

No. 723,302.

PATENTED MAR. 24, 1903.

G. H. PIERCE.

CUTTING AND PUNCHING MECHANISM FOR PRINTING PRESSES.

APPLICATION FILED JAN. 2, 1902.

NO MODEL.

3 SHEETS—SHEET 1.

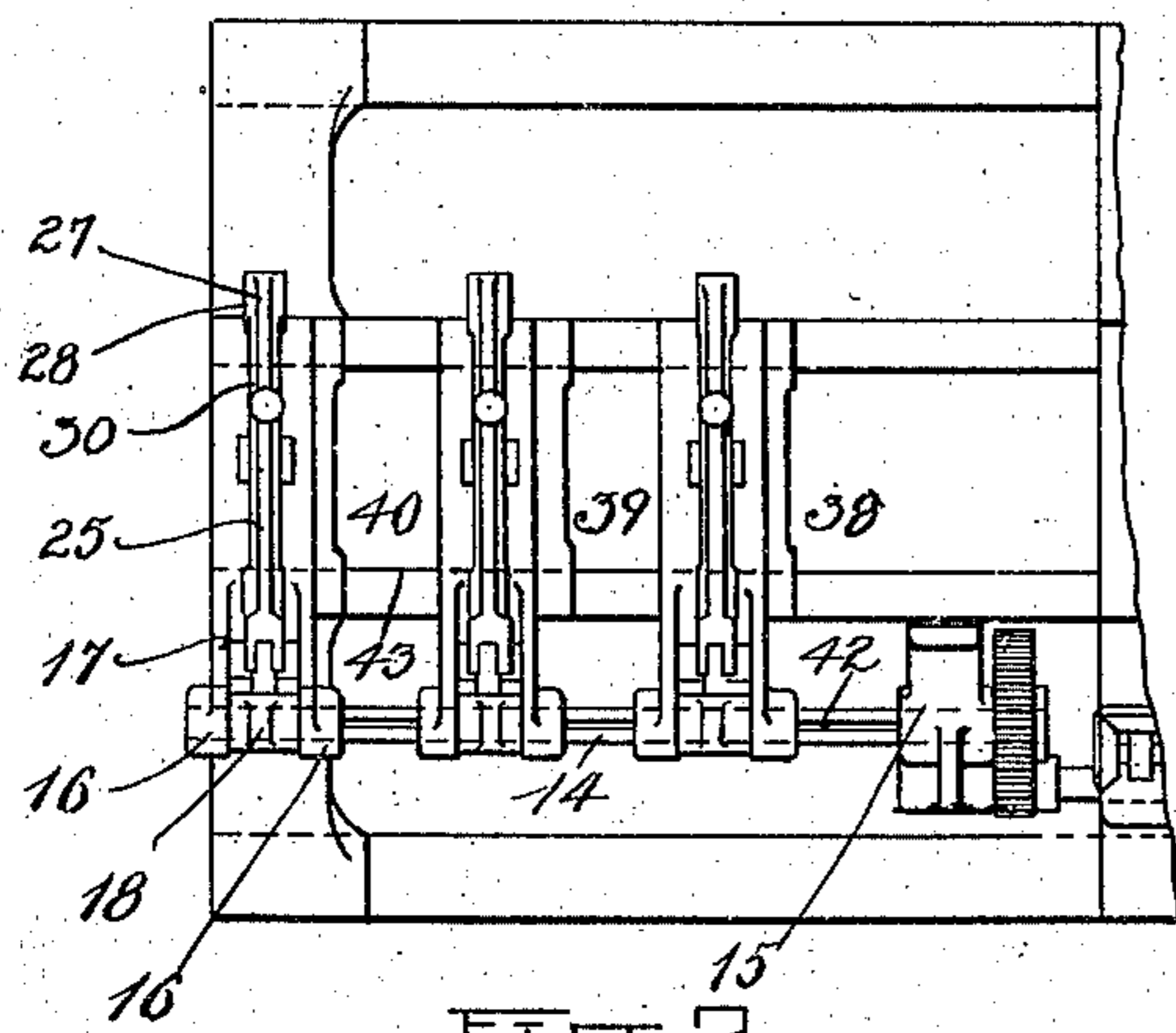


FIG-2-

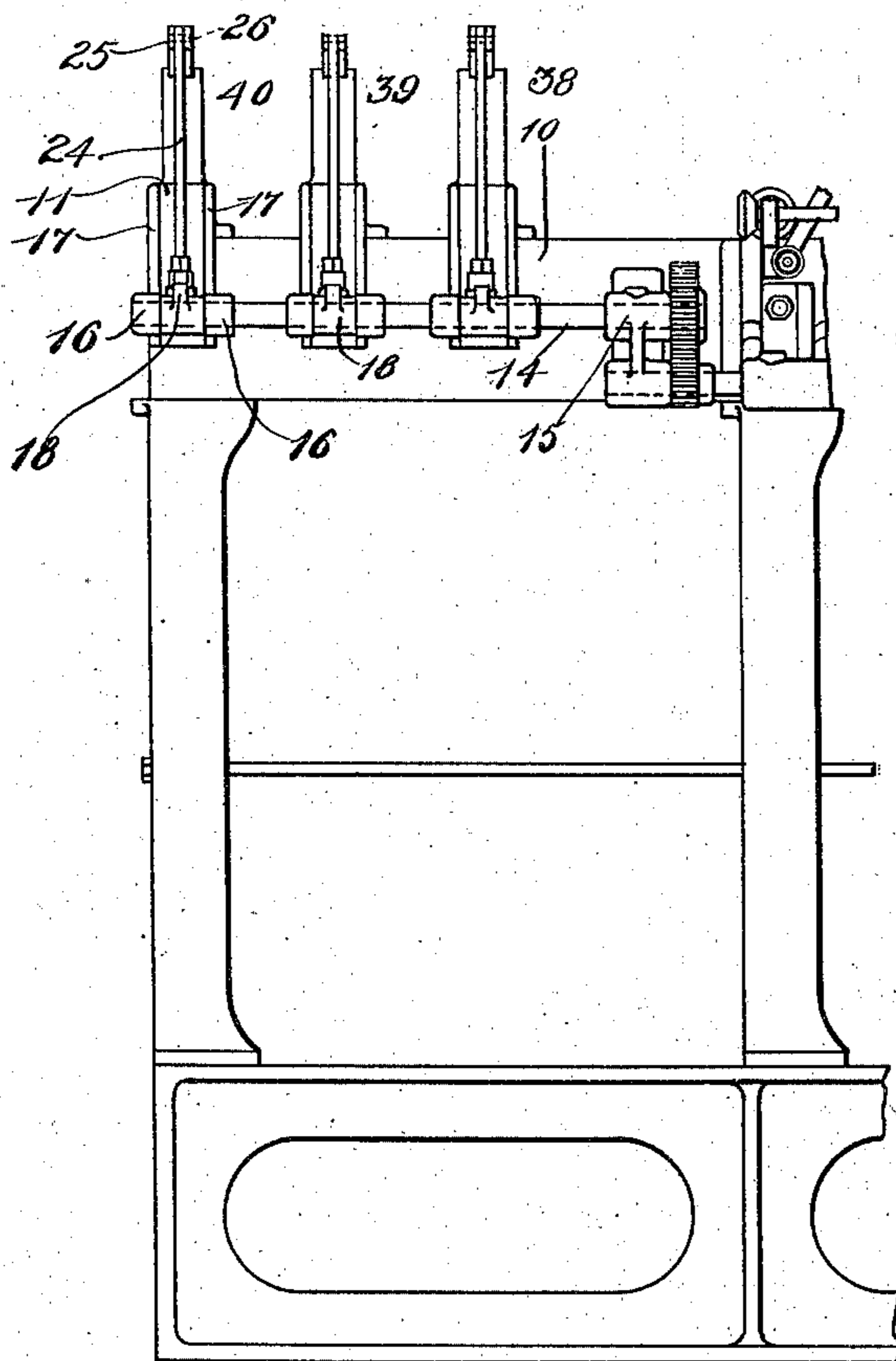


FIG-1-

WITNESSES-
Sydney C. Taft.
Louis A. Jones.

