

E. G. STAUDE.  
SECTIONAL COLOR PRESS AND BLANKER.  
APPLICATION FILED OCT. 25, 1907.

969,418.

Patented Sept. 6, 1910.

4 SHEETS—SHEET 1.

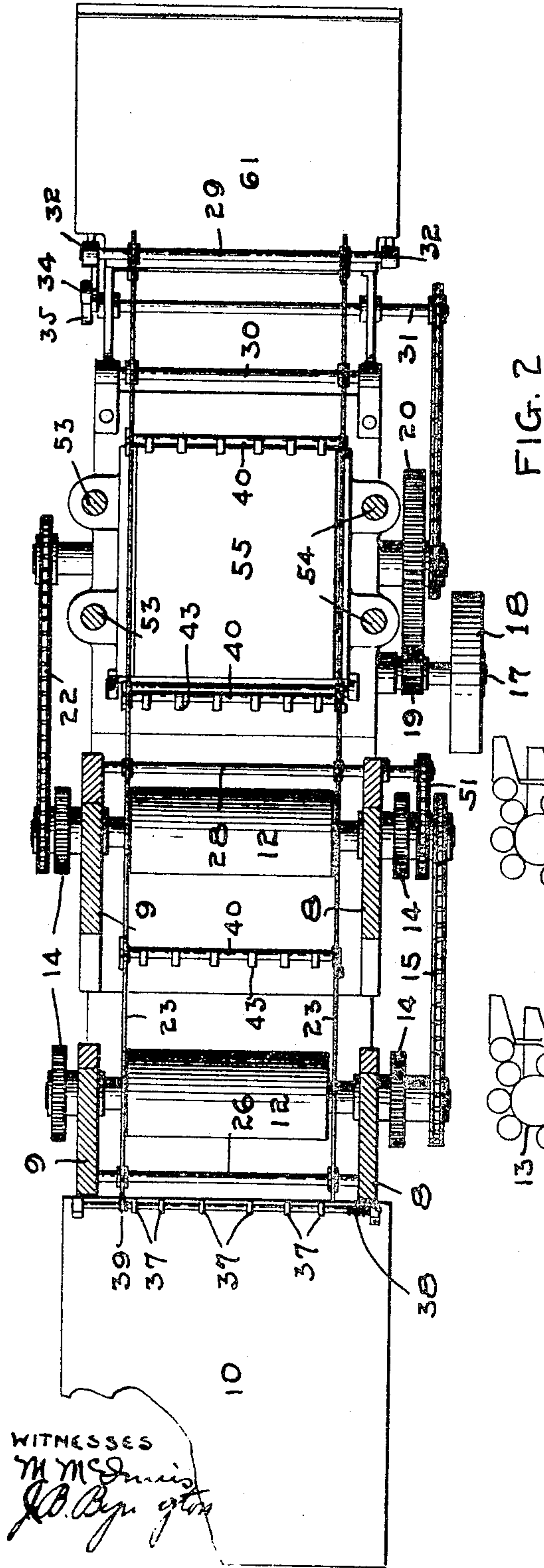


FIG. 2

