

No. 819,699.

PATENTED MAY 1, 1906.

L. E. MORRISON.

SHEET MANIPULATING MECHANISM FOR PRINTING PRESSES.

APPLICATION FILED AUG. 22, 1905.

2 SHEETS—SHEET 1.

Fig. 2

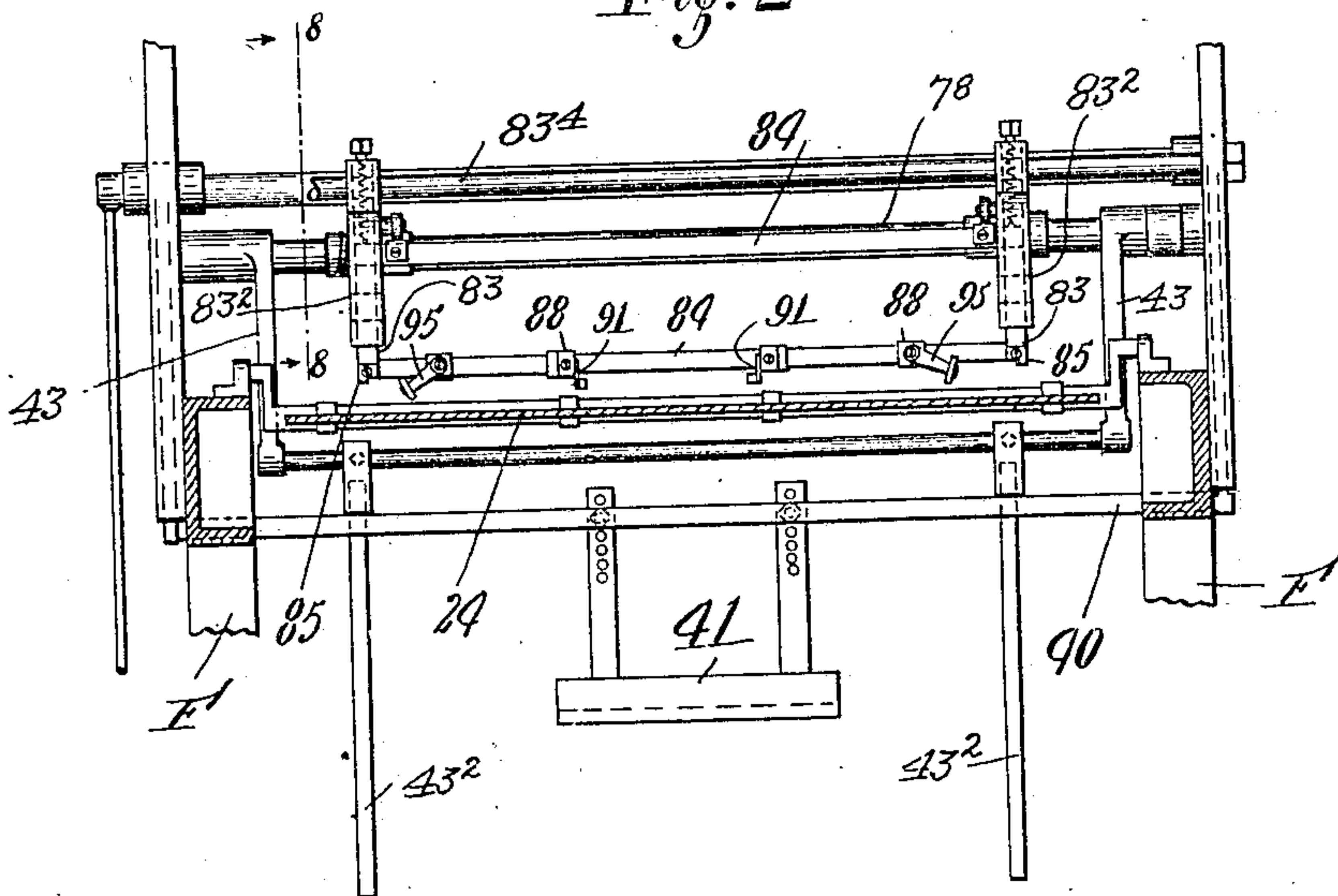
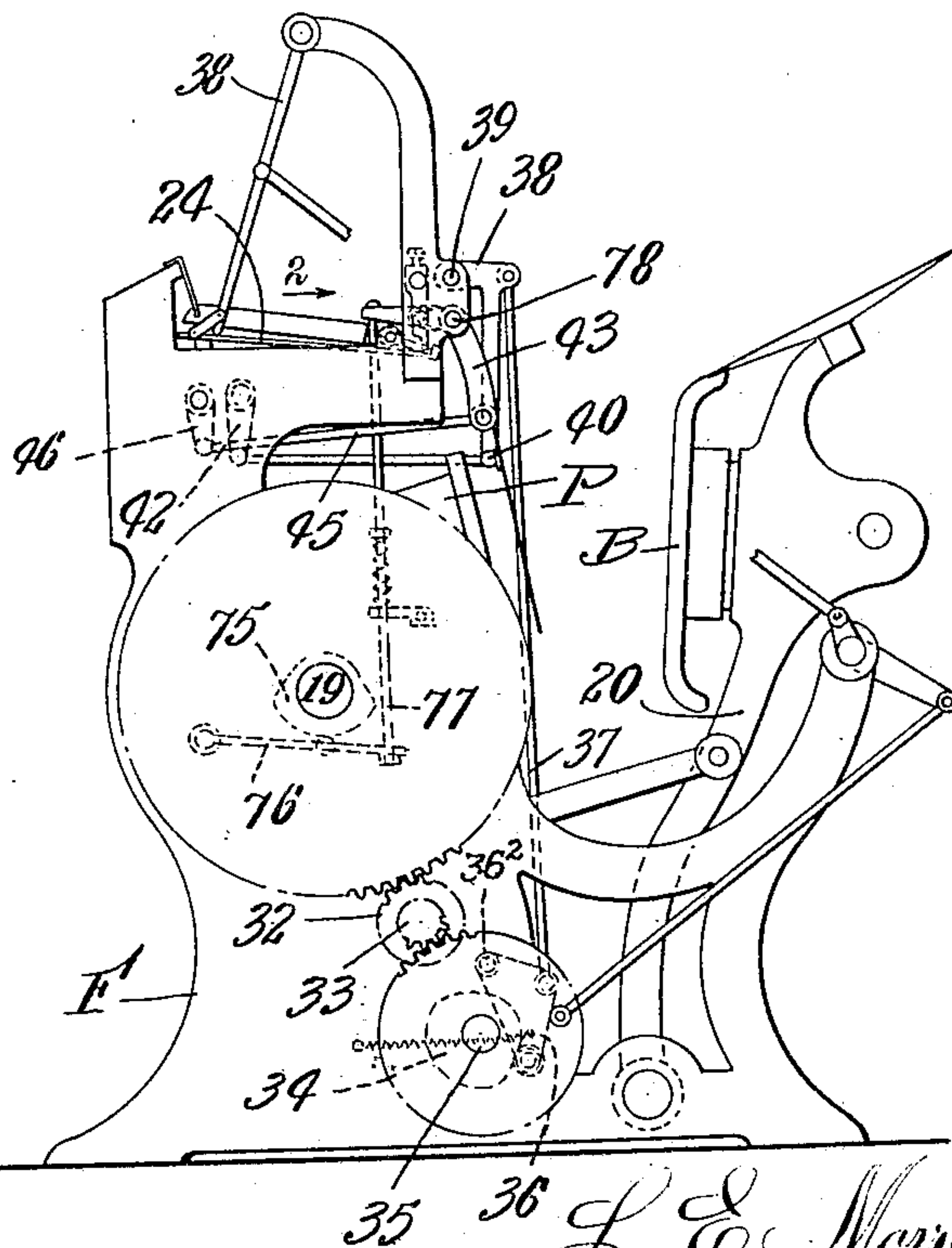


