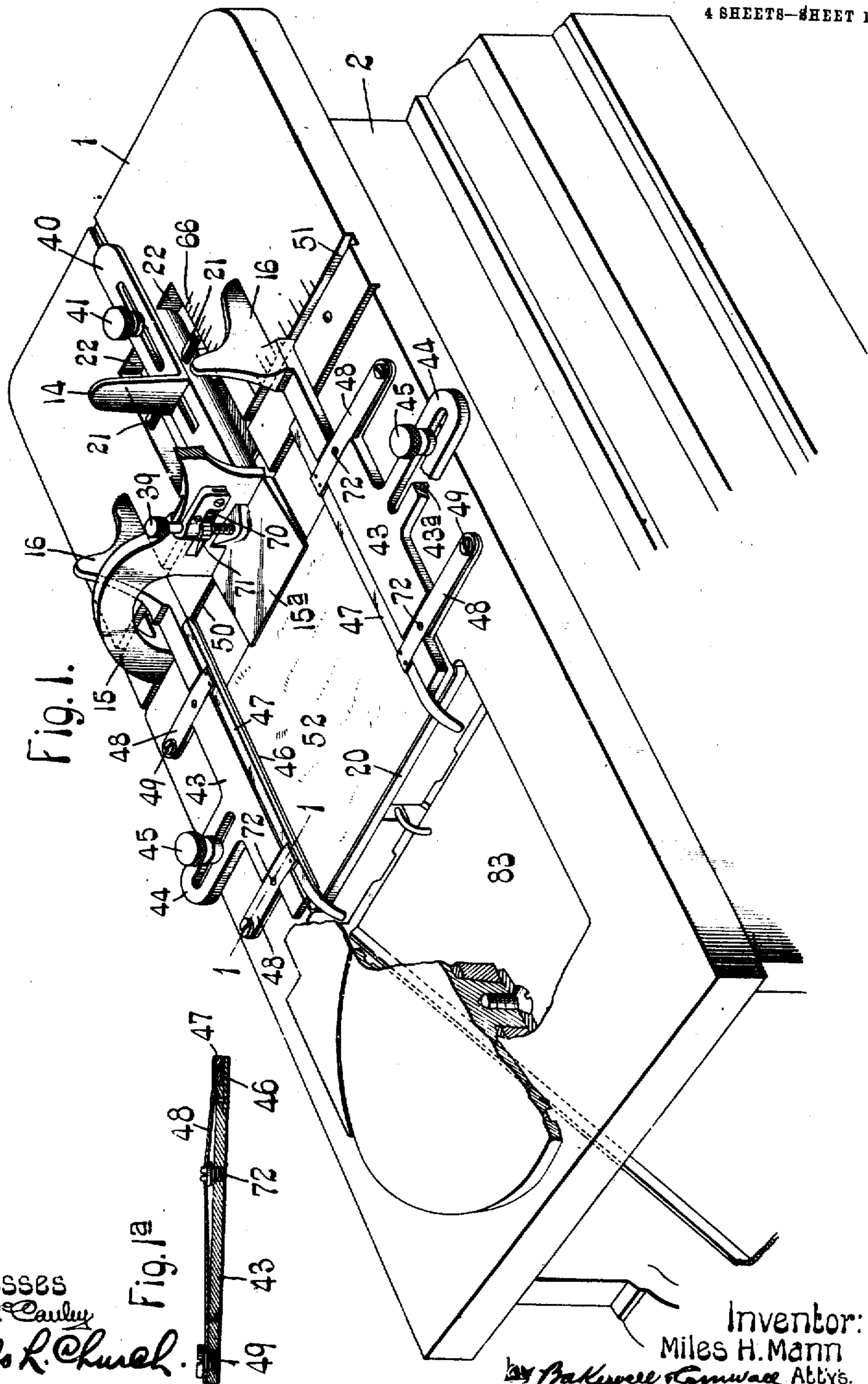


M. H. MANN.
FEEDING AND SEPARATING APPARATUS FOR PRINTING MACHINES.
APPLICATION FILED JUNE 22, 1908.

910,557.

Patented Jan. 26, 1909.

4 SHEETS—SHEET 1.



Witnesses
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Hells R. Church.

Inventor:
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by Bakewell & Conwell Attys.

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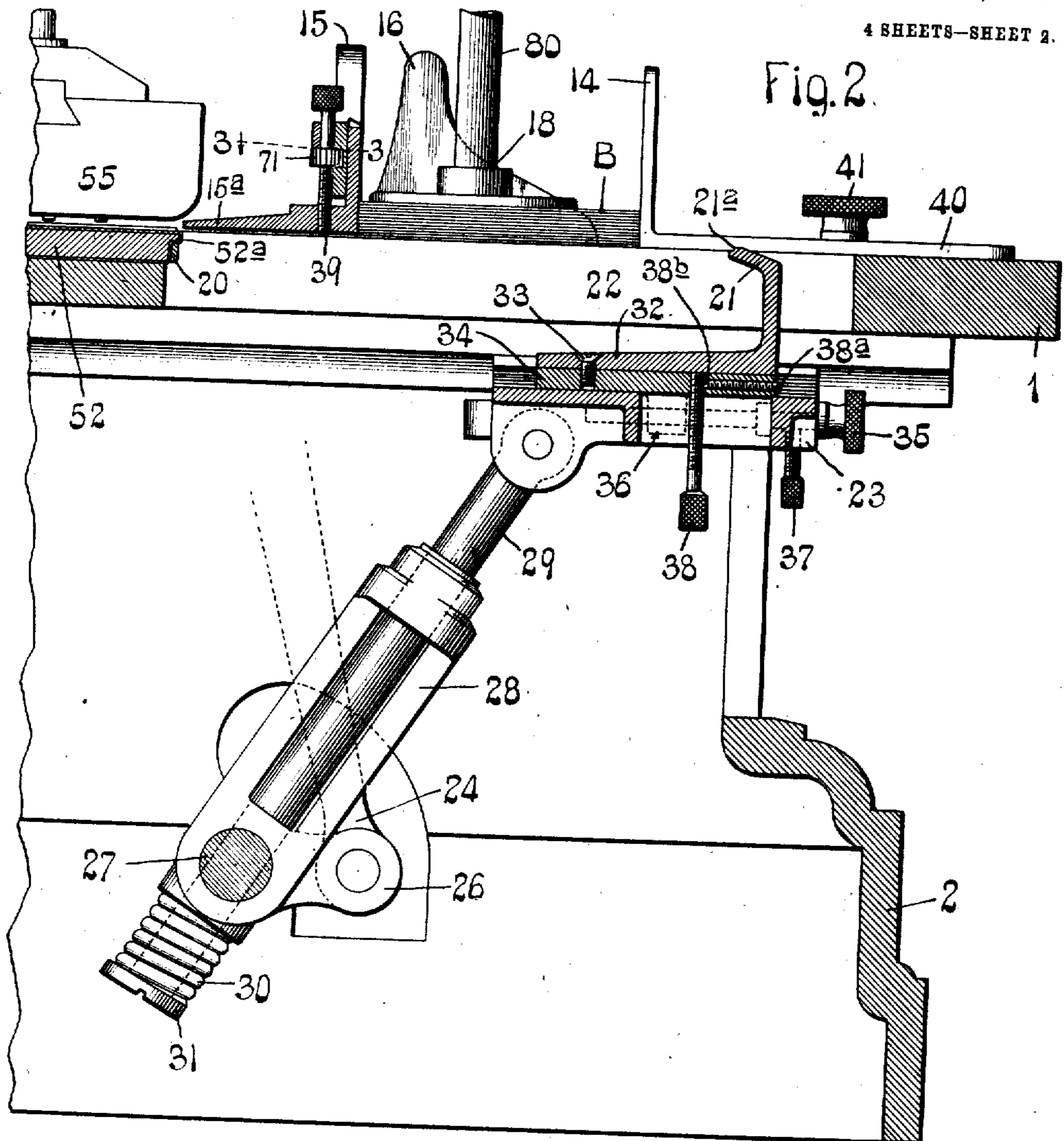


