

No. 720,064.

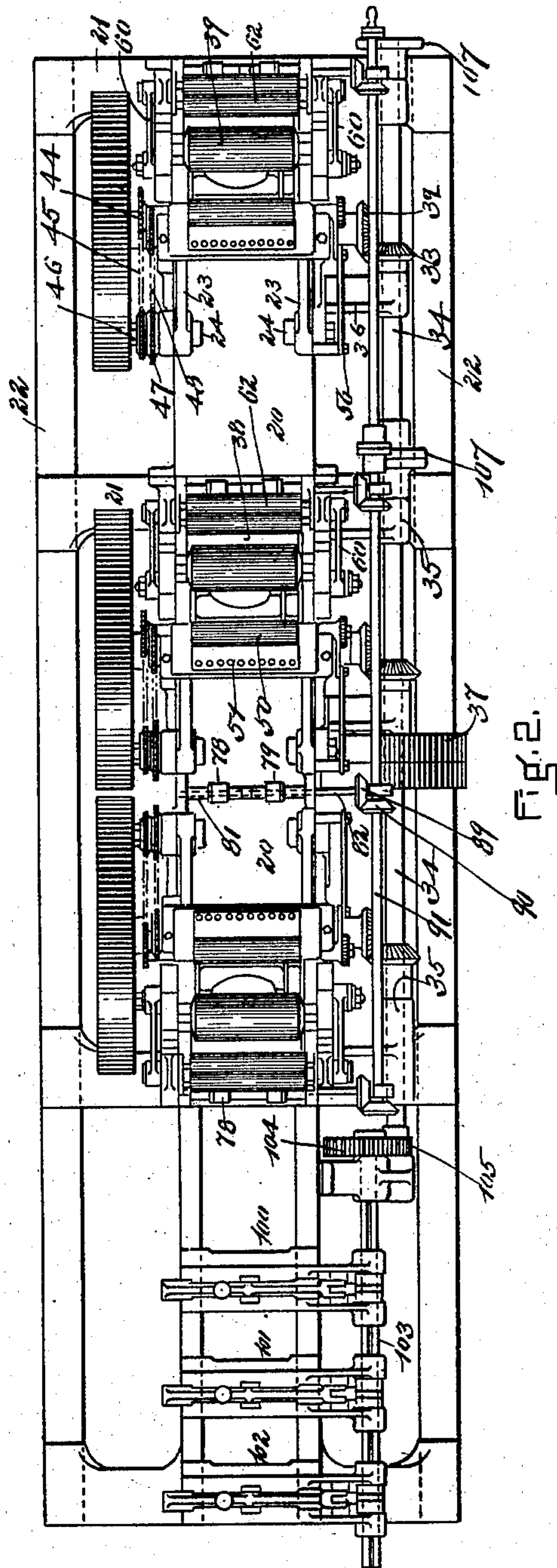
PATENTED FEB. 10, 1903.

G. H. PIERCE.
PRINTING PRESS.

APPLICATION FILED JAN. 2, 1902.

NO MODEL.

7 SHEETS—SHEET 2.



WITNESSES:
Louis A. Jones.
Sydney C. Toft.

INVENTOR:
George H. Pierce.
By his Attorney, Charles S. Gooding.

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NO MODEL.

7 SHEETS—SHEET 3.

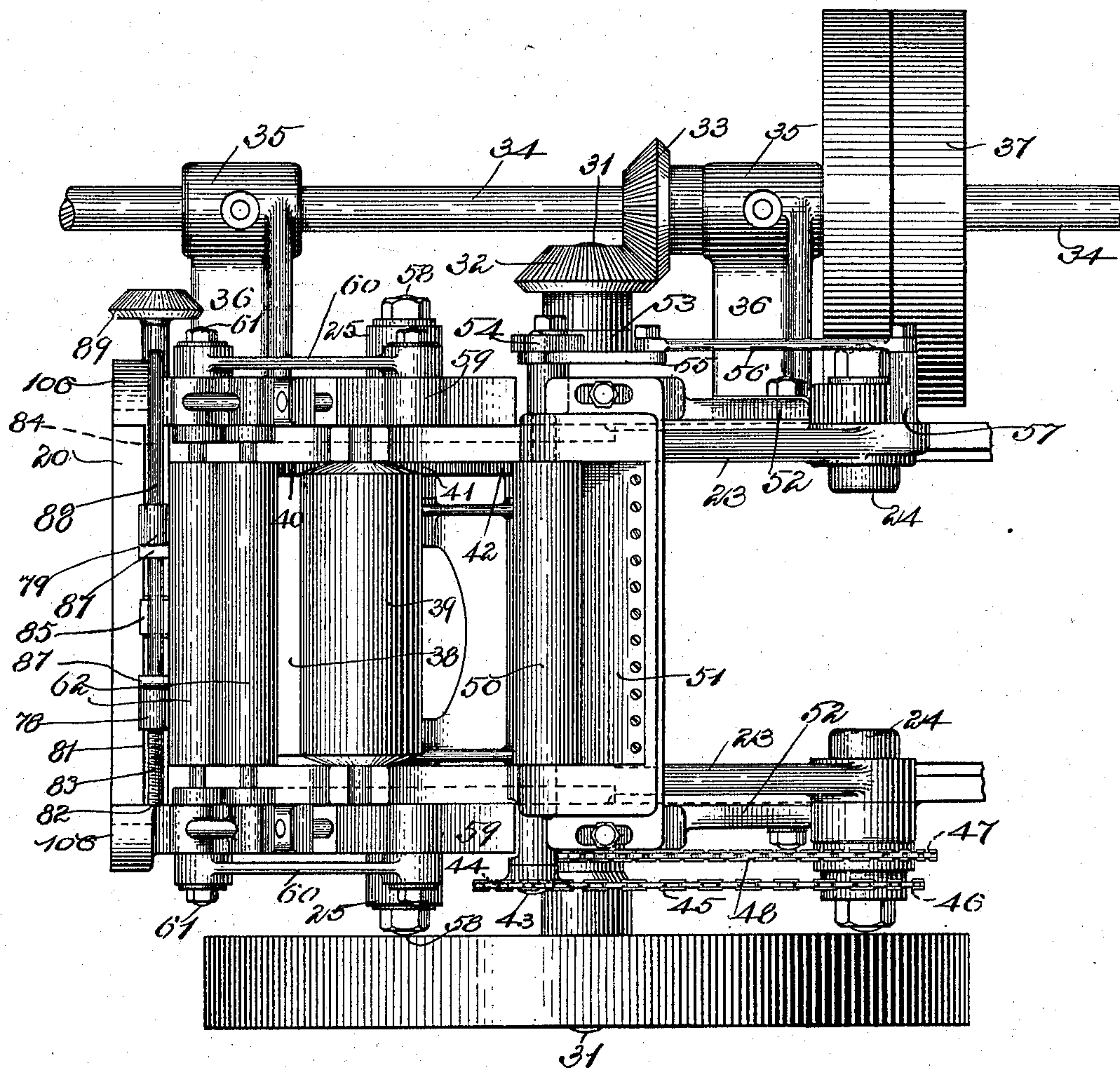


FIG. 3.

WITNESSES—

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Louis A. Jones.

