June 3, 1930. E. BASSIST 1,761,863

NEGATIVE LOCATING DEVICE FOR STEP AND REPEAT PRINTING APPARATUS

Original Filed Sept. 24, 1926 4 Sheets-Sheet 1

Fig. 1.

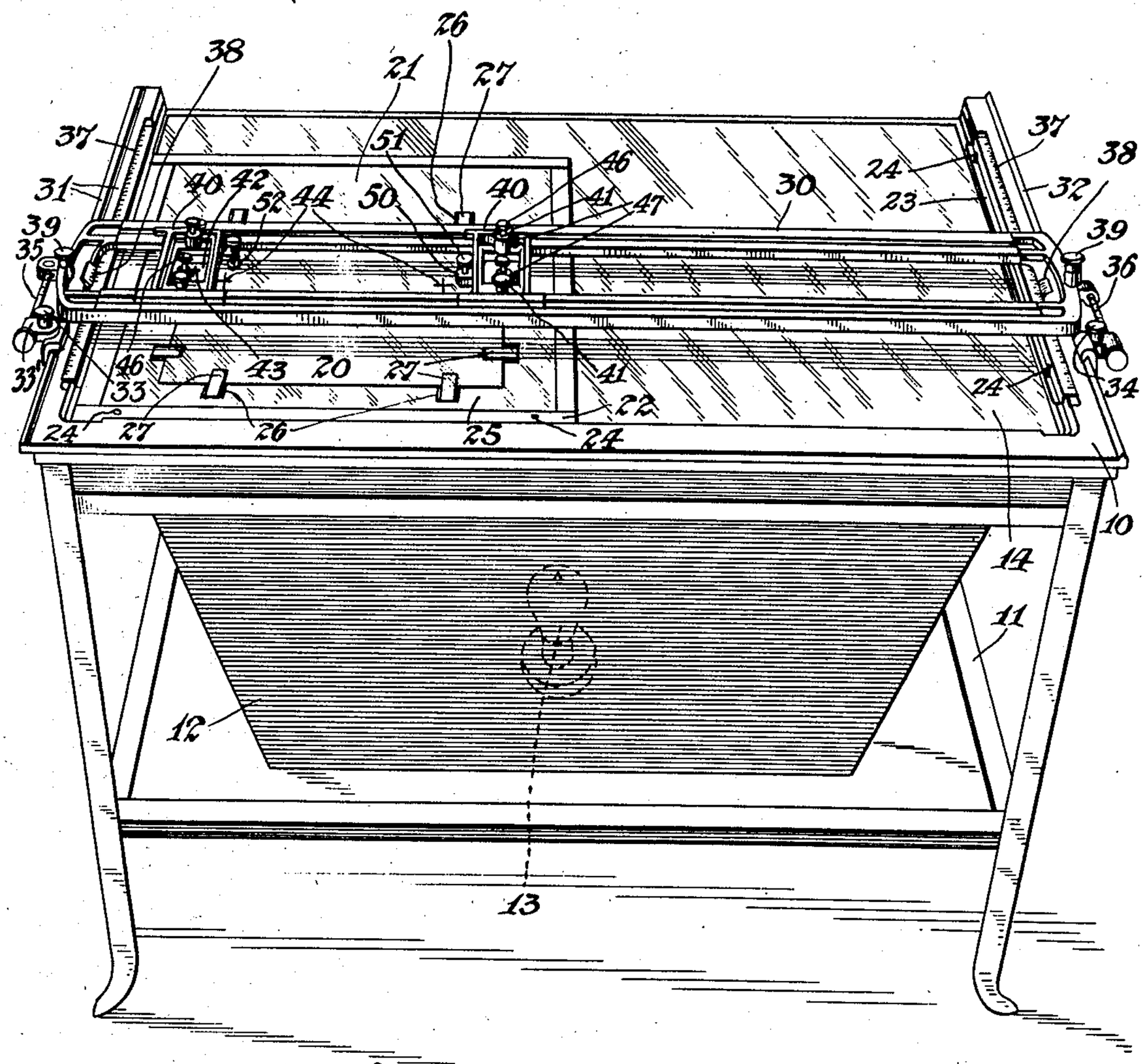
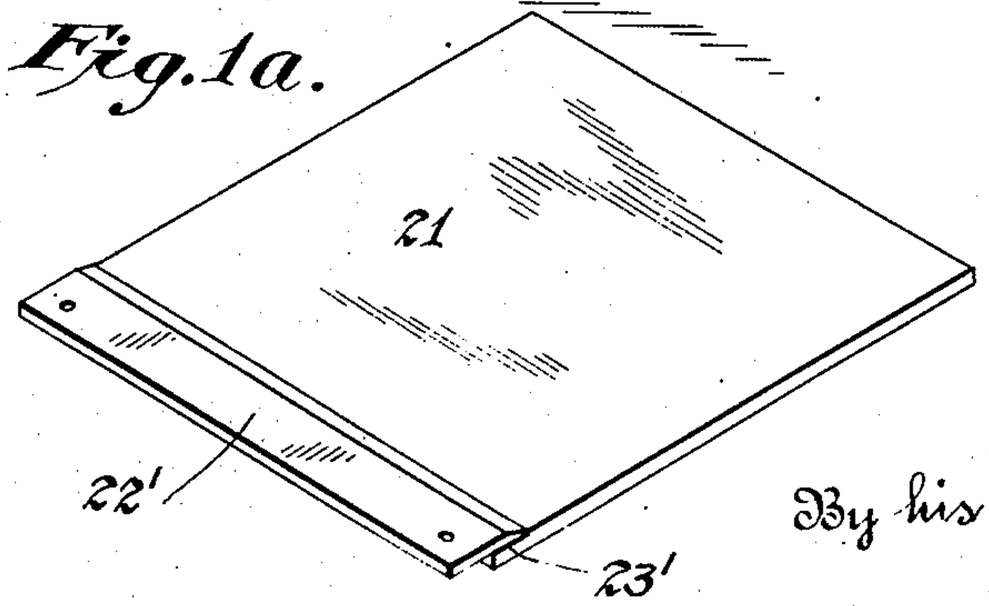