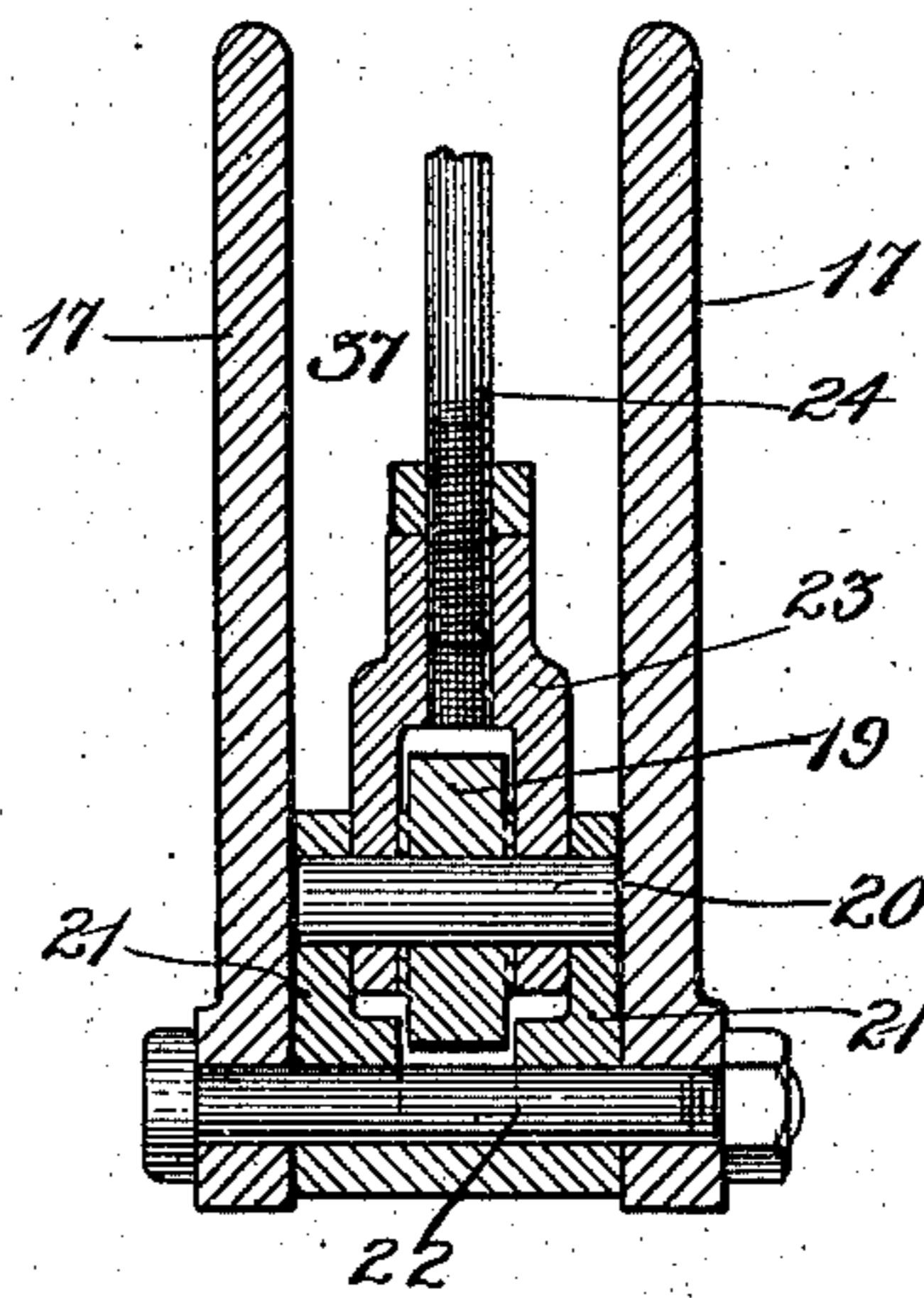


FIG-6-

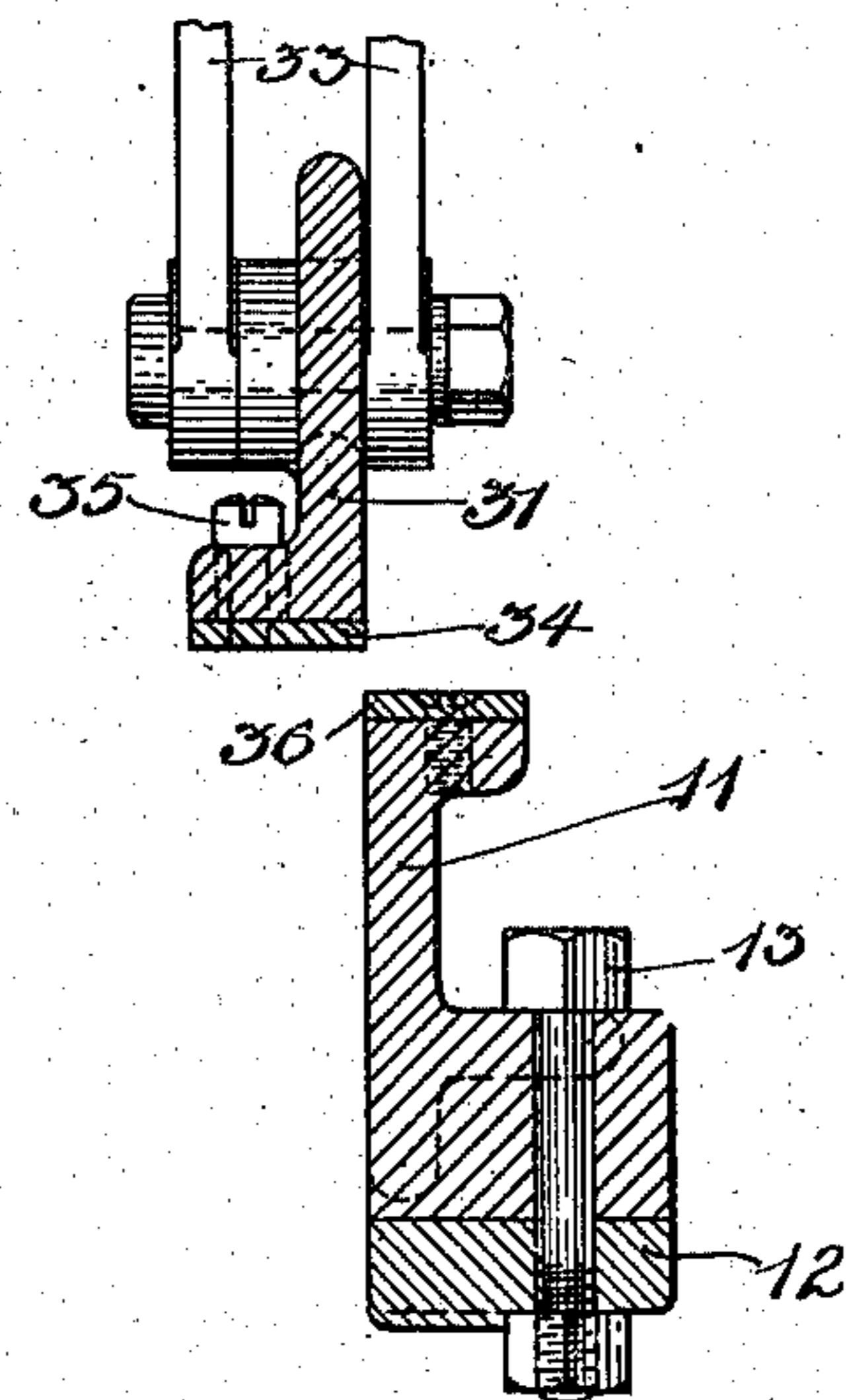


FIG-5-

INVENTOR
George H. Pierce
by his Attorney
Charles S. Gooding.

