No. 693,503.

Patented Feb. 18, 1902.

L. DUDÁSCH.

PAPER CUTTING MACHINE.

(Application filed Sept. 24, 1901.)

(No Model.)

3 Sheets—Sheet 1.

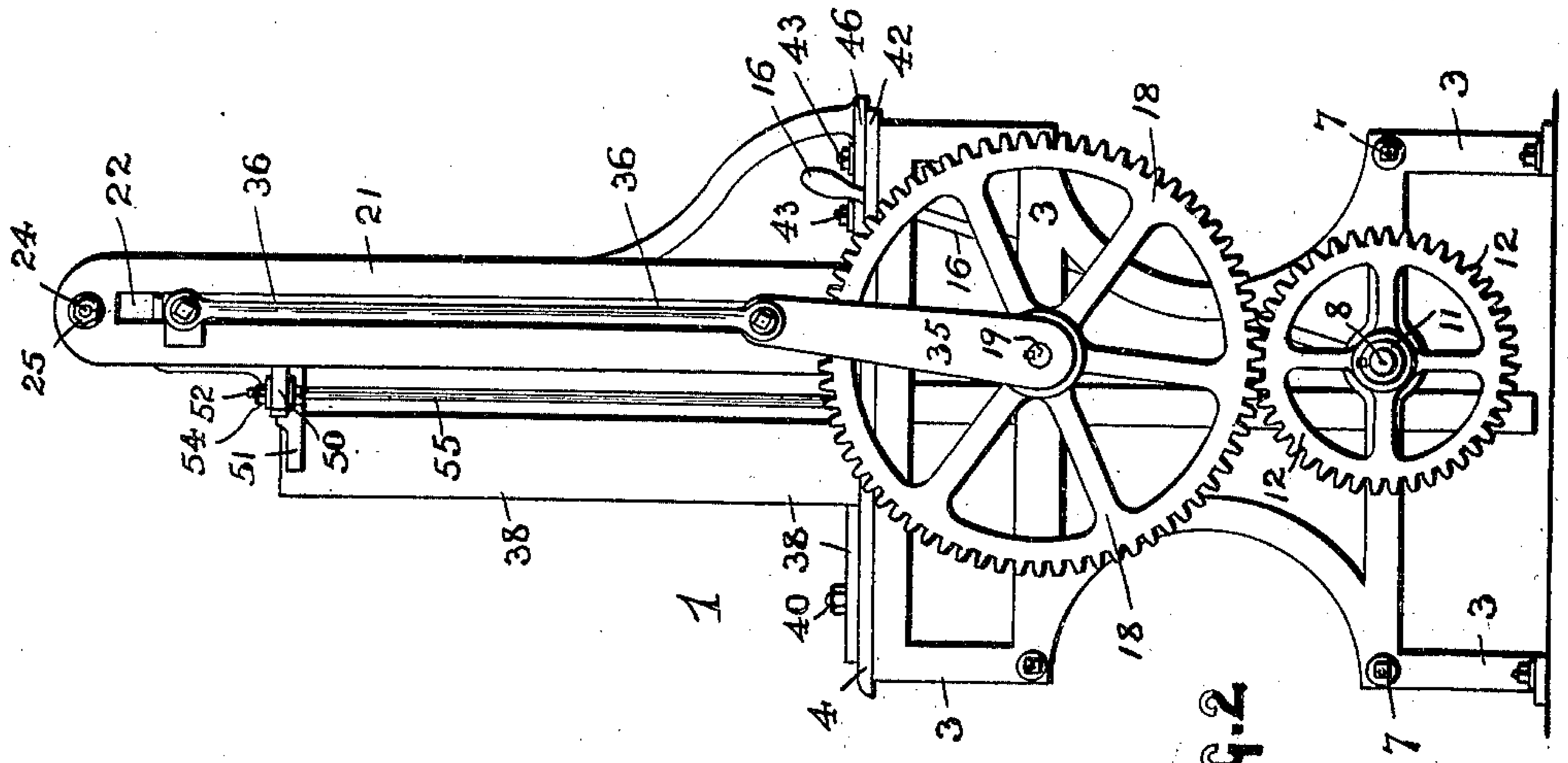