Fig. 3.

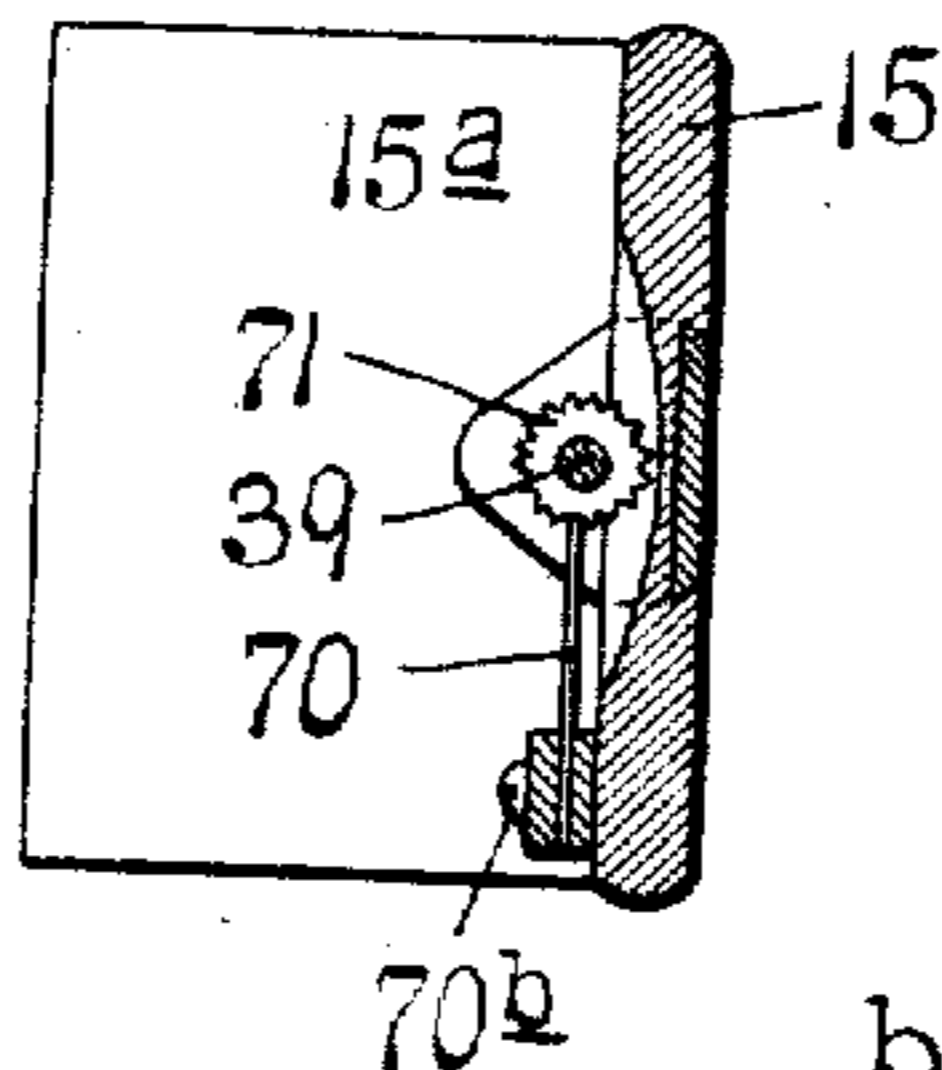
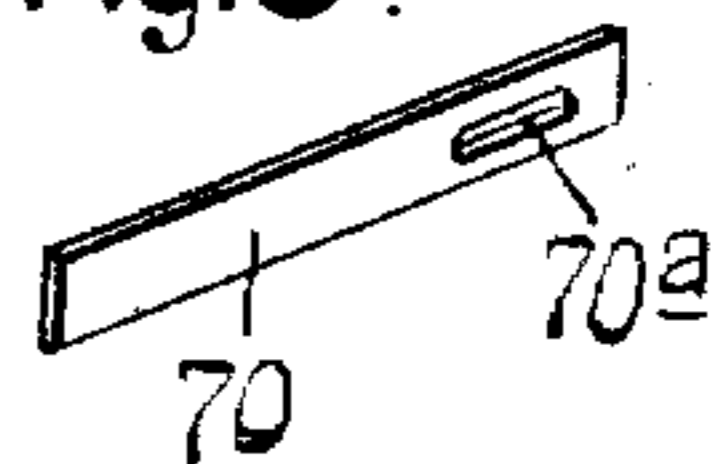


Fig. 3a.