Fig. 1



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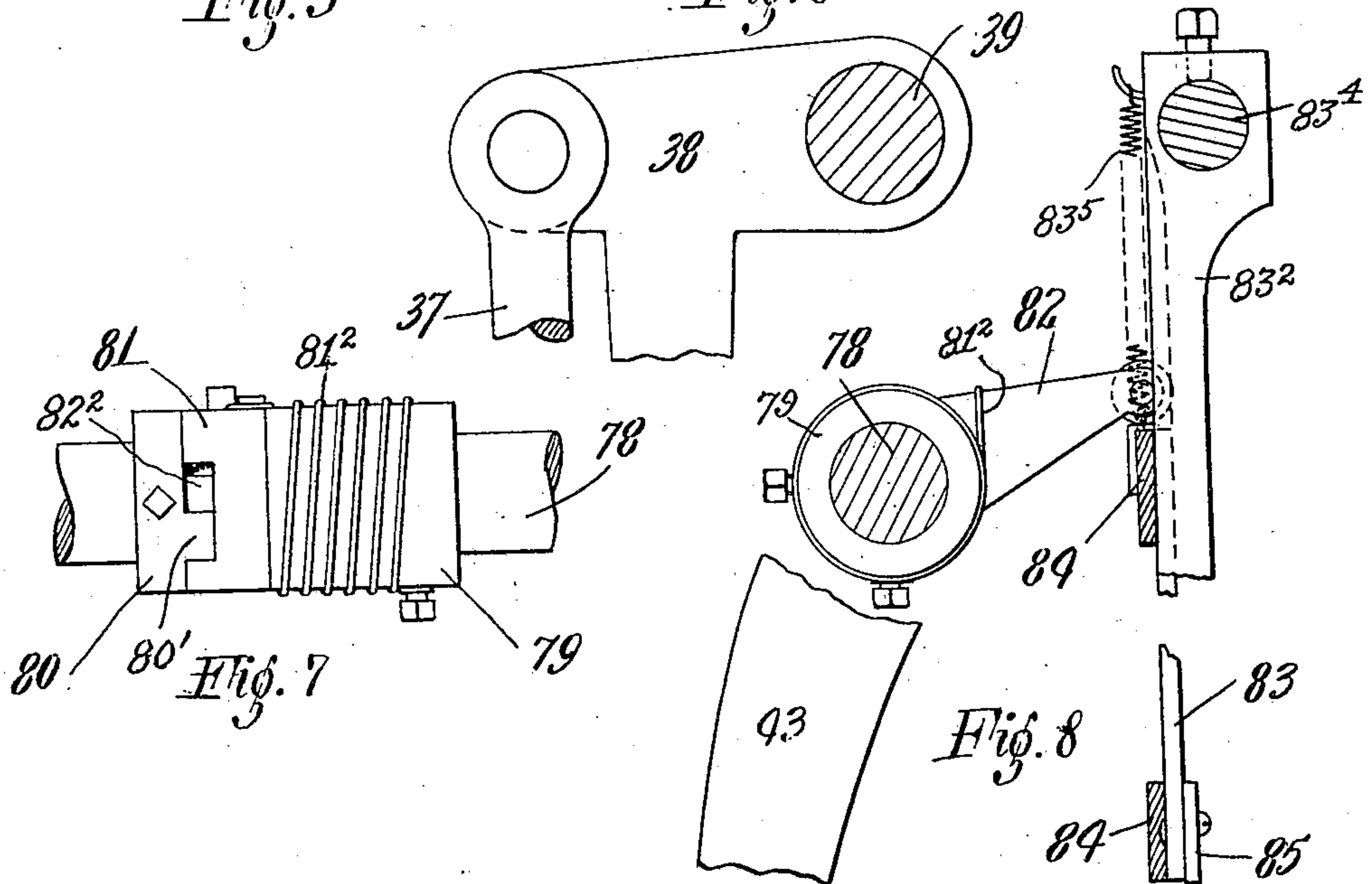
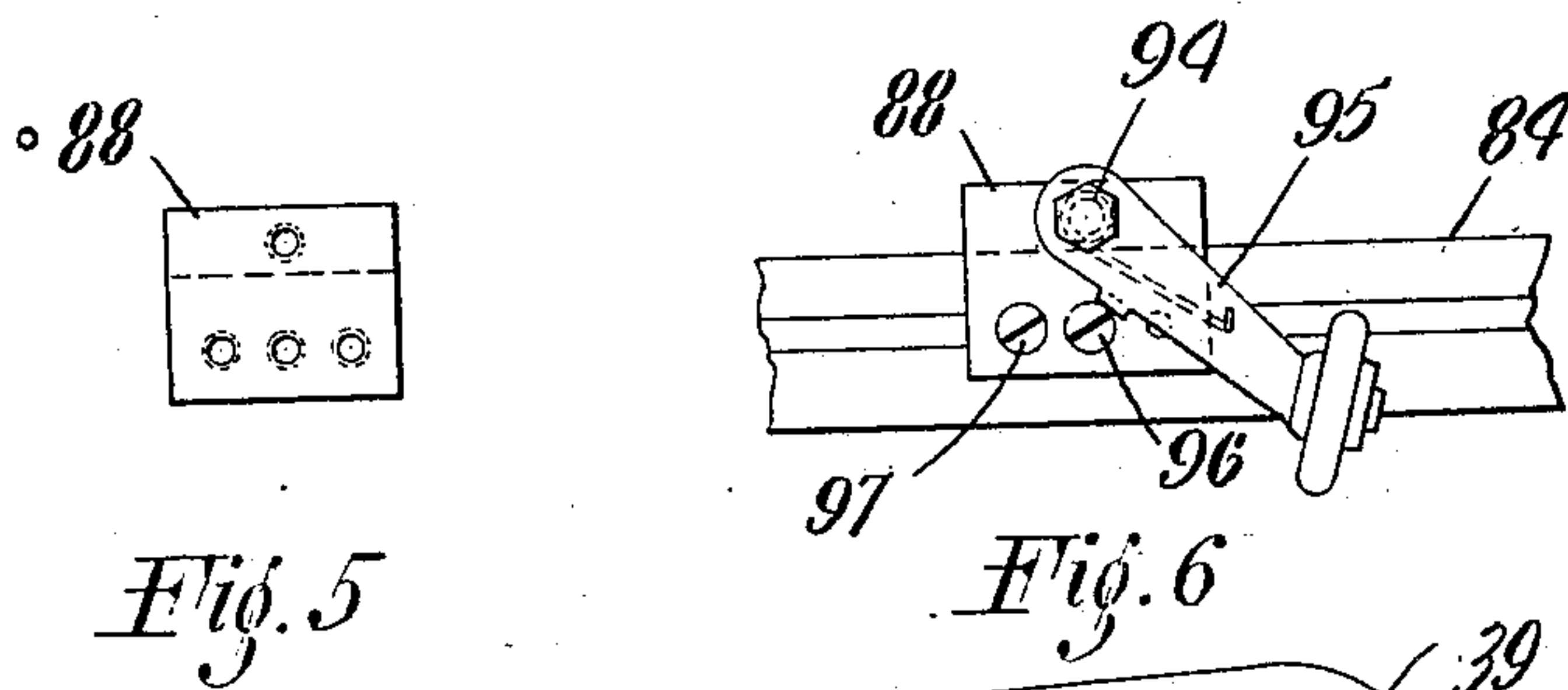
