

No. 614,660.

Patented Nov. 22, 1898.

E. F. LINKE.

LEAD EXTRACTING DEVICE FOR TYPE DISTRIBUTING MACHINES.

(Application filed Sept. 4, 1897.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1

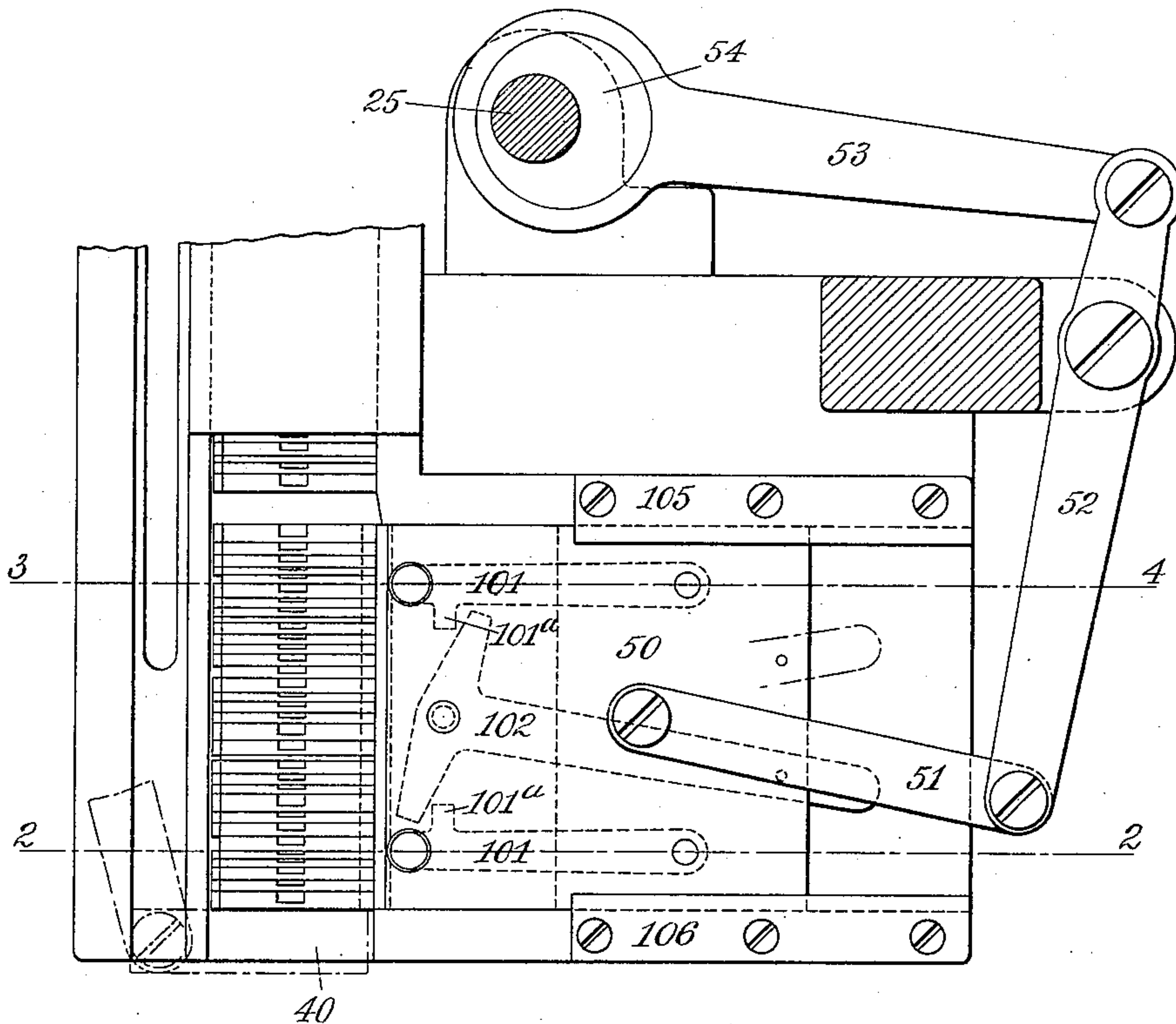
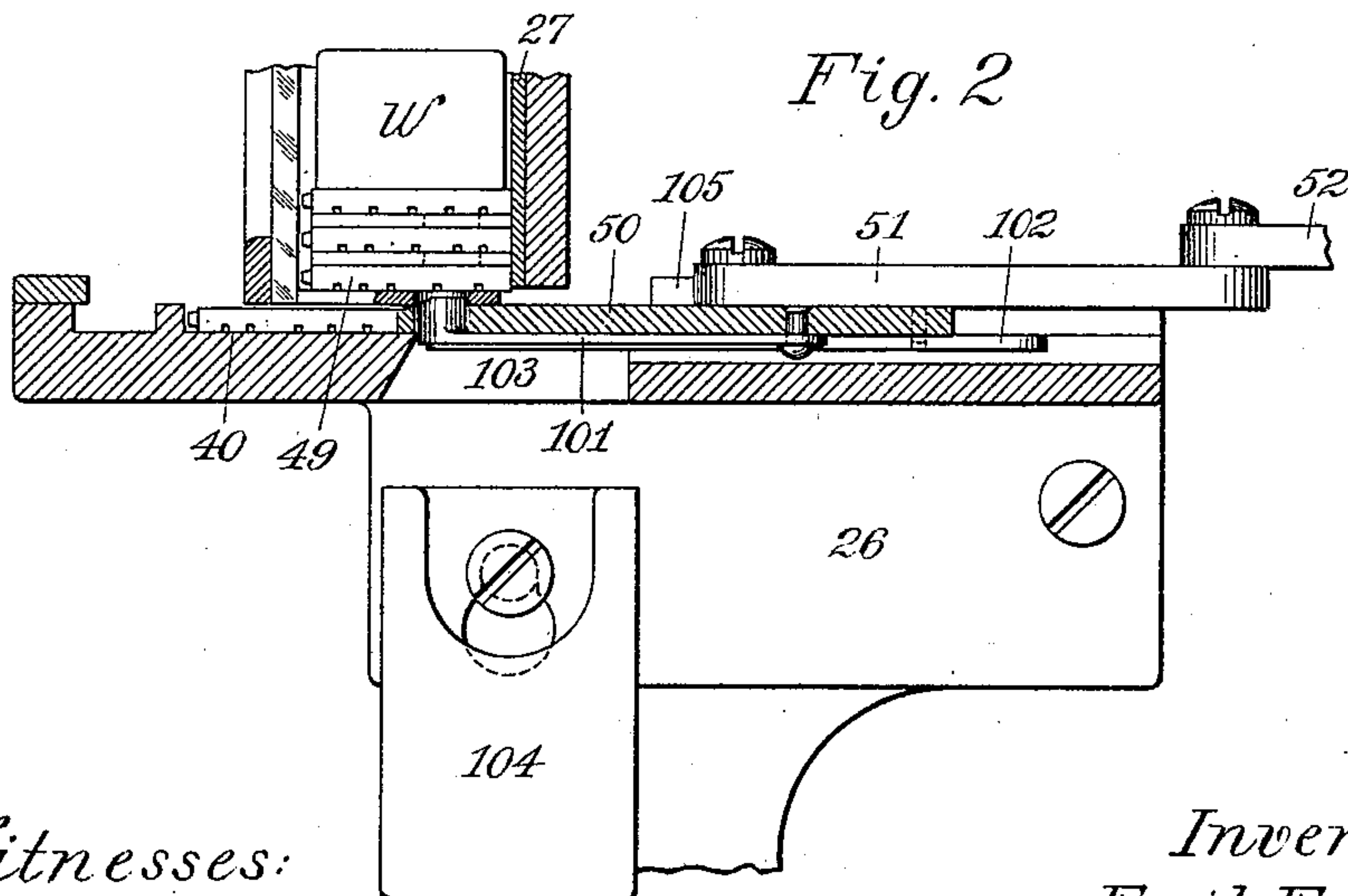