INVENTOR

George H. Pierce

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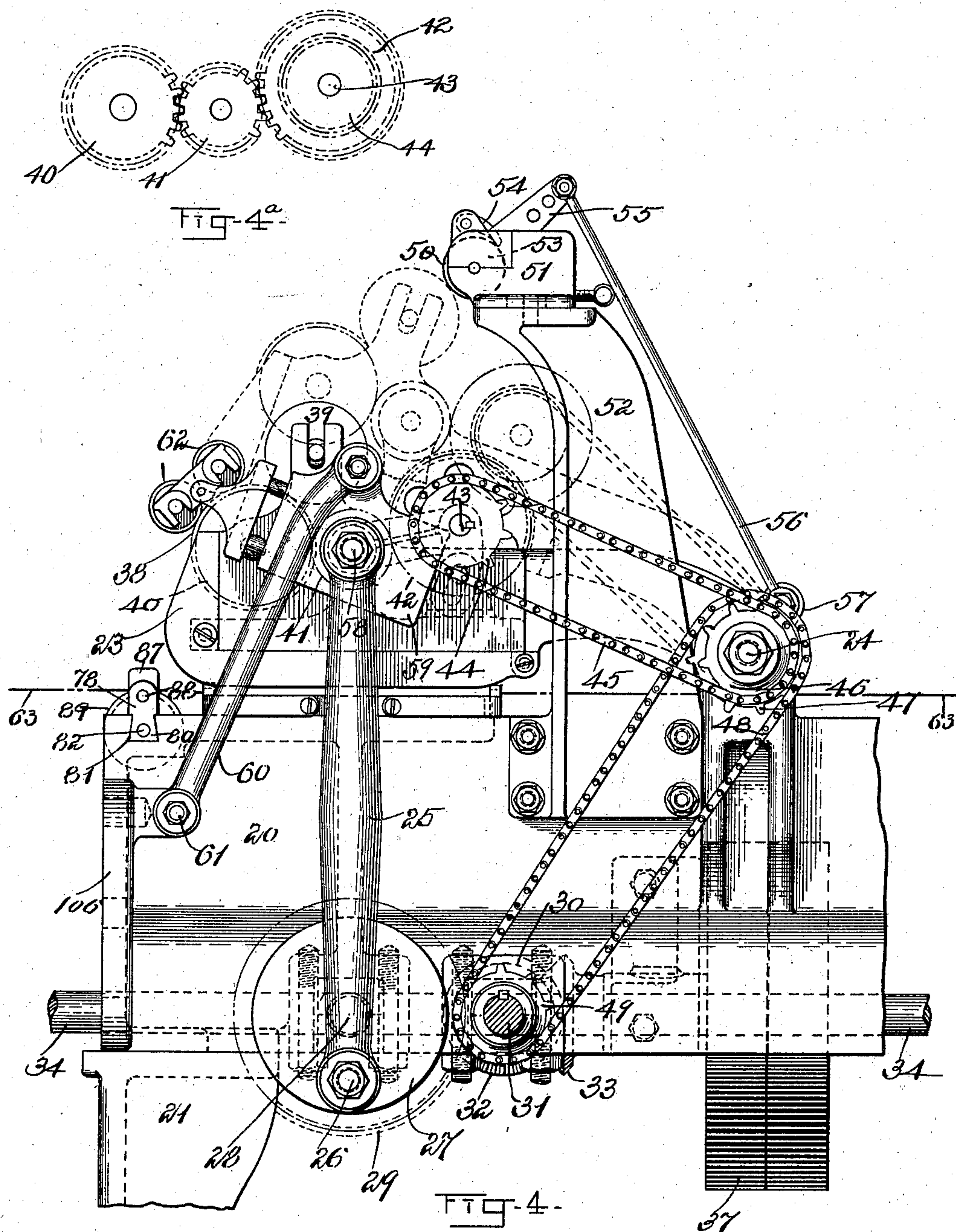
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NO MODEL.