Fig. 1a.



Inventor
ELLIS BASSIST
By his Attorney Beall & Schmidt

June 3, 1930. E. BASSIST 1,761,863

NEGATIVE LOCATING DEVICE FOR STEP AND REPEAT PRINTING APPARATUS

Original Filed Sept. 24, 1926 4 Sheets-Sheet 2

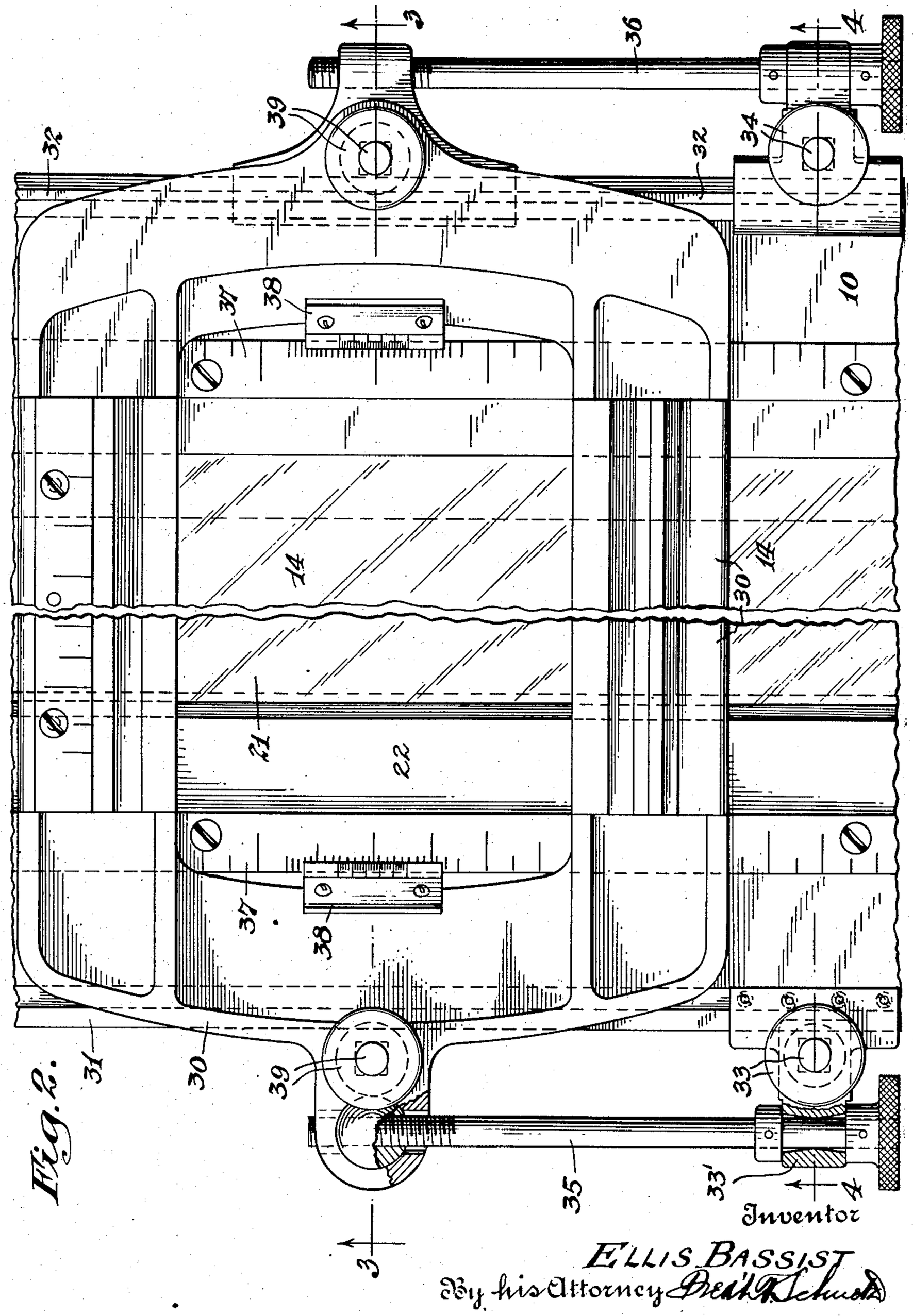


Fig. 2.