Fig. 2



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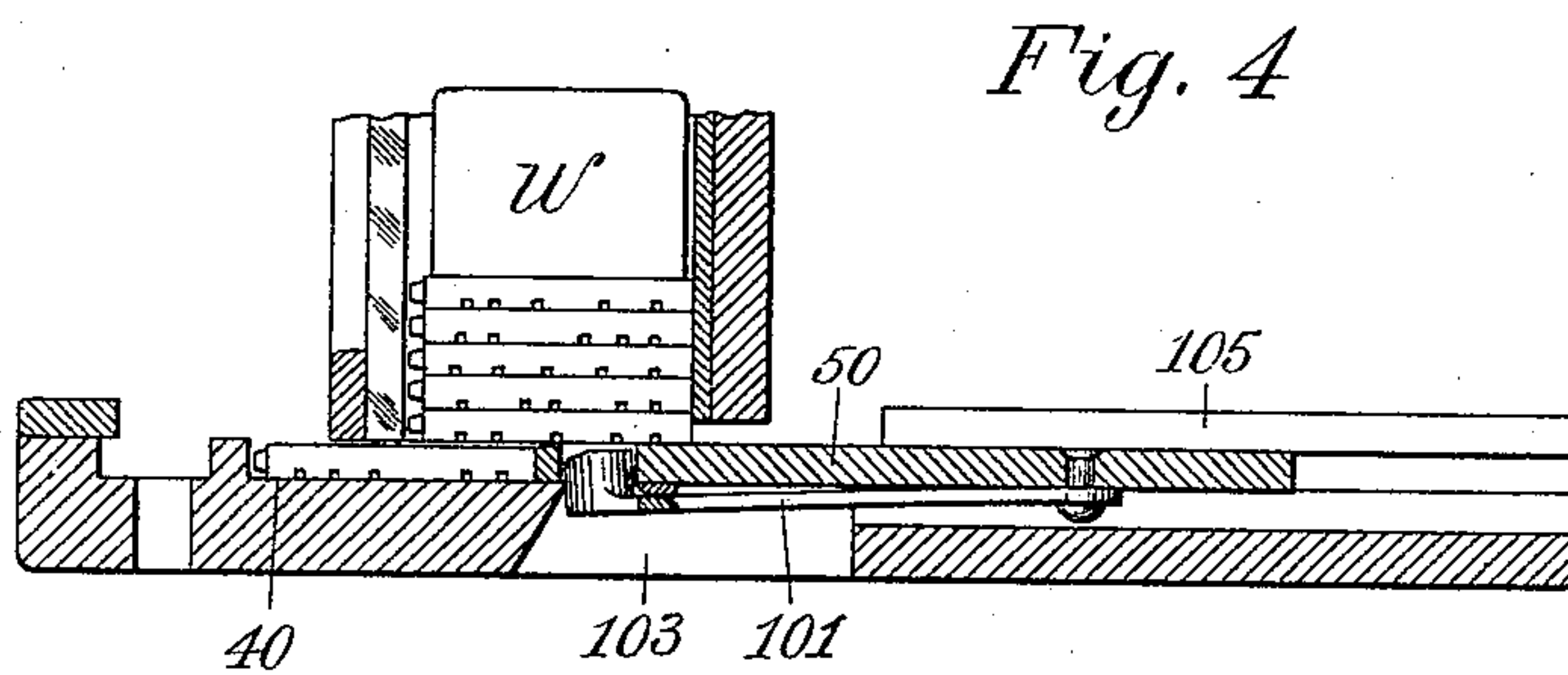
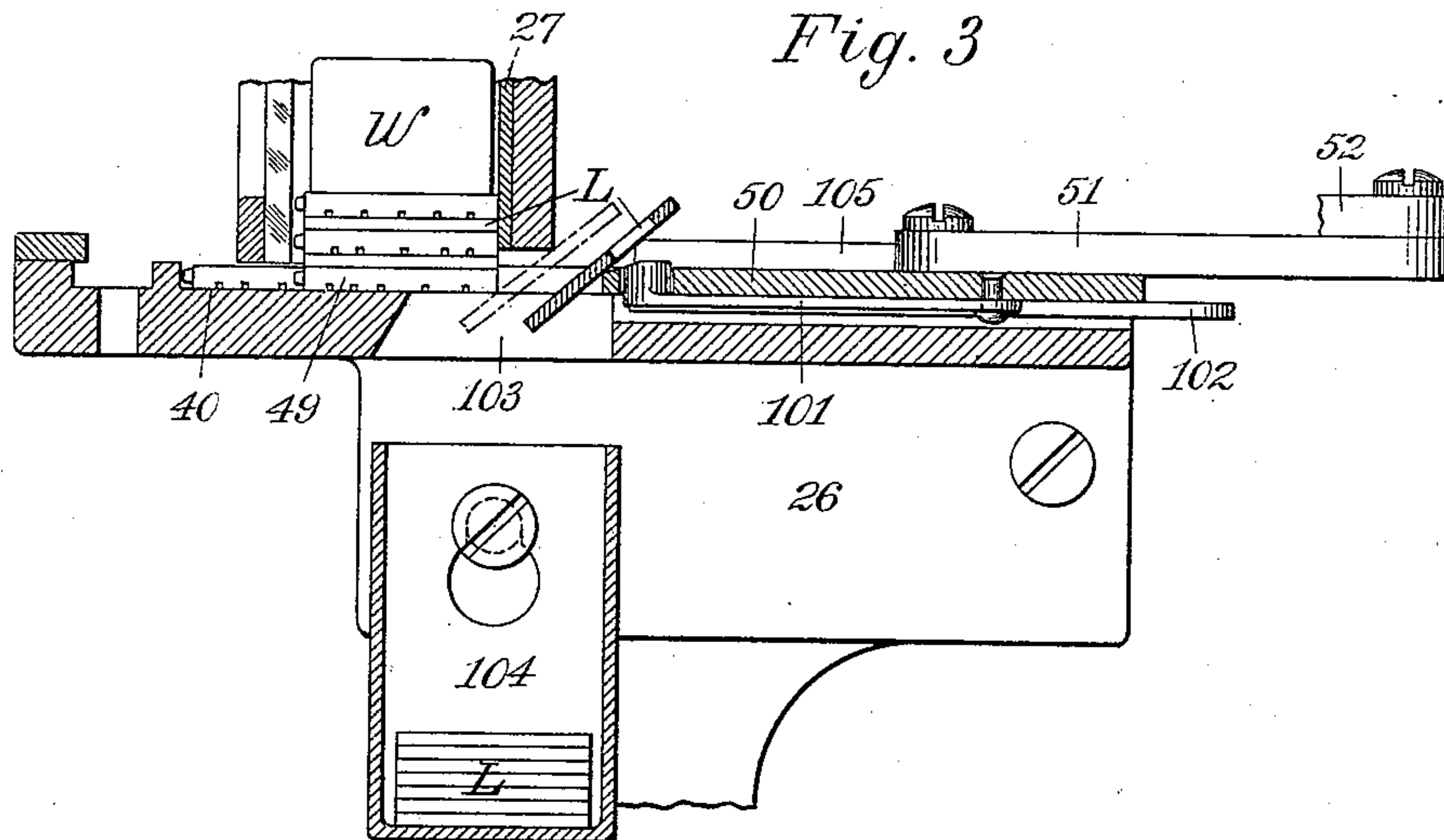