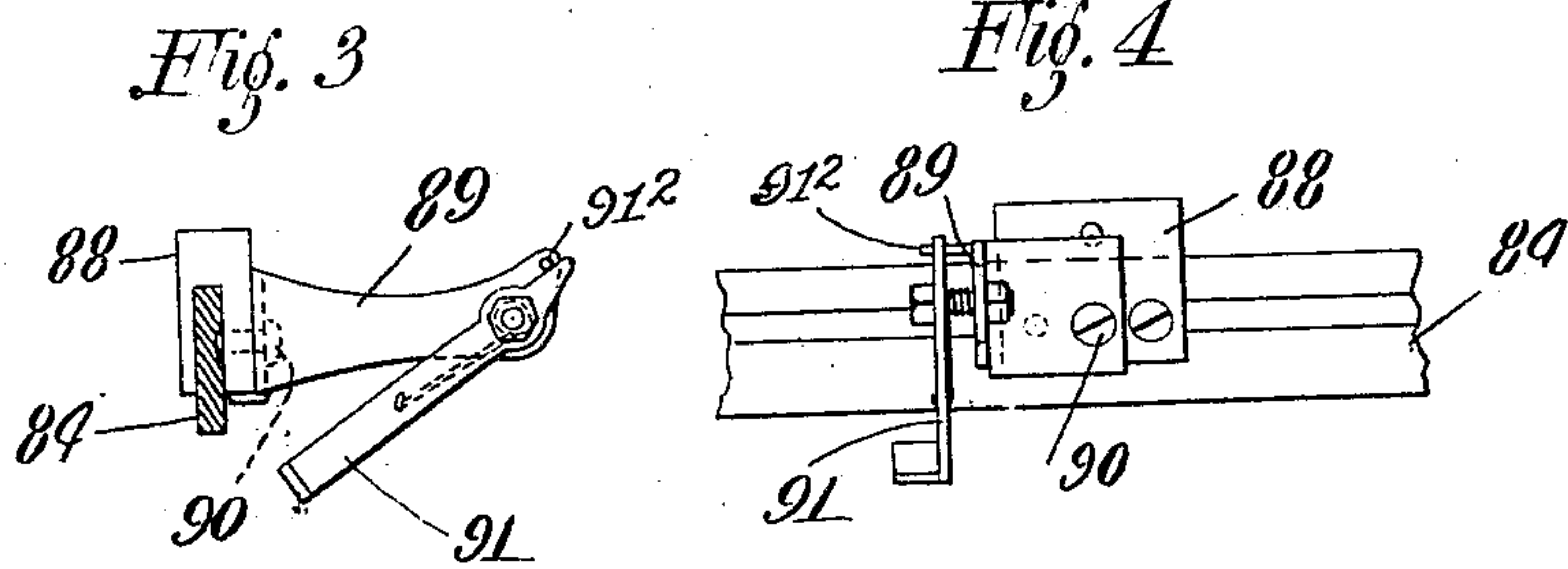
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# UNITED STATES PATENT OFFICE.