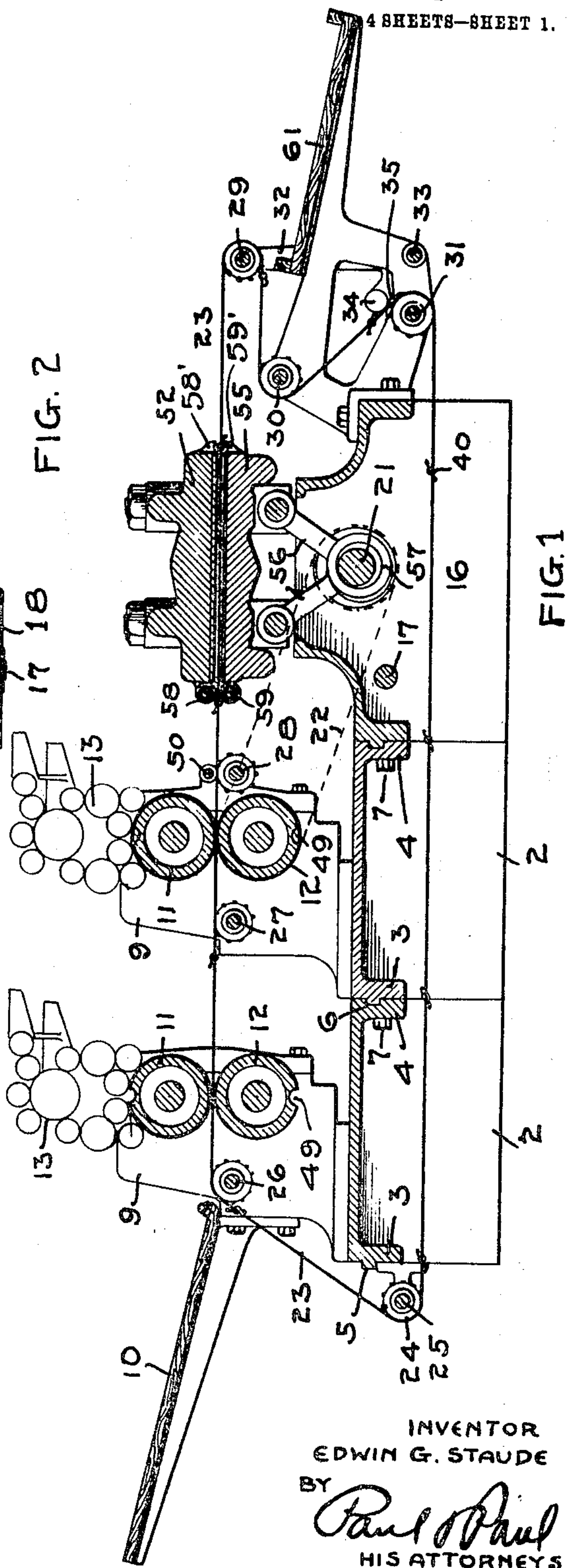


FIG. 1

WITNESSES

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*R. B. Ryan*

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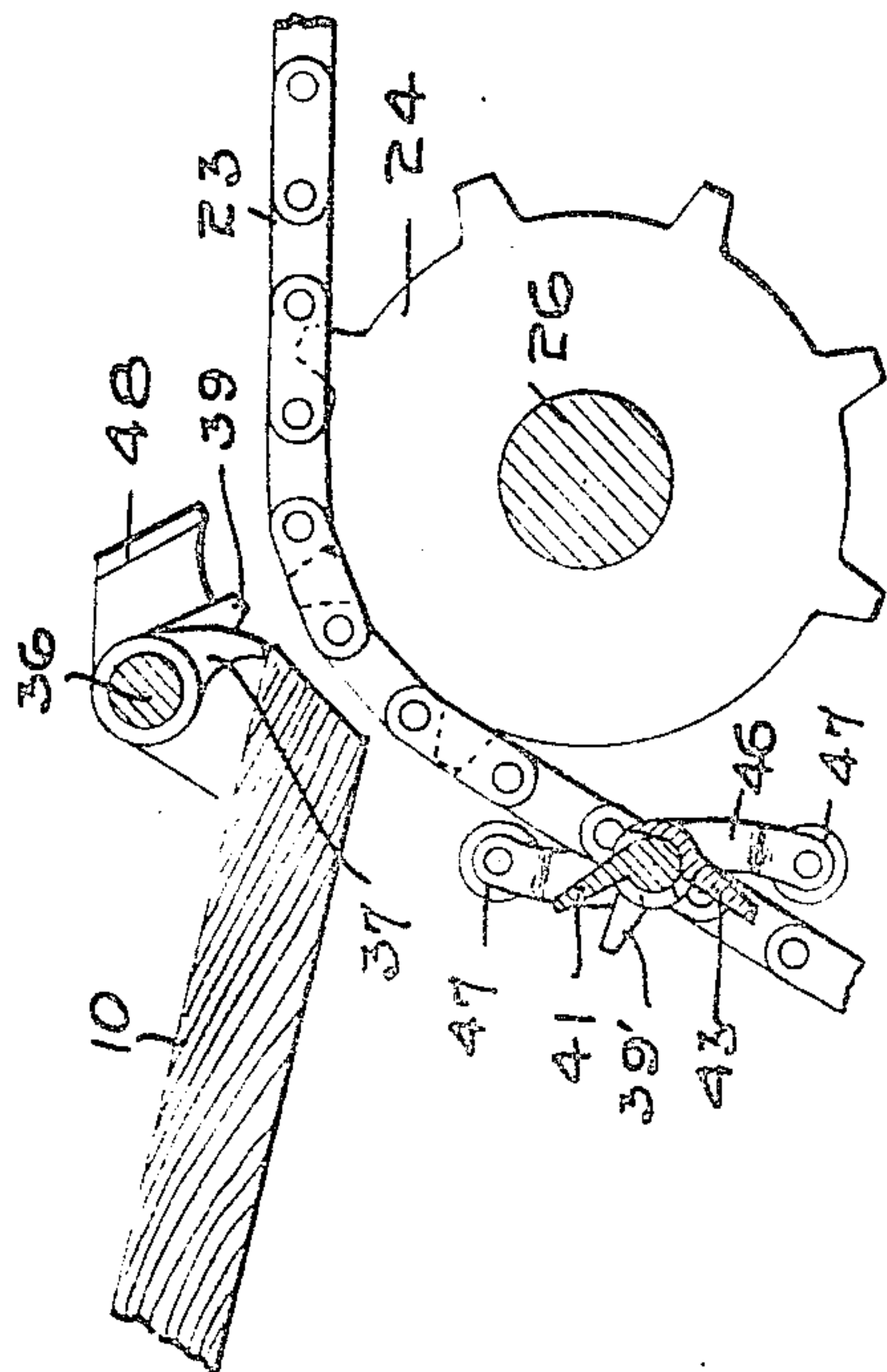