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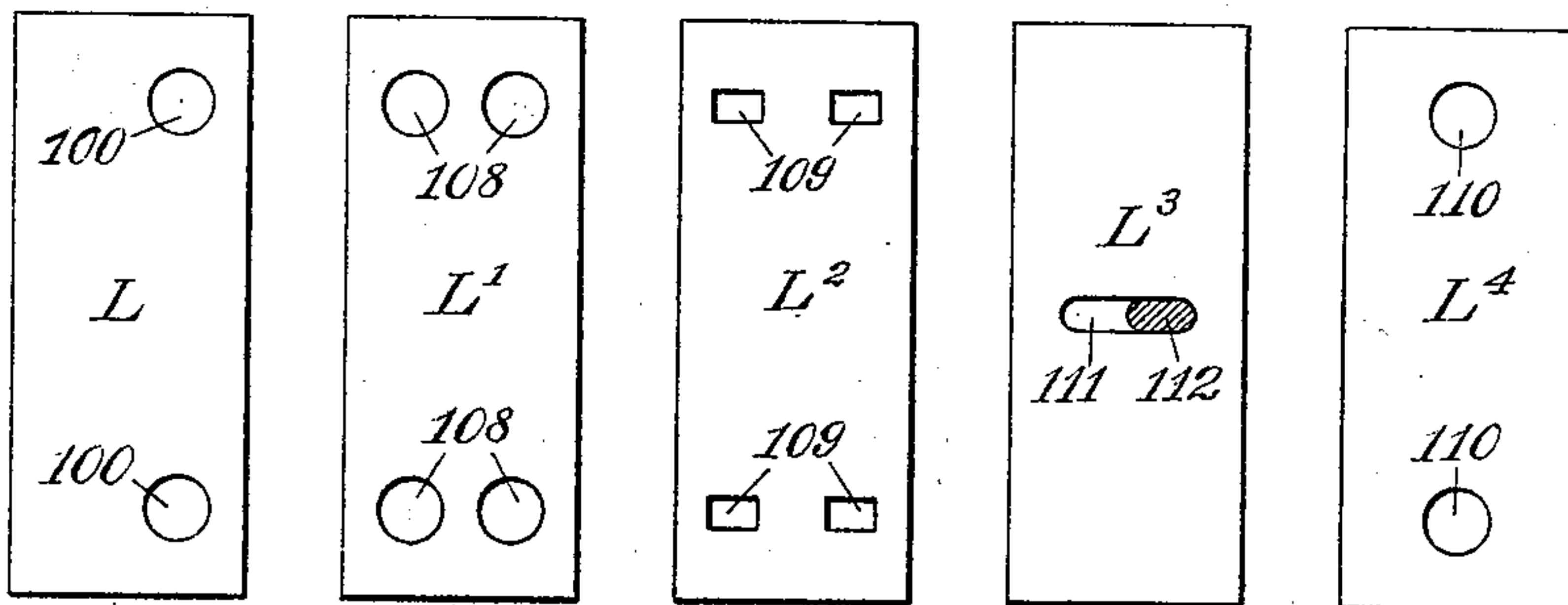
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*Fig. 5 Fig. 6 Fig. 7 Fig. 8 Fig. 9*



