

(No Model.)

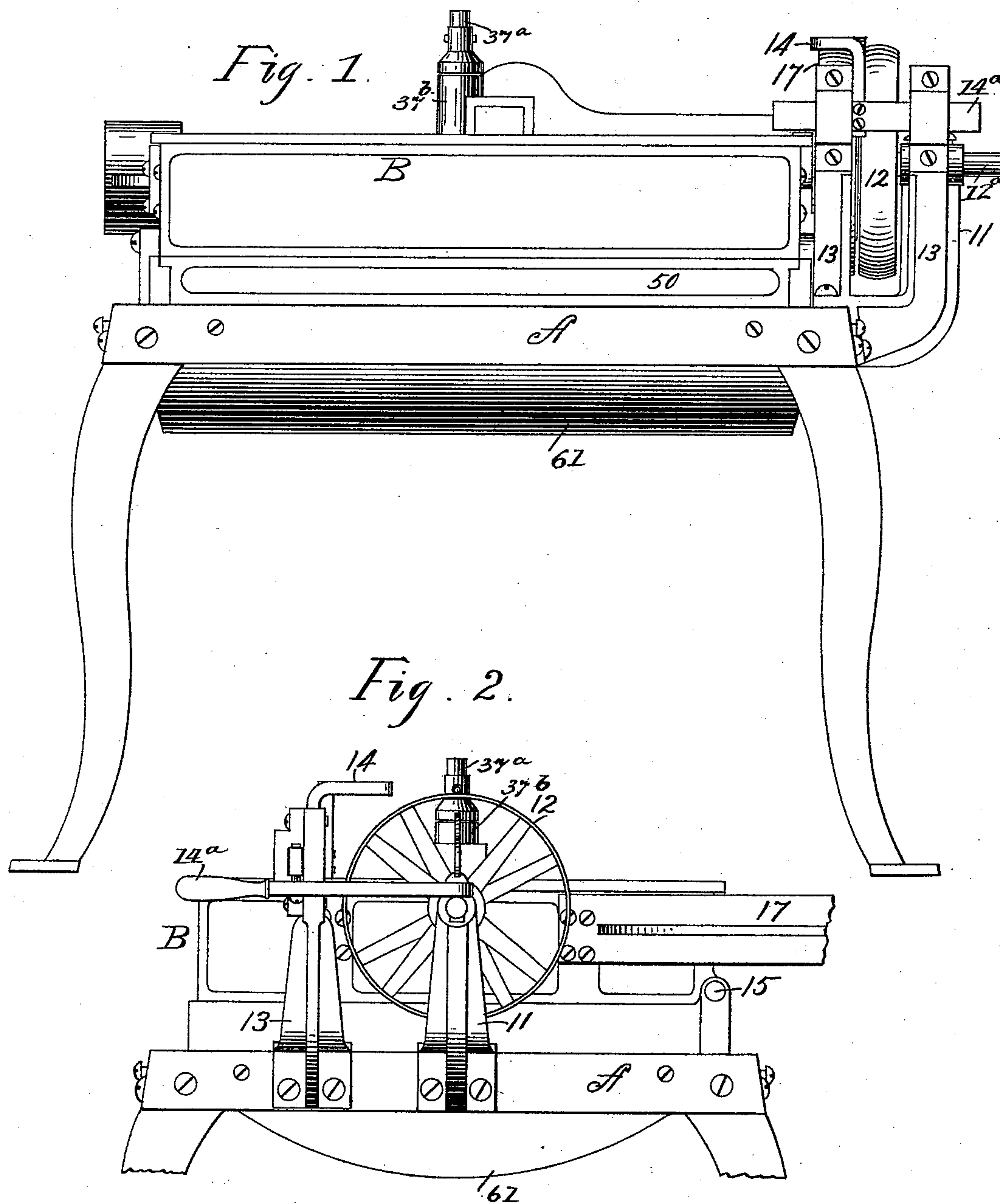
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O. B. BEACH.

MACHINE FOR BLACK LEADING ELECTROTYPE MATRICES.

No. 527,827.

Patented Oct. 23, 1894.



Witnesses

A. W. Stipek.

J. H. Griswold.

Inventor

Oliver B. Beach

By James Shepard  
Atty.

(No Model.)