7 SHEETS—SHEET 4.



WITNESSES—

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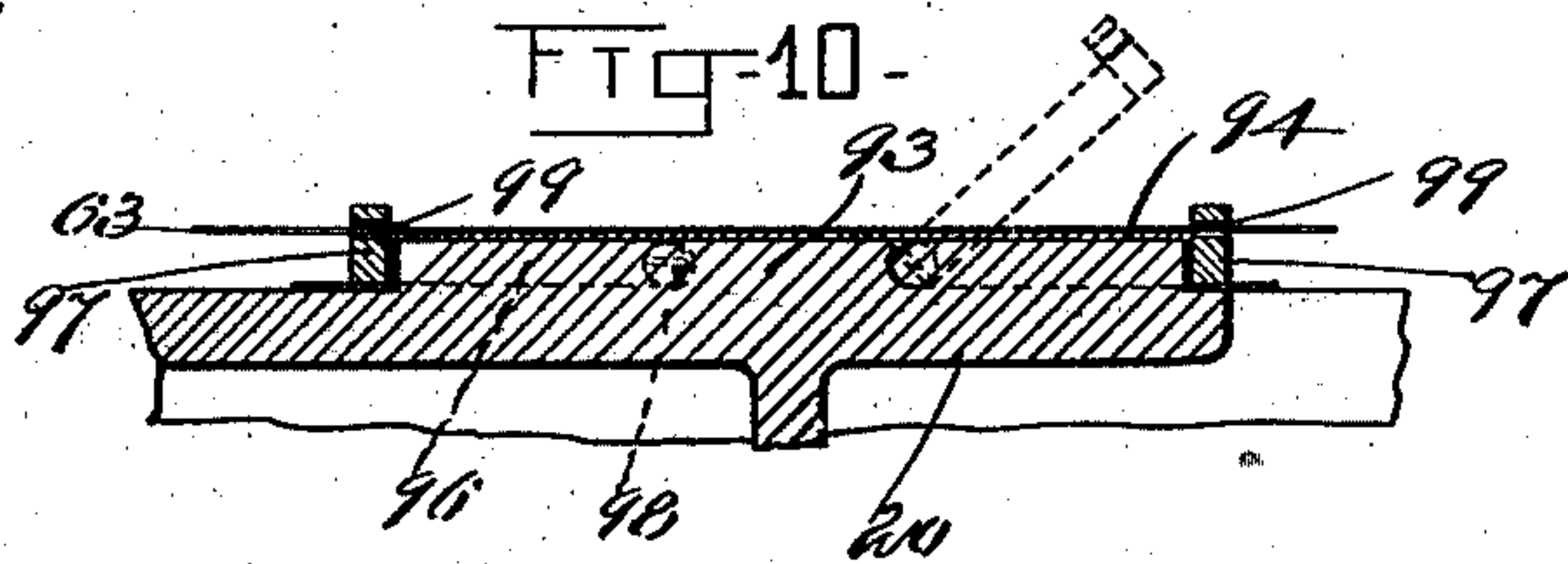
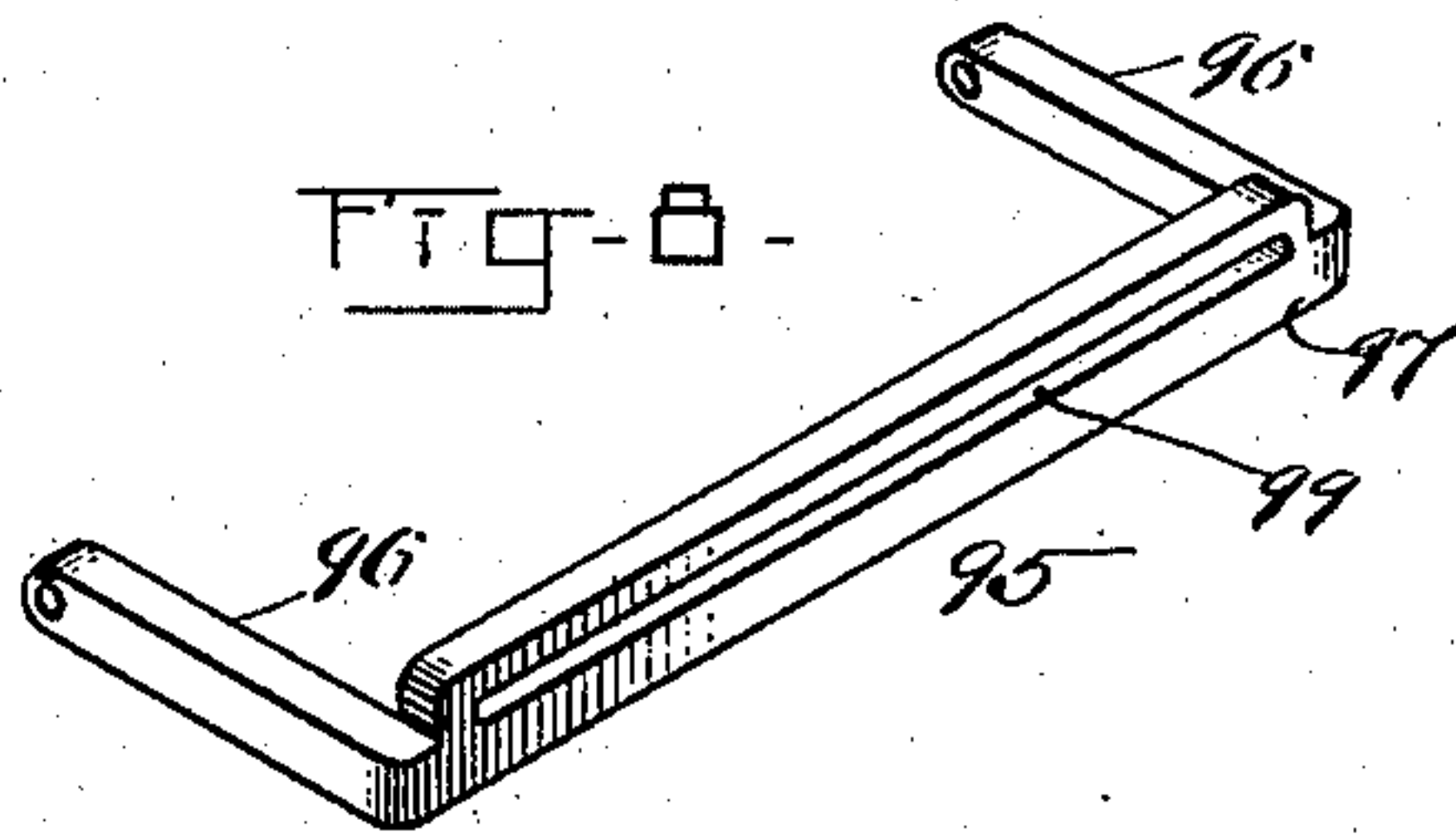
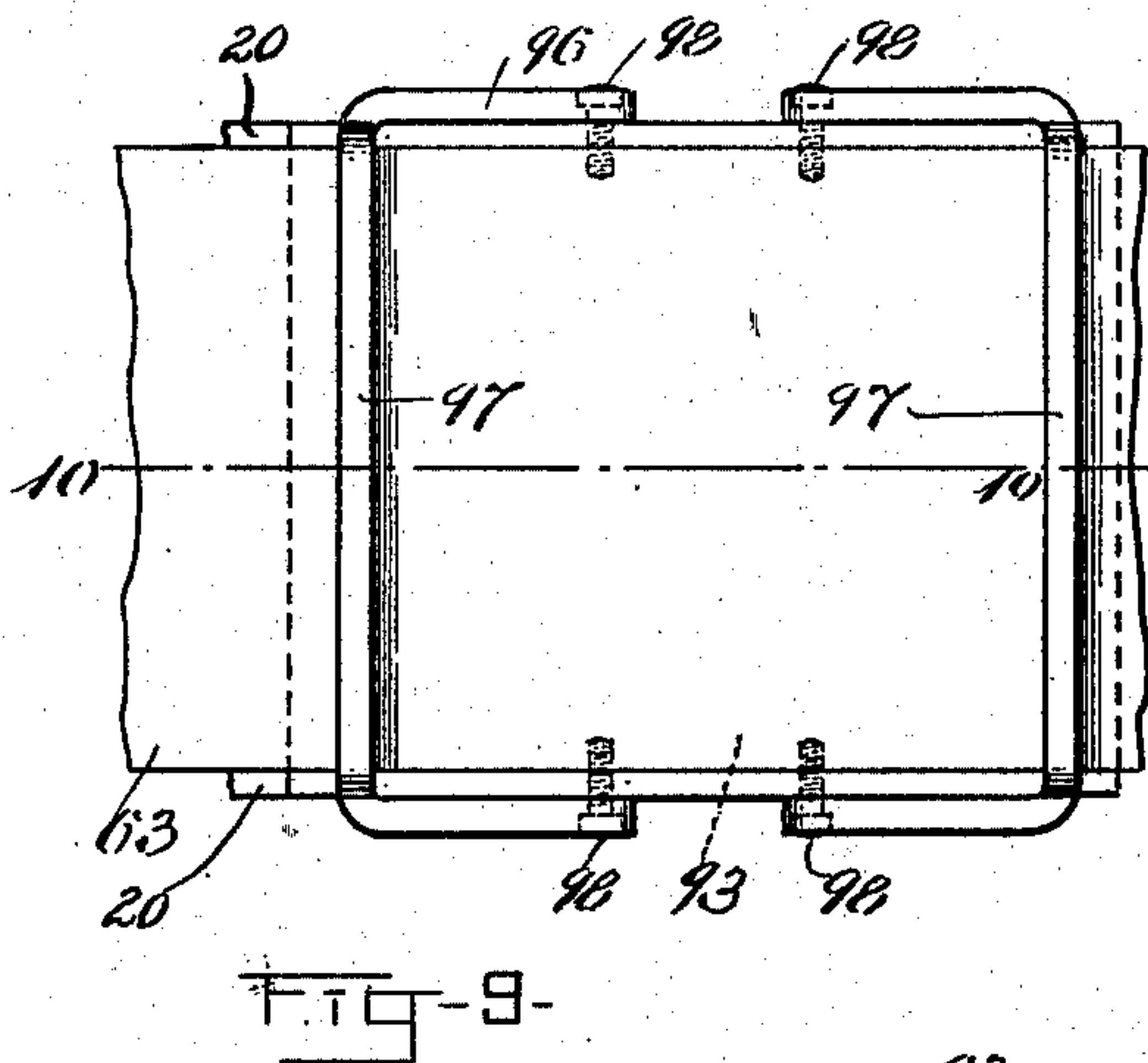