Inventor

ELLIS BASSIST

By his Attorney Brell & Schmeckebier

June 3, 1930. E. BASSIST 1,761,863

NEGATIVE LOCATING DEVICE FOR STEP AND REPEAT PRINTING APPARATUS

Original Filed Sept. 24, 1926 4 Sheets-Sheet 3

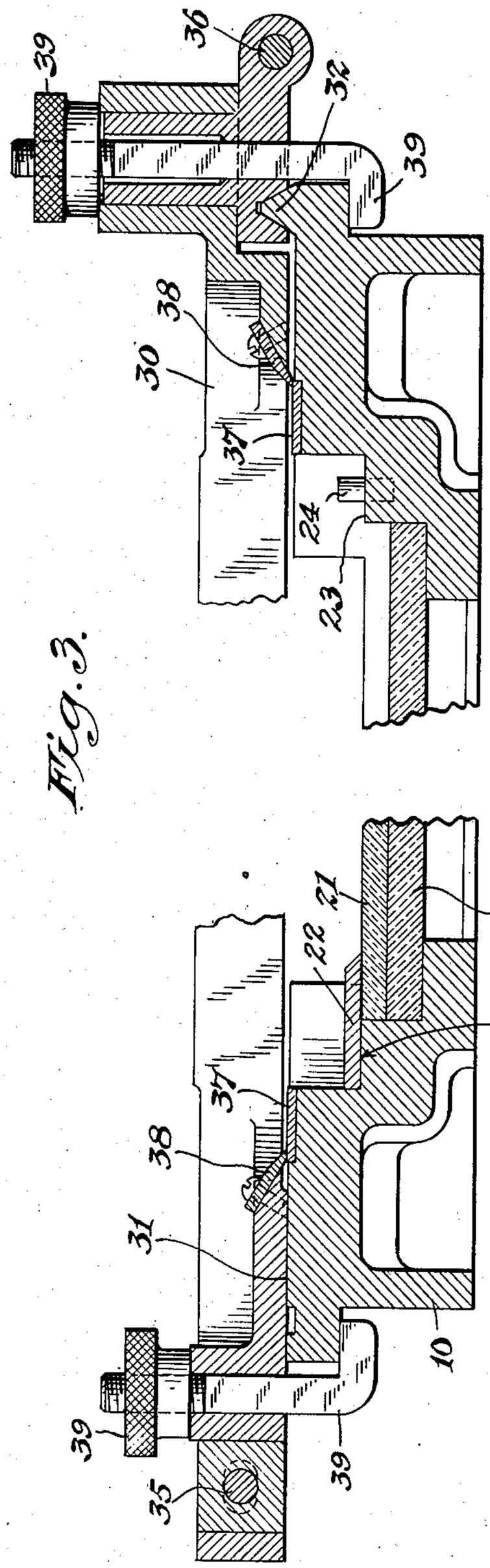


Fig. 3.

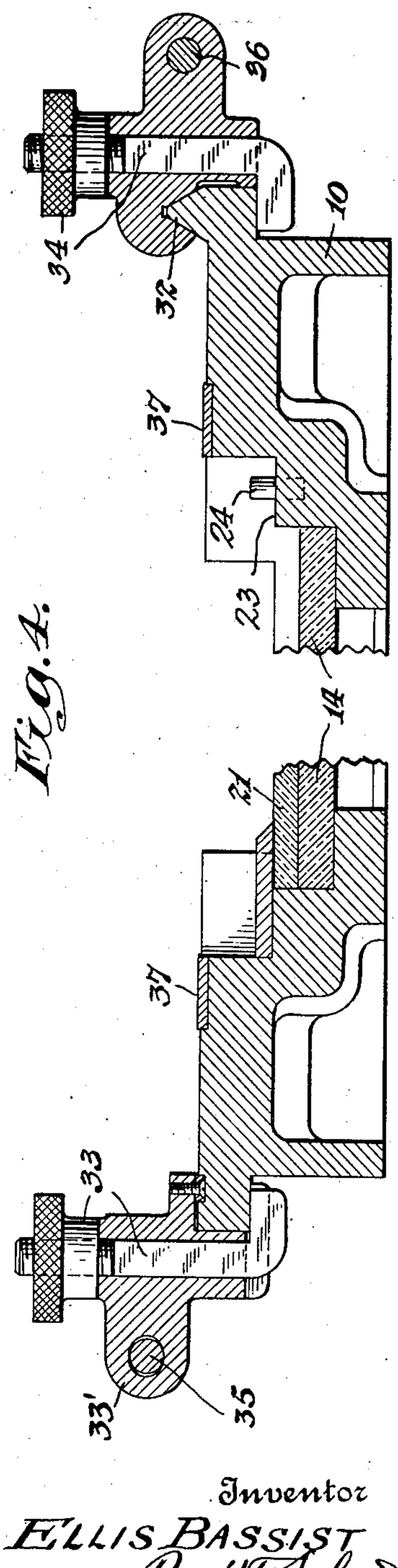


Fig. 4.