FIG. 2

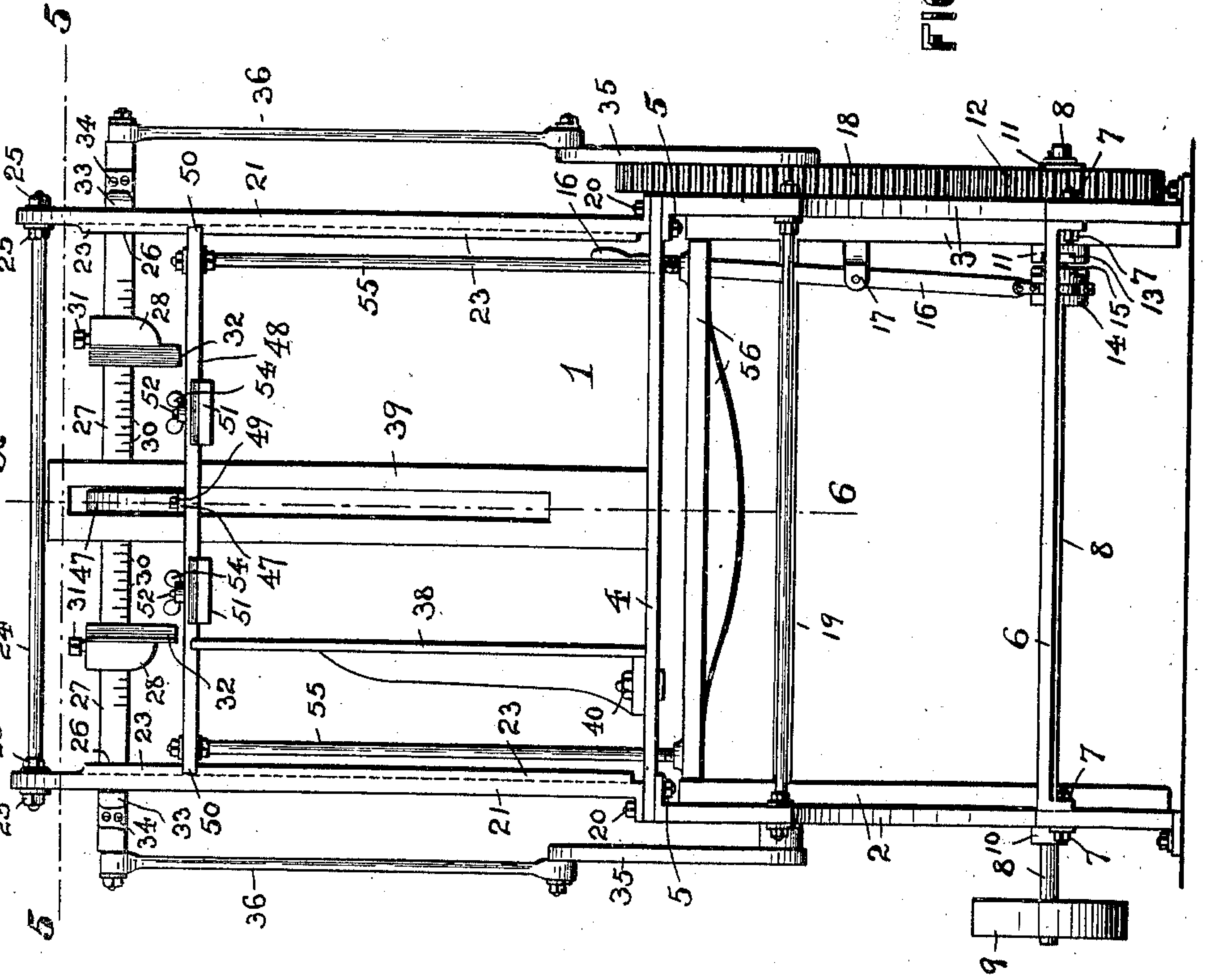

FIG. 1

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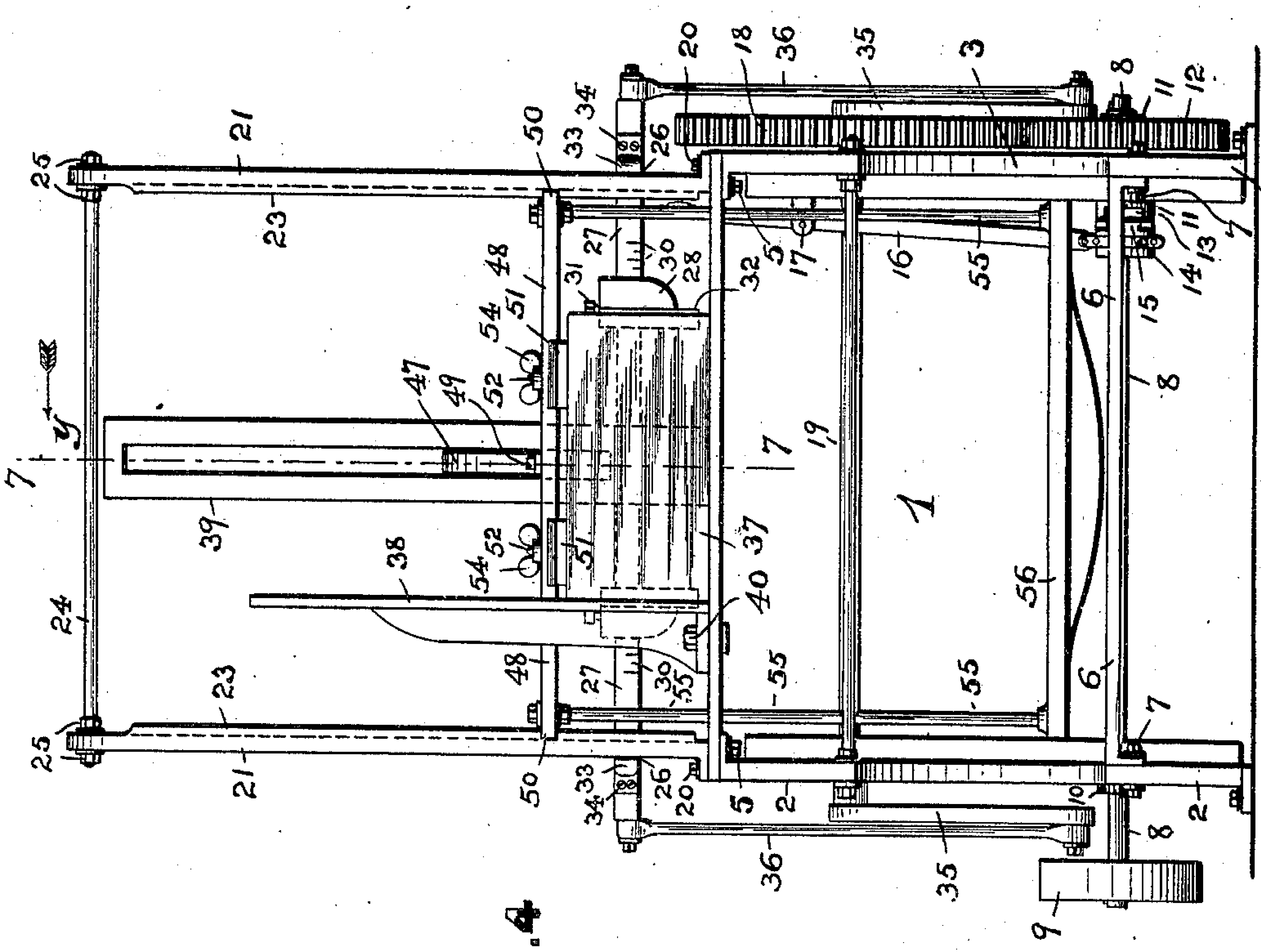