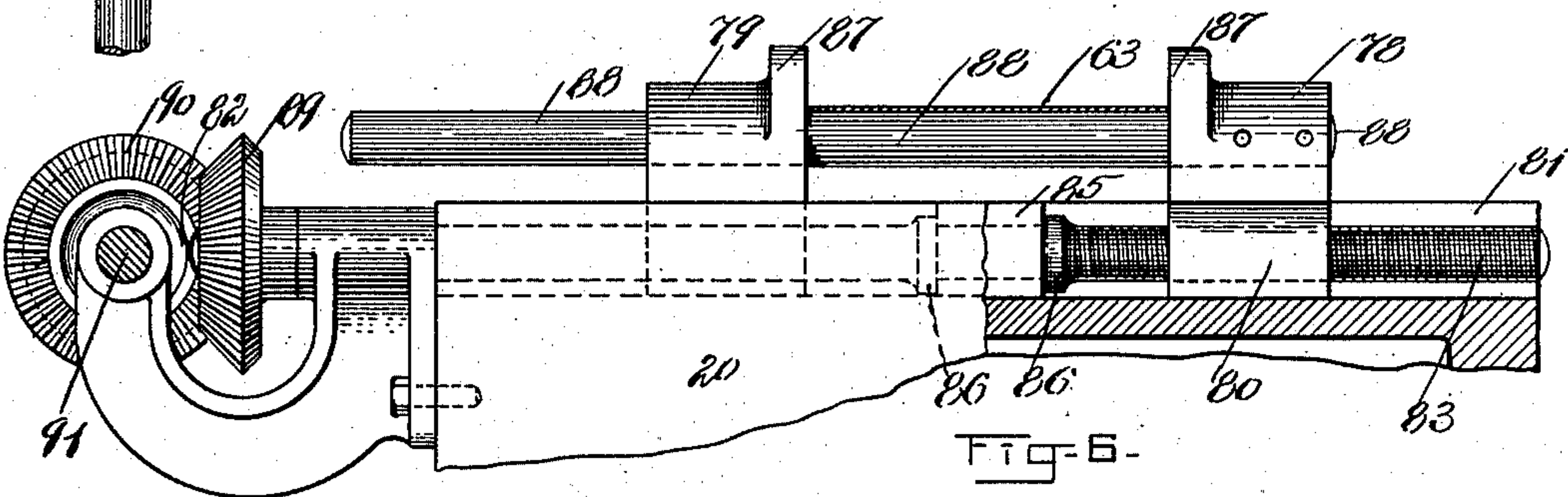
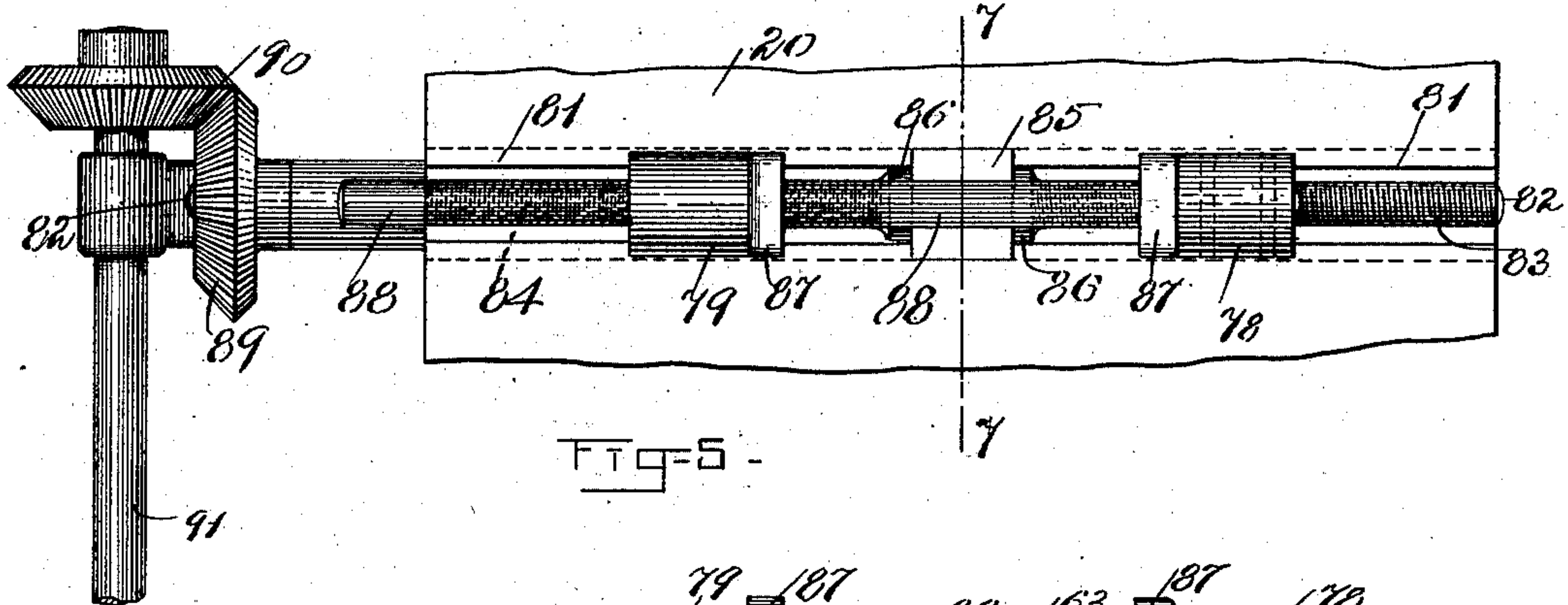
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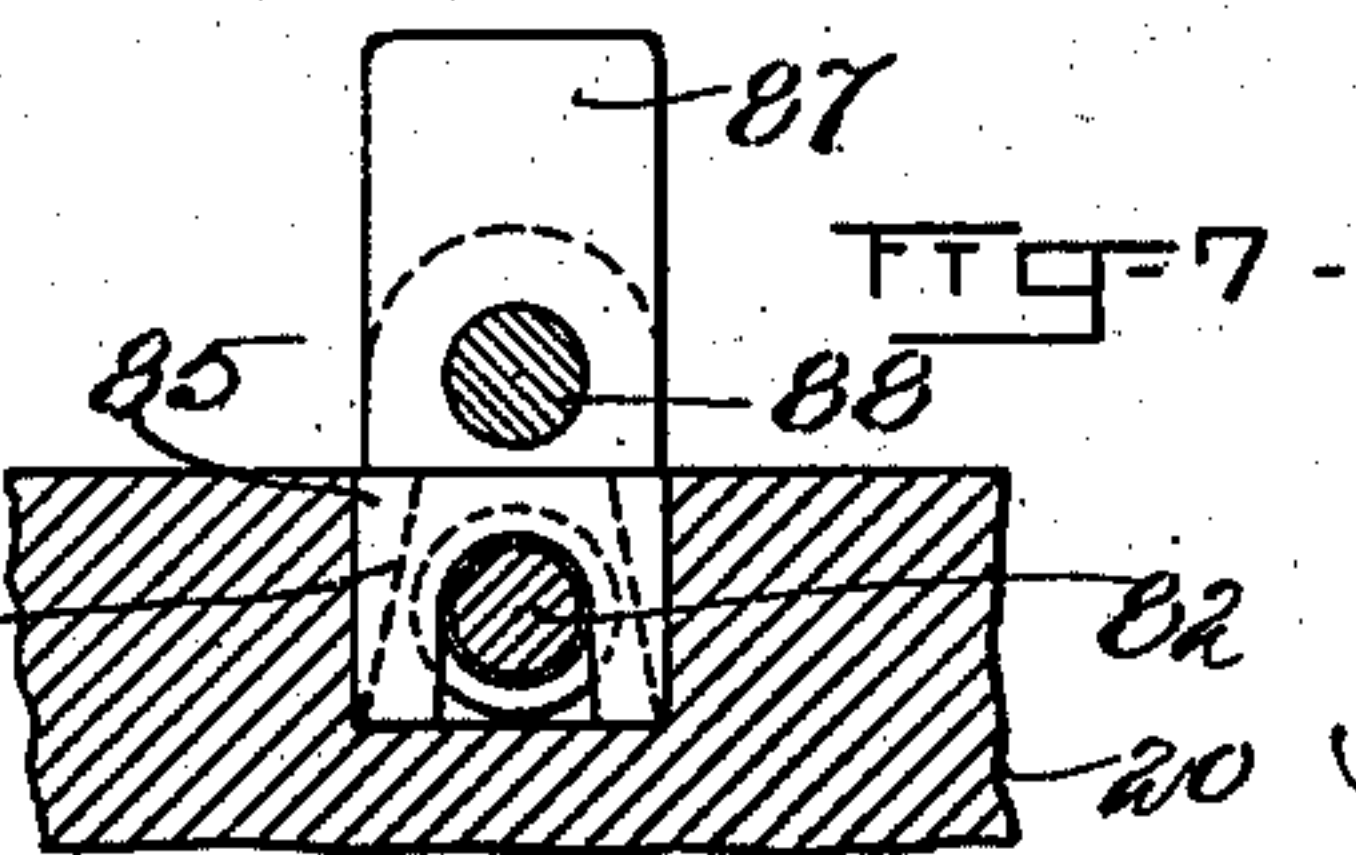
NO MODEL.