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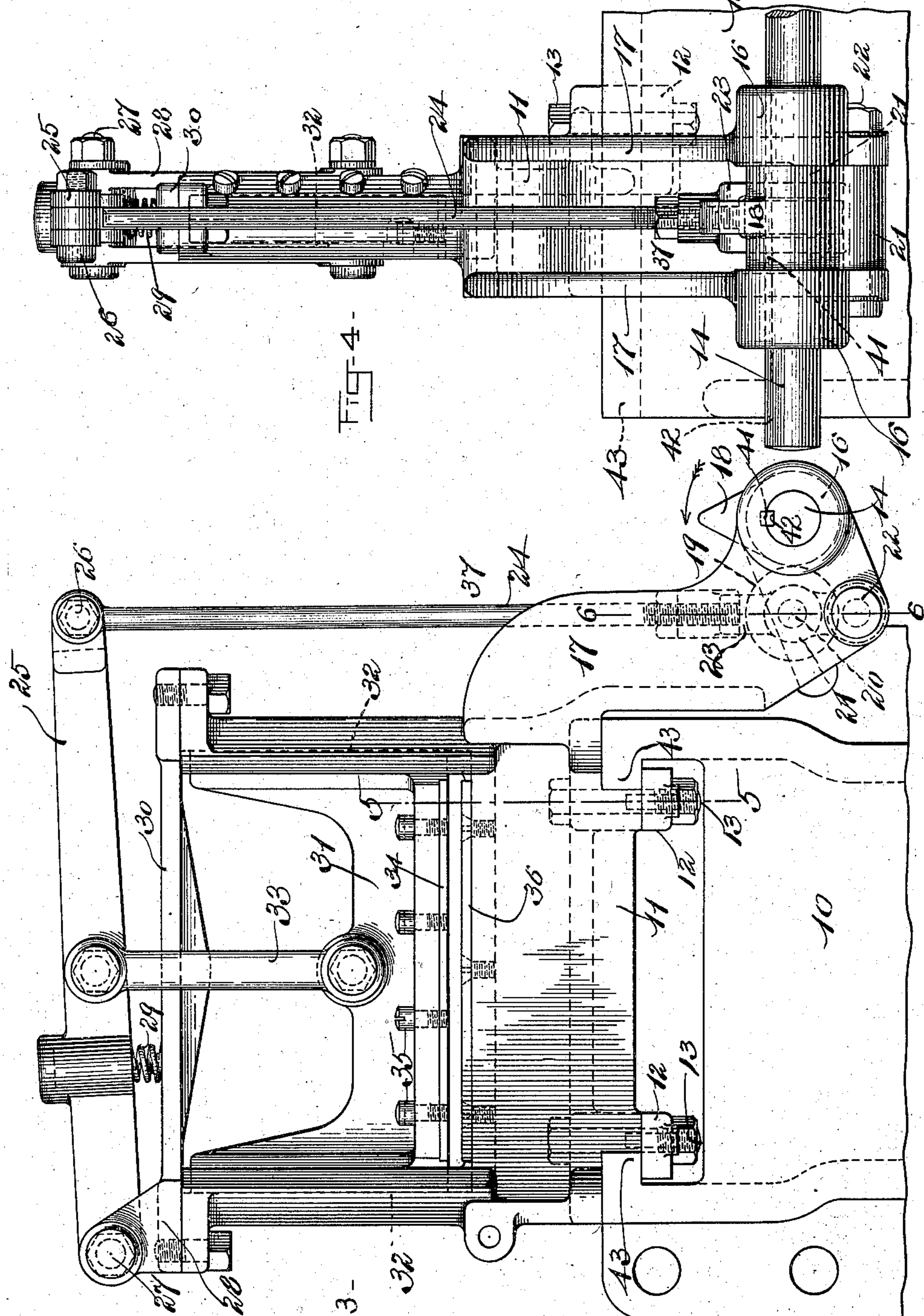
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APPLICATION FILED JAN. 2, 1902.