LEWIS E. MORRISON, OF NEWARK, NEW JERSEY

## SHEET-MANIPULATING MECHANISM FOR PRINTING-PRESSES.

No. 819,699.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed August 22, 1905. Serial No. 275,320.

*To all whom it may concern:*

Be it known that I, LEWIS E. MORRISON, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented a new and useful Sheet-Manipulating Mechanism for Printing-Presses, of which the following is a specification.

This invention relates to a sheet-manipulating mechanism for job printing-presses.

The object of this invention is to provide simple and efficient devices for automatically smoothing and flattening successive sheets of paper as they are passed over the registering-table and for flattening and smoothing sheets of paper as they are successively positioned on a platen.

To these ends this invention consists of the parts and combinations of parts, as herein-after described, and more particularly pointed out in the claims at the end of this specification.

In the accompanying two sheets of drawings, Figure 1 is a side view of sufficient parts of a job printing-press to illustrate the application of this invention thereto. Fig. 2 is a detail view looking in the direction of the arrow 2 of Fig. 1. Figs. 3 and 4 are detail views of one of the longitudinally-acting smoothing-fingers. Figs. 5 and 6 are detail views of a transversely-acting smoothing-finger and the block for carrying the same. Fig. 7 is a detail view of a yielding connection for operating the frame which carries the smoothing-fingers, and Fig. 8 is an enlarged fragmentary sectional view taken on the lines 8 8 of Fig. 1.

For many classes of printing the best and most economical results are obtained from bed and platen printing-presses of the type known as "job-presses." In operating these presses it is now the usual practice to feed the sheets by hand.

In a prior application for patent filed by me September 29, 1904, Serial No. 226,507, I have shown and described a sheet-manipulating mechanism for job-presses which will do away with hand-feeding.

The especial object of my present invention is to further improve the sheet-manipulating mechanism shown and claimed in said application for patent, and particularly to provide a smoothing attachment for flattening out the successive sheets as they pass over the registering-table.

A further object of the invention is to pro-

vide improved operating connections for the two sets of smoothing-fingers which act successively and about different centers to hold the sheets in place on the platen.