7 SHEETS—SHEET 5.



WITNESSES-

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NO MODEL.

7 SHEETS—SHEET 6.

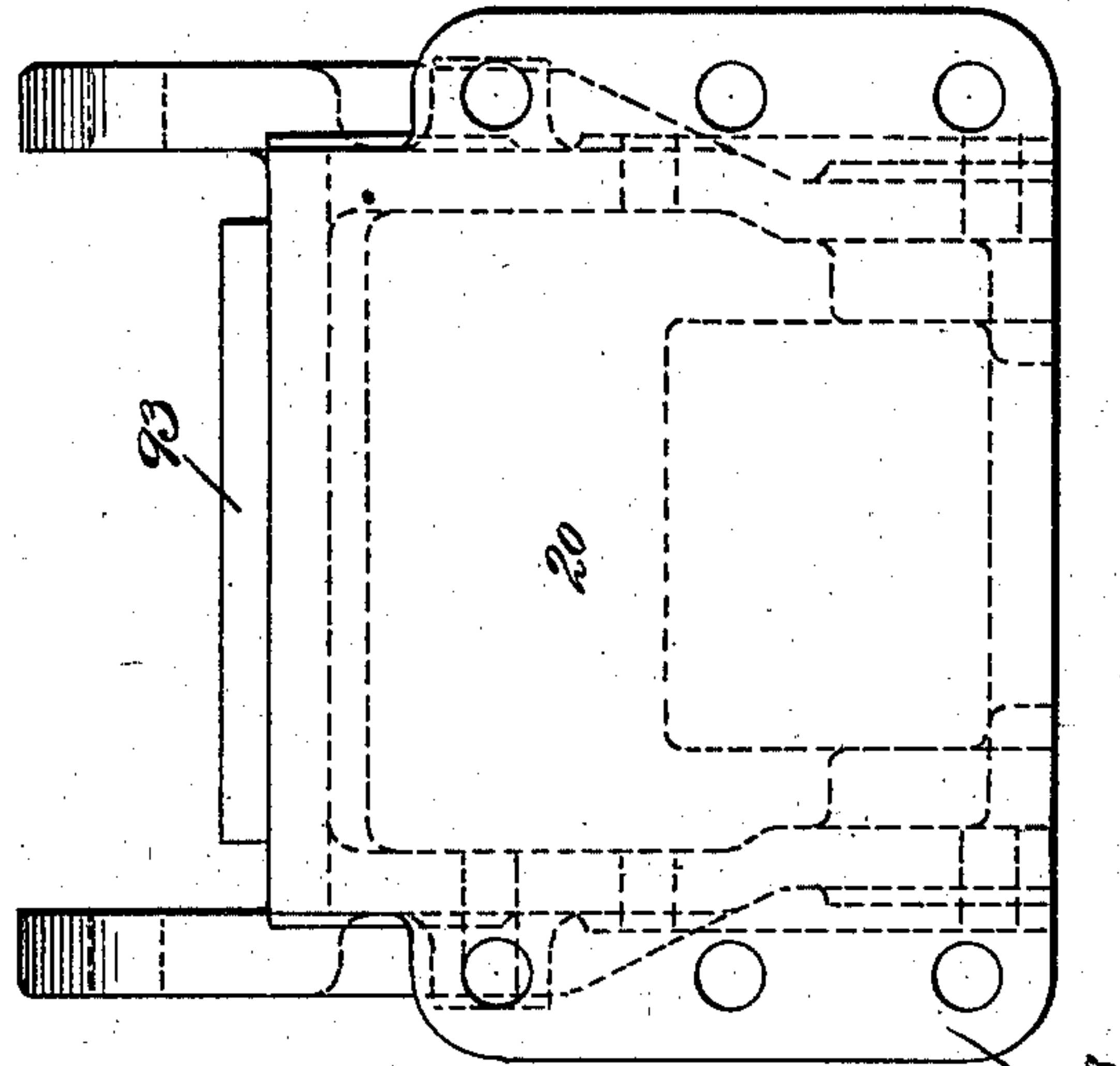


FIG. 12.

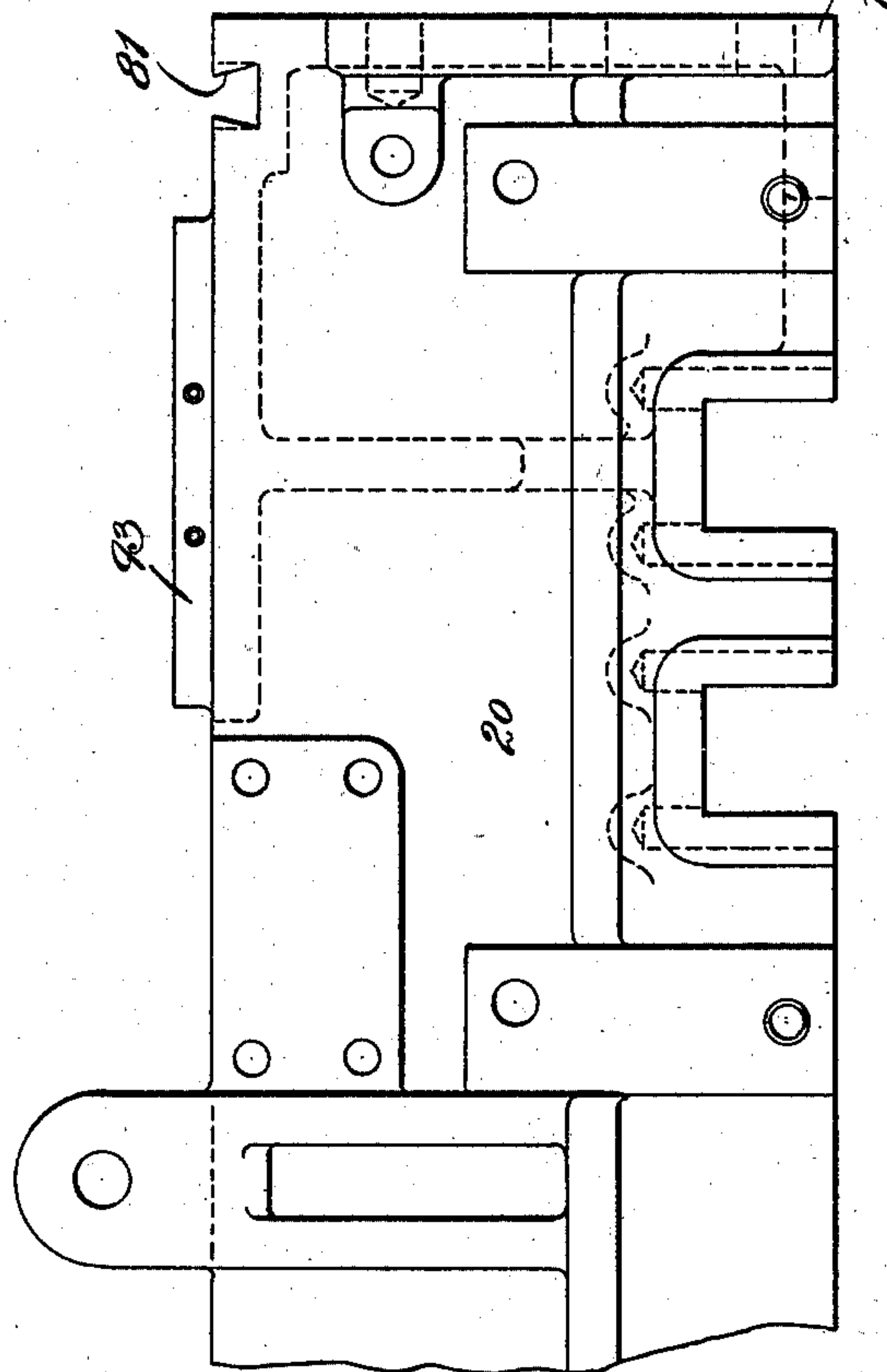
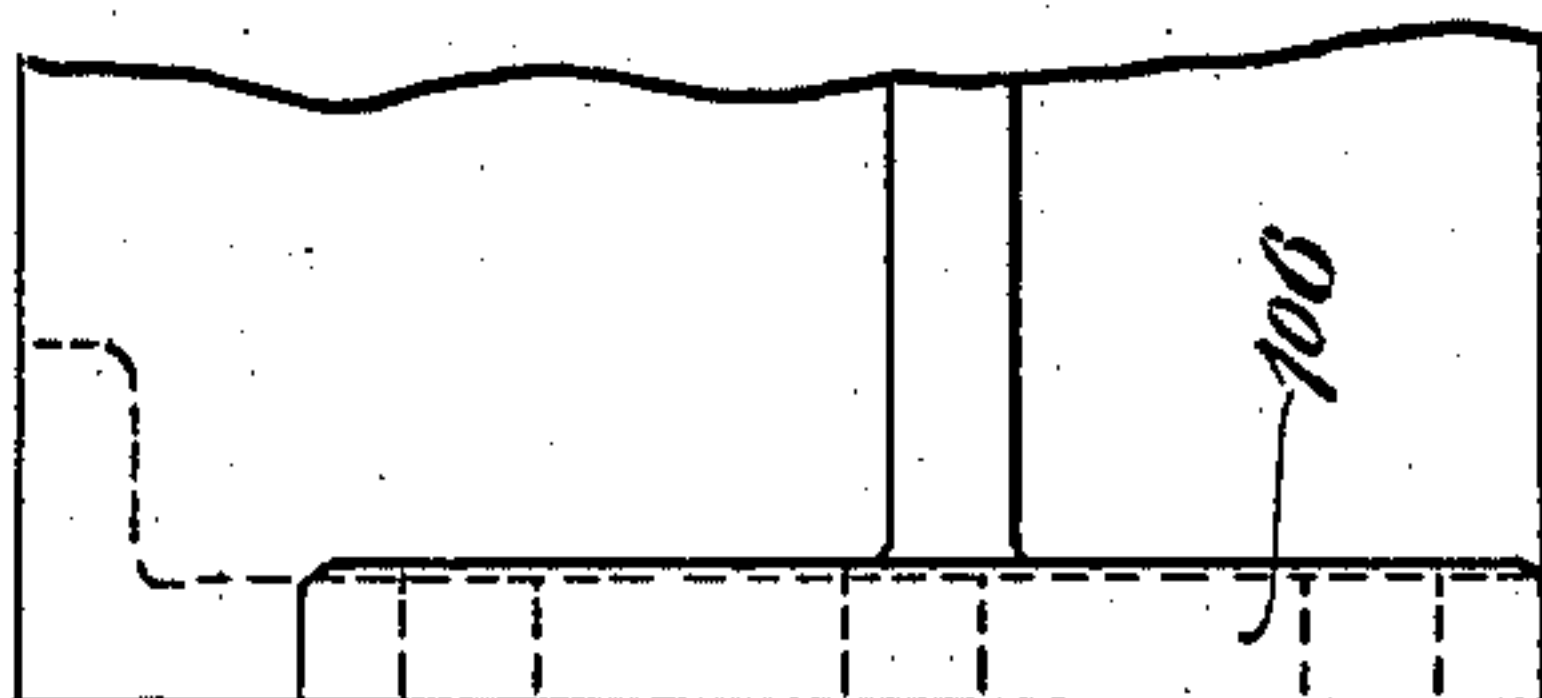