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# UNITED STATES PATENT OFFICE.

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## LEAD-EXTRACTING DEVICE FOR TYPE-DISTRIBUTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 614,660, dated November 22, 1898.

Application filed September 4, 1897. Serial No. 650,679. (No model.)

*To all whom it may concern:*

Be it known that I, EMIL F. LINKE, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Lead-Extracting Devices for Type-Distributing Machines, of which the following is a full, clear, and exact specification.

10 This invention relates to machinery for the distribution of type, and more particularly to that portion of those machines which separates the lines of type from column form as a preliminary to separating and distributing  
15 the individual type.

The object of this invention is to provide improved means for automatically removing from the column the leads which are employed by printers between the lines for spacing out  
20 or "leading" the matter.

A further object is to provide means for readily throwing the lead-extracting devices out of operation when distributing "solid" or unleaded matter, thereby enabling the device to be adapted to either kind of matter.  
25

Figure 1 of the drawings is a plan view of my improved devices, showing enough of the machine of which it forms a part to enable its relation thereto to be understood. Fig. 2  
30 is an end view in section, taken on the line 2 2 of Fig. 1, the cut-off slide in both of these views being shown in its forward position. Fig. 3 is an end view, also taken in section on the line 2 2, differing from that of Fig. 3  
35 in the respect that the cut-off slide is herein shown to be drawn backward and in the act of releasing the lead which has been withdrawn by that backward movement. Fig. 4 is a fragmentary end view similar to that of  
40 Fig. 2, showing my improved device as adapted to the distribution of a column of type having no leads therein, the lead-removing devices being depressed out of operative position by my improved means provided for  
45 that purpose. Fig. 5 is a side view of one of the leads of the previous figures, showing the perforations by means of which it is engaged by the lead-removing devices. Figs. 6, 7, 8, and 9 are side views of modified forms of  
50 leads, the modifications thereof being in the form and disposition of the slots or apertures

employed for withdrawing the leads from the lines.

The leads L are of a length equal to the width of the column in which they are employed and of a width substantially equal to the length of the body portion of the type. The thickness of the leads is made equal to the extent of the desired separations between the lines of type, being, however, ordinarily of uniform thickness throughout the same column. My preferred form of lead (shown in Fig. 5) is provided with round perforations 100, located at one side only of its longitudinal center, those perforations being for the purpose of enabling the extracting devices hereinafter described to engage positively with the leads.