NO MODEL.

3 SHEETS—SHEET 2.



WITNESSES-

Sydney E. Taft.
Louis A. Jones.

FIG-3-

FIG-4-

INVENTOR-

George H. Pierce.

by his Attorney, Charles S. Goring.

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CUTTING AND PUNCHING MECHANISM FOR PRINTING PRESSES.

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3 SHEETS—SHEET 3.

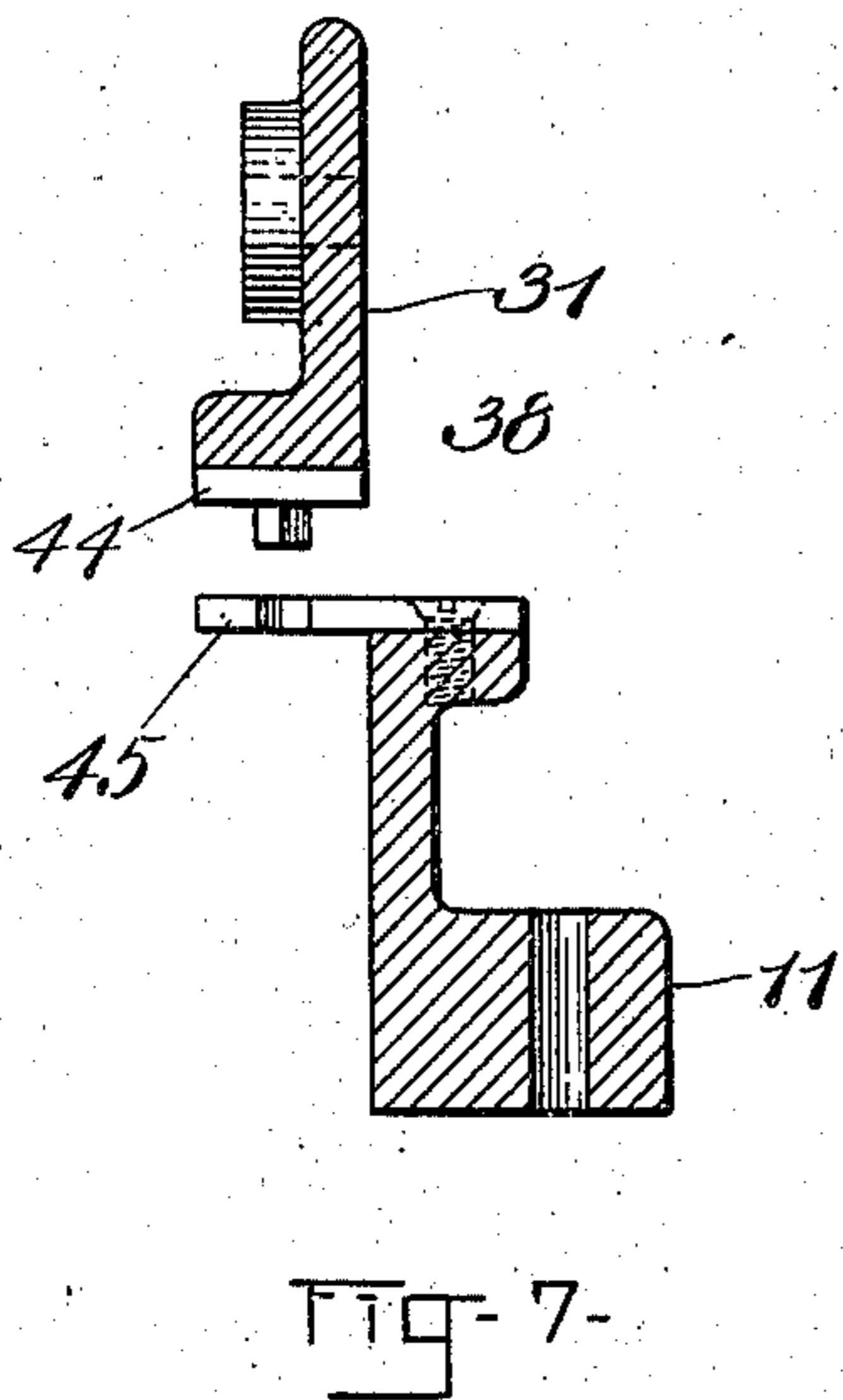


Fig. 8-

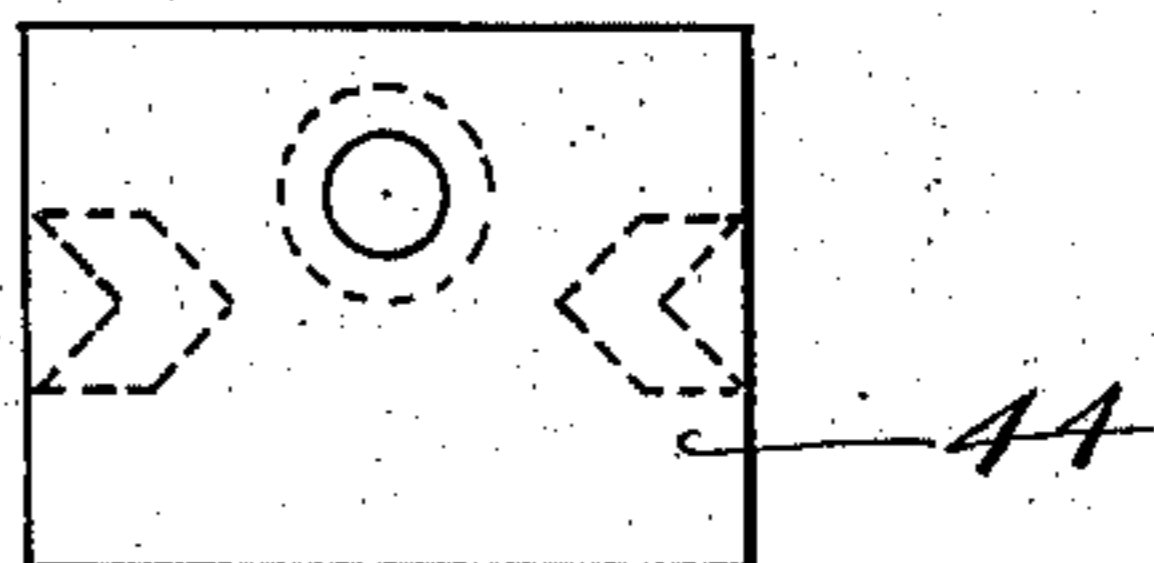


Fig. 9-

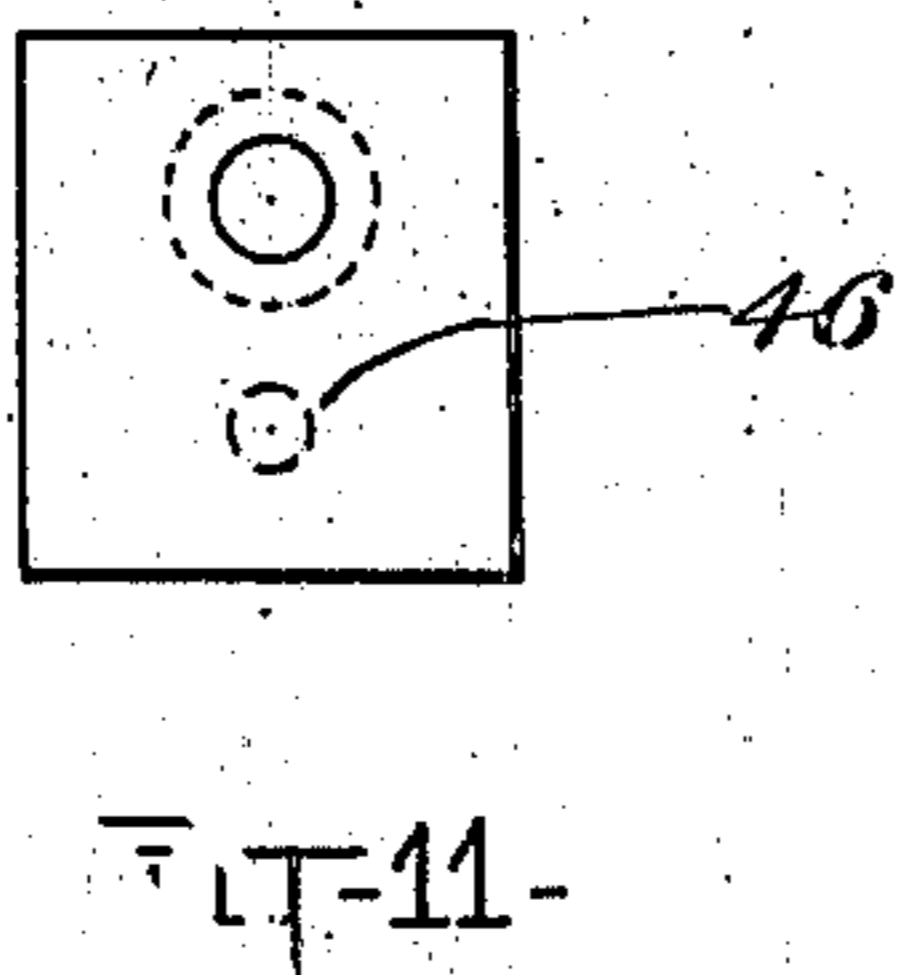
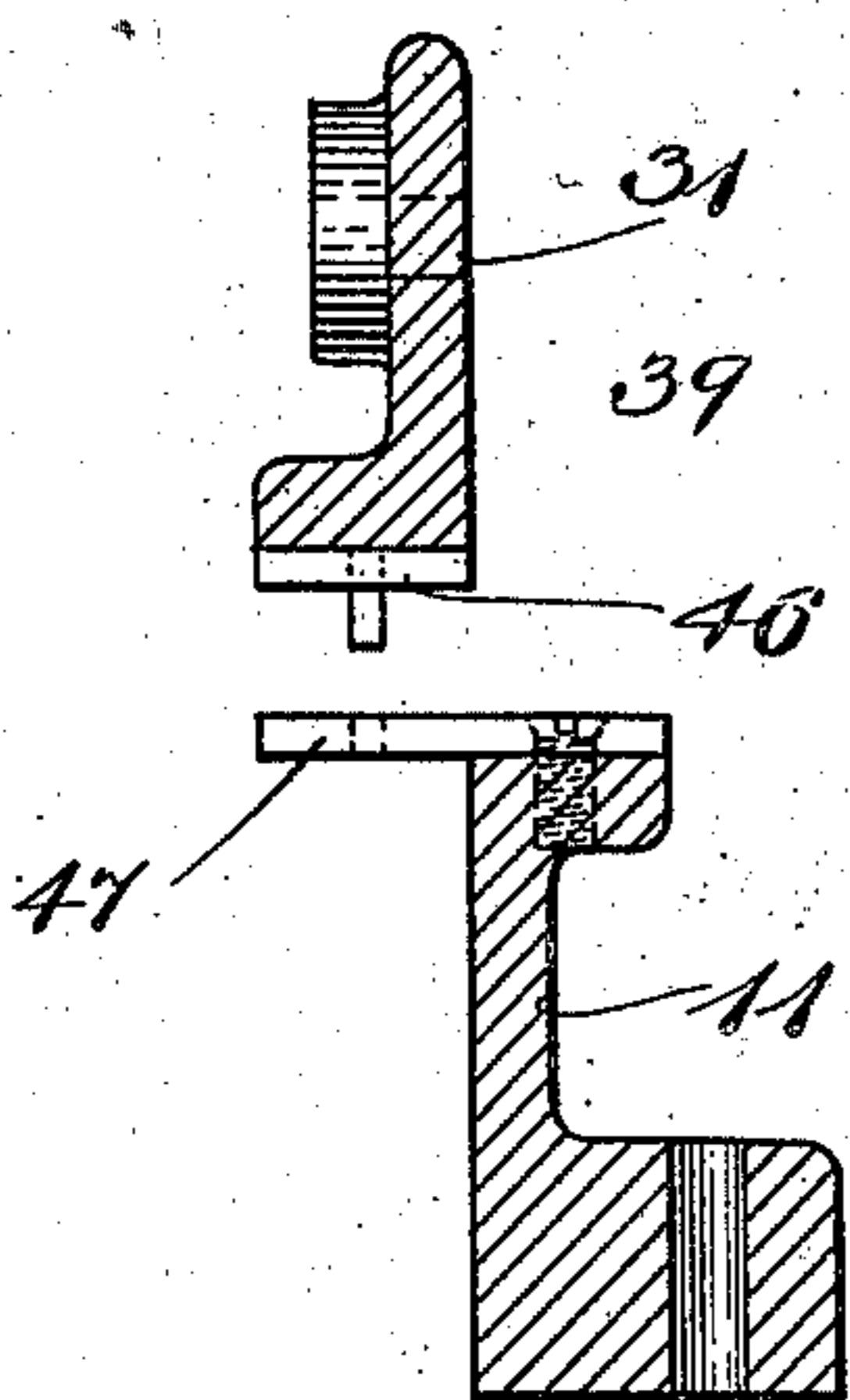
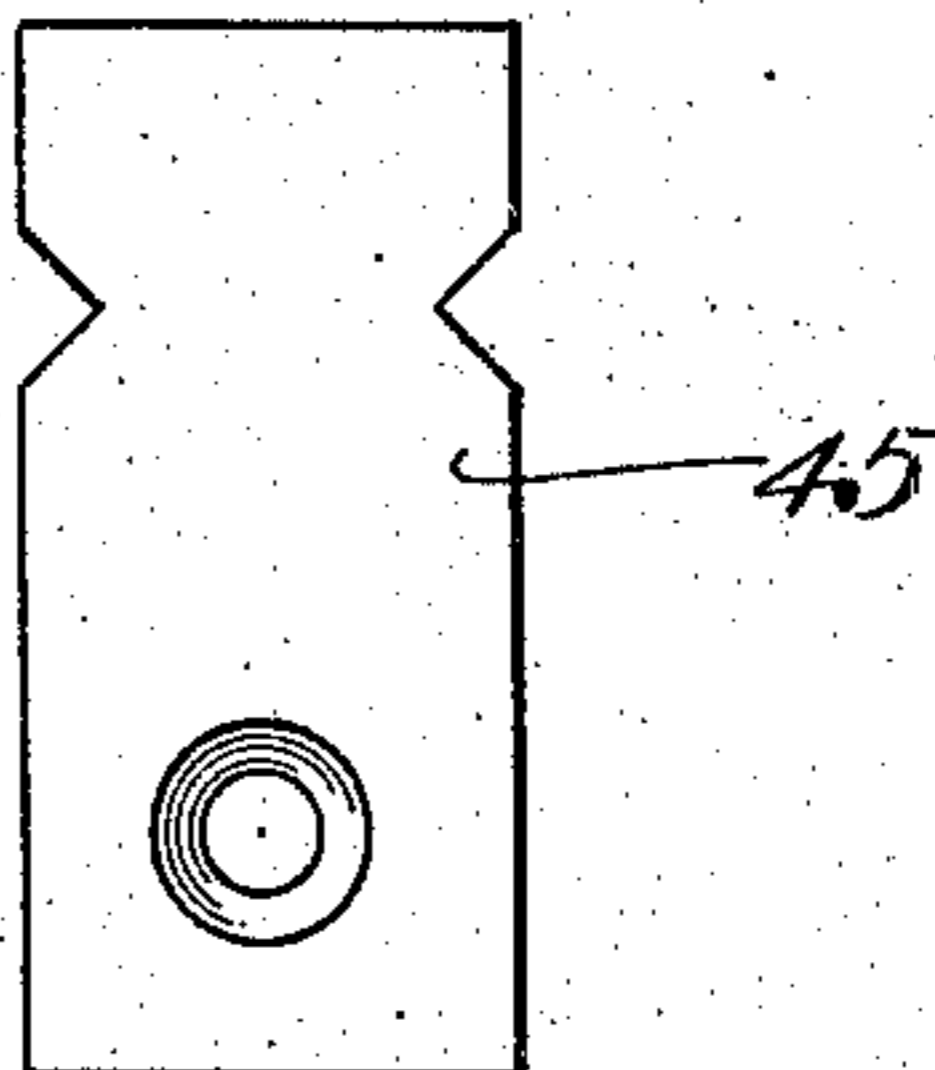