FIG. 11.

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No. 720,064.

PATENTED FEB. 10, 1903.

G. H. PIERCE.
PRINTING PRESS.

APPLICATION FILED JAN. 2, 1902.

NO MODEL.

7 SHEETS—SHEET 7.

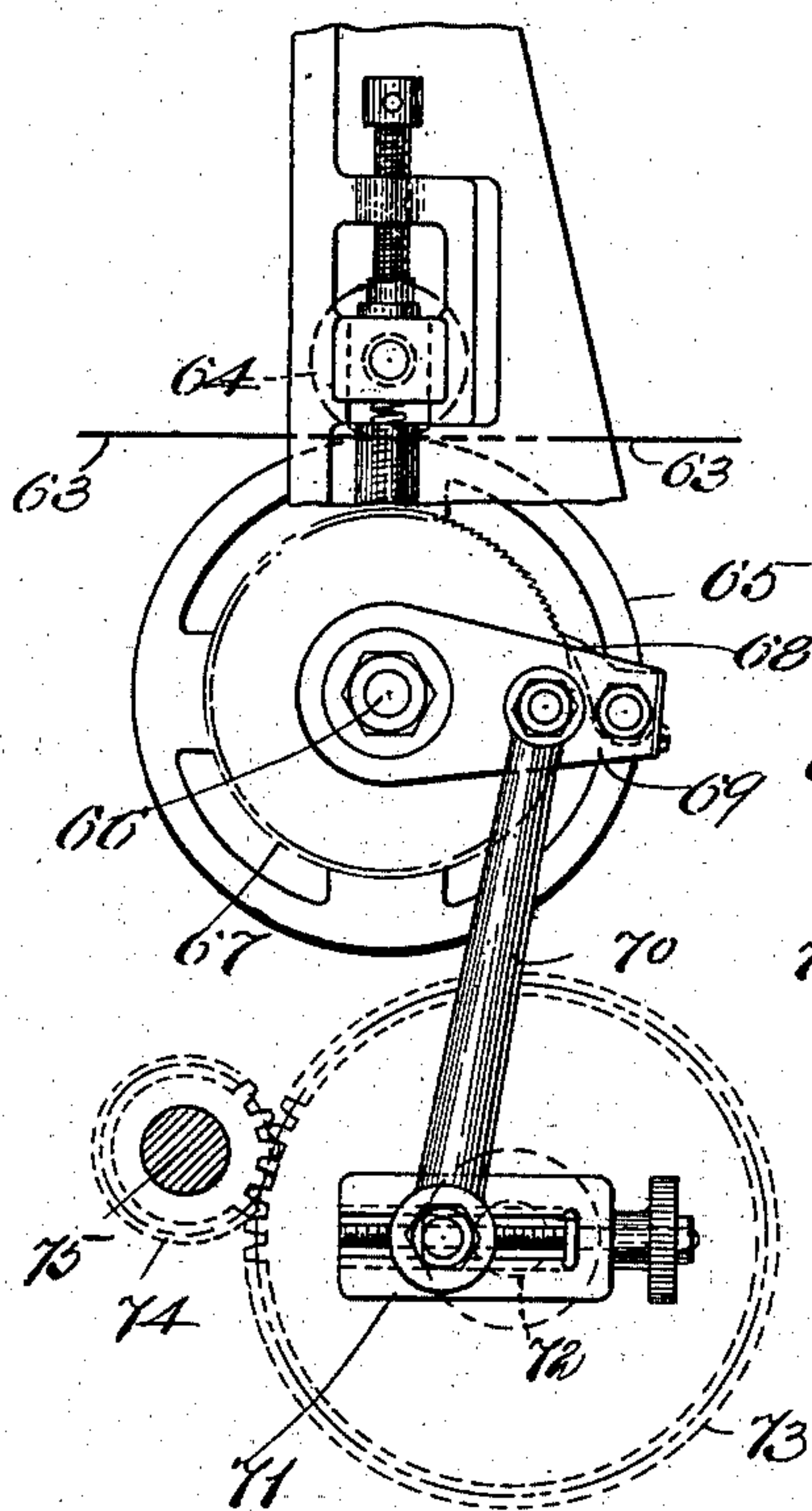


FIG-13.