Inventor
ELLIS BASSIST
By his Attorney Fred'k P. Fish

June 3, 1930. E. BASSIST 1,761,863

NEGATIVE LOCATING DEVICE FOR STEP AND REPEAT PRINTING APPARATUS

Original Filed Sept. 24, 1926 4 Sheets-Sheet 4

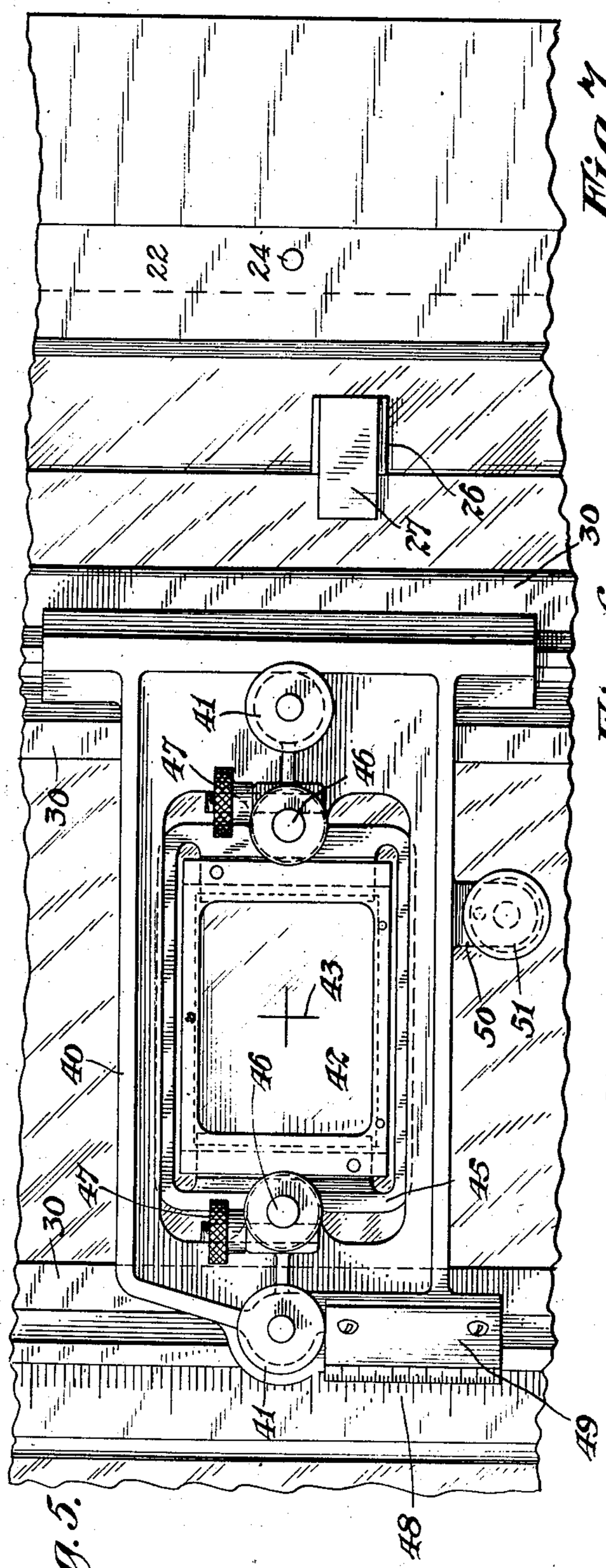


Fig. 5.