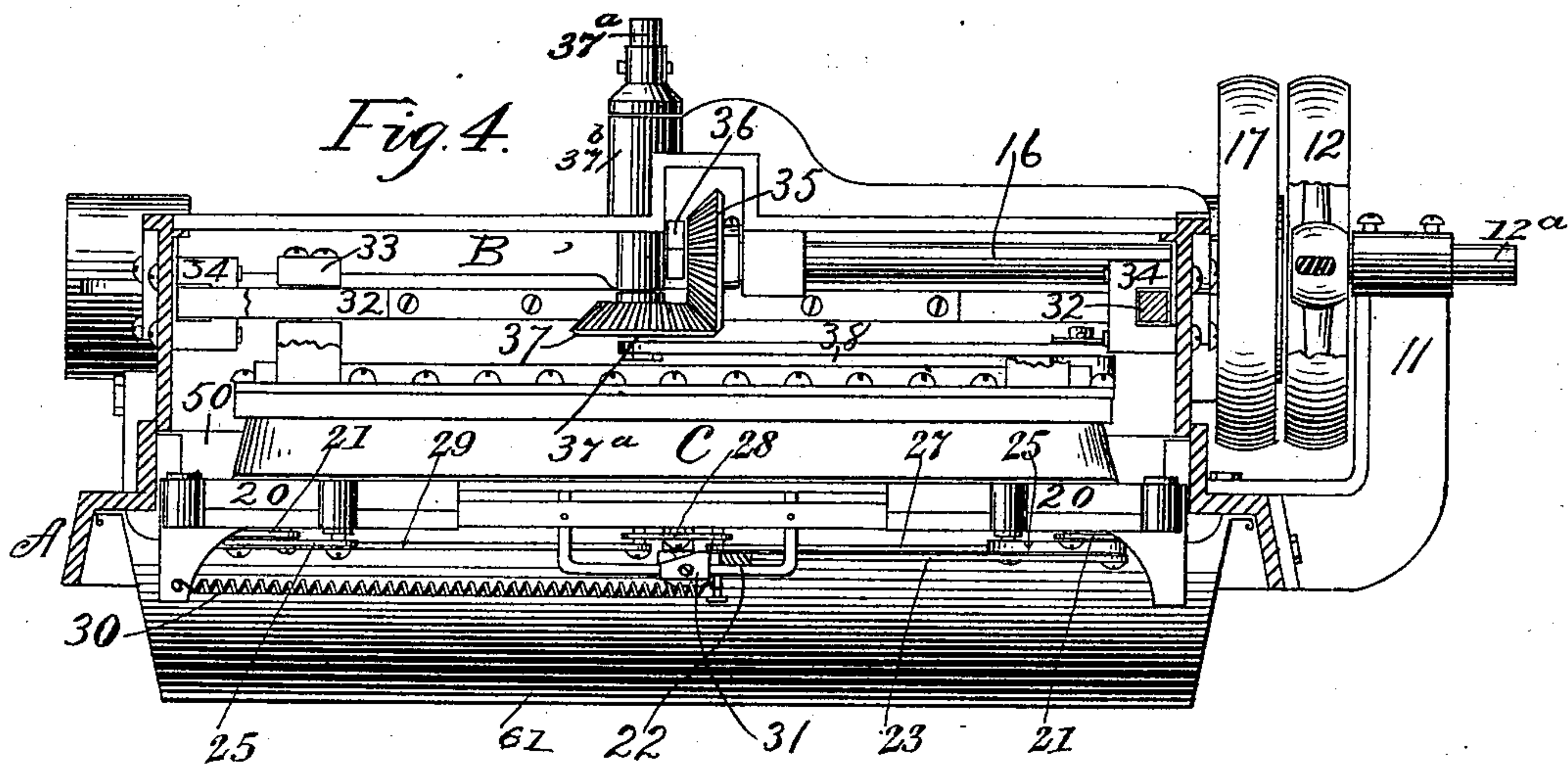
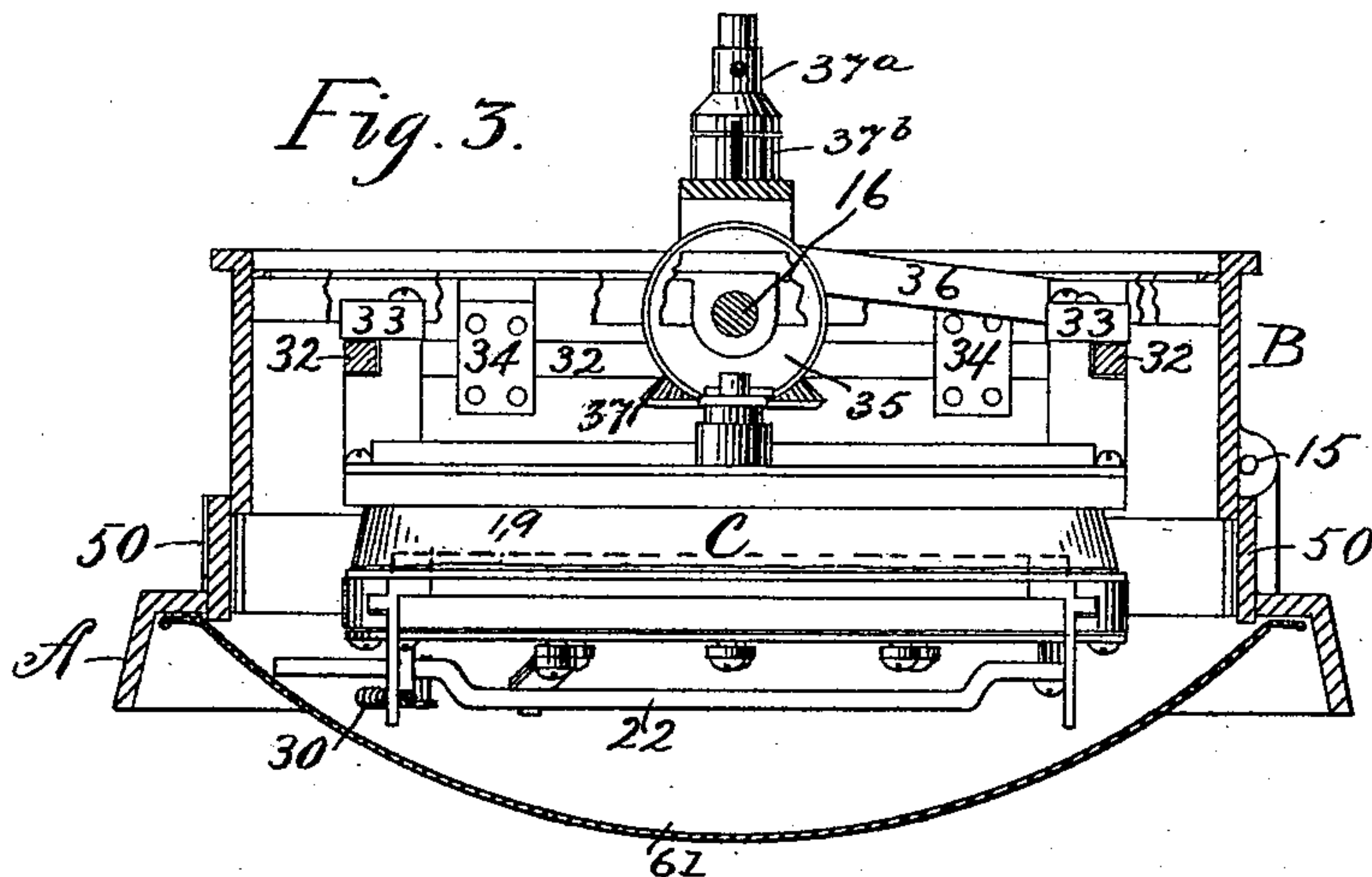