Witnesses
A. J. McCauley
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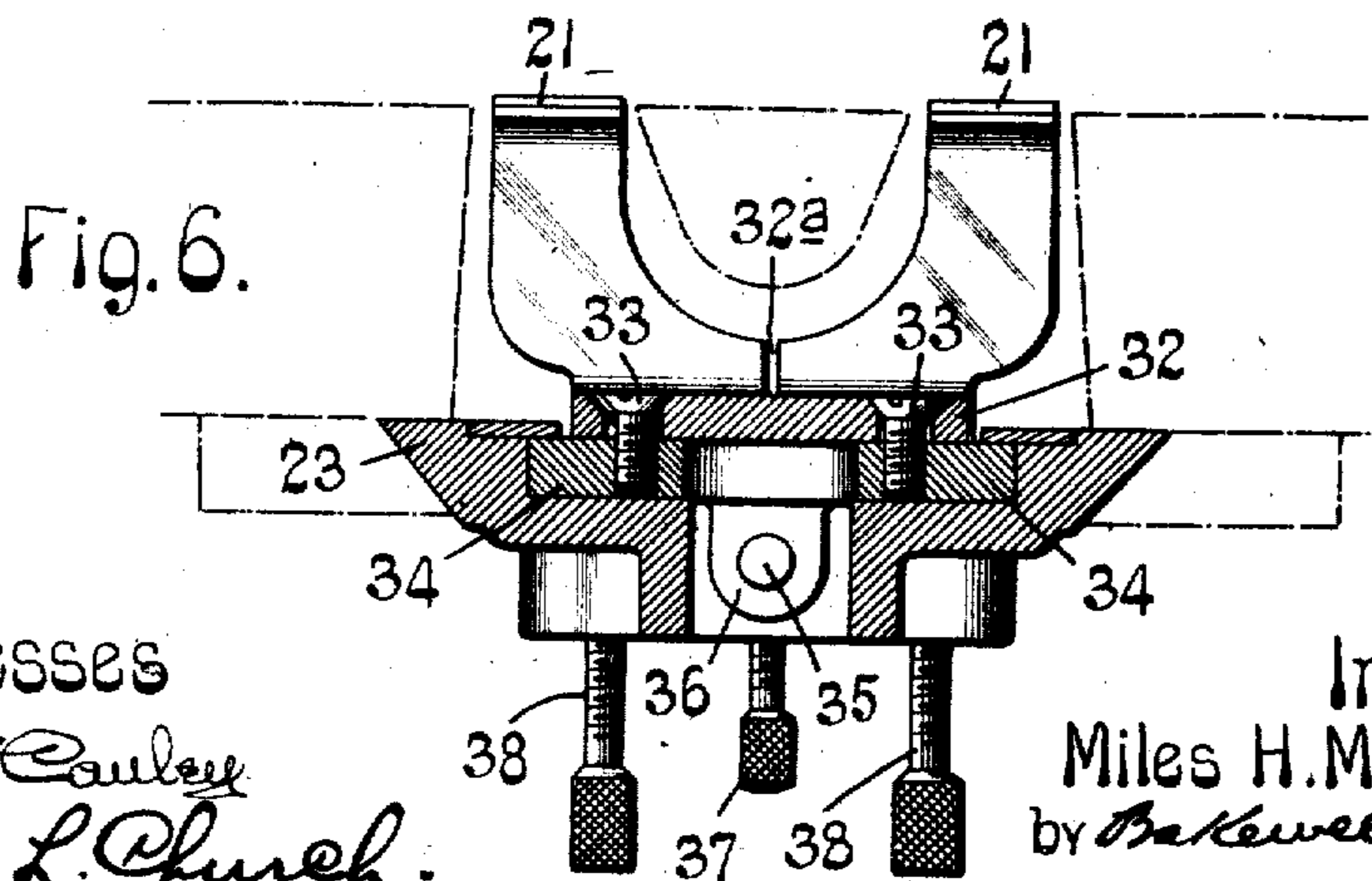