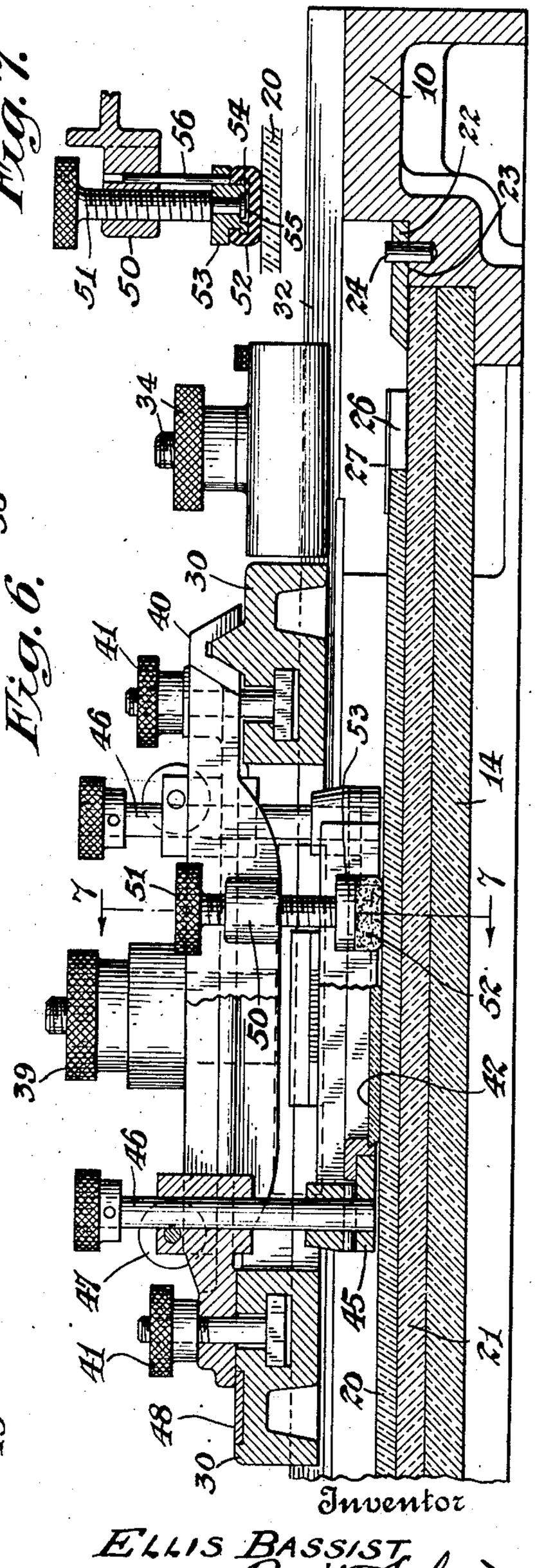


Fig. 6.

Inventor

ELLIS BASSIST

By his Attorney Fred'k F. Schuck

Patented June 3, 1930

1,761,863

UNITED STATES PATENT OFFICE

ELLIS BASSIST, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO F. WESEL MANUFACTURING COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK

NEGATIVE LOCATING DEVICE FOR STEP AND REPEAT PRINTING APPARATUS

Application filed September 24, 1926, Serial No. 137,531. Renewed November 29, 1929.

The invention relates to locating apparatus for locating a photographic negative or positive in a necessary position upon, or within, a carrier or holder. More especially, the invention relates to apparatus whereby a negative may readily and accurately be positioned with respect to the carrier which is then to be transferred to the photo-printing machine for making a printing plate from said negative. In such photo-printing apparatus, the said carrier is successively located in various positions relatively to the press plate, tho each particular step is itself first accurately determined—negatives of different color values, for example, being utilized in identical positions over corresponding plates. It will thus be apparent that extreme accuracy is necessary in the location of the negative relatively to its carrier as well as to the printing plate, and particularly so with reference to the other negatives of the same series which have different color values and which must be printed in absolute register in order to obtain perfect results. With the structure forming the subject of the present invention such accuracy in the location of negatives to carrier or holder is readily attainable and the negative not necessarily restricted to the center position of its carrier or frame, as has been the practice heretofore. In carrying out the invention, a suitable table having graduations at its sides is provided for supporting the negative holder, and there is associated with said table measuring members movable thereover and whereby the position of a negative on the carrier may positively and accurately be determined. Provision is made, also, for temporarily locking a negative to the face of the carrier while it is being more permanently secured thereto after having been accurately positioned.

The nature of the invention, however, will best be understood when described in connection with the accompanying drawings, in which:

Figure 1 is a perspective view of the novel device.

Figure 1ª is a perspective view of a novel form of the negative carrier.

Figure 2 is a detail fragmentary plan of the movable bridge member employed in the locating device.

Figures 3 and 4 are fragmentary longitudinal sections, taken respectively on the lines 3—3 and 4—4, Figure 2, and looking in the direction of the arrows.

Figure 5 is a fragmentary plan showing one of the slides adjustably mounted on the bridge member.

Figure 6 is a fragmentary longitudinal section thru a said slide, with portions broken away.

Figure 7 is a transverse vertical section, taken on the line 7—7, Figure 6.

Referring to the drawings, 10 designates a table suitably supported as by a frame 11, and from the top of which is hung an enclosing compartment 12 for a lamp or like means of illumination 13. The top of the table over the said compartment portion is covered with a sheet of etched or translucent glass 14 thru which diffused light may be caused to shine when the illuminator 13 is burning and thus afford ample illumination in effecting the precise adjustment required in locating a negative, as the negative 20, relatively to its carrier. The latter may consist of the usual four-sided frame with transparent glass plate 21 designed to rest on the glass top 14; and is accurately positioned relatively to the top 10 thru one of its frame pieces 22, which is supported on a ledge 23 as by dowels 24 fitting corresponding openings of the frame piece and ledge and thus insuring always return of the holder to the same position relatively to the top. In Figure 1ª, a preferred and simplified form of frame or plate holder is disclosed and wherein the glass plate 21 is retained only by single bar member as the strip of metal 22′ to which the glass

plate is rigidly secured as by means of suitable adhesive or cement 23'. This type of carrier is considerably less expensive to construct than the frame illustrated in Figure 1, and allows of covering substantially the entire surface of the printing plate with prints. The plate 21 is adapted to support the negative 20 which may be attached thereto after the negative has been properly located, in any well known or special manner, for example, by blocks 26 and adhesive strips 27 attached at various portions of said negative. Provision is made also for enabling the carrier to be placed either at the front of the top as indicated in Figure 1, or along one side.