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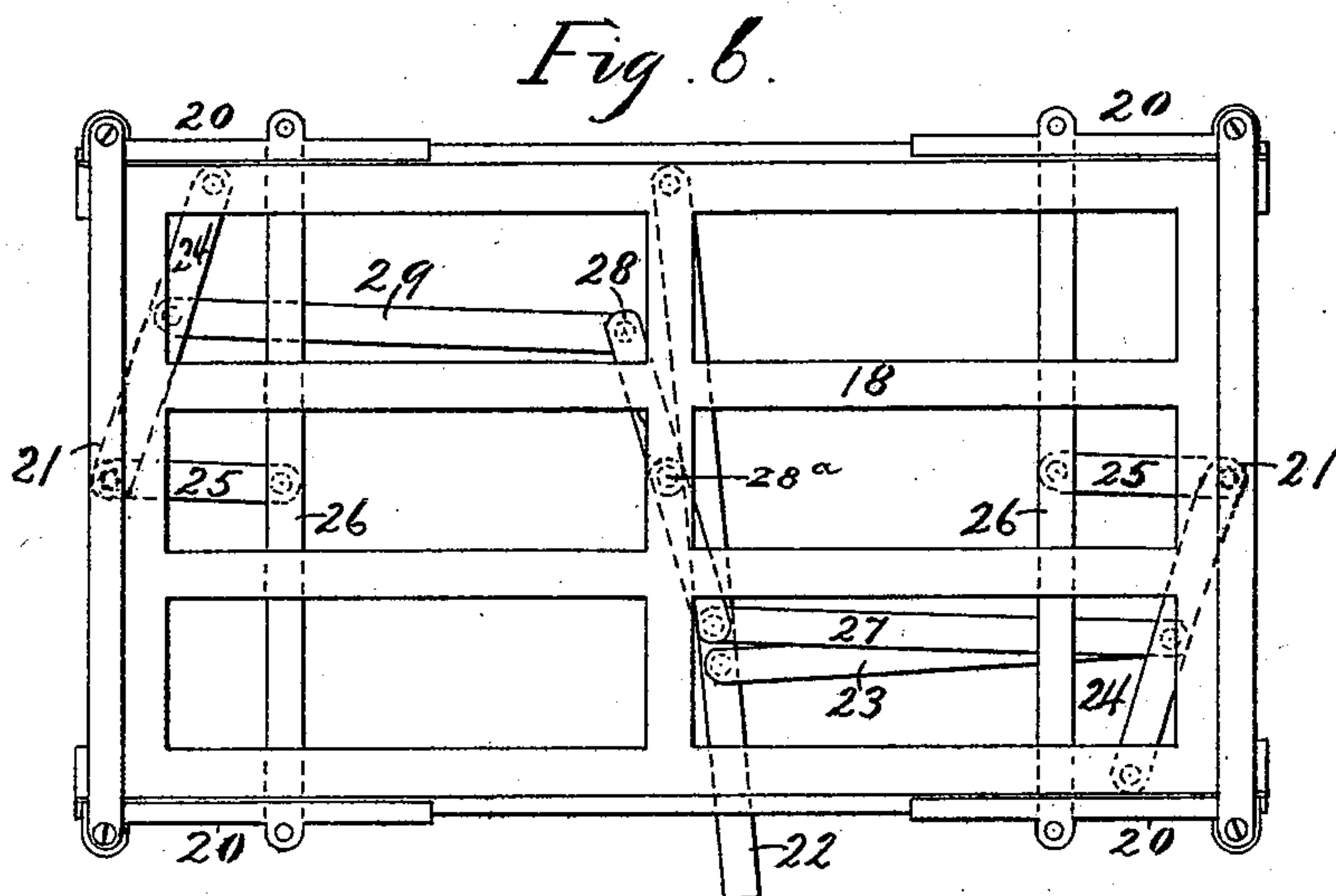