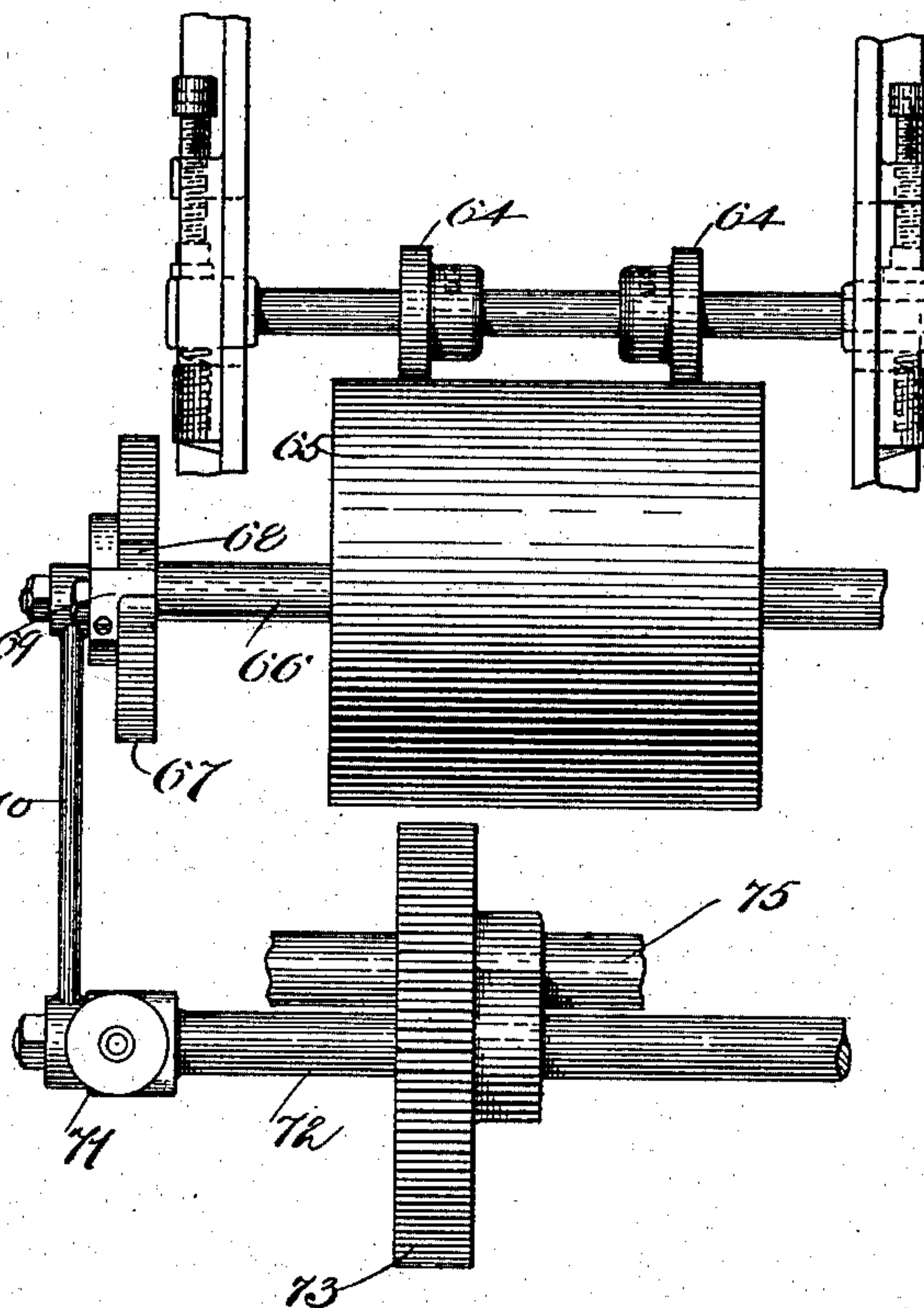


FIG-14.

WITNESSES-

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UNITED STATES PATENT OFFICE.

GEORGE H. PIERCE, OF MALDEN, MASSACHUSETTS, ASSIGNOR TO NEW ERA MACHINERY COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF NEW JERSEY.

PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 720,064, dated February 10, 1903.

Application filed January 2, 1902. Serial No. 88,011. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. PIERCE, a citizen of the United States, residing at Malden, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Printing-Presses, of which the following is a specification.

This invention relates to printing-presses, and comprises a machine particularly adapted to printing different colors upon a continuous web or strip of paper, and, further, is provided with mechanism to punch holes in said strip at equal intervals, and, finally, to divide said strip into equal portions, as in printing and punching tickets or cards for various purposes and for use in different kinds of business. This machine is an improvement upon the ticket-printing machine of E. C. Jones and F. L. Jones, United States Patent No. 640,568, patented January 2, 1900, and has for its object to render said machine more practical, rapid, and easily handled.

The invention consists in a rocking form-carrier, ink-distributing rolls journaled upon said form-carrier and driven by sprocket-gears and a chain, as hereinafter set forth in the specification and in the claims.

The invention again consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims thereof.

Referring to the drawings, Figure 1 is a side elevation of my improved printing-press. Fig. 2 is a plan view of the same. Fig. 3 is an enlarged plan of one of the form-carriers, the rolls and mechanism carried thereon, together with a portion of the main driving-shaft and the mechanism connecting said shaft to the ink-roller-rotating mechanism. Fig. 4 is a side elevation of the mechanism shown in Fig. 3, said elevation being taken from the opposite side of the machine to that from which Fig. 1 is taken. Fig. 4^a is a diagram detail view of the gearing by which one of the ink-distributing rolls is rotated. Fig. 5 is a detail plan view of a portion of the bed of the machine, together with two of the paper-guide blocks and the mechanism by which they are adjusted toward and away from each other. Fig. 6 is an elevation,

partly in section, of the parts shown in Fig. 5 as viewed from the right of Fig. 1. Fig. 7 is a detail sectional elevation taken on line 7 7 of Fig. 5. Fig. 8 is a perspective view of a combined pad-clamp and paper-stripper. Fig. 9 is a plan view of a portion of the bed of the machine, together with a pair of pad-clamps. Fig. 10 is a section taken on line 10 10 of Fig. 9, one of the pad-clamps being shown raised in dotted lines. Fig. 11 is a side elevation in detail of one bed-frame section. Fig. 12 is an end elevation of the same. Fig. 13 is an enlarged detail side elevation of the paper-feed mechanism; and Fig. 14 is a detail end elevation of the same, taken from the right of Fig. 1.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 20 is the bed-frame, supported upon legs 21, said legs being joined together by base-plates 22. The bed-frame 20 has a form-carrier 23, pivoted thereto upon studs 24. Said form-carrier is rocked upon the studs 24 by two connecting-rods 25, each driven by a crank-pin 26, fast to a face-plate 27, said face-plate being driven by a shaft 28, extending transversely of the bed of the machine and having a gear 29 fast thereto, which meshes a pinion 30, fast to the shaft 31, said shaft being rotated by a bevel-gear 32, which meshes another bevel-gear 33, fast to the main driving-shaft 34. The main shaft 34 rotates in bearings 35 upon brackets 36, fast to the bed-frame 20, and is rotated by a pulley 37.

Two ink-distributing rolls 38 and 39 are journaled to rotate on the frame of the form-carrier 23, the ink-distributing roll 38 being rotated by a gear 40, fast thereto and meshing an intermediate gear 41, which rotates upon a stud fast to the carrier-frame and in turn meshes in a gear 42, fast to a shaft 43, journaled in bearings in said form-carrier and having fastened thereto a sprocket-gear 44, connected by a sprocket-chain 45 to a sprocket-gear 46. The sprocket-gear 46 is fastened to and rotates with a sprocket-gear 47 upon one of the studs 24, said sprocket-gear 47 being connected by a sprocket-chain 48 to a sprocket-gear 49, fast to the shaft 31.

It will be seen that as the form-carrier is

rocked upon its pivot 24 by the connecting-rods 25 the operation of the hereinbefore-described mechanism by which the ink-distributing roll 38 is rotated will not be interfered with, as the sprocket-chain 45 will simply turn upon the sprocket-gear 46 as the form-carrier is rocked upon its pivot, without interfering with the operation of the sprocket-gears 44 and 46 and the chain 45, connecting them. When the form-carrier is raised by the rods 25, as hereinbefore described, together with the rolls 38 and 39, from the position shown in full lines, Fig. 4, to that shown in dotted lines therein, the ink-distributing roll 39 contacts with the ink-fountain roll 50. Said ink-fountain roll is journaled to rotate in bearings in the ink fountain or reservoir 51, supported upon brackets 52, fast to the bed-frame 20, and is rotated by a ratchet 53 and pawl 54, said pawl being pivoted to a pawl-lever 55, connected by a link 56 to an arm 57, integral with the form-carrier 23. The rods 25 are connected to the form-carrier 23 by studs 58, one upon each side of said form-carrier. A frame 59, one upon each side of said form-carrier, is arranged to rock upon one of said studs 58 and is connected by a link 60 to a stud 61, fast to the bed-frame 20. As the form-carrier is raised and lowered, as hereinbefore set forth, said frames rock upon the studs 58, and thus carry the ink-carrier rolls 62 across the ink-distributing roll 38 and around across the face of the type held in a chase fast to said form-carrier, substantially in the manner set forth in said Patent No. 640,568.