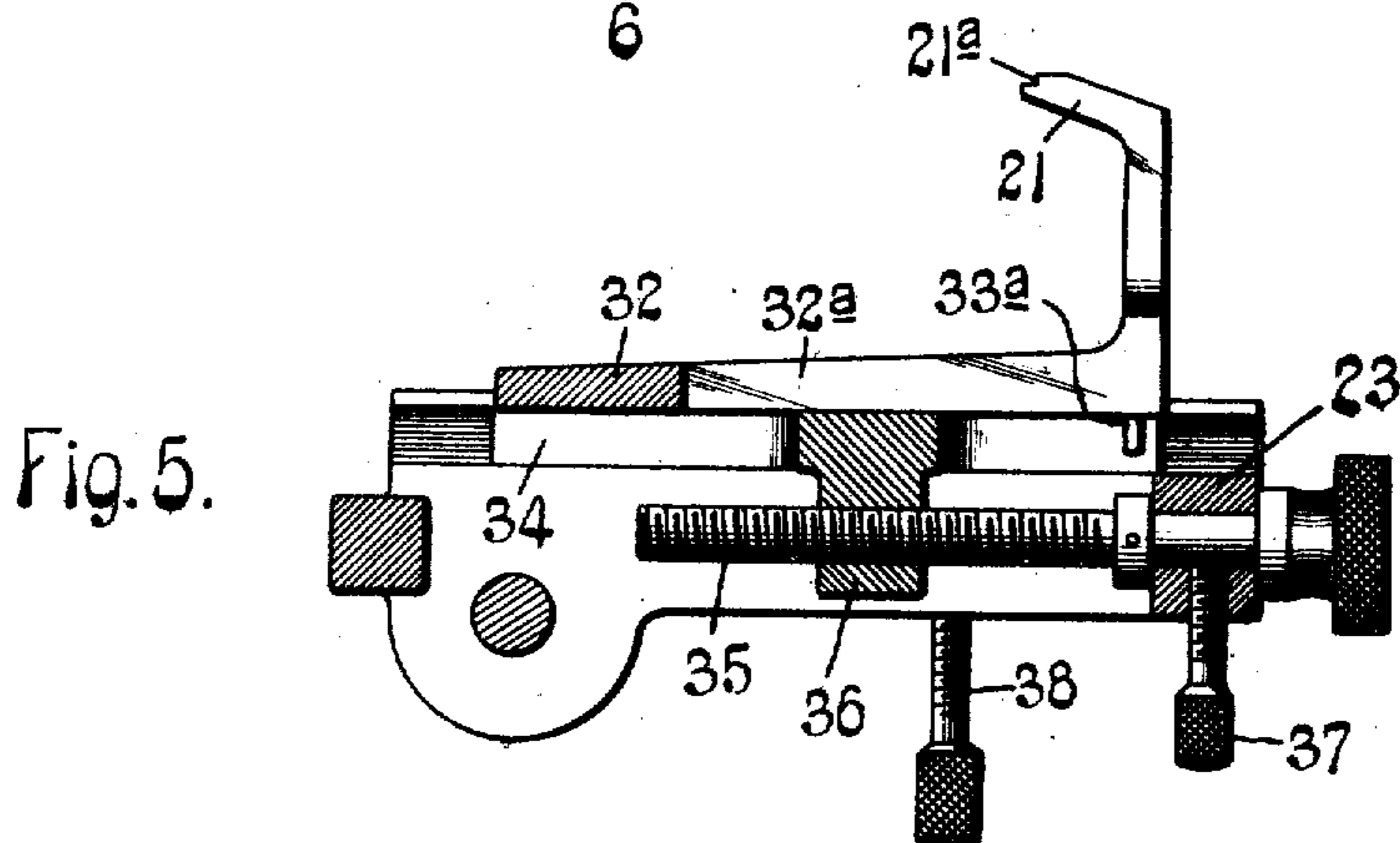
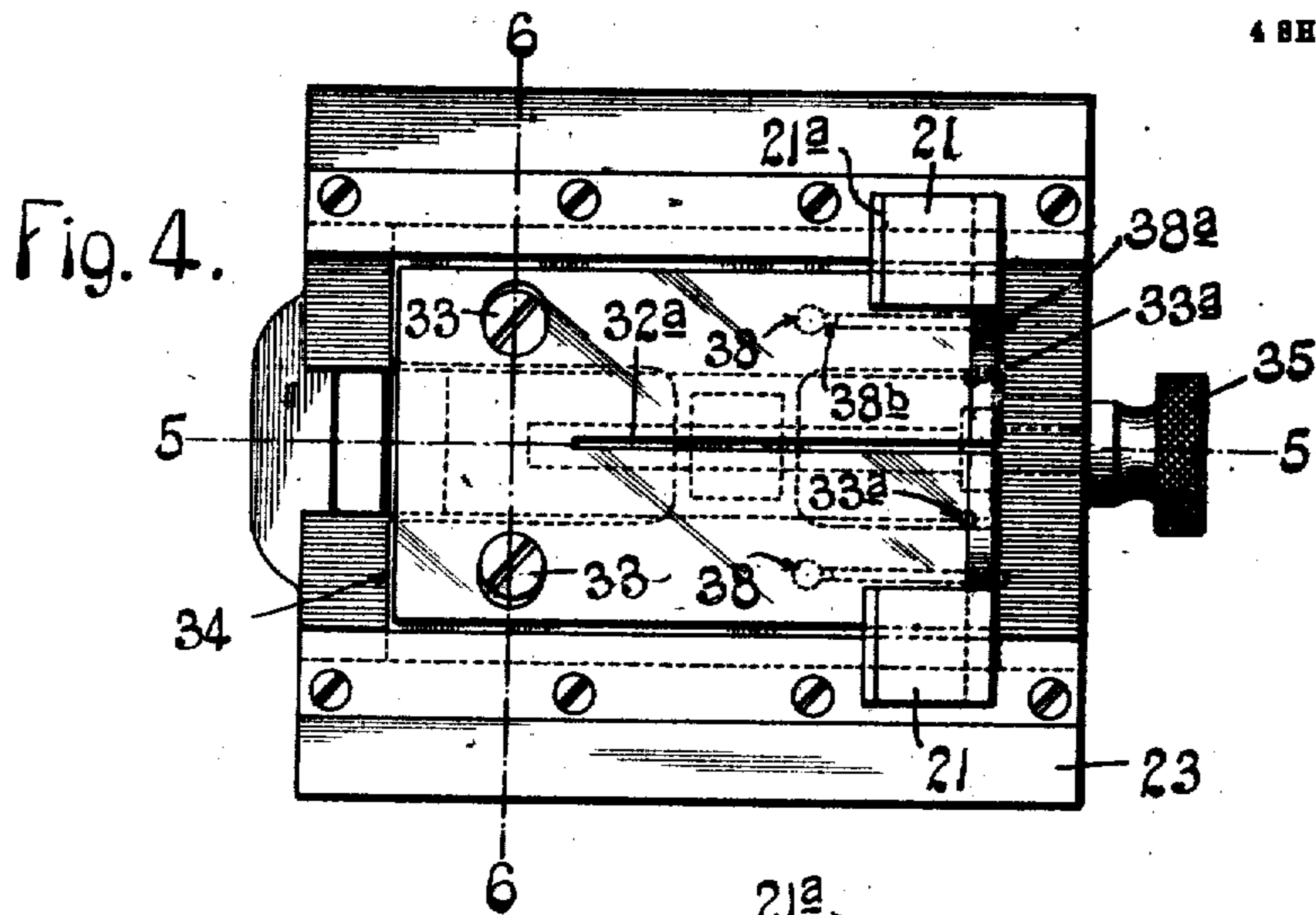
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4 SHEETS—SHEET 3.