FIG. 4

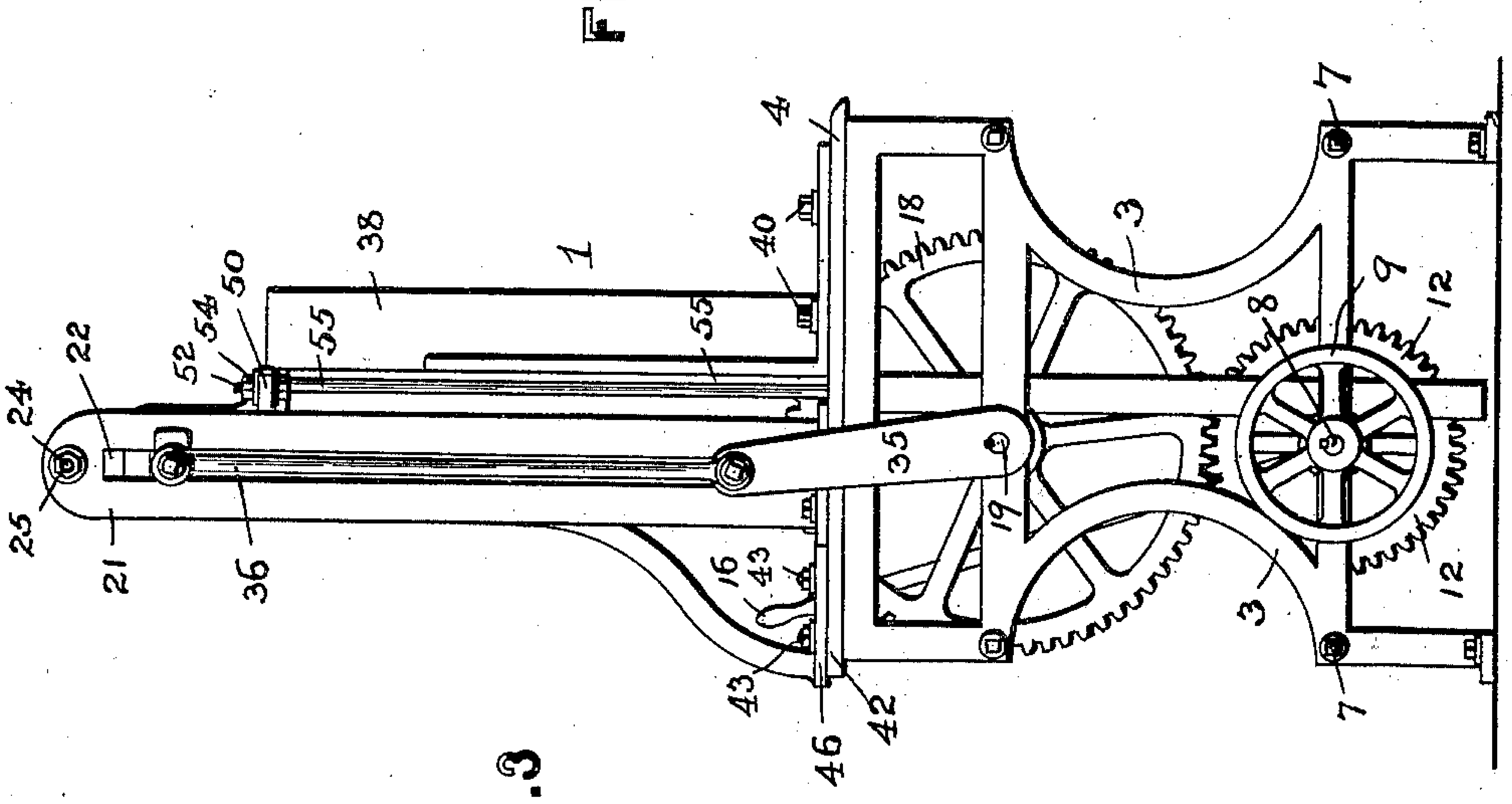

FIG. 3

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No. 693,503.

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L. DUDÁSCH.

PAPER CUTTING MACHINE.

(Application filed Sept. 24, 1901.)

(No Model.)