Referring to the accompanying drawings 60 for a detail description of a printing-press equipped according to this invention, as shown in Fig. 1, F designates one of the side frames of a bed and platen printing-press. Mounted between the side frames F is the 65 platen P. Coöperating with the platen P is a type-bed B, carried by the swinging frame 20. Power for operating the press may be applied to a shaft having a small pinion 33, meshing with and turning a gear secured 70 upon the bottom shaft 35. Also carried by the driving-shaft is a pinion 32, meshing with the large gear secured on the main shaft 19 of the machine. These parts may be of ordinary or approved construction, except that 75 in practice the platen P is pivotally mounted, so that it may be turned up while the press is being made ready for printing any particular form. Mounted in the upper part of the 80 framework is a registering-table 24, to which sheets may be successively supplied from any ordinary sheet-supplying mechanism and may be fed over the same by feeding devices operated by a link 38, which feed devices need not be herein shown or described at length. 85 While the sheets are in approximately the proper position upon the registering-table I have provided a means for smoothing out and flattening the sheets to secure precision of operation of the registering devices. On the 90 main shaft 19 of the press is a cam 75, which operates, through a lever 76 and link 77, to turn a rock-shaft 78.

The connections for operating the frame carrying the smoothing devices from the rock-shaft 78 are most clearly shown in Figs. 7 and 8, which figures illustrate operating connections at one side of the press. As shown in these figures, two collars 79 and 80 are secured upon the rock-shaft 78, and held 95 in place between the collars 79 and 80 is a hub 81, having an operating-arm 82, carrying a roller for forcing down one side of the smoothing-frame. The forcing down is accomplished by means of a coiled spring 81<sup>2</sup>, 105 having one end secured to the collar 79 and its other end engaging the arm 82 on the hub. A projection 80<sup>1</sup> from the collar 80, engaging a recess 80<sup>2</sup> in the hub 81, serves to positively lift the arm 82, while the coiled spring nor-



mally tends to force the arm down. The smoothing-frame, as illustrated in Fig. 8, comprises vertical side pieces 83 and cross-pieces 84. The side pieces 83, carrying the cross-pieces 84 are adapted to slide vertically in guides 83<sup>2</sup>, said guides being secured to a cross-rod 83<sup>4</sup>. Springs 83<sup>5</sup> tend to hold the smoothing-frame away from the feed-table. The side pieces 83 are each provided with a small stop-foot 85, which will prevent the bottom frame-piece 84 from being moved down far enough to engage or jam the sheet.

As shown in Fig. 2, a number of smoothing devices are mounted upon the lower bar 84 of the frame. The details of such smoothing devices are most clearly illustrated in Figs. 3 to 6 and comprise longitudinally-acting smoothing-fingers, which are intended to iron or smooth the sheets forward in the same direction in which they are being fed in, and a transverse smoothing-finger which is intended to smooth the sheet toward its side gage. Each kind of smoothing device is preferably carried by an adjustable block 88, the same adjustable blocks being used for both kinds of fixtures. Each of these blocks, as shown in Figs. 3 and 5, is slotted to straddle the rail 84 and has holes tapped therein for receiving screws according to which fixture is to be carried thereby. When a block 88 is to support a longitudinally-acting smoothing device, a bracket 89 is clamped thereon by a screw 90. Mounted in the bracket 89 is a stud carrying a smoothing-finger 91, which is normally forced down by a coiled spring, but which has a tailpiece engaging a pin 91<sup>2</sup>, so as to limit its downward movement. The end of the smoothing-finger 91 is preferably bent at right angles, and when the frame is provided with one or more of such smoothing-fingers and is moved down toward the registering-table the fingers 91 will smooth or straighten the sheet, so as to carry the same forward in the same direction in which it is being fed in. When one of the blocks 88 is to be used for a transversely-acting smoothing-finger, it is provided with a screw 94, on which is pivoted an arm 95, carrying a friction-roll. The arm 95 is normally moved down by a coiled spring, and its downward movement is limited by a stop-screw 96, and the block 88 is clamped in place on the bar 84 by a screw 97.