In locating the negative 20 in its carrier, use is made of a bridge member or traveling carriage 30 which extends over the top from one side to the other, being movable thereon over the glass portion 14, one end of the bridge for this purpose resting on the finished edge 31 at one side of the top and the other end on a triangular way 32 of the other side. Bridge 30 is designed to be locked securely to the said edge 31 and to the way 32 by suitable clamping members 33 and 34 respectively; and a slight rocking motion is allowed the same thru an oppositely tapered bearing block 33' at one side. Vernier adjusting rods 35 and 36 connect respectively the clamping members 33 and 34 with the carriage. The two sides of the top are suitably graduated as by means of scale plates 37 set therein; and a vernier 38 is associated therewith and mounted on a bridge at each end, said bridge being movable for final adjustment by means of the adjusting rods 35 and 36 after the clamping members 33 and 34 have been set to secure the bridge at each side of the top. By this means, a precise adjustment of the bridge may be had relatively to the positioned negative carrier 21, the bridge being finally secured in the selected position by further clamps 39. Thru the rocking movement permitted, the bridge 30 may swing as a whole slightly about the one end and thus accommodate irregularly placed guide marks.

Moreover, there is mounted to slide on said bridge a pair of slides 40 which are adjustable longitudinally of the bridge, similarly to the adjustment of the bridge on the sides of the table top, being clamped to said bridge by clamping screws 41. Each of said slides 40 carries, also, a transparent member or plate 42 provided with cross marks or register marks 43, which are designed to register with similar marks 44 of the negative when the latter is properly positioned. In order to facilitate this registering of the cross marks 43 with the register marks 44, the former are arranged to be carried by a transparent plate of a vertically movable frame 45 which may be depressed, by a pair of rods 46 attached thereto, in proximity to the surface of the negative 20 and held in position by set screws 47 until the adjustment is effected. For this purpose, graduations 48 with vernier 49 are provided respectively along the sides of the bridge and on the slide in order that the longitudinal position of a slide may be accurately set, the transverse position having been determined in the setting of the bridge as previously set forth. Thus, both a transverse and longitudinal reading are obtainable; and the bridge and slides, if disturbed, may quickly and readily be returned or set to their previous positions by taking note of the original readings.

It will be understood that after the bridge and slides have been set to the desired positions, the negative 20 will be manually adjusted on its carrier 21 to bring the indicator marks 44 thereon into registry with the cross marks 43 of the slides. After this adjustment of the negative it becomes necessary to securely hold the same to the glass 21, which is accomplished by means of the blocks 26 and the adhesive strips 27; and, during this period of attachment, it is desirable to maintain said negative against dislodgment from its adjusted position. To this end, each of the slides 40 is provided with a laterally extending bracket 50 which is designed to project over the negative and carries an adjustable screw 51 which is vertically movable therein. At its lower end screw 51 is covered with a shoe of resilient material, as a pad of rubber 52, which is designed to engage the upper surface of the negative 20 and press the latter against the glass 21 upon which it rests, thus serving to hold it fixedly in the adjusted position until said negative has been secured to the glass plate as aforesaid. In order to prevent rotation of the pad or shoe 52 with consequent tendency to shift the negative from its adjusted position, the lower end of the screw 51 is fitted with a head 53 to which the pad is secured, the screw being rotatable relatively to said head and shouldering against its upper surface. At the lowermost end of the screw the same is fitted with a flange 54 fitting a recess 55 of said head, the said head being further insured against rotation in the operation of the screw by a rod 56 which extends downwardly from the bracket into the said head.