The framing 26 of the machine is provided with a feed-channel 40, of a width substantially equal to the length of the type, and that framing is also recessed at right angles to the feed-channel to a width substantially equal to that of the column in the galley, the bottom of this recess being on a level with that of the feed-channel. The cut-off slide 50 extends across and fills this recess and is fitted to slide therein to an extent represented by comparison of Figs. 2 and 3. When in its forward position, (shown in Figs. 1 and 2,) the front end of the slide 50 serves as a continuation of the rearward side of the feed-channel 40, so as to guide the cut-off or separated line of type into that channel. The framing is also provided with an aperture 103, of a width somewhat greater than that of the leads and which extends beneath the column of type coincidently with the width thereof and somewhat less than half-way of the length of the type therein from their "foot" end.

The column of type to be distributed is placed upon the machine in the galley 27, as shown in Figs. 2 and 4, which is attached or suspended so that the lower line or the lower lead, as the case may be, of the matter contained in the galley rests upon the forward end of the cut-off slide 50 while the latter is in its forward position, as shown in Figs. 1 and 2. When the slide is in its rearward position, as shown in Fig. 3, the column of type rests upon the bottom of the recess for



the slide, with the foot end of the type overhanging the recess 103, so that each lead upon being drawn backwardly somewhat more than one-half of its width will be freed from the weight of the column of type above it and may fall through the aperture 103.

The slide 50 is provided with the pawls 101, which are attached to the slide in any convenient way, with the forward ends projecting upwardly from the top of the slide, so as to engage with the perforations 100 of the lead when the latter is resting upon the slide, as shown in Fig. 2. In the arrangement herein shown the pawls 101 are of resilient material, riveted at their rearward ends to the under side of the slide, the elasticity of the pawls being sufficient to allow them to spring downwardly and pass under the rearward edges of the leads as the slide is pushed forward.

As these machines must usually be employed for the distribution of solid as well as leaded matter I have provided means for depressing the forward or lead-engaging ends of the pawls 101 below the surface of the cut-off slide when used for distributing matter containing no leads. My preferred means shown in the drawings consists of a T-shaped lever 102, pivotally mounted at the forward end of the slide and substantially midway between the pawls, the arms of the T extending on either side into engaging relation with the projections 101<sup>a</sup> of the pawls. The engaging portions of the lever and of the pawls or either of them are beveled, as shown in Fig. 4, so as to enable the lever to cam the pawls downwardly when the rearwardly-projecting end of that lever is moved to the position partially shown in dot-and-dash outline in Fig. 1. That end of the lever is made resilient and is held in its two positions against displacement by means of notches cut in the lower side of the slide or by means of pins, as shown in Figs. 1 and 2, the lever being released from either position by pressing its rearward end downwardly far enough to clear the pin or the notch, as the case may be.

The cut-off slide is connected by means of the link 51, the lever 52, and the eccentric-rod 53 with the eccentric 54 on the shaft 25, by means of which the required reciprocatory movement is imparted to the slide, the shaft being operatively connected with the rest of the machine and so timed with relation thereto as to rotate the eccentric at the desired intervals.

The operation of this device is as follows: Beginning with the position shown in Figs. 1 and 2, the bottom lead resting upon the slide 50, with the pawls 101 engaging the apertures 100 of the lead, as the eccentric is rotated the slide 50 is drawn backward, withdrawing the lead from beneath the type until the front edge of the slide is drawn past the bottom of the galley, when the type in that galley settle down to the position shown in Fig. 3,

thereby tipping the withdrawing lead to the position shown by dot-and-dash lines in Fig. 3, releasing it from the slide and enabling it to fall through the aperture 103 into the box or receptacle 104. If the lead should fail to be dislodged from the pawls by the falling column of type, it will be positively dislodged upon reaching the position shown by full lines in Fig. 3 by reason of its rearward edge coming in contact with the front ends of the gibs 105 106, by means of which the slide 50 is held in place. Having thus withdrawn and delivered the lead, the slide 50 upon its forward movement engages with the rearward end of the bottom line 49 of type, pushing it forward into alinement with the type-channel 40, as shown in Figs. 1 and 2, the beveled forward edges of the pawls 101 enabling them to be sprung down, so as to pass under the rearward edge of the next lead. When the slide reaches its forward position, the pawls spring up again into the apertures 100 of the lead in readiness for the next backward movement of the slide, the operations of which are thus automatically repeated.