3 Sheets—Sheet 3.

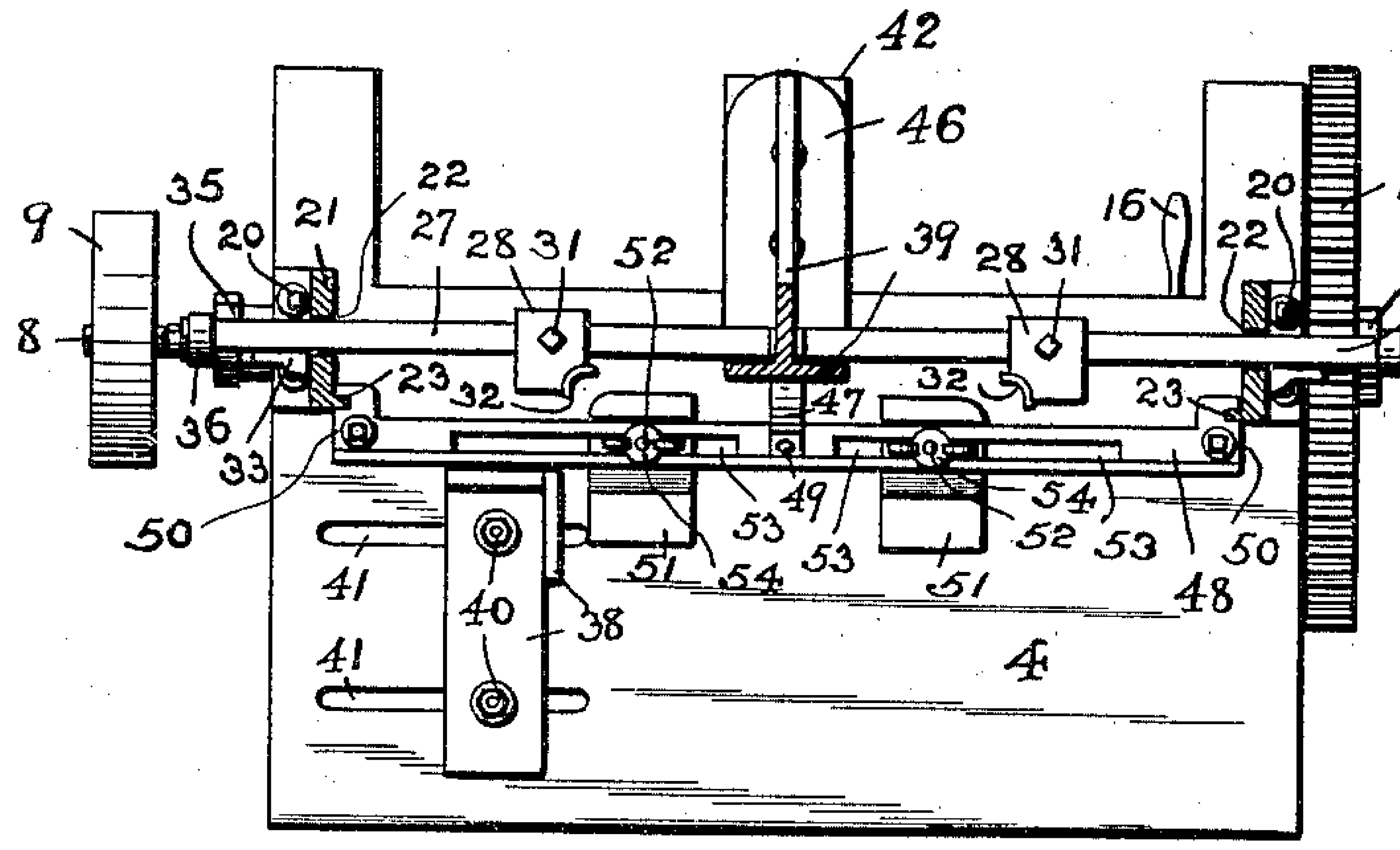

FIG. 5

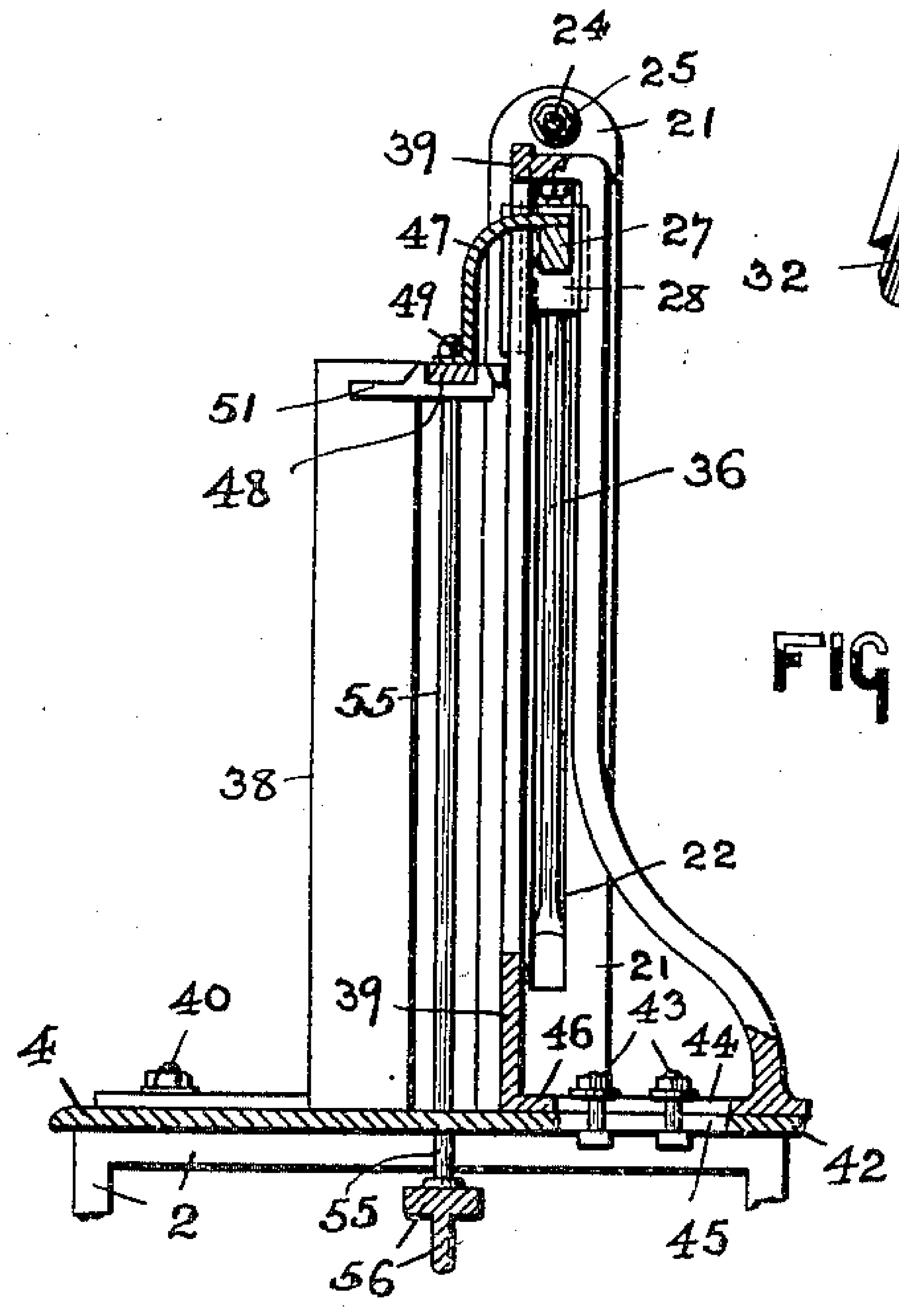

FIG. 6

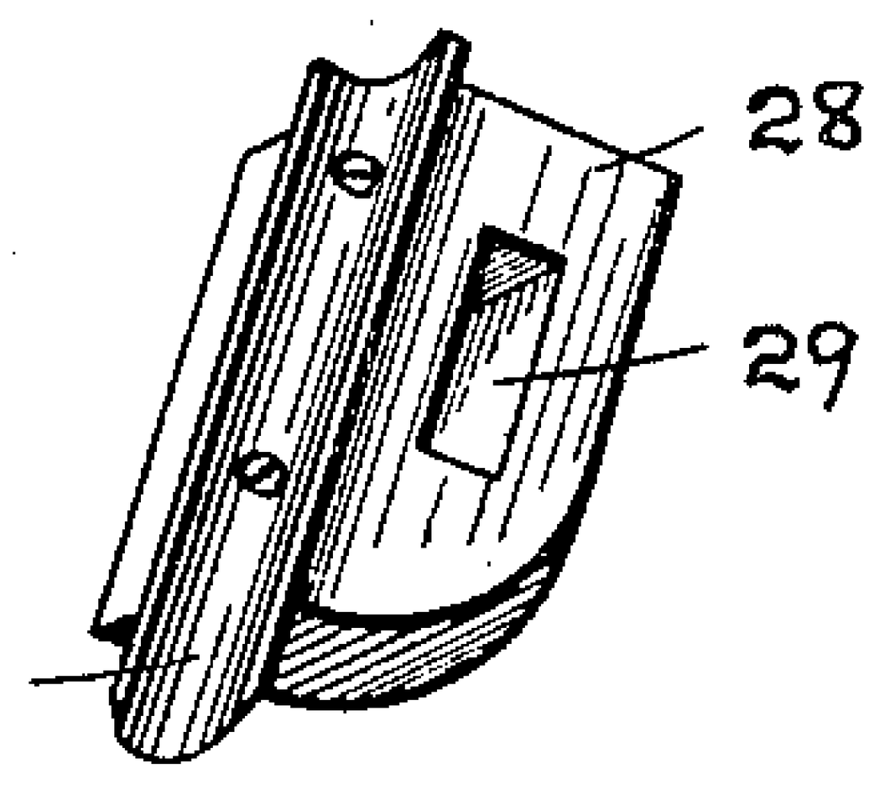

FIG. 8

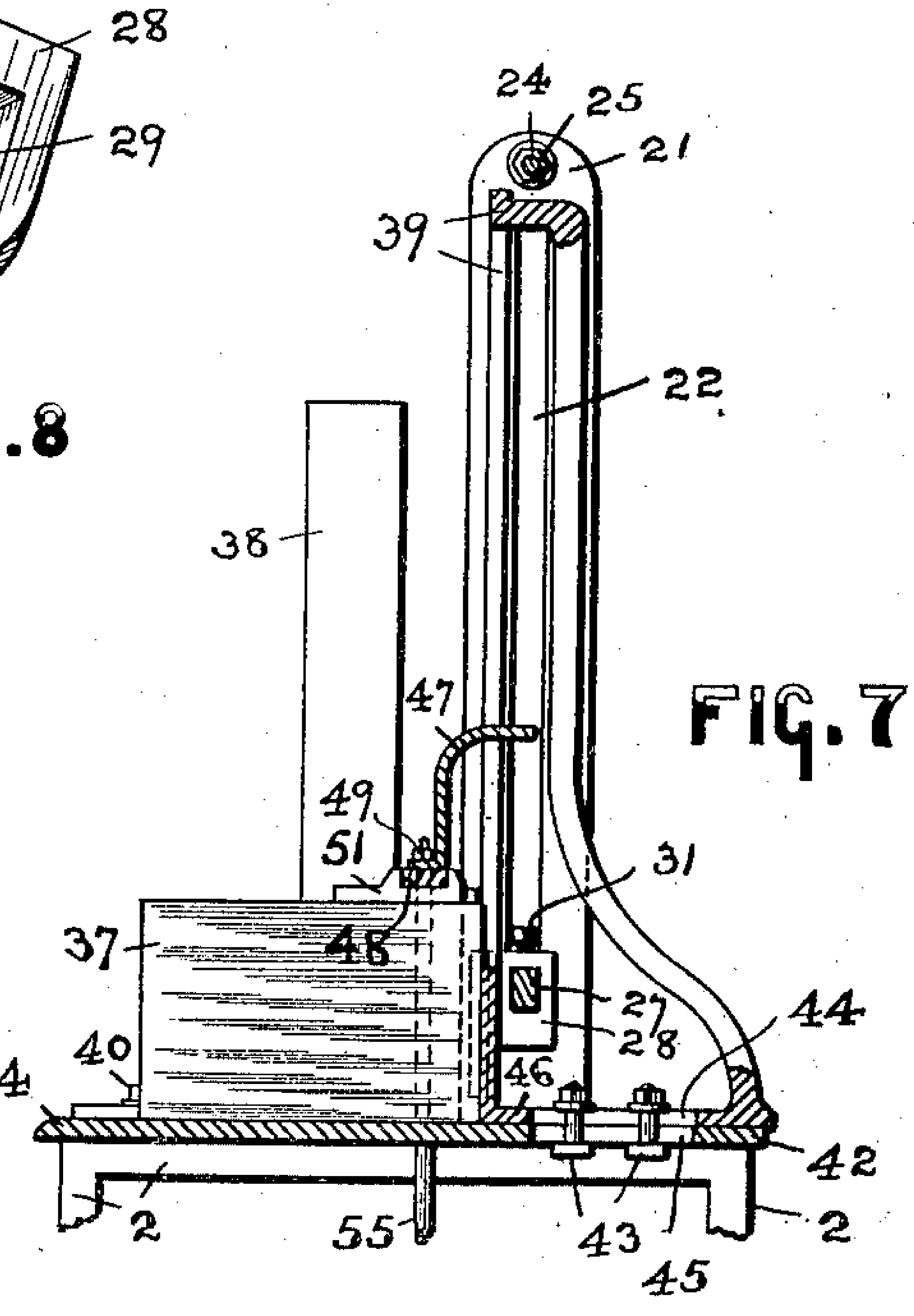

FIG. 7

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UNITED STATES PATENT OFFICE.

LADISLAUS DUDÁSCII, OF NEWARK, NEW JERSEY.

PAPER-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 693,503, dated February 18, 1902.

Application filed September 24, 1901. Serial No. 76,357. (No model.)

To all whom it may concern:

Be it known that I, LADISLAUS DUDÁSCH, a subject of the Emperor of Austria-Hungary, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Paper-Cutting Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, 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, and to numerals of reference marked thereon, which form a part of this specification.

This invention has reference generally to improvements in that class of machines adapted for the purpose of cutting paper; and the invention relates more particularly to a novel construction of cutting-machine which is to be employed for bookbinders' purposes, as in the cutting or shearing of the corners of stacks of paper which are to form the leaves of books.