When the negative has thus been properly secured in the desired position relatively to its frame, the latter may be removed from the table by sliding the same therefrom thru the back after first removing the dowel pins. It is then transferred to a photo-printing machine or a step and repeat printing apparatus (not shown) for making the desired printing plates. When a new negative is required, the frame is returned to the locating apparatus aforementioned and the new negative accurately positioned relative to the frame as hereinbefore described, the exact

position being readily determined by resetting the bridge and slide members to correspond to the readings previously utilized if in the meantime the locating apparatus may have been utilized for positioning other negatives and thus have disturbed the original adjustment. Otherwise, it will be necessary merely to set the negative holder in place on the top of the table 10 and adjust the negative therein to bring its indicator marks into register with those of the slide members.

I claim:

1. The combination with a supporting table provided with a translucent top having scales along its sides and adapted to support in predetermined position a carrier bearing a negative provided with register marks, and a source of illumination beneath said top for projecting light therethru to the negative; of a bridge member slidable over the said top along its sides and cooperating with the scales thereof for setting the bridge in predetermined positions, means to secure the bridge in selected position, slides movable along the bridge, and scales on said bridge for cooperation with the slides in setting the same in selected position, said slides bearing indicator marks for registry with corresponding marks on the negative.

2. The combination with a supporting table provided with a translucent top having scales along its sides and adapted to support in predetermined position a carrier bearing a negative provided with register marks, and a source of illumination beneath said top for projecting light therethru to the negative; of a bridge member slidable over the said top along its sides and cooperating with the scales thereof for setting the bridge in predetermined positions, means to secure the bridge in selected position, slides movable along the bridge, scales on said bridge for cooperation with the slides in setting the same in selected position, a depressible carriage movable with a slide and having a transparent bottom plate bearing register marks, and means to hold the carriage in depressed position in proximity to the top of the negative.

3. The combination with a supporting table provided with a translucent top having scales along its sides and adapted to support in predetermined position a carrier bearing a negative provided with register marks, and a source of illumination beneath said top for projecting light therethru to the negative; of a bridge member slidable over the said top along its sides and cooperating with the scales thereof for setting the bridge in predetermined positions, means to secure the bridge in selected position, slides movable along the bridge, scales on said bridge for cooperation with the slides in setting the same in selected position, said slides bearing indicator marks for registry with corresponding marks on the negative, and a holding shoe carried by each of the slides and adjustable toward the top of the negative for engagement therewith to hold the same temporarily to its carrier during the period of securing the former to the latter after said negative has been positioned in the selected position.

4. The combination with a supporting table provided with a translucent top having scales along its sides and adapted to support in predetermined position a carrier bearing a negative provided with register marks, and a source of illumination beneath said top for projecting light therethru to the negative; of a bridge member slidable over the said top along its sides and cooperating with the scales thereof for setting the bridge in predetermined positions, means to secure the bridge in selected positions, slides movable along the bridge, scales on said bridge for cooperation with the slides in setting the same in selected position, a depressible carriage movable with a slide and having a transparent bottom plate bearing register marks, means to hold the carriage in depressed position in proximity to the top of the negative, and brackets carried respectively by each of said slides, a shoe adjustably mounted therein for movement toward the top of the negative for engagement therewith to hold the same temporarily to its carrier during the period of securing the former to the latter after said negative has been positioned in the selected position.

5. The combination with a supporting table provided with a translucent top having scales along its sides and adapted to support in predetermined position a carrier bearing a negative provided with register marks, and a source of illumination beneath said top for projecting light therethru to the negative; of a bridge member slidable over the said top along its sides and cooperating with the scales thereof for setting the bridge in predetermined positions, means to secure the bridge member to the top when positioned and including a bearing permitting an angular movement of the carriage, slides movable along the bridge, and scales on said bridge for cooperation with the slides in setting the same in selected position, said slides bearing indicator marks for registry with corresponding marks on the negative.

6. The combination with a supporting table provided with a translucent top having scales along its sides and adapted to support in predetermined position a carrier bearing a negative provided with register marks, said table being open at the rear of the top to permit removal of the carrier with positioned negative, and a source of illumination beneath said top for projecting light therethru to the negative; of a bridge member slidable over the said top along its sides

and cooperating with the scales thereof for setting the bridge in predetermined positions, means to secure the bridge in selected position, slides movable along the bridge, and scales on said bridge for cooperation with the slides in setting the same in selected position, said slides bearing indicator marks for registry with corresponding marks on the negative.

In testimony whereof I affix my signature.

ELLIS BASSIST.