with a puncturing-wire and a transfer-wire, one of said wires being adapted to slide back and forth, of a lever arranged to vibrate in a plane parallel with the base or board and adapted to effect the reciprocations of said sliding wire, substantially as set forth.

2. In a letter-file, the combination, with duplex puncturing-wires and duplex transfer-wires, one set of said duplex wires being mounted in a sliding cross-bar, of a lever connected to said cross-bar and adapted to reciprocate the same, substantially as set forth.

3. In a letter-file, the combination, with duplex puncturing-wires and duplex transfer-wires, one set of said duplex wires being mounted in a sliding cross-bar, of a lever for reciprocating the latter and means for guiding it in its movements back and forth, substantially as set forth.

4. In a letter-file, the combination, with duplex puncturing-wires and duplex transfer-wires, one set of said duplex wires being

movable, of a lever for operating the movable wires and means for holding the two sets of wires together against accidental separation during the transference of papers, substantially as set forth.

5. In a letter-file, the combination, with duplex puncturing-wires and duplex transfer-wires, one set of said wires being movable, of a lever for operating the movable wires, provided with a lip for elevating the papers, substantially as set forth.

6. In a letter-file having duplex puncturing-wires and duplex transfer-wires, the combination of the sliding cross-bar containing one set of said wires and provided with bearing-surfaces, and the cover or top plate provided with depending side flanges against which said bearing-surfaces may slide, substantially as set forth.

7. In a letter-file, the combination of duplex sliding wires, a rigid cross-piece forming a connection between said wires, and a lever connected to said cross-piece and adapted to reciprocate the same in a plane parallel with the base or board of the file, substantially as set forth.

8. In a letter-file, the combination of duplex sliding wires, a rigid cross-piece between said wires, a lever, and a connecting-link, as 11, substantially as set forth.

Signed at New York city, in the county of New York and State of New York, this 23d day of June, A. D. 1887.

BENJAMIN LAWRENCE.

Witnesses:

JACOB FELBEL,
CHAS. A. HESS.