The principal object of this invention, therefore, is to provide a novel construction of paper-cutting machine for the purpose of "rounding" or "trimming" the corners of sheets of paper placed in the form of stacks upon the table of the machine, and, furthermore, to provide mechanism for said machine for holding or clamping the stacked sheets in position prior to the downward movement of the cutters and then rounding or trimming the corners of said sheets.

Further objects of this invention are to improve the general arrangements and constructions of the various parts and operating devices of a machine of the character hereinafter more fully described with a view of providing a simply made and operative machine, in which large stacks of paper in the form of leaves for bookbinding are quickly "rounded" or "trimmed off" at the corners.

My invention consists in the general construction of paper-cutting machine hereinafter fully set forth, and, furthermore, the invention consists in the various novel arrangements and combinations of the several mechanisms and details of the construction thereof, all of which will be fully described in the following specification, and finally embodied in the clauses of the claim, which are appended to the said specification and form a part thereof.

My invention is clearly illustrated in the accompanying drawings, in which—

Figure 1 is a front view of the paper-cutting machine embodying the principles of my invention, the said view representing the cutter mechanism and the paper clamping or holding mechanism in their normally-raised positions before the insertion of a stack of paper in the machine; and Figs. 2 and 3 are the two end representations of the machine. Fig. 4 is a front view of the machine, illustrating the clamping or holding mechanism and the cutters for rounding or trimming the corners of the paper in their operative engagement with a stack of paper. Fig. 5 is a horizontal section taken on line 5 5 in Fig. 1. Fig. 6 is a detail vertical section taken on line 6 6 in Fig. 1 looking in the direction of the arrow x in the said figure, and Fig. 7 is a similar section taken on line 7 7 in Fig. 4 of the drawings looking in the direction of the arrow y. Fig. 8 is a perspective view of one of the cutters employed for rounding or trimming the corners of the paper.

Similar characters of reference are employed in all of the said above-described views to indicate corresponding parts.

In the said drawings, 1 indicates the complete machine, and 2 and 3 are suitably-constructed standards, upon which a bed or table 4 is supported and is secured in position, preferably, by means of screws or bolts 5, which are arranged in suitable lugs connected with the said standards, substantially as illustrated. The two standards or side frames 2 and 3 are usually connected by means of tie-rods 6 and nuts 7, as shown; but of course it will be evident that these several parts may be otherwise made and connected in any other suitable and well-known manner, if desired.