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910,557.

4 SHEETS—SHEET 4.

Fig. 7.

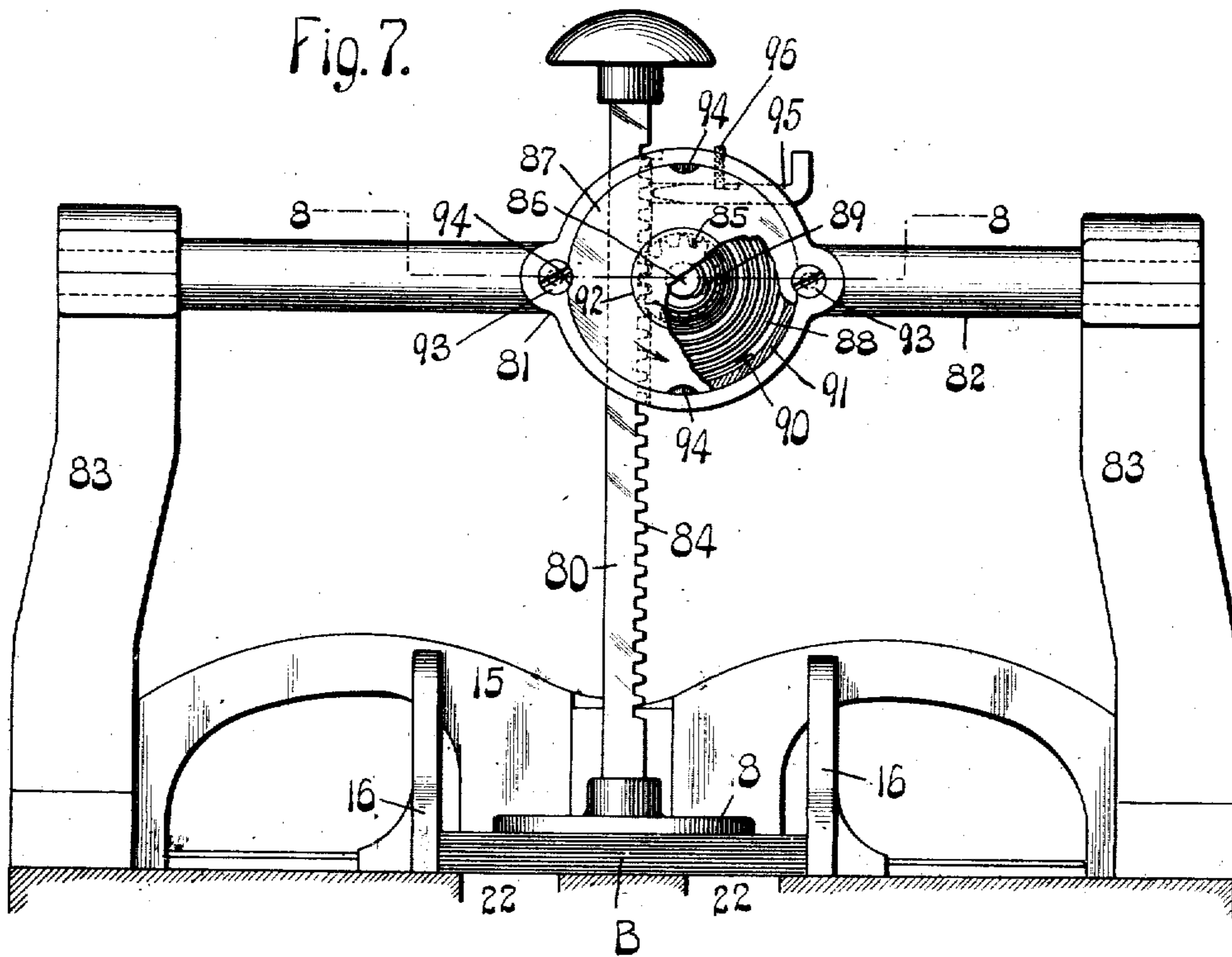
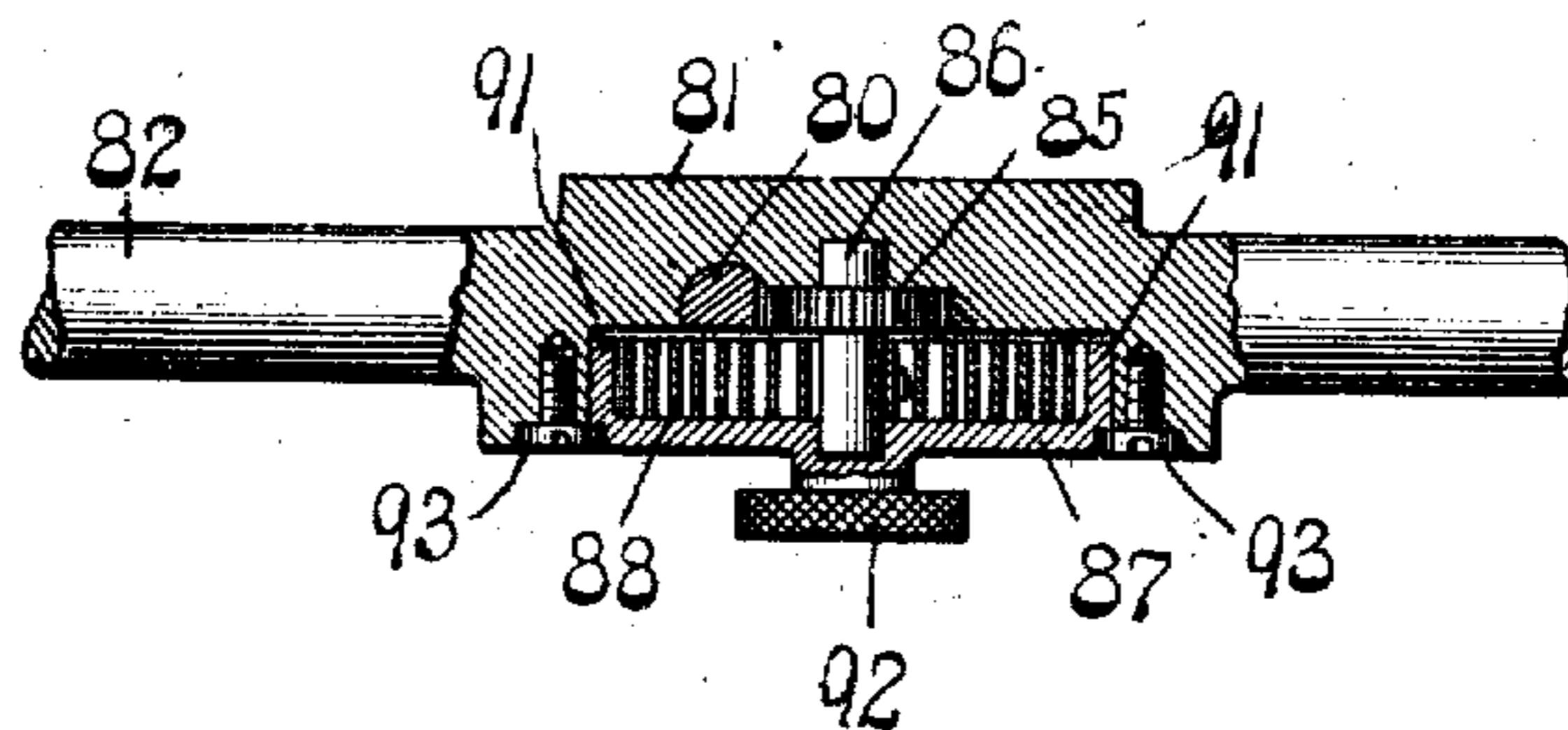