FIG. 3

WITNESSES  
M. M. Davis  
J. B. Bevington

FIG. 5

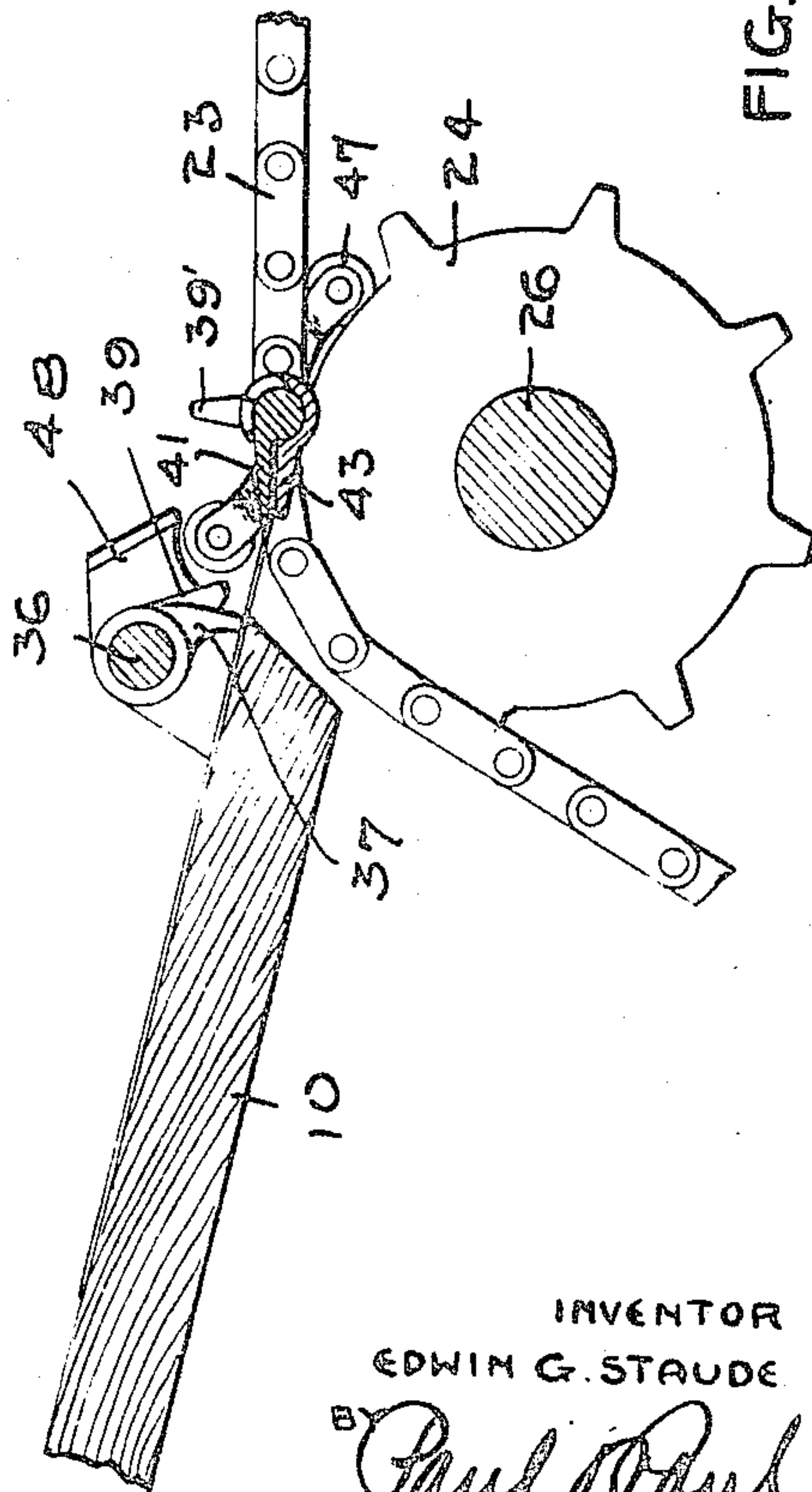
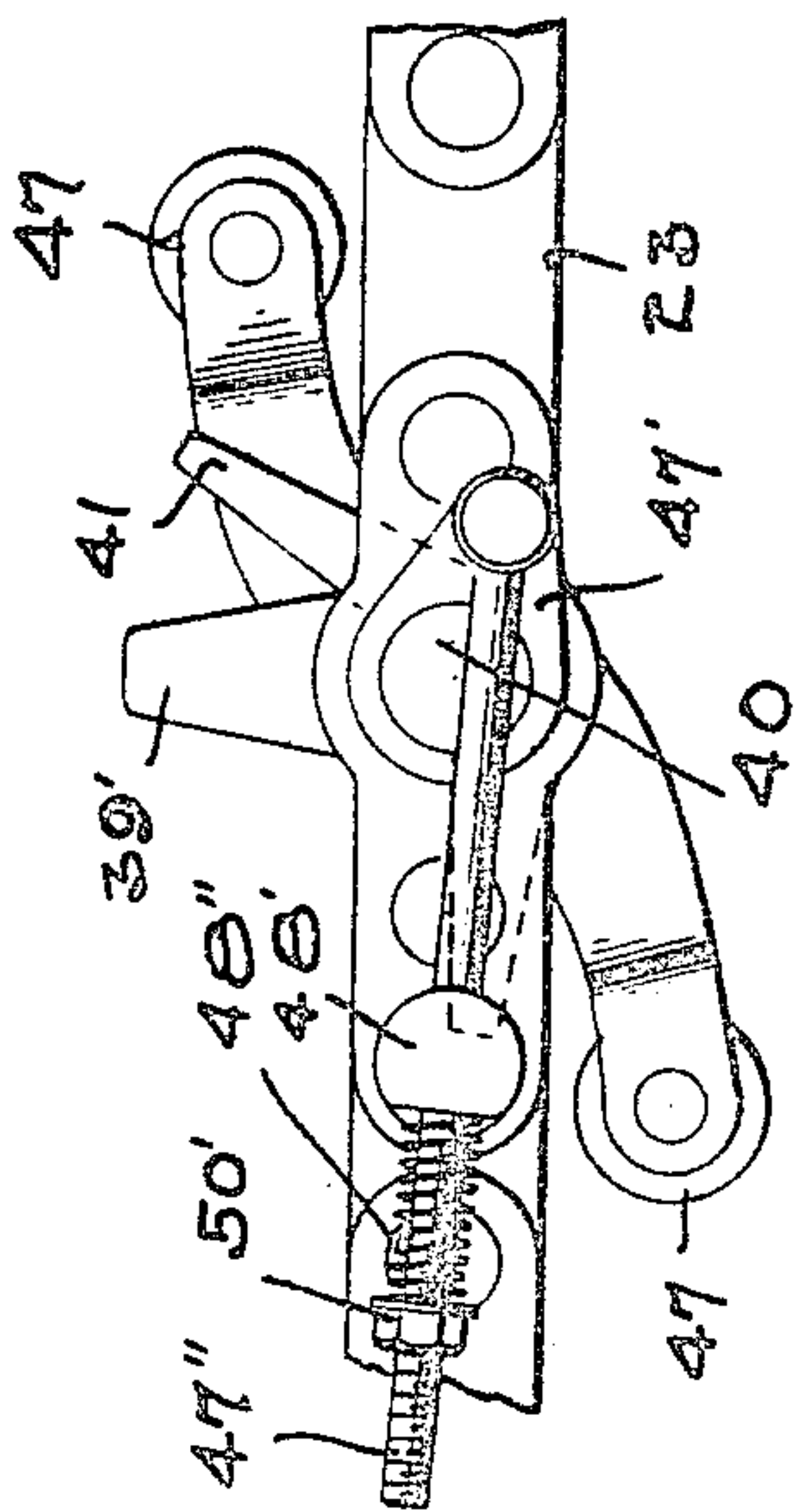