The reference character 8 indicates a driving-shaft, the same being provided with a driving-pulley 9 and rotating in a suitable and fixed bearing 10 in the standard 2 and also in a loose collar 11, arranged in a suitable bearing in the standard 3. The said collar 11 has suitably fixed thereon a driving-

pinion 12 and is formed with the clutch-recesses 13, adapted to receive the projections 15 of a clutch-collar 14, which is fixed upon the driving-shaft in any usual and well-known manner and can be thrown into or out of engagement with the said collar 11 by means of an operating-lever 16, which oscillates in a bearing 17 at the side of the standard 3. In mesh with the said pinion 12 is a gear-wheel 18, which is secured upon a second shaft 19, rotatably arranged in suitable bearings in the side frames or standards 2 and 3 of the machine.

Suitably secured at or near the side edges of the bed or table 4 of the machine, preferably by means of bolts 20, are uprights 21, and each upright is formed with a long vertical slot 22 and vertically-arranged rib 23, both said slots 22 and ribs 23 forming guides for the purposes to be presently more fully set forth. The said uprights 21 are also preferably connected at their upper ends by means of the tie-rods 24 and the nuts 25. Arranged within the slots 22 of the said uprights 21, so as to be capable of a vertical reciprocatory motion, are the respective end portions 26 of a cross-bar 27, on which are slidably arranged, so as to be adjusted according to the different widths of paper to be cut, a pair of cutting devices 28. Each device 28 consists, essentially, of a suitable block which is fitted by means of an opening 29 (see Fig. 8) upon the cross-bar 27 and can be secured in any fixed position to suitable graduations 30 on said bar 27 by means of a set-screw 31. Each block or device 28 is also provided with a cutter or knife-blade 32, which is preferably of a concavo-convex cross-section, as shown in the drawings, that the corners of the paper may be cut round when the cutters descend. To prevent any lateral motion of the cross-bar 27 after it has been arranged in the slot 22 of the uprights 21, small blocks 33 are secured to the side of the bar 26 by means of pins or screws 34 at the outer sides of the uprights 21, as clearly illustrated in Figs. 1 and 4. The said cross-bar 27 and the cutters thereon receive the vertical reciprocatory movements from a pair of crank-arms 35 at the ends of the second shaft 19 and a pair of intermediate links 36, pivotally connected at their respective ends with said crank-arms 35 and the free ends of the said cross-bar 27. The leaves or sheets of paper to be cut are indicated by the reference character 37, the said stack of paper being arranged upon the bed or table 4 of the machine against a pair of vertical guides 38 and 39 at the one side and back of the stack of paper. The said guide 38 is capable of a lateral adjustment upon the said bed or table 4, being secured in its adjusted position by means of bolts 40, which slide in suitable slots 41 in the said table or bed, substantially as illustrated. The guide 39 is also preferably adjustably secured upon a rearwardly-extending part 42 of the said table or bed 4 by means of bolts 43, which work in suitable slots 44 and 45, respectively, formed in a base portion 46 and in the rearwardly-extending part 42 of the table or bed 4, as clearly illustrated in Figs. 6 and 7 of the drawings.

From the above description of these parts it will be clearly understood that after the various adjustments for properly arranging the stack of paper upon the bed or table of the machine and after the devices or blocks 28 have been fixed in their laterally-adjusted positions the mechanism can be set in operation by operating the lever 16 and the knife-blades or cutters will nicely "round" or "trim" the corners of the sheets of paper according to the shape desired.

That the various sheets of paper which comprise the stack 37 may be properly held during the rounding or trimming-off operations one upon the other, I have suspended from the cross-bar 26, by means of a hook-shaped support 47 or any other suitably-constructed supporting means, a cross-bar 48. This bar 48, as will be seen from an inspection of Figs. 1 and 4, is secured to the said support 47 by means of a screw or bolt 49. The said bar 48 is also made with the slotted ends 50, which are fitted over and slide upon the ribs or guides 23 of the upright 21, to prevent any longitudinal swinging motion of the said cross-bar 48. Adjustably arranged against the under side of the bar 48 are a pair of weights 51, which are secured in their adjusted positions by means of bolts 52, extending through slots 53 in said bar 48 and the thumb-nuts 54 on said bolts 52. A pair of suspension-rods 55 extend from the said cross-bar 48, the said rods 55 projecting through suitable openings or holes in the bed or table 4 and being secured at their extreme lower ends to a weight 56 in the form of a cast-iron bar. The arrangement of this paper clamping or holding mechanism relative to the cutting mechanism is such that during the down movements of the various parts the weights 51 are first brought down and bear upon the upper sheet of the stack of paper, these weights 51 and the auxiliary weight 56 keeping the stack of paper in place, and the cutter mechanism descends still farther while the cutters are rounding or trimming the corners of the piled sheets of paper in the manner previously described. Upon the return or upward movement of the cutter mechanism the support 47 is again engaged by the upwardly-moving cross-bar 48, whereby the weight is lifted from its holding engagement with the stack of paper, and the latter can then be taken from the machine.

It will be understood that many variations of construction and changes in the arrangements and combinations of the devices may be made without departing from the scope of my present invention. Hence I do not limit my invention to the exact arrangements and combinations of the devices and parts as herein described and as illustrated in the accom-

panying drawings, nor do I confine myself to the exact details of the construction of any of the said parts.