For facilitating the dislodgment and delivery of the lead from the pawls after its withdrawal from the column I prefer to locate the engaging-perforations near one edge of the lead, as shown in Fig. 5, so that the opposite edge of the lead shall overhang the edge of the cut-off slide as far as possible, as shown in Fig. 3, so that the weight of the overhanging lead will assist in its dislodgment from the slide.

It will be observed that the lead shown in Fig. 5 if inserted in the column in a reversed position from that shown in Figs. 2 and 3 would not engage with and be withdrawn by the lead-extracting pawls 101. I have, however, shown in Figs. 6 to 9, inclusive, four forms of leads modified so as to enable them to be reversible. The leads shown in Figs. 6 and 7 are modified in the respect that their perforations are symmetrically arranged with respect to both the longitudinal and the transverse center of the lead, that of Fig. 7 being provided with rectangular perforations 109, while the lead of Fig. 6 is provided with circular perforations 108. I however prefer the form shown in Fig. 1, even though it lacks the feature of reversibility, inasmuch as the edges of all superfluous perforations which are not occupied by the extracting-pawls are liable sometimes to catch in those nicks which are nearest the feet of the type as the lead is drawn backward and just before it reaches the dot-and-dash position shown in Fig. 3. In the modification shown in Fig. 9 the perforations 110 in the lead are located along its longitudinal center and are therefore reversible, although it lacks the capability of overhanging the slide possessed by the leads of the previous figures.

It will be obvious that the leads may be withdrawn by means of a single perforation



located midway of the length of the lead, a single extracting-pawl being located in a corresponding position in the cut-off slide. Such a lead, if provided with perforations like those of the other figures, would be liable to 5 cramp and become caught at its ends during the extracting operation; but by providing it, as shown in Fig. 8, with an elongated perforation 111 and having the engaging portion 10 112 of the pawl correspondingly elongated, as therein shown, the cramping may be prevented and the lead withdrawn with a sufficient degree of certainty by such a single pawl.

15 I claim as my invention—

1. In a machine for distributing leaded columns of type, a supporting-surface for the column extending substantially half-way thereunder, a galley for sustaining the column of type in alinement and in a substantially vertical position above the supporting-surface, means for pushing away the type-lines, and means for withdrawing the succeeding lowermost leads beyond the edge of 25 the supporting-surface.

2. In a machine for distributing leaded columns of type, the combination of a reciprocating slide adapted to push the lowermost line of type in one direction, and to extract 30 the leads therefrom in the opposite direction, a supporting-surface for the column of type, provided with an aperture extending the width of the column and a substantial distance thereunder for the passage of the extracted leads.

3. In a machine for distributing leaded columns of type, provided with a feed-channel, and with a recess extending at right angles thereto of substantially the width of the column, and having an aperture for the passage of 40 the extracted leads, a galley for containing a column of type located so as to guide its succeeding lines and leads into that recess, rearwardly of the feed-channel and substantially overhanging the aperture, and a slide mount-

ed in the plane of the recess, and adapted to push the succeeding lines of type into the feed-channel, and to withdraw the leads from the column to the aperture.

4. In a machine of the class specified, a cutting-off device for removing the succeeding 50 lines from a column or galley of type, provided with one or more lead-extracting pawls, and with means controllable by the operator for retracting the pawl or pawls out of operative position. 55

5. In a machine for distributing both leaded and solid type matter, a slide for cutting off the lowermost line of type, provided with one or more pawls for extracting the leads 60 when distributing leaded matter, and a cam for retracting the pawls out of engaging relation to the type when distributing solid matter.

6. In a machine for distributing both leaded 65 and solid type matter, a reciprocating slide for engaging with the bottom line and pushing it laterally away from the column on the forward movement of the slide, one or more pawls mounted thereon for extracting the 70 leads of leaded matter on the rearward movement of the slide, with a cam located in engaging relation to each of the pawls for retracting them out of engagement with the type when distributing solid matter. 75

7. In a machine for distributing both leaded and solid type matter, a slide for cutting off the succeeding type-lines provided with lead-extracting devices for leaded matter, and a cam-lever pivotally mounted upon the slide 80 for engaging with and depressing the lead-extracting devices out of engaging relation to the type when distributing solid matter, with means for detachably locking the cam-lever in each of its two positions.

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