Fig. 11-

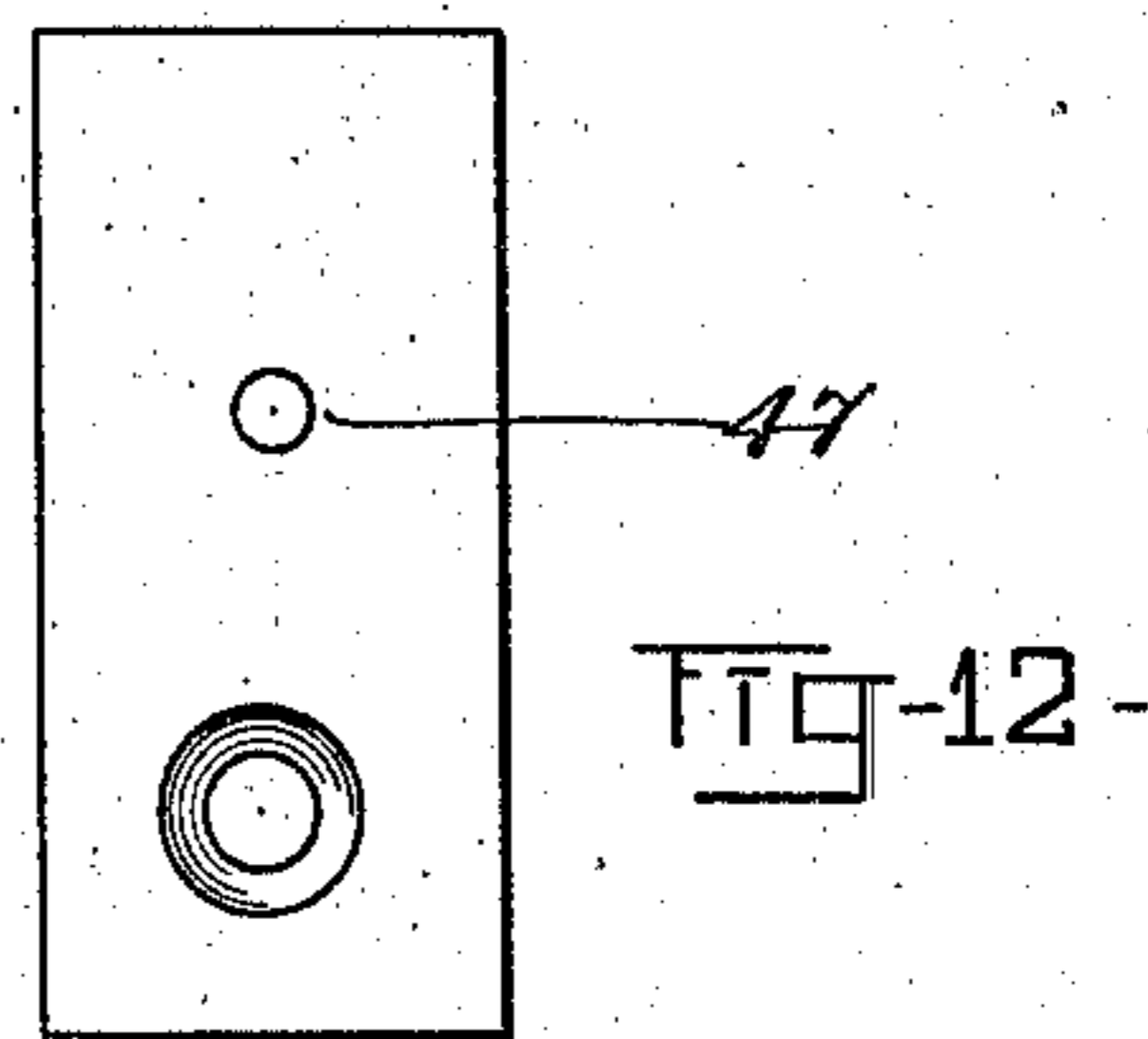
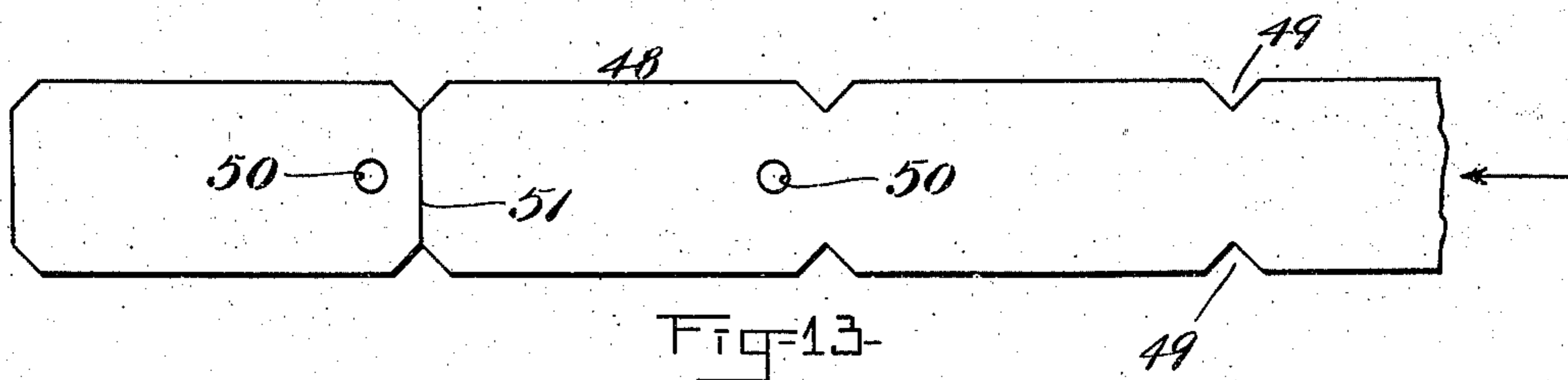