Having thus described my invention, what I claim is—

1. In a paper-cutting machine, the combination, with a bed or table and standards therefor, of vertically-arranged guides on said table, a laterally-extending cross-bar connected with said guides, mechanism for causing a vertical and reciprocatory motion of said cross-bar, a cutter or cutters on said bar, and a holding mechanism for retaining the paper to be cut in place, the movements of the holding mechanism and of the cross-bar and cutter or cutters thereon following in consecutive order, and the said holding mechanism, consisting, essentially, of a pair of cross-bars 48 and 56, connecting tie-rods between said cross-bars, and a weight or weights on said bar 48, substantially as and for the purposes set forth.

2. In a paper-cutting machine, the combination, with a bed or table and standards therefor, of vertically-arranged guides on said table, a laterally-extending cross-bar connected with said guides, mechanism for causing a vertical and reciprocatory motion of said cross-bar, a cutter or cutters on said bar, and a holding mechanism for retaining the paper to be cut in place, the movements of the holding mechanism and of the cross-bar and cutter or cutters thereon following in consecutive order, and the said holding mechanism, consisting, essentially, of a pair of cross-bars 48 and 56, connecting tie-rods 55 between said cross-bars, and a weight or weights slidably and adjustably arranged upon said bar 48, substantially as and for the purposes set forth.

3. In a paper-cutting machine, the combination, with a bed or table and standards therefor, of vertically-arranged guides on said table, a laterally-extending cross-bar connected with said guides, mechanism for causing a vertical and reciprocatory motion of said cross-bar, a cutter or cutters slidably arranged upon said bar, means for securing the cutter or cutters in their adjusted positions on said bar, and a holding mechanism for retaining the paper to be cut in place, the movements of the holding mechanism and the cross-bar and cutter or cutters thereon following in consecutive order, substantially as and for the purposes set forth.

4. In a paper-cutting machine, the combination, with a bed or table and standards therefor, of vertically-arranged guides on said table, a laterally-extending cross-bar connected with said guides, mechanism for causing a vertical and reciprocatory motion of said cross-bar, a cutter or cutters slidably arranged on said bar, means for securing the cutter or cutters in their adjusted positions on said bar, and a holding mechanism for retaining the paper to be cut in place, the movements of the holding mechanism and of the cross-bar and cutter or cutters thereon following in consecutive order, and the said holding mechanism, consisting, essentially, of a pair of cross-bars 48 and 56, connecting tie-rods 55 between said cross-bars, and a weight or weights on said bar 48, substantially as and for the purposes set forth.

5. In a paper-cutting machine, the combination, with a bed or table and standards therefor, of vertically-arranged guides on said table, a laterally-extending cross-bar connected with said guides, mechanism for causing a vertical and reciprocatory motion of said cross-bar, a cutter or cutters slidably arranged on said bar, means for securing the cutter or cutters in their adjusted positions on said bar, and a holding mechanism for retaining the paper to be cut in place, the movements of the holding mechanism and of the cross-bar and cutter or cutters thereon following in consecutive order, and the said holding mechanism consisting, essentially, of a pair of cross-bars 48 and 56, connecting tie-rods 55 between said cross-bars, and a weight or weights slidably and adjustably arranged upon said bar 48, substantially as and for the purposes set forth.

6. In a paper-cutting machine, the combination, with a bed or table and standards therefor, of a pair of adjustably-arranged guide-posts on said bed against which a stack of paper can be placed, a pair of vertically-extending uprights on said bed provided with slots forming guides, a laterally-extending cross-bar slidably arranged in said guides, mechanism for causing a vertical and reciprocatory motion of said cross-bar, a cutter or cutters slidably arranged on said bar, means for securing the cutter or cutters in their adjusted positions on said bar, and holding mechanism for retaining the paper to be cut in place, the movements of the holding mechanism and of the cross-bar and cutter or cutters thereon following in consecutive order, substantially as and for the purposes set forth.

7. In a paper-cutting machine, the combination, with a bed or table and standards therefor, of a pair of adjustably-arranged guide-posts on said bed against which a stack of paper can be placed, a pair of vertically-extending uprights on said bed provided with slots forming guides, a laterally-extending cross-bar slidably arranged in said guides, mechanism for causing a vertical and reciprocatory motion of said cross-bar, a cutter or cutters slidably arranged on said bar, means for securing the cutter or cutters in their adjusted positions on the said bar and holding mechanism for retaining the paper to be cut in place, the movements of the holding mechanism and of the cross-bar and cutter or cutters thereon following in consecutive order, and the said holding mechanism consisting, essentially, of a pair of cross-bars 48 and 56, connecting tie-rods 55 between said cross-bars, and a weight or weights on said bar 48, substantially as and for the purposes set forth.

8. In a paper-cutting machine, the combination, with a bed or table and standards there-

for, of a pair of adjustably-arranged guide-posts on said bed against which a stack of paper can be placed, a pair of vertically-extending uprights on said bed provided with slots forming guides, a laterally-extending cross-bar slidably arranged in said guides, mechanism for causing a vertical and reciprocatory motion of said cross-bar, a cutter or cutters slidably arranged on said bar, means for securing the cutter or cutters in their adjusted positions on the said bar and holding mechanism for retaining the paper to be cut in place, the movements of the holding mechanism and the cross-bar and cutter or cutters thereon following in consecutive order, and the said holding mechanism consisting, essentially, of a pair of cross-bars 48 and 56, connecting tie-rods 55 between said cross-bars, and a weight or weights slidably and adjustably arranged upon said bar 48, substantially as and for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 16th day of September, 1901.

LADISLAUS DUDÁSCH.

Witnesses:

FREDK. C. FRAENTZEL,

GEO. D. RICHARDS.