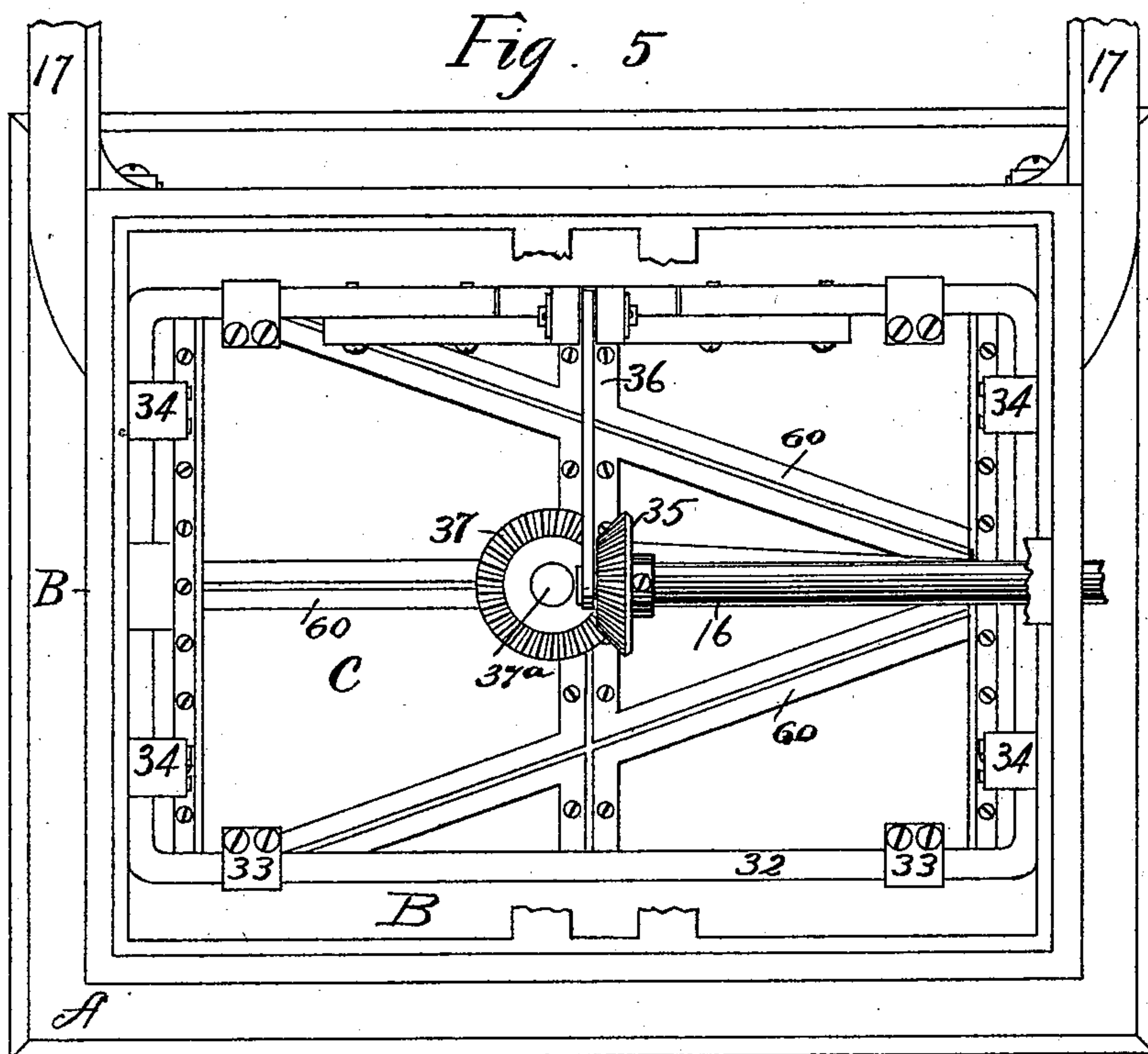
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F. H. Grunwald.