Fig. 12-



WITNESSES-

Samuel C. Taft.
Franklin C. Low.

INVENTOR-

George H. Pierce,
by his Attorney, Charles S. Fording.

UNITED STATES PATENT OFFICE.

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

CUTTING AND PUNCHING MECHANISM FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 723,302, dated March 24, 1903.

Application filed January 2, 1902. Serial No. 88,012. (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 Cutting and Punching Mechanism for Printing-Presses, of which the following is a specification.

This invention relates to mechanism for cutting and punching tickets from a web of paper as it is intermittently fed through a printing-press after the printing upon said paper has been finished.

The invention is particularly adapted to be used in connection with the class of printing-presses set forth in the United States Letters Patent to E. C. Jones and F. L. Jones, "Ticket-printing machine," No. 640,568, dated January 2, 1900, and also in connection with an improvement upon said machine for which I have this day made application for United States Letters Patent.

The object of the invention is to provide a machine for cutting or punching a strip of paper which shall be practical, simple, strong and durable, and easily adjusted.

The invention consists of a main frame, an auxiliary frame adjustable on said main frame, a cutter-actuating mechanism supported on said auxiliary frame, said cutter-actuating mechanism being operated by a cam adjustable lengthwise of the shaft by which it is rotated and adjusted upon said shaft simultaneously with the adjustment of the auxiliary frame on the main frame.

The invention again consists in certain improved mechanisms for actuating a reciprocatory cutter.

The invention still further 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 a portion of a printing-press with my improved cutting and punching mechanism attached thereto. Fig. 2 is a plan view of the same. Fig. 3 is an end elevation of the cutting mechanism, together with a portion of the frame. Fig. 4 is a side eleva-

tion of the mechanism shown in Fig. 3. Fig. 5 is a section taken on line 5 5 of Fig. 3. Fig. 6 is a section taken on line 6 6 of Fig. 3. Fig. 7 is a section similar to Fig. 5, illustrating a V-shaped knife attached to the reciprocatory slide. Fig. 8 is an enlarged detail plan of the V-shaped reciprocatory knife. Fig. 9 is a plan view of the stationary V-shaped knife. Fig. 10 is a section similar to Fig. 5, showing a male and female punch instead of the cutting-knives. Fig. 11 is an enlarged plan view in detail of the male punch. Fig. 12 is a plan view of the female punch. Fig. 13 is a detail view of a web of paper, illustrating the manner in which said web of paper is cut and punched by the machine of this invention.

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

In the drawings, 10 is a portion of the main bed-frame of a printing-press.

11 is an auxiliary frame adjustably fastened to said main frame by a clamp-plate 12 and bolts 13. The main driving-shaft 14 has a bearing in a bracket 15, fast to the main frame 10, and also rotates in bearings 16, formed in the arms 17 17, said arms being integral with the auxiliary frame 11. The cam 18 is splined to the shaft 14 and rotates between the bearings 16 16. Said cam is adapted to be moved lengthwise of the shaft 14 when the auxiliary frame 11 is adjusted lengthwise of the main bed-frame 10, the opposite faces of said cam bearing against the adjacent faces of the bearings 16. The cam 18 is rotated in the direction of the arrow, Fig. 3, and engages a roll 19, journaled upon a pin 20, which passes through and is supported by a forked rocker-arm 21.

The forked rocker-arm 21 is pivoted upon a stud 22, fast to the arms 17 upon the auxiliary frame 11. The pin 20 also passes through the forked connection 23, said connection being connected by a screw-threaded adjustable rod 24 and pin 26 to a lever 25, the rod 24 and forked piece 23 forming a link 37, which connects the rocker-arm 21 to the lever 25. The lever 25 is pivoted at 27 to a bracket 28, fast to the auxiliary frame 11, and is supported by a spring 29, one end of which

bears against said lever, the other against a cross-bar 30, fast to the auxiliary frame 11.