The paper in the form of a strip 63 is fed through the machine between the form-carriers and the bed by feed-rolls 64 65. The feed-roll 65 is fast to a shaft 66, journaled in the bed-frame 20, and is rotated by a ratchet 67, pawl 68, and pawl-lever 69, said pawl-lever being rocked upon the shaft 66 by a link 70, adjustably connected to a rotating plate 71, fast to a shaft 72, said shaft 72 having a gear 73 fast thereto and meshing into a pinion 74, fast to a shaft 75, extending transversely across the bed-frame of the machine and having a bevel-gear 76 thereon, which meshes another bevel-gear, 77, fast to the main driving-shaft 34.

In order to accurately guide the strip of paper 63, and also to accommodate varying widths of strips of paper, I provide a series of pairs of guide-blocks 78 and 79, as shown in Figs. 2, 5, 6, and 7. Each of the guide-blocks has a dovetail base 80, formed to slide in ways 81, formed in the bed-frame 20. The guide-blocks 78 and 79 are simultaneously adjusted toward and away from each other by means of a screw 82, said screw being provided with a right-hand thread 83, which engages the guide-block 78, and a left-hand thread 84, which engages the guide-block 79. Said screw 82 is held against longitudinal movement by a block 85, fast to the bed of the machine and engaging shoulders 86 86, formed

upon the screw 82. The blocks 78 and 79 each have a flange 87 formed thereon to guide the edges of the paper strip, said strip being supported by a pin 88, fast to the guide-block 78 and having sliding engagement with the guide-block 79. The screws 82 each have a bevel-gear 89 fast thereto, which meshes a bevel-gear 90, fast to a shaft 91, which extends lengthwise of the bed of the machine and is rotated by means of a handle 92. It is evident that by rotating the shaft 91 all of the screws 82 will be simultaneously rotated and the guide-blocks 78 and 79 will be adjusted simultaneously toward and away from each other in pairs.

Beneath each of the form-carriers 23 upon the bed-frame 20 of the machine I provide a raised portion 93, having a pad 94 extending across its surface and bent down at each end thereof by a clamp 95, Figs. 8, 9, and 10. Said clamp is formed of two arms 96 96, connected together by a cross-piece 97 and pivoted at 98 98 to each side of the bed of the machine. A slot 99 is provided in the cross-piece 97, said cross-piece extending transversely of the bed of the machine, and the arms 96 96 being parallel to the sides of said bed. The slot 99 serves as a guide for the paper strip 63 and also acts as a stripper to prevent said strip from being drawn upwardly by the type when the form-carrier 23 is raised after having made an impression upon the paper. When a new pad is being placed upon the machine, the form-carriers at each end of the raised portion 93 are lifted to the position shown in dotted lines, Fig. 10, the pad slipped over said raised portion, and the clamps forced downwardly, as shown in Fig. 10, thus stretching the pad smoothly and evenly across the upper surface of the raised portion 93 of the bed 20. After the paper has been printed upon and fed past the form-carriers it is punched, slitted, and cut off in equal portions by punches and knives supported upon adjustable frames 100, 101, and 102, respectively. The mechanism by which said punches and knives is operated is driven by a shaft 103, having a gear 104 fast thereto and meshing into a gear 105, fast to the main driving-shaft 34. The particular mechanism for punching or cutting the strip of paper is made the subject-matter of a separate application of even date herewith.

Upon the central portion of the frame in Fig. 1 it will be seen that there are two complete printing mechanisms, both being driven, in the same manner as the printing mechanism on the right-hand end section of the frame, from the main driving-shaft 34. If it is desired to increase the capacity of the machine, a number of sections the duplicate in every respect of the end section shown in Fig. 1 may be added thereto, each having a section of the main driving-shaft 34 of the bed-frame 20, legs 21, and base 22, and a complete printing mechanism supported on said bed-frame and connected to the main shaft by bevel-

gears. Each section of the bed-frame 20 is joined to the adjacent section by flanges 106, joined together by bolts. It will thus be seen that the capacity of the machine may be extended indefinitely by adding a number of frame-sections with the printing mechanisms and driving-shafts attached thereto, the different sections of the driving-shafts 34 and of the guide-block-adjusting shaft 91 being bolted together by flange-couplings 107 108, respectively.

The operation of the machine as a whole is as follows: As the form-carriers are raised and lowered the ink-roll 39 comes in contact with the fountain-roll 50, said fountain-roll being intermittently rotated by the pawl and ratchet 54 53 and link 56 by the rocking motion of the form-carrier 23. The ink-roll 38 is rotated by means of the gears 40, 41, and 42 and sprocket-gears 44 46, said gears being connected together by the sprocket-chain 45, the sprocket-gear 46 being driven by the sprocket-gears 47 and 49, connected together by the sprocket-chain 48, the sprocket-gear 49 being driven by the shaft 31. The rocking motion of the form-carrier does not interfere with the rotation of the gearing hereinbefore set forth, for the reason that the sprocket-chain 45 engages the sprocket-gear 46, journaled to rotate about the pivotal center of said form-carrier. The shaft 34 is rotated by means of the pulley 37 and transmits motion through the bevel-gears 33 32 to the counter-shaft 31, said counter-shaft, through the pinion 30 and gear 29, imparting rotary motion to the shaft 28 and face-plates 27, and thus by means of the crank-pins 26 raising and lowering the form-carriers 23 through the connecting-rods 25. The paper is given an intermittent feeding motion by means of the feed-rolls 64 and 65 and the pawl-and-ratchet mechanism hereinbefore described.

After the paper has been printed it is fed to the punching and cutting mechanisms and holes punched therein or notches cut from the edges of the paper, and finally equal portions of the strip cut off to form tickets by the cutters, the said mechanisms for cutting and

punching not being described in detail, as it forms the subject-matter of a separate application for Letters Patent, as hereinbefore set forth.

Having thus described my invention, what I claim, and desire by Letters Patent to secure, is—

1. In a printing-press, a form-carrier, a pivot therefor, mechanism for imparting a rocking motion to said form-carrier upon said pivot, an ink-distributing roll journaled upon said form-carrier, a sprocket-gear carried by said form-carrier and operatively connected to said ink-distributing roll, a second sprocket-gear journaled to rotate about the pivotal center of said form-carrier, and a sprocket-chain connecting said sprocket-gears.

2. In a printing-press, a form-carrier, a pivot therefor, mechanism for imparting a rocking motion to said form-carrier upon said pivot, an ink-distributing roll journaled upon said form-carrier, a sprocket-gear carried by said form-carrier, gearing connecting said ink-distributing roll and sprocket-gear, a second sprocket-gear journaled to rotate about the pivotal center of said form-carrier, and a sprocket-chain connecting said sprocket-gears.

3. In a printing-press, a form-carrier, a pivot therefor, mechanism for imparting a rocking motion to said form-carrier upon said pivot, an ink-distributing roll journaled upon said form-carrier, a sprocket-gear carried by said form-carrier and operatively connected to said ink-distributing roll, a driving-shaft, a sprocket-gear fast to said driving-shaft, two sprocket-gears fast to each other and journaled to rotate around the pivotal center of said form-carrier, and sprocket-chains operatively connecting said sprocket-gears.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GEORGE H. PIERCE.

Witnesses:

CHARLES S. GOODING,
WILLIAM CLAUS.