INVENTOR  
Oliver B. Beach  
By James Shepard  
Atty.



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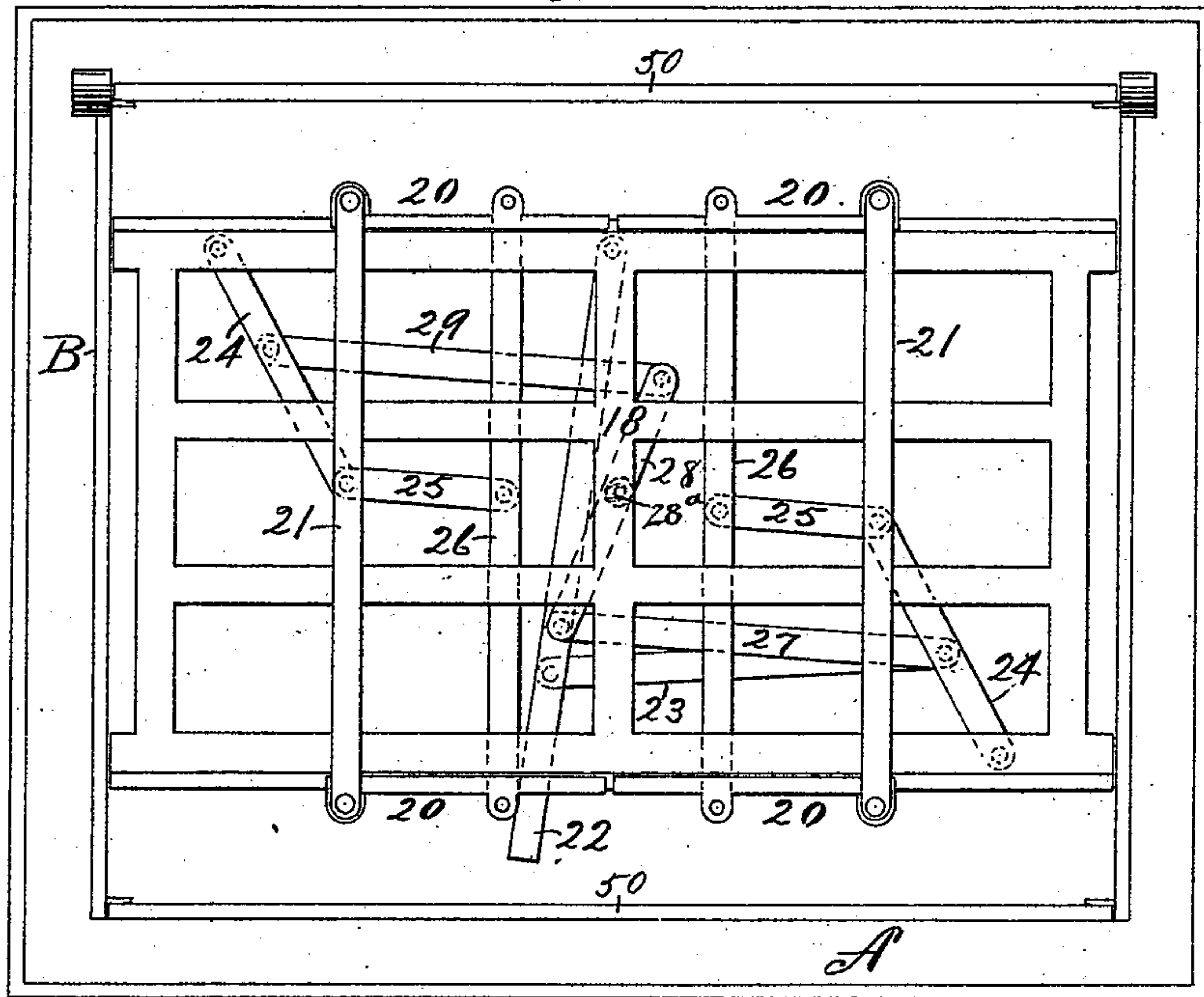
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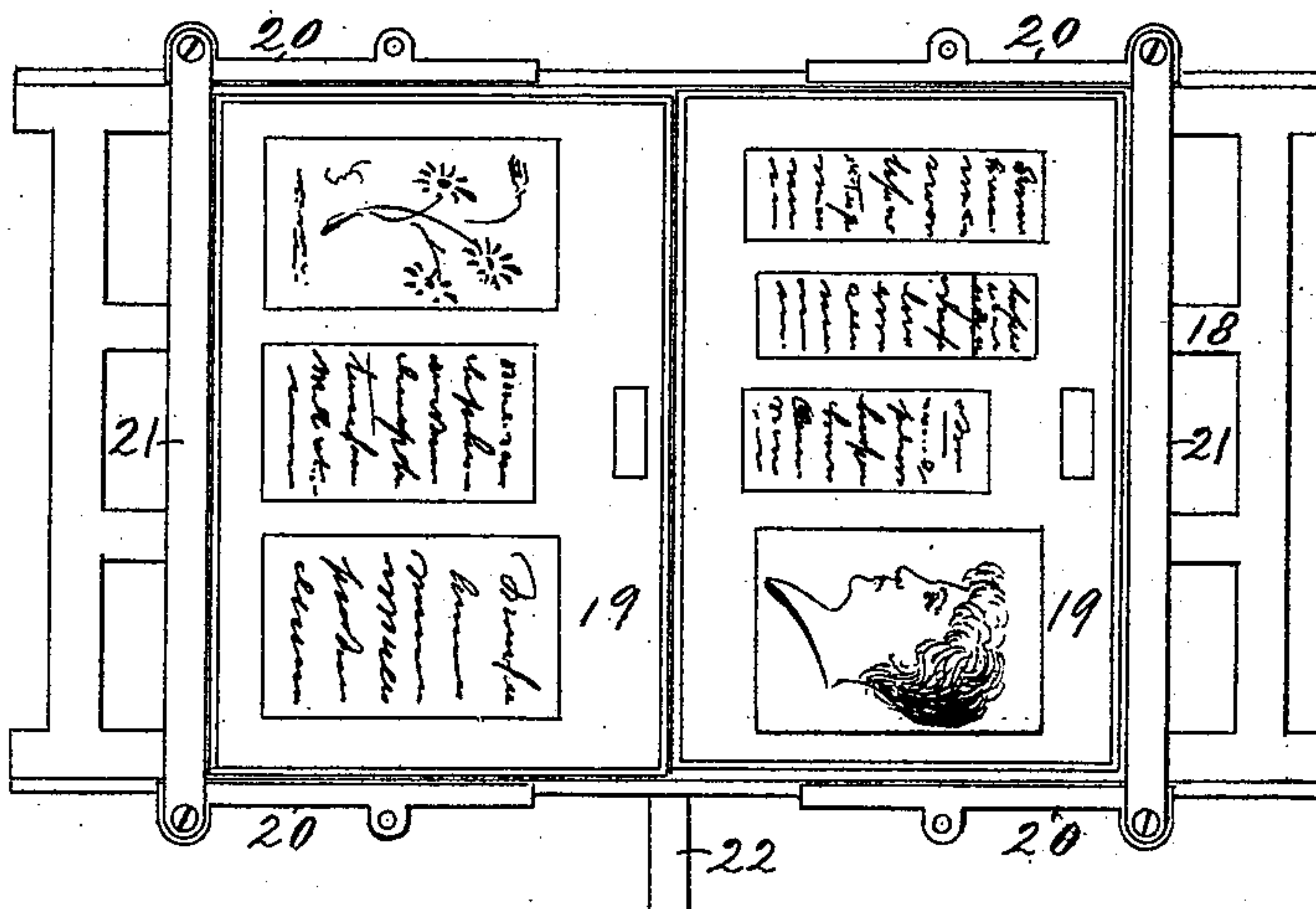
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*Fig. 7.*