A reciprocatory slide 31 is adapted to move up and down in vertical ways 32, formed in the auxiliary frame 11, and is connected to the lever 25 by a link 33. A cutter 34 is fastened to the reciprocatory slide 31 by screws 35 and coacts with a stationary cutter 36, fast to the auxiliary frame 11 by screws.

The operation of the cutting mechanism hereinbefore described is as follows: The cam 18 is given a rotary motion by the shaft 14 in the direction of the arrow, Fig. 3. Said cam encounters the roll 19 and forces the same toward the left in said Fig. 3, rocking the rocker-arm 21 toward the left in said figure, together with the lower end of the link 37, and drawing the lever 25 downwardly, compressing the spring 29 and forcing the reciprocatory slide 31, together with the cutter 34, downwardly by means of the link 33 connecting said lever and slide until the cutting edge of the cutter 34 passes by the knife 36 and severs a portion of the strip of paper which has previously been fed between said knives from the main body of said strip.

In Figs. 1 and 2 I have indicated three mechanisms 38, 39, and 40, similar to that hereinbefore described. The mechanism 40 is the duplicate in every respect of the cutting mechanism hereinbefore described, and particularly illustrated in Figs. 3, 4, 5, and 6. The mechanism 38 is the duplicate in every respect of the mechanism 40, except that in place of the reciprocatory cutter 34 and the stationary cutter 36 a reciprocatory V-shaped knife 44 and a stationary V-shaped knife 45 are respectively substituted. The mechanism 39 is the duplicate in every respect of the mechanism 40, except that in place of the reciprocatory cutter 34 and stationary cutter 36 are substituted, respectively, a male punch 46 and a stationary female punch or die 47. The web of paper 48, Fig. 13, has a V-shaped portion cut therefrom at 49 by the V-shaped cutters 44 and 45 when it arrives at the mechanism 38. It is then fed forward to the mechanism 39 and has a hole 50 of any desirable shape punched therefrom by the punch 46 and punch or die 47. Upon the next feed the mechanism 40 severs the ticket from the web of paper along the line 51 by means of the cutters 34 and 36. In order that the hole punched in the ticket may be varied in position or in order that the location of the V-shaped piece cut from the strip may be varied and also in order that the distance between the cuts of the cutters 34 and 36, and consequently the length of the tickets, may be varied, the auxiliary frame of either the slitting or punching mechanism or, if desired, of the cutting mechanism, together with the machinery thereon, is moved lengthwise of the bed of the main frame 10 by loosening up the clamp-bolts 13 and sliding the auxiliary frame to the desired location. When this is done, the arms 17 carry the cam

18, held therebetween, lengthwise of the shaft 14, the spline 41 moving therewith along a keyway 42, cut in the shaft 14. When the frame has been moved to the desired location, the clamp-bolts 13 are tightened, bringing the clamp-plates 12 against the flanges 43 43 upon the main frame 10, and thus securely fastening the auxiliary frame thereto.

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

1. In a machine for cutting tickets from a web of paper, a main frame, an auxiliary frame adjustable on said main frame, longitudinally of said web of paper, a cutter-actuating mechanism supported upon said auxiliary frame, a rotary shaft journaled on said main frame, a cam on said shaft adjustable lengthwise thereof and operatively connected to said cutter mechanism, and means fast to said auxiliary frame to engage said cam; all so constructed and arranged that when said auxiliary frame and cutter mechanism are adjusted a certain distance longitudinally of said web of paper, said cam will be adjusted a like distance longitudinally of said shaft.

2. In a machine for cutting tickets from a web of paper, a main frame, an auxiliary frame adjustable on said main frame, longitudinally of said web of paper, a stationary cutter and a movable cutter supported upon said auxiliary frame, a rotary shaft journaled on said main frame, a cam on said shaft adjustable lengthwise thereof and operatively connected to said movable cutter, mechanism supported upon said adjustable auxiliary frame operated by said cam and actuating said movable cutter, and means fast to said auxiliary frame to engage said cam; all so constructed and arranged that when said auxiliary frame and cutter mechanism are adjusted a certain distance longitudinally of said web of paper, said cam will be adjusted a like distance longitudinally of said shaft.

3. In a machine for cutting tickets from a web of paper, a main frame, a rotary shaft journaled upon said main frame, a cam splined to said shaft and adjustable longitudinally thereof, and an auxiliary frame adjustable on said main frame, longitudinally of said web of paper, and engaging opposite faces of said cam; all so constructed and arranged that when said auxiliary frame is adjusted a certain distance longitudinally of said web of paper, said cam will be adjusted a like distance longitudinally of said shaft.

4. In a machine for cutting tickets from a web of paper, a main frame, a rotary shaft, a cam splined to said shaft and adjustable longitudinally thereof, and an auxiliary frame adjustable on said main frame, longitudinally of said web of paper, and having bearings thereon in which said shaft is journaled, said bearings engaging opposite faces of said cam; all so constructed and arranged that when said auxiliary frame is adjusted a certain distance longitudinally of said web of

paper, said cam will be adjusted a like distance longitudinally of said shaft.

5. In a machine for cutting tickets from a web of paper, a main frame, a rotary shaft journaled upon said main frame, a cam splined to said shaft and adjustable longitudinally thereof, an auxiliary frame adjustable on said main frame, longitudinally of said web of paper and engaging opposite faces of said cam, a stationary cutter fast to said auxiliary frame, a reciprocatory slide, a cutter fast to said slide, and mechanism supported upon said adjustable auxiliary frame, operated by said cam, to impart motion to said reciprocatory slide; all so constructed and arranged that when said auxiliary frame and cutter mechanism are adjusted a certain distance longitudinally of said web of paper, said cam will be adjusted a like distance longitudinally of said shaft.

6. In a machine for cutting tickets from a web of paper, a main frame, a rotary shaft

journaled upon said main frame, a series of auxiliary frames adjustable on said main frame, longitudinally of said web of paper, a stationary and a movable cutter upon each of said auxiliary frames, mechanism supported upon each of said auxiliary frames to actuate said movable cutters, a series of cams splined to said shaft, and arms upon said auxiliary frames engaging opposite faces of each of said cams; all so constructed and arranged that when said auxiliary frames and cutter mechanisms are adjusted a certain distance longitudinally of said web of paper, said cams will be adjusted a like distance longitudinally of said shaft.

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

GEORGE H. PIERCE.

Witnesses:

CHARLES S. GOODING,
WILLIAM CLAUS.