In accomplishing the second object of my invention—that is, to provide improved connections for operating the clamping-fingers which hold the sheet on the platen—it will be seen from Fig. 1 that the bottom shaft 35 is provided with a cam 34, operating a bell-crank lever 36, pivoted at 36<sup>2</sup>. Extending up from the bell-crank lever 36 is a link 37, connected to a lever 38, carried by a rock-shaft 39. The rock-shaft 39 extends across the machine, and carried by the lever 38 and a similar fixture at the other side of the machine is a cross-bar 40, which, as illustrated

in Fig. 2, is provided with an adjustable clamping-blade 41. The cross-bar 40 is connected by a link to a swinging lever 42. The other set of clamping-fingers are preferably actuated from the shaft 78. Extending down from said shaft 78 are arms 43, carrying a cross-rod to which the long side clamp-fingers 43<sup>2</sup> are fastened. The cross-rod is connected by a link 45 to a swinging lever 46. By means of these connections it will be seen that I have provided two sets of clamping devices or fingers for holding the sheets on the platen while being printed and that these two sets of clamping devices are controlled by independent sets of connections and operate about different centers, so as to produce a smoothing action upon the sheet. The action of these improved connections for holding the sheet upon the platen is substantially the same as the devices of my prior application before referred to; but by employing two independent sets of operating connections I have found in practice that the construction may be more readily adjusted for different styles of work and weights of paper.

I am aware that numerous changes may be made in the construction of printing-presses for practicing my invention without departing from the scope thereof as expressed in the claims. I do not wish, therefore, to be limited to the construction I have herein shown and described; but

What I do claim, and desire to secure by Letters Patent of the United States, is—

1. In a sheet-manipulating mechanism for printing-presses, the combination of a table over which successive sheets are passed, a frame or support, means for moving the frame or support toward and away from the table, and smoothing-fingers pivoted on the support for ironing or smoothing a sheet as the support is moved toward the table.

2. In a sheet-manipulating mechanism for printing-presses, the combination of a table over which the successive sheets are passed, a frame or support, means for moving the frame or support toward and away from the table, and smoothing-fingers pivoted on the support, part of which act to smooth the sheets longitudinally and part sidewise.

3. In a sheet-manipulating mechanism for printing-presses, the combination of a table over which successive sheets are passed, a support or frame, means for moving the support or frame toward and away from the table, foot-pieces on the frame preventing the bottom bar of the frame from engaging the sheets, and smoothing-fingers mounted on the frame.

4. In a sheet-manipulating mechanism for printing-presses, the combination of a table over which successive sheets are passed, a frame, operating connections for moving the frame toward and away from the table, blocks adjustably mounted on the bottom bar of the



frame; and attachments for mounting smoothing-fingers on the blocks to act longitudinally on the sheets or sidewise thereon.

5. In a sheet-manipulating mechanism for printing-presses, the combination of a table over which successive sheets are passed, a support or frame, means for moving the support toward and away from the table, an arm pivoted in the support on an axis parallel with the direction in which the sheets are being fed, and a roller mounted on the lower end of said arm for smoothing the sheets sidewise as the support or frame approaches the table.

6. In a sheet-manipulating mechanism for printing-presses, the combination of a table over which successive sheets are passed, a frame, smoothing-fingers mounted on said frame, and connections for operating the frame comprising springs for normally holding the frame up, a rock-shaft, cam-actuated connections for operating the rock-shaft from the main shaft of a press, an operating-arm extending from the rock-shaft, a lost-motion connection between the arm and its rock-shaft, and a spring coiled on the rock-shaft for moving the operating-arm down when permitted by the rock-shaft.

7. In a sheet-manipulating mechanism for

printing-presses, the combination of a table over which successive sheets are passed, a frame, operating connections for moving the frame toward and away from the table, blocks adjustably mounted upon the frame, smoothing-fingers, and means for mounting said smoothing-fingers on the blocks to act longitudinally and sidewise upon the sheets.

8. In a sheet-manipulating mechanism for printing-presses, the combination of a table over which successive sheets are passed, a support or frame, means for moving the frame toward and away from the table, an arm pivoted to the support on an axis parallel with the direction in which the sheets are being fed, a roller mounted on the lower end of said arm for smoothing the sheets sidewise, and smoothing-fingers pivotally mounted on the frame intermediate of the roller-smoothers for smoothing the sheets longitudinally.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

LEWIS E. MORRISON.

Witnesses:

ISAAC N. SMITH,  
JOHN D. CAPPS.