*Fig. 8.*



WITNESSES  
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J. H. Griswold.

INVENTOR  
Oliver B. Beach  
By James Shepard  
ATTY.

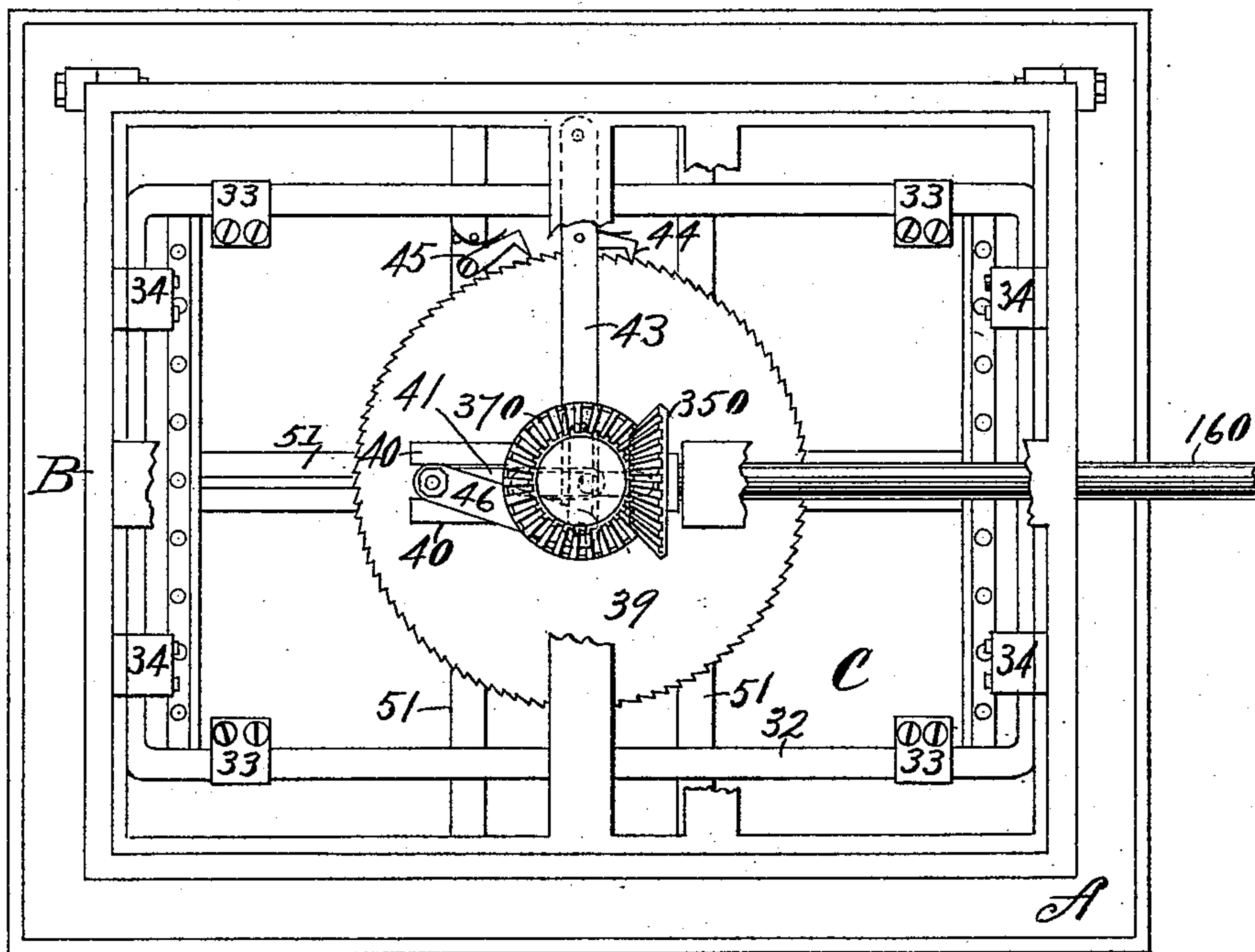
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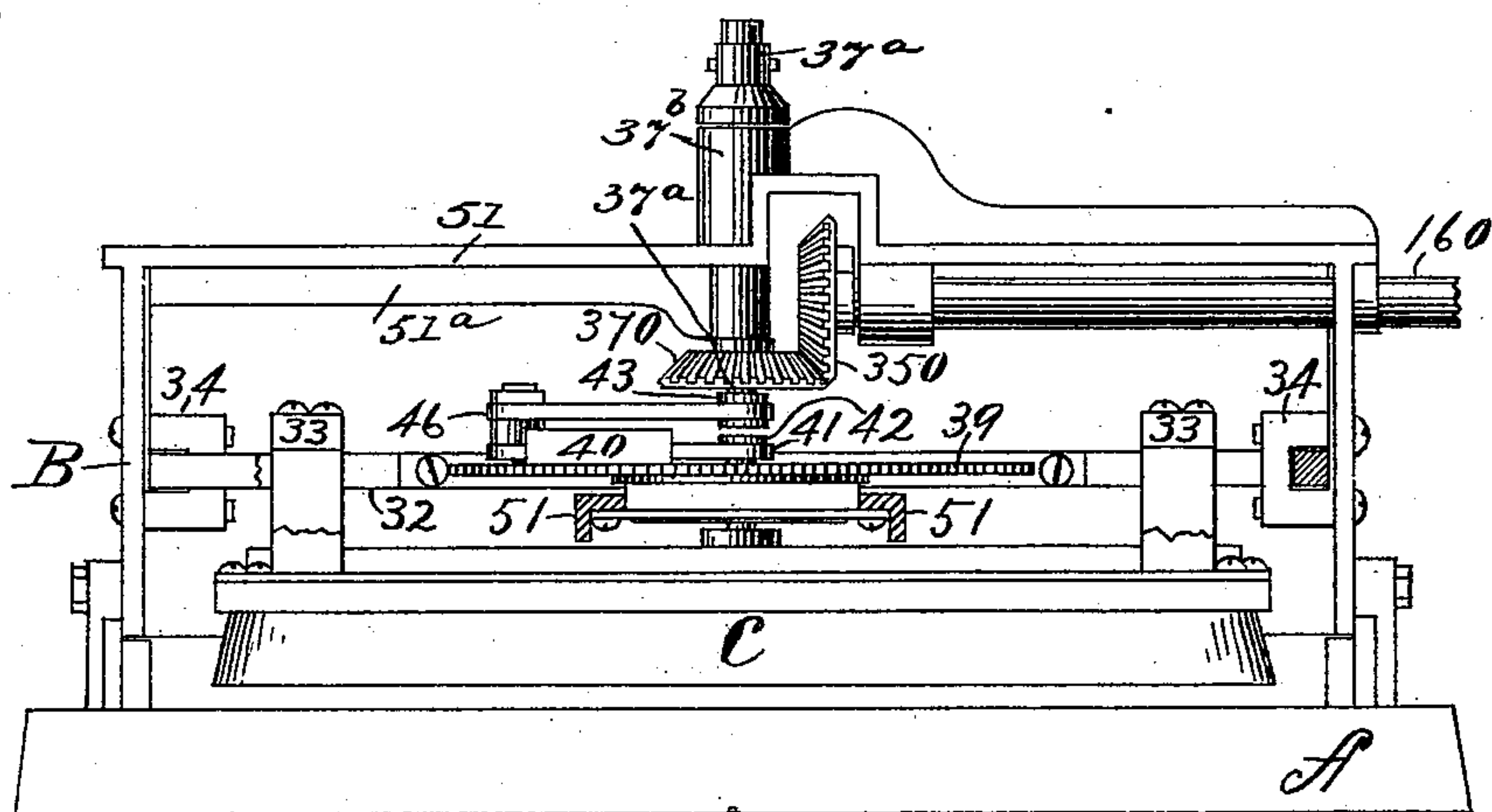
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*Fig. 9.*