Fig. 8.



Inventor:
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UNITED STATES PATENT OFFICE.

MILES H. MANN, OF LOUISIANA, MISSOURI, ASSIGNOR TO FRANK W. BUFFUM, TRUSTEE, OF LOUISIANA, MISSOURI.

FEEDING AND SEPARATING APPARATUS FOR PRINTING-MACHINES.

No. 910,557.

Specification of Letters Patent.

Patented Jan. 26, 1909.

Application filed June 22, 1908. Serial No. 439,783.

To all whom it may concern:

Be it known that I, MILES H. MANN, a citizen of the United States, residing at Louisiana, Missouri, have invented a certain new and useful Improvement in Feeding and Separating Apparatus for Printing-Machines, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of my improved feeding apparatus for printing machines; Fig. 1^a is a sectional view taken on the line 1—1 of Fig. 1; Fig. 2 is an enlarged vertical sectional view; Fig. 3 is a horizontal sectional view taken on the line 3—3 of Fig. 2; Fig. 3^a is a detail view of the spring 70; Fig. 4 is a top plan view of the carriage which carries the feeding fingers; Fig. 5 is a vertical sectional view taken on the line 5—5 of Fig. 4; Fig. 6 is a vertical sectional view taken on the line 6—6 of Fig. 4; Fig. 7 is a front elevational view of the pressing device that acts upon the pile of card blanks; and Fig. 8 is a horizontal sectional view taken on the line 8—8 of Fig. 7.

This invention relates to new and useful improvements in feeding and separating apparatus for printing machines.

One of the objects of this invention is to provide a feeding apparatus of the character described that can be quickly adjusted to accommodate card blanks of different dimensions and which is so constructed that a perfect adjustment can be obtained.

Other desirable features of my improved apparatus will be hereinafter pointed out.

Referring to the drawings which illustrate the preferred form of my invention, 1 indicates the bed plate of the machine which is mounted on a base 2. A platen 52 is mounted in a recess in the bed plate, said platen being in alignment with a reciprocating type carrier 55, as shown in Fig. 2. The platen 52 is covered with paper or other suitable material which is held in position by means of the usual clamping yokes 20, the front edge of said platen being provided with a flange 52^a (see Fig. 2) which serves as a stop for the yoke 20, prevents it from projecting above the platen, and increases the area of the face of said platen.

The card blanks B that are to be printed

are arranged between front and rear guides 14 and 15, respectively, and two side guides mounted on the bed plate, the side guides being in the form of wings 16 which engage the side edges of the card blanks. The card blanks B are clamped together by a pressing device 18, shown in Fig. 2.

The mechanism for feeding the card blanks into operative position under the type box consists of a pair of fingers 21, projecting upwardly through elongated slots 22 in the bed plate and carried by a sliding carriage 23 which is reciprocatingly mounted in stationary guideways. The upper ends of fingers 21 are each provided with a shoulder 21^a which extends slightly above the top surface of the bed plate so as to remove the bottom card blank from the pile as the carriage 23 moves toward the rear of the machine. Reciprocating movement is imparted to the carriage 23 by means of an actuating link 24 having its lower end secured to an arm 26 on a rock shaft 27, said rock shaft being provided with a hollow arm or guideway 28 that receives a rod 29 which is pivotally connected to the carriage 23. The rod 29 is loosely mounted in the hollow arm or guideway 28, and a coiled expansion spring 30 is interposed between the lower end of said guideway and the head of a screw 31 adjustably mounted in the lower end of rod 29. An actuating mechanism of this construction moves the carriage 23 positively in both directions and overcomes the tendency of rod 29 to bind in the hollow arm 28 while said arm is moving in a rotary path.

For enabling the feeding fingers 21 to be adjusted longitudinally of the carriage 23 so as to vary the distance which the card blanks are fed rearwardly I have formed said fingers on a spring plate 32 that is connected at one end by bevel-headed screws 33 to a block 34 which is adjustably mounted in the carriage 23. The block 34 is moved longitudinally of the carriage by means of an adjusting screw journaled in the carriage and passing through a screw-threaded opening in a lug 36 on the under side of the block 34, and a set screw 37 is provided for locking the screw so as to hold the fingers 21 in their adjusted position. Graduations 66 are arranged on the bed plate adjacent one of the fingers 21 so that after the first card has been printed the operator can tell just how said fingers should be positioned on the carriage to cause

the printing to be arranged properly on the cards. The feeding fingers can also be adjusted vertically to vary the distance which they project above the top surface of the bed plate by means of screws 38 mounted in the block 34 and bearing against the under side of the spring plate 32 on which the fingers are mounted, said spring plate being provided with a slot 32^a which separates the feeding fingers from each other and allows them to be raised or lowered independently. After the screws 38 have been adjusted they can be locked in position by means of set screws 38^a, the inner ends of which bear against a small piece of soft metal 38^b that engages the screws 38.

The bevel-headed screws 33 which secure the spring plate 32 to block 34 pass through elongated slots in the spring plate, the upper ends of said slots being beveled, as shown in Fig. 6. If one of the screws 33 is loosened slightly and the other screw 33 tightened, the spring plate and feeding fingers will be rocked in a horizontal plane on a fulcrum formed by one of the pins 33^a which project downwardly from the spring plate and engage block 34 as shown in Figs. 4 and 5. By adjusting the screws 33 properly the upper edges of the feeding fingers can be arranged parallel to the rows of type in the type-carrier and thus insure that the printing on the card blanks will be parallel with the longitudinal edges of said blanks.