FIG. 4

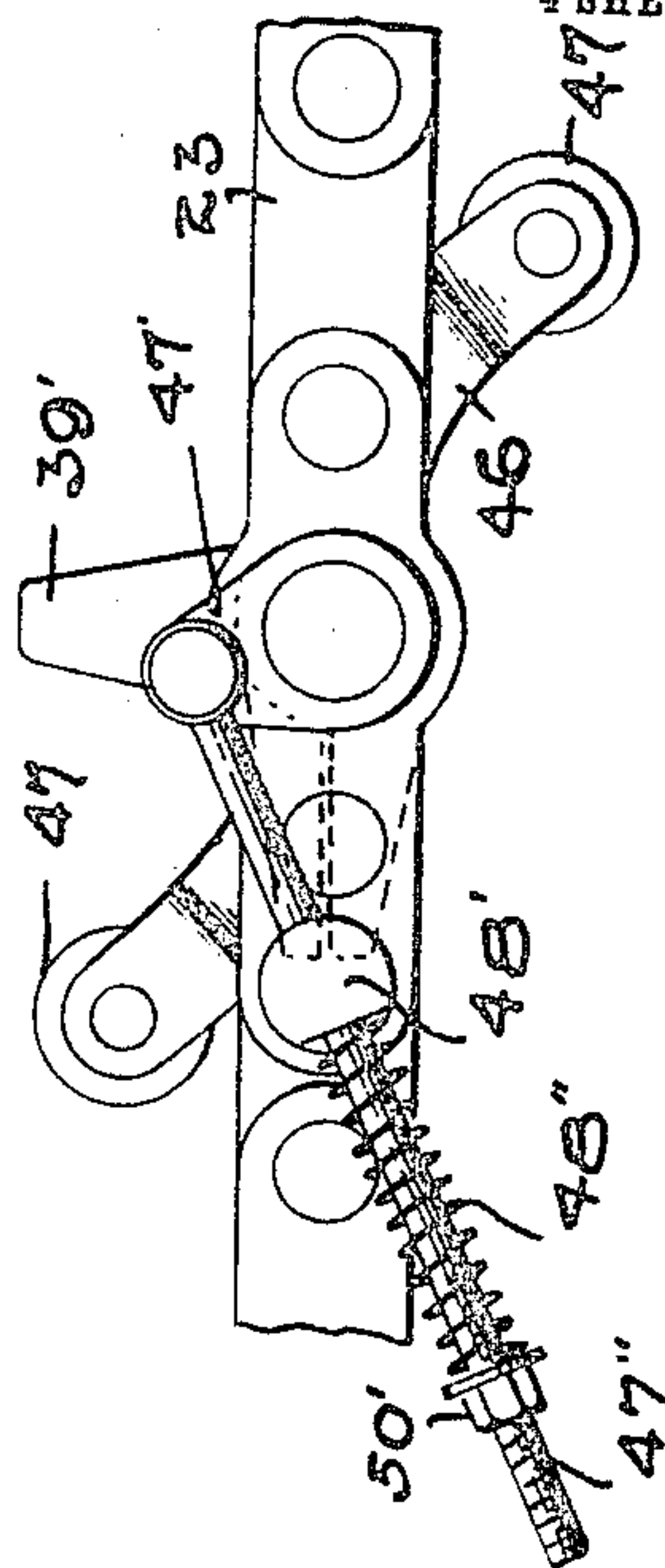


FIG. 6

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4 SHEETS—SHEET 3.