*Fig. 10.*



Witnesses  
A. M. Stipek  
F. W. Griswold.

Inventor  
Oliver B. Beach  
By James Shepard  
Atty.



# UNITED STATES PATENT OFFICE.

OLIVER B. BEACH, OF STONY CREEK, CONNECTICUT.

## MACHINE FOR BLACK-LEADING ELECTROTYPE-MATRICES.

SPECIFICATION forming part of Letters Patent No. 527,827, dated October 23, 1894.

Application filed August 23, 1893. Serial No. 483,826. (No model.)

*To all whom it may concern:*

Be it known that I, OLIVER B. BEACH, a citizen of the United States, residing at Stony Creek, in the county of New Haven and State of Connecticut, have invented a certain new and Improved Machine for Black-Leading Electrotypes-Matrices, of which the following is a specification.

My invention relates to improvements in machines for brushing black lead upon electrotypes matrices, and the chief object of my improvement is to devise a method whereby the work may be economically and efficiently performed.

In the accompanying drawings: Figure 1 is a front elevation of my machine. Fig. 2 is a side elevation of the same. Fig. 3 is a sectional view of the frame with the other parts in side elevation. Fig. 4 is a sectional view of the frame with other parts in front elevation. Fig. 5 is a partial plan view showing mainly the ways of the brush carrying frame, parts of the machine being broken away in order to show these parts. Fig. 6 is a plan view of the work holding devices with the parts in one position. Fig. 7 is a like view of the same with the parts in another position, said vise being represented as upon the bed of the machine. Fig. 8 is a plan view of the work holding devices together with two pans of work as held thereon. Fig. 9 is a plan view of parts of my machine with a modified form of operating mechanism, and Fig. 10 is a front elevation of the same.

A designates the principal bed or frame of the machine, upon which I mount a bracket arm 11 for supporting the loose or idle pulley 12 in any proper manner, as for example upon the pin or shaft 12<sup>a</sup> on said bracket. I also mount upon said frame the brackets 13 upon which to support any suitable belt shipper 14, mounted on the shipper bar 14<sup>a</sup>. A secondary bed or frame B is hinged to the main bed A, as at 15, Figs. 2 and 3, and it carries upon it the driving shaft 16 and driving pulley 17 arranged in axial alignment with the loose or idle pulley 12 when the frame B is in the position shown. A suitable driving belt extends through the loop of the shipper 14 and around said pulleys so that it may be run either upon the loose pulley 12 or the driving pulley 17 when they are arranged

side by side as shown. When the belt is on the driving pulley one end of the shipper bar projects over the bed B to hold it down as shown in Fig. 1, so that said hinged bed cannot be released until the belt is shipped to the idle pulley. In order to turn the frame B up out of the way for putting in the work, &c., this belt may be run upon the loose pulley and the frame B turned on its hinges 15 so as to leave said bed uncovered in so far as said frame is concerned. In order to counterbalance said frame for more conveniently turning it back out of the way, rearwardly extending arms 17 may be attached upon which to carry any suitable counterbalance or weight. These arms are represented in the drawings as broken off in order to economize space and the counter weights are not shown.

Upon the bed A of the machine I arrange the work holding vise of which the frame or table 18 is for supporting the pans 19, Fig. 8, in which the electro-type matrices are placed. Said pans are also indicated by broken lines 19 in Fig. 3. At each end of said table, slides 20 and jaws 21 are arranged to slide lengthwise on said table. The tops of the slides are flush with the top of the table so that the work as held by the jaws may extend over said slides, and two panels 50 are removable from the sides of the bed A so that work of indefinite length can be passed through the vise when desired. These jaws are operated by means of a hand lever 22 which is connected by means of a link 23 with the shorter lever 24, which shorter lever is connected by means of link 25 with a cross bar 26 that extends under the table 18 and connects the slides 20 with each other. There is a like lever 24 and link 25 at the opposite end of the machine and this is connected with the lever 22 by means of the link 27 which is pivoted to one of the levers 24 on the same center as the link 23, the other end of said link 27 being connected with the intermediate lever 28 and link 29 as shown, whereby the movement of the lever 22 gives a like movement of the jaws at each end of the vise or holder. Said intermediate lever 28 is pivoted at 28<sup>a</sup> Figs. 6 and 7. A spiral spring 30 may be employed to hold the lever 22 in the direction to press the holding jaws toward the work. I also prefer to employ a pivoted latch or button 31



Fig. 4 on the underside of the bed for engaging the lever 22 against the force of the spring 30 for holding the jaws out of action when desired.

