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