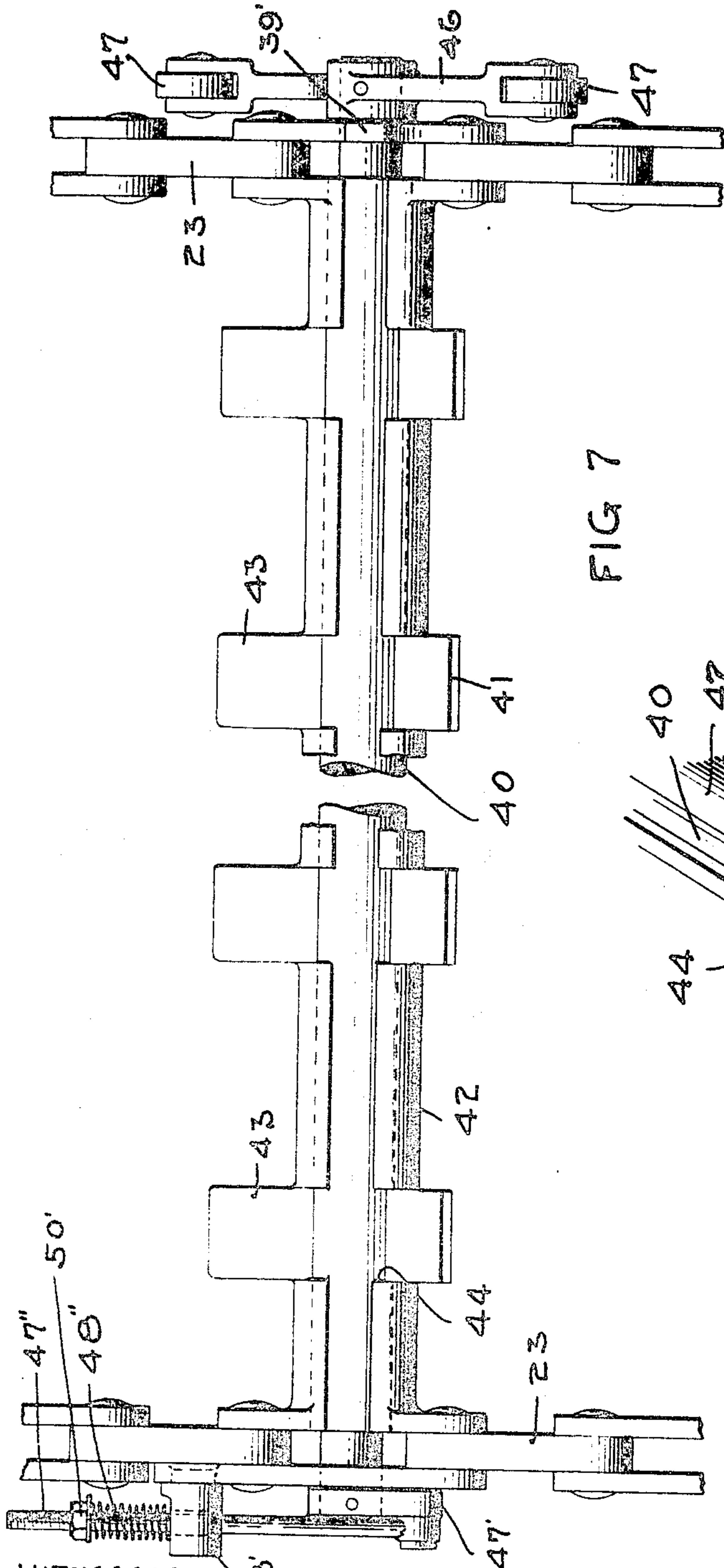


FIG 7

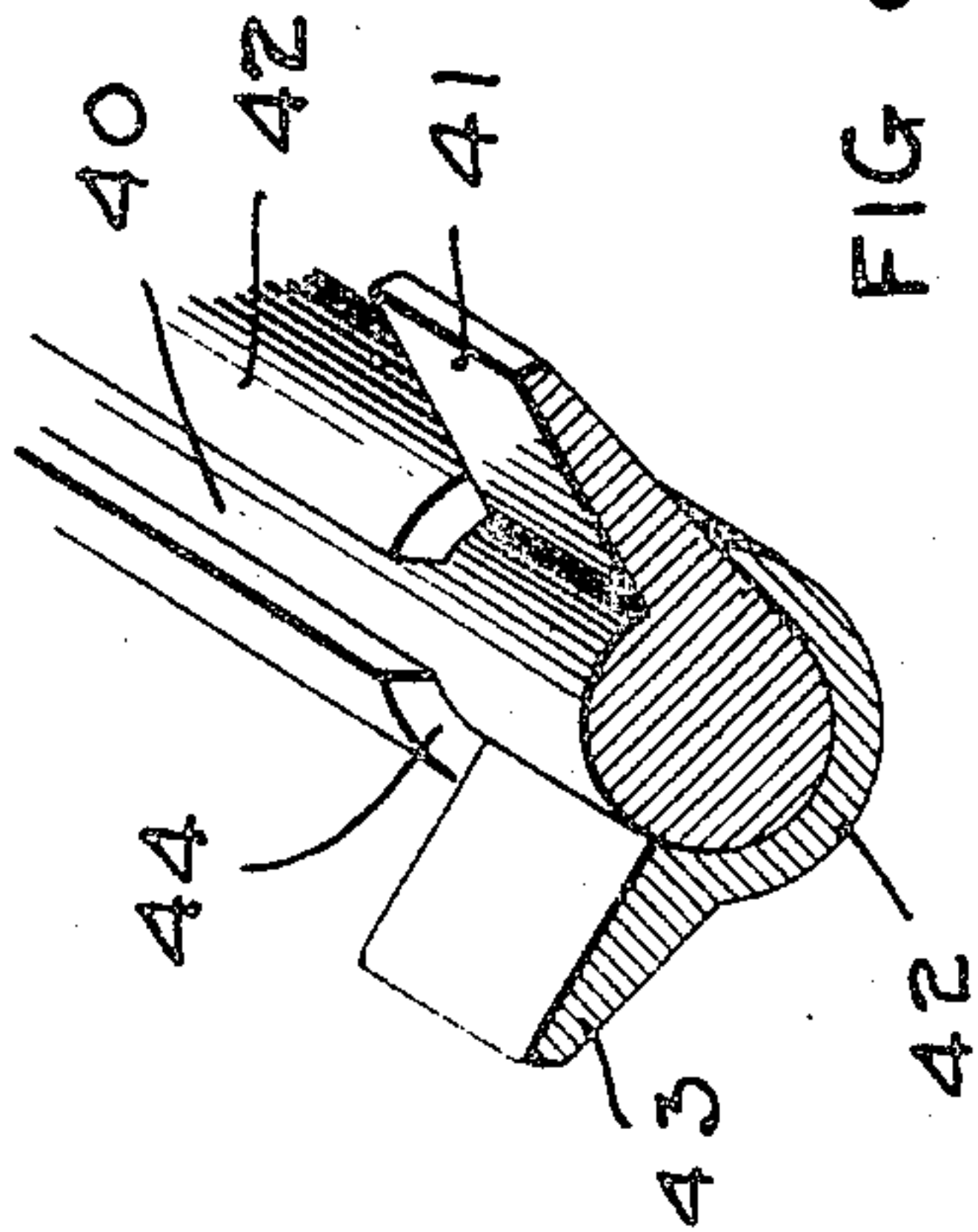


FIG 8

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4 SHEETS--SHEET 4.

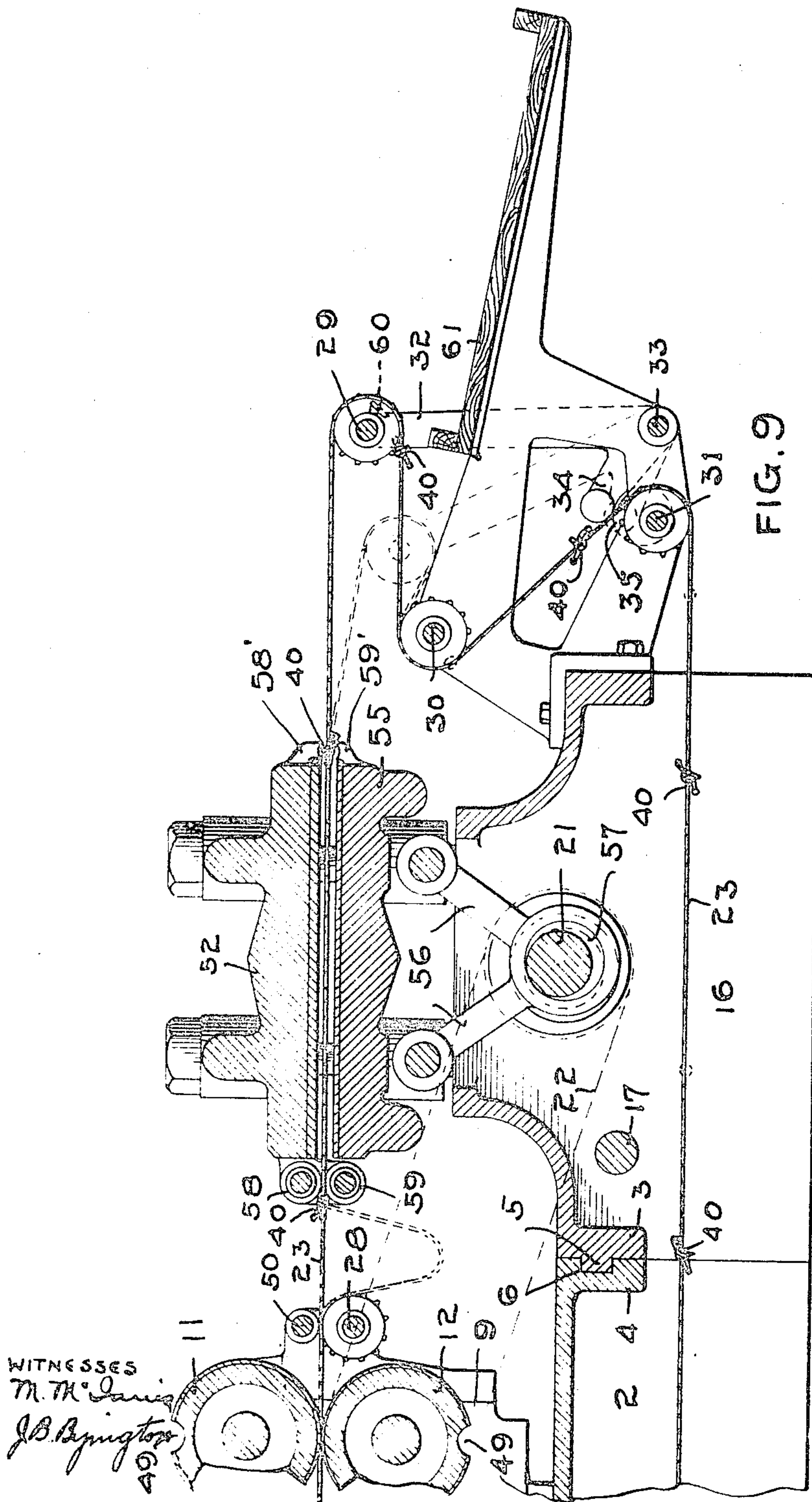


FIG. 9

WITNESSES  
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J. B. Byington  
40

INVENTOR  
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Paul Paul  
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# UNITED STATES PATENT OFFICE.

EDWIN G. STAUDE, OF MINNEAPOLIS, MINNESOTA.

## SECTIONAL COLOR-PRESS AND BLANKER.

969,418.

Specification of Letters Patent.

Patented Sept. 6, 1910.

Application filed October 25, 1907. Serial No. 399,185.

*To all whom it may concern:*

Be it known that I, EDWIN G. STAUDE, of Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Improvements in Sectional Color-Presses and Blankers, of which the following is a specification.