5 The work held in the jaws, as shown in Fig. 8, is set in bearing contact with the brush C to which the black lead is supplied. The back of the brush C may be provided with strengthening ribs 60, as shown in Fig. 5.  
 10 This brush is held by a suitable frame 32 and guides 33 which form suitable ways upon which the brush may move from side to side, while end guides 34 are employed to serve as suitable ways by means of which the entire  
 15 brush and frame may move from front to rear so that the brush is guided upon ways that extend at right angles to each other, permitting the brush to reciprocate from side to side and from front to rear. The driving shaft 16  
 20 has connected with it a beveled gear 35 carrying a crank pin for connecting said wheel and shaft by means of the pitman 36 with the brush frame 32, whereby as said shaft and wheel revolve a reciprocating movement from  
 25 front to rear is communicated through the pitman 36 to the brush frame and brush. The gear 35 engages with and drives another beveled gear 37 which also carries a crank pin connected by a pitman 38 with the brush C  
 30 to impart a reciprocating movement to the same from side to side. The beveled gear 37 is secured to a shaft 37<sup>a</sup> which extends upwardly through a central boss on the frame B, said shaft being provided with a holding  
 35 collar 37<sup>b</sup>.

I prefer to employ differential gears, whereby the relative strokes from front to rear and side to side will be constantly changing. For example the wheel 36 may have one or two  
 40 more teeth than the wheel 35 so that the strokes of the two cranks will constantly vary their relative time of action. I prefer to secure a tray or pan 61 under the holding jaws as shown in Figs. 1, 2, 3, and 4. By this  
 45 method and means the work is held in position with reference to the brush, and the brush is guided in its rubbing action over the work in various directions, whereby all the different parts will become thoroughly  
 50 metallized and the work will be fully equal to that which is performed by hand.

The machine which I have described is the preferred form of machine, but it is evident that other means for moving the brush while  
 55 thus held and guided may be employed if desired. In Figs. 9 and 10, I have represented a modification of the operating mechanism, the brush C together with its frame and ways being the same as before described.  
 60 The driving shaft 160 carries a beveled gear 350 which in turn drives another beveled gear 370. On a sub-cross-bar or plate 51<sup>a</sup> Fig. 10, between the cross bars 51 of the hinged bed B, I mount a ratchet disk 39.  
 65 Upon the face of this disk I provide ways 40 for guiding the link 41, one end of which is connected to a pin or post 42 that extends

from the brush C up through a slot in said disk, said slot being in alignment with the ways 40. The opposite end of the link 41 is  
 70 connected by the pitman 46 with the crank pin of the beveled gear 370. The slotted lever 43 is also connected by its slotted end with said crank pin whereby it has a vibratory movement and moves the pawl 44 for  
 75 engaging the teeth of the disk 39 and imparting to said disk an intermittent rotary movement. A holding pawl 45 prevents said disk from moving backwardly. By this arrangement the position of the ways and slot in the  
 80 disk is changed at each stroke of the crank pin so as to extend in a different direction on the machine, thereby changing the direction of the stroke of the crank pin on the  
 85 brush C, the side to side and the front to rear ways or guides permitting the brush to yield and accommodate itself to this varied direction in the stroke of the crank pin.

While I prefer to employ mechanism of some kind for operating the brush, such mechanism is not essential to all parts of my invention as the brush when held to its work  
 90 may be moved on its ways or guides by direct force applied through the hands of the operator to said brush.

While I have described the best means known to me for carrying out my invention, I do not wish to be restricted to details in construction as various means may be devised for accomplishing the same end in substantially the same way. It is of course evident that it is only necessary that the brush  
 95 have a rubbing action relative to the work which can be accomplished by moving either one over the other.

Inasmuch as I make no specific claim to the work holding devices it is evident that other work holding devices may be substituted as an equivalent therefor.

The modifications which I have described  
 100 not only show how some of the parts may be changed in construction and that such changes are to be considered as equivalents, but they also suggest that other changes of a like nature may be employed as equivalents.

I am aware that prior patents show and describe machines for cleaning sheet iron and for varnishing floor oil cloths in which brushes are reciprocated in guides over the work as  
 105 it is moved along continuously by revolving feed rollers, so that the brushes at each stroke act upon a fresh portion of the work, and the same is hereby disclaimed.

I claim as my invention—

1. The combination of a stationary bed, a  
 110 work holder secured in a fixed position on said bed and having clamping mechanism for confining electrotypes matrices, a brush for applying black lead to said matrices, guides or ways for holding said brush and matrices under  
 115 suitable pressure and guiding the rubbing movement of said brush, and means for imparting a rubbing movement to said brush over the same portion of said matrices repeat-



edly as long as may be desired, substantially as described and for the purpose specified.

2. The combination of the brush, ways or guides for said brush extending in different directions, the two crank pins and connections for moving said brush in two different directions and means for driving said crank pins, substantially as described and for the purpose specified.

3. The combination of the brush, ways or guides extending in different directions, two crank pins and connections for moving said brush in different directions and the differential driving gear for driving one of the crank pins at a greater speed than the other, substantially as described and for the purpose specified.

4. The combination of the brush holding frame, ways or guides for said frame extending in one direction and the brush mounted on said frame by ways or guides that extend in another direction, substantially as described and for the purpose specified.

5. In a black leading machine having a brush, the combination of the bed A. the idle pulley and its shipper mounted thereon, the

secondary bed hinged to said bed A operating mechanism and the driving pulley mounted on said hinged bed said driving pulley being in alignment with said idle pulley when said hinged bed is turned down on the bed A. substantially as described and for the purpose specified.

6. In a black leading machine having a brush, the combination of the bed A. the idle pulley mounted thereon, the shipper and shipper bar also mounted on said bed, the secondary bed hinged to said bed A and adapted to turn down with one part directly under the end of said shipper bar operating mechanism and the driving pulley mounted on said hinged bed, substantially as described and for the purpose specified.

7. In a black leading machine provided with a brush the bed A with removable panels on opposite sides, and operating mechanism substantially as described and for the purpose specified.

OLIVER B. BEACH.

Witnesses:

JAMES SHEPARD,  
A. W. STIPEK.