The rear guide 15 is positively connected to the bed plate but said guide is provided with an adjustable portion 15^a which consists of a vertical wing slidably mounted in a groove in the guide 15 and a wide horizontal plate which lies above the bed plate and prevents the card blanks from buckling, said plate 15^a being spaced away from the top face of the bed plate 1 a distance equal to the thickness of one of the card blanks so that only the bottom card blank of the pile can be moved under the guide 15 by the feeding fingers as they move rearwardly. The object in providing the guide 15 with an adjustable portion is to enable the space between the guide 15 and the bed plate to be adjusted to accommodate card blanks of different thicknesses, the portion 15^a being moved or adjusted vertically by means of a screw 39 journaled in a bearing on the rear side of guide 15 and entering a screw-threaded opening in the movable portion 15^a of said guide. A spring 70 which coöperates with a toothed wheel 71 on the screw 39, as shown in Fig. 3, prevents the vibration of the machine from turning said screw but allows it to be turned in either direction by the operator. This spring 70 is preferably provided with an elongated slot 70^a through which the clamping screw 70^b for the spring passes, as shown in Figs. 3 and 3^a, so that

the spring can be adjusted to compensate for wear.

The front guide 14 is provided with a slotted base 40 through which a set screw 41 passes so that said guide can be adjusted relatively to the rear guide 15. Each of the side guides 16 is carried by a plate 43 which is provided with a slotted arm 44 that receives a clamping screw 45 on the bed plate, thereby enabling the side guides to be moved toward and away from each other to accommodate card blanks of different lengths. The plates 43 are provided with yielding guides for receiving the end portions of the card blanks as they are being fed into printing position, the yielding guide on each plate consisting of a metal strip 46 secured to the under side of the plate and projecting beyond the inner edge thereof and a superimposed metal strip 47 carried by spring arms 48 that are connected at their outer ends by fastening devices 49 to laterally projecting arms on the plate 43, as shown in Figs. 1 and 1^a.

72 indicates adjusting screws which enter threaded openings in the plates 43 and pass loosely through holes in the spring arms 48, each of said screws being provided with a flange which lays under a spring arm 48, as shown in Fig. 1^a. By adjusting the screws 72 the pressure on the card blanks can be varied or this pressure can be entirely eliminated and the cards allowed to pass freely between the strips 46 and 47. One of the advantages of this construction is that the pressure on the cards can be reduced when the machine is operating on very thin cards so that they will pass between the strips 46 and 47 without buckling. The front end of each strip 46 is bent downwardly so that it will enter a transversely extending groove 50 in the top face of the bed plate and prevent the card blanks from catching or sticking as they start to enter the yielding guides. After the cards have been printed they are pushed rearwardly by the blank card that is being moved onto the platen and thereafter deflected downwardly into a discharge chute 83 by means of the curved ends of the yielding strips 47.

I prefer to provide the side guides 16 with downwardly extending ribs which enter transversely extending slots 51 in the bed plate so as to prevent thin card blanks from slipping endwise under the guides 16. To prevent the guides from shifting or moving in any direction other than transversely of the bed plate I have provided the bed plate with a key 43^a that fits in a slot on the under side of the plate 43.

The pressing device which acts on the pile of card blanks to press them together, is so constructed that a large pile of card blanks can be arranged between the foot-piece of said pressing device and the bed plate of the

machine. The foot-piece or clamping member of the pressing device is forced downwardly onto the pile of blanks by means of a spring, and means is provided for changing the tension of said spring so as to vary the pressure of the foot-piece on the pile of card blanks. This pressing device is illustrated in Figs. 7 and 8, and referring to said figures it will be seen that the foot-piece or clamping member 18 is connected to the lower end of a plunger 80 which is reciprocatingly mounted in a bearing 81 on a horizontally arranged shaft 82 supported in standards 83 that project upwardly from the bed plate of the machine, said shaft being either stationary or rotatably mounted. The plunger 80 is provided with rack teeth 84 that mesh with a pinion 85 on a shaft 86 arranged at right angles to the plunger. One end of this shaft 86 is journaled in the bearing 81 on the horizontally arranged supporting shaft 82 and the other end of said shaft 86 is journaled in an adjustable cap 87 that closes an opening in the front face of the bearing 81, as shown in Fig. 8. This cap 87 and the opening in the bearing 81 form a housing for a coiled clock spring 88 which has one of its ends secured by a fastening device 89 to the pinion shaft 86, and its other end secured by a fastening device 90 to the inside face of a circular flange 91 on the adjustable cap 87. The spring 88 tends to rotate the pinion 85 in a direction to force the plunger 80 downwardly and thus cause the foot-piece 18 to clamp the pile of card blanks, said spring permitting the plunger 80 to be moved upwardly when a pile of card blanks is to be arranged underneath the foot-piece.

For enabling the tension of the spring 88 to be varied I have constructed the cap 87 so that it can be rotated in the direction indicated by the arrow in Fig. 7 to wind up said spring. The circular flange 91 on the cap fits snugly inside of the opening in the bearing 81 and the outer face of said cap extends flush with the front face of said bearing, as shown in Fig. 8. The cap is provided with a knurled finger-piece 92 and is retained in position by means of a pair of screws 93 mounted in screw-threaded openings in the bearing 81, and having heads that fit in notches or recesses 94 formed in the outer face of the cap 87, said cap being provided with a number of sets of such recesses as shown in Fig. 7. To increase the tension of the spring the screws 93 are loosened so as to withdraw the heads thereon from the recesses 94 in the cap which said heads enter and the cap is then rotated in the direction indicated by the arrow Z in Fig. 7 so as to wind up the spring. The movement of the cap brings the other set of recesses 94 into alignment with the heads of said screws and the screws are then tight-

ened so that the heads thereon will enter said recesses and thus lock the cap 87 in position.

For enabling the plunger 80 to be locked in an elevated position when the card blanks are being placed on the bed plate, I have provided the bearing 80 with a slidable device 95 arranged at right angles to the plunger 80 and adapted to be moved into engagement with the rack teeth on said plunger, said device 95 being held in position by means of a screw 96 that projects into an elongated notch in the device 95, as shown in Fig. 7.