The object of this invention is to provide a press adapted for either web or sheet work and capable of being enlarged or reduced in size proportionate to the needs of the operator of the press. For instance, under ordinary conditions a press owner whenever he desires to increase the number of colors, must purchase a new and larger press, as those in general use can only turn out work with the number of colors for which they were originally built. By means of my invention the owner of a press can enlarge it whenever he desires to print an additional color, instead of being required to purchase an entirely new machine.

A further object is to provide a press capable of printing one or more colors, accurately registering the sheets in each printing roll, cutting the sheets into suitable blanks and delivering them to a suitable receiving platform.

Other objects of the invention will appear from the following detailed description.

The invention consists generally in a multi-color printing press composed of a series of sections or batteries.

Further, the invention consists in means for accurately registering the sheet to prevent its losing its proper position on the surface of the printing roll in passing from one section or battery to the next, or in passing from the final set of printing rolls to the cutting and creasing mechanism.

Further, the invention consists in providing means whereby the printing mechanism will be allowed to operate continuously during the cutting and creasing operation.

Further, the invention consists in providing a printing press of the type known as an "all size" press. That is, it will print any size of sheet that is fed into the machine in perfect register, whether fed by hand from a table or from a roll, the sheet length being cut off by a suitable cutting mechanism.

Further, the invention consists in providing a printing press which will permit the use of what is generally known as a "platen" cutter and creaser, the platen having on one

surface, preferably the upper, the usual cutting form or "chase" equipped with the usual cutting rule and printers' furniture for setting up the cutting and creasing knives to produce the form desired out of the printed sheet. The opposite face of the platen holding the "chase" is equipped with the usual "make ready" plate so that the operation of cutting and creasing corresponds to that of an ordinary hand fed platen press, the aforesaid construction enabling me to combine the operation of printing, cutting and creasing.

In the accompanying drawings, forming part of this specification, Figure 1 is a longitudinal vertical sectional view of a multi-color printing press embodying my invention. Fig. 2 is a horizontal sectional view of the same. Figs. 3 and 4 are detail views illustrating the operation of the gripper devices. Figs. 5 and 6 are detail views showing the mechanism for holding the gripper jaws in their working position. Fig. 7 is a detail view showing the manner of mounting the fixed and movable gripper jaws in the feed belt. Fig. 8 is a detail view in perspective showing the fixed and movable jaws of one of the grippers. Fig. 9 is a vertical longitudinal sectional view of the rear portion of the machine.

As illustrated in Fig. 1 the base of the machine consists of a series of sections which I will designate by reference numeral 2, said sections corresponding substantially to one another in shape and size and each having depending flanges 3 and 4 provided respectively with longitudinal ribs and grooves 5 and 6, the rib of one flange being adapted to enter the groove in the flange of the contiguous base section, and suitable bolts 7 are provided for locking the sections together. I have shown two of these base sections but there may be a greater number of them provided if desired, according to the number of colors to be printed in the press. For every color an additional base section will be added, and the owner of a press capable of printing two colors, will, if he desires to print three or four, be obliged merely to purchase additional sections to be added to his press instead of discarding it entirely and purchasing a new machine. A great saving can thus be affected in the cost of equipping and maintaining or enlarging a color printing establishment.



Upon each base section, standards 8 and 9 are mounted and upon the standard of the first section of the series I arrange a feed table 10 upon which the sheets to be printed are placed and fed into the machine by hand, or an automatic feed mechanism may be provided if desired. This, however, I have not thought necessary to illustrate as it forms no part of my present invention. In these standards printing rollers 11 and 12 are mounted one above another in the usual way and above the upper roller of each pair the series of inking rollers 13 are arranged. These inking rollers are of ordinary construction and as I make no claim to them in this application, detailed illustration and description are unnecessary. It is sufficient to say that they supply the ink to the color printing rollers in the usual manner.

I have shown two sets of printing rollers with the series of inking rollers for each, but as the number of colors to be printed is increased the printing rollers will be added also, there being a set for each color to be printed. These rollers are of ordinary construction, the color plates being secured on their peripheries in the usual way.

The upper rollers are driven from the lower ones through the medium of gears 14, and the initial pair of rollers is connected with the adjoining pair through a driven belt 15. A base section 16 for the cutting and creasing mechanism carries a drive shaft 17 which has a pulley 18 and a pinion 19 meshing with a large gear 20 on a shaft 21. The shaft 21 has a belt connection 22 with the lower printing roll of the contiguous pair and through this connection the printing rolls are driven continuously while the machine is in operation.

To feed the sheets to the printing rolls chain belts 23 are provided one on each side of the machine and adapted to engage sprocket wheels 24. A pair of these wheels is mounted on each of the shafts 25, 26, 27, 28, 29, 30 and 31 at intervals in the machine. The shaft 25 is preferably located at the receiving end of the machine beneath the feed table. The shafts 26, 27 and 28 are arranged on a level with the lower printing rolls. The shaft 29 is carried by bars 32 pivoted at 33 on the machine frame and having an arm 34 in the path of a cam 35 on the shaft 31. During a portion of the revolution of the cam the bars 32 will drop by gravity to the dotted line position shown in Fig. 9, and during the remaining portion of the revolution of the cam said bars will be raised to their full line position as will hereinafter appear. At the discharge end of the feed table a shaft 36 is provided, having a series of dogs 37 thereon that are normally held in yielding contact with the feed table by means of a spring 38. A lug 39

is fixed on the shaft 36 and projects forwardly beyond the end of the feed table as shown plainly in Figs. 3 and 4.

The gripper devices for grasping the sheets and carrying them through the printing rolls I have shown in Figs. 3 to 8. Each of said grippers consists of a rock shaft 40 having bearings at each end in the feed chains and provided at intervals with jaws 41. A tube 42 partially incloses the rock shaft and has fixed jaws 43 formed thereon on one side and notches 44 in the opposite side to receive the movable jaws which are capable of oscillating back and forth with the movement of the rock shaft toward and from the fixed jaws. As the feed chains pass the lugs 39 a tooth 39' on one of the links will contact with the said lug, rock the shaft 36 and raise the dogs 37 out of engagement with the sheets to be printed. The sheet will then slide, guided by the attendant, into the space between the fixed and movable jaws 41 and 43. Near the shaft 36 I provide a projection 48 on the frame in the path of the roller 47 and when contact takes place between them the arm 46 will be operated to rock its shaft and swing the movable jaws 41 over into contact with the fixed jaws and grip the sheet firmly between them, a sufficient time being provided between the engagement of the roller with the lug 37 and the projection 48, to permit the insertion of the forward end of the sheet between the open jaws. To hold the movable gripping jaws in their closed position I provide a crank arm 47' on the gripper shaft and a pin 47'' pivotally connected at one end with said crank arm and slidable in a guide 48' on one of the links of the feed chain. A coiled spring 48'' is provided on said pin between said guide and a nut 50' on said pin. The engagement of the roller 47 with the projection 48 will move the crank arm and swing the pin 47'' past the center of the shaft so that the tension of the spring 48'' will be exerted to hold the movable jaws in yielding engagement with the fixed jaws and grip the sheets securely between them. The sheet having been gripped and firmly held by the jaws will be carried forward to the printing rolls. The grippers, as indicated in Fig. 2 extend across the machine lengthwise of the printing rolls and pass between the upper and lower roll of each pair. To permit such passage I provide longitudinal recesses 49 in the periphery of each roll, said recesses being arranged to coincide with one another and receive the grippers just at the time of their passage between the upper and lower roll of each pair. The grippers hold the sheet firmly so that there is no danger of slippage, and a perfect register for the color printing work will thereby be insured. A shaft 50 is provided above the shaft 28 driven by a



belt 51 from the contiguous printing roll. This shaft 50 coöperates with the shaft 28 to prevent bending or buckling of the sheets while they are passing from the printing rolls to the platen. This manner of feeding the sheets through the printing rolls is positive and accurate, the sheets cannot slip or get out of place in any way and the registering of the colors will be correspondingly more correct than usual in machines of this type, and the addition of sections or batteries to increase the color work will not in any way affect the efficiency or accuracy of the machine.

I have shown a cutting and creasing section in connection with this press but it may be omitted if desired. This portion of the machine consists of the base 16 heretofore referred to, a bed plate 52 supported on the rods 53 and 54 and a platen 55 arranged to move vertically into engagement with the bed plate and operated by means of links 56 and an eccentric 57 on the shaft 21. The bed plate is equipped with the usual cutting form or "chase" wherein the usual devices are provided for setting up the cutting and creasing knives to cut the desired blank out of the printed sheet. On the platen I provide the usual "make ready" plate. These parts, however, form no feature of my present invention and I do not consider it necessary to illustrate or describe them in detail, it being sufficient to state that the movement of the platen is timed to engage the paper and cut out the form at a predetermined point in the movement of the feed chains. Upon the receiving side of the cutting and creasing mechanism guide rollers 58 and 59 are provided. On the opposite side of the cutting platen, jaws 58' and 59' are provided and adapted to grasp the gripper bar and hold the sheet feed securely during the operation of creasing and cutting out the blanks.

The printing rollers operate continuously and as there should be a momentary rest in the movement of the sheets while the cutting and creasing mechanism is in operation I provide means whereby such rest can be effected without stopping the printing rolls. Referring to Fig. 9 of the drawing, the mechanism is timed in its motion so that when the platen is raised to perform the cutting and creasing operation the cam 35 will be in position to allow the bar 32 to drop in toward the platen and provide a

sufficient slack in the feed chains to allow a portion of them to be temporarily arrested in movement without stopping the printing rolls, the chain being fed from between the last pair of rolls and allowed to hang down to the dotted line position shown in Fig. 9. This position will only be momentary for as soon as the sheet is released from between the platen and bed plate the cam 35 will have revolved sufficiently to engage the arm 34 and swing the bar 32 back to its vertical position and take up the slack in the feed chains.

At the rear end of the machine I provide tripping devices 60 which are adapted to contact with the rollers 47 of the grippers, swing them back to their inoperative position upon the jaws and allow the sheets to be discharged upon a receiving table 61. The grippers will then pass along under the machine back to the delivery end of the feed table when the operation described will be repeated.

I claim as my invention:

1. In a color printing press, the combination, with the printing rolls, of a cutting and creasing mechanism, said rolls operating continuously and said cutting and creasing mechanism intermittently, an endless sheet carrier operating to deliver the sheets to said printing rolls and said cutting and creasing mechanism, and means whereby the movement of said cutting and creasing mechanism may be temporarily arrested, as on the completion of its stroke, without affecting the continuous operation of said printing rolls.

2. In a color printing press, the combination, with a base and printing rolls mounted thereon, of a cutting and creasing mechanism also mounted on said base, an endless sheet carrier operating to advance the sheets through said rolls and cutting and creasing mechanism, an oscillating bar carrying a shaft and sprocket wheels around which said carrier passes, means for allowing said bar to swing inwardly to allow a slack to be formed in said carrier and means for raising said bar to take up the slack in said carrier for the purpose specified.

In witness whereof, I have hereunto set my hand this 15th day of October 1907.

EDWIN G. STAUDE.

Witnesses:

RICHARD PAUL,  
J. B. BYINGTON.