A clamping device of this construction permits a high pile of card blanks to be arranged on the bed plate, it enables the pressure of the foot-piece on the pile of blanks to be varied, and it presents a neat and ornamental appearance.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A machine of the character described, comprising a bed plate, a reciprocating carriage, means for actuating said carriage, a plate mounted on the upper side of said carriage and provided with feeding fingers which project above the bed plate, said finger carrying plate having elongated openings through which screws pass, and beveled-headed screws extending through said openings for securing said plate to the carriage, the top face of said plate being provided with beveled recesses that conform to the shape of the heads on said screws so as to cause said plate to move relatively to the carriage when the head on one of said screws engages the walls of its cooperating recess in the plate; substantially as described.

2. A machine of the character described, comprising a type-carrier, a plate for supporting card blanks, a plurality of feeding fingers which project above said supporting plate, means for actuating said feeding fingers and thereby causing them to engage the card blanks and move said card blanks into alignment with said type-carrier, and means for adjusting said feeding fingers simultaneously so as to arrange their projecting edges which engage the card blanks parallel with the rows of type in the type-carrier; substantially as described.

3. A machine of the character described, comprising a plate for supporting card blanks, a reciprocating carriage, a plate, one end of which is provided with feeding fingers that project above said supporting plate, adjusting means for securing the opposite end of said plate to the carriage, said means being so constructed that the plate can move laterally, and pins cooperating with the reciprocating carriage and constituting fulcrums for causing the finger-carrying plate to turn when said adjusting means is operated; substantially as described.

4. A machine of the character described, comprising a bed plate, plates mounted on said bed plate, spring arms connected to said plates, members connected to said spring arms to form yielding guideways for card blanks as they are being fed over the bed plate, and adjusting screws threaded into said plates and passing freely through openings in said spring arms, each of said screws having a flange that lies between the under side of the spring arm and the upper side of the plate with which it coöperates; substantially as described.

5. A machine of the character described, comprising a bed plate provided with elongated slots, a reciprocating carriage, means for moving said carriage a certain distance at each cycle of operations, a movable block mounted on said carriage, a spring plate connected to said block, feeding fingers on said plate that project upwardly through the elongated slots in the bed plate adjusting screws bearing against the underneath side of said plate for raising and lowering said fingers, means for moving said spring plate relatively to said block to position said fingers in one direction, means for moving the block to which said spring plate is connected so as to change the position of said feeding fingers in a different direction, and graduations on the bed plate adjacent the slots through which the fingers project for enabling the fingers to be set properly in the position last referred to; substantially as described.

6. A machine of the character described, provided with a bed plate, plates adjustably mounted on said bed plate and provided with side guides which engage a pile of card blanks, downwardly projecting lugs on said guides which project into transverse slots formed in the top face of the bed plate, spring arms on said plates, and members connected to said spring arms to form guideways for the card blanks as they are being fed over the bed plate; substantially as described.

7. A machine of the character described, provided with a reciprocating feeding carriage provided with fingers, a rock shaft provided with a hollow arm or guideway, a link or rod passing through said guideway and connected at its upper end to said carriage, a head on the lower end of said rod, a spring interposed between the lower end of said guideway and the head on the end of said rod for drawing said rod down into said guide, and means for actuating said rock shaft to reciprocate the feeding carriage; substantially as described.

8. A machine of the character described, provided with a support for holding a pile of card blanks, a plunger having teeth and provided with a foot-piece which engages the

topmost blank of said pile, a toothed member meshing with the teeth on said plunger, and a coiled spring connected to said toothed member for imparting movement thereto so that it will force the plunger downwardly; substantially as described.

9. A machine of the character described, provided with a support for holding a pile of card blanks, a bearing arranged above said support and provided with a housing, a plunger mounted in said bearing and provided with a foot-piece which engages the topmost blank of the pile, rack teeth on said plunger, a pinion meshing with said rack teeth, and a coiled spring arranged in the housing in said bearing for actuating said pinion so that it will force the plunger downwardly; substantially as described.

10. A machine of the character described, provided with a support for holding a pile of card blanks, a bearing arranged above said support and provided with a housing, a plunger mounted in said bearing and provided with a foot-piece which engages the topmost blank of the pile, rack teeth on the plunger, a pinion meshing with said rack teeth, a coiled spring arranged in the housing in said bearing for actuating said pinion so that it will force the plunger downwardly, and means for winding up said spring; substantially as described.

11. A machine of the character described, provided with a support for holding a pile of card blanks, a bearing arranged above said support and provided with a housing, a plunger mounted in said bearing and provided with a foot-piece which engages the topmost blank of the pile, rack teeth on the plunger, a pinion meshing with said rack teeth, a coiled spring arranged in the housing in said bearing and having one of its ends connected to said pinion, an adjustable cap that forms one side of the housing in said bearing, and means for connecting the other end of said spring to said cap; substantially as described.

12. A machine of the character described, comprising a support for holding a pile of card blanks, a bearing arranged above said support, a plunger mounted in said bearing and provided with a foot-piece which engages the topmost blank of the pile, rack teeth on said plunger, a shaft journaled in said bearing and provided with a pinion that meshes with the rack teeth on said plunger, a coiled spring arranged in an opening in said bearing and having one of its ends connected to the pinion shaft, a cap provided with recesses and having a circular flange that projects into the opening in the bearing in which the spring is arranged, means for connecting said spring to said flange, and fastening devices carried by said bearing and provided with heads which engage the recesses in the

cap to lock said cap in position; substantially as described.

13. A machine of the character described, provided with a support for holding a pile of
5 card blanks, a bearing arranged above said support, a plunger mounted in said bearing and provided with a foot-piece for engaging the topmost blank of the pile, a coiled spring carried by said support, a pinion adapted to
10 be rotated by said spring and coöperating with rack teeth on the plunger for moving

same downwardly, and means for locking said plunger in an elevated position; substantially as described.

In testimony whereof I hereunto affix my 15
signature in the presence of two witnesses,
this 17th day of June 1908.

MILES H. MANN.

Witnesses:

LEWIS FRIEL

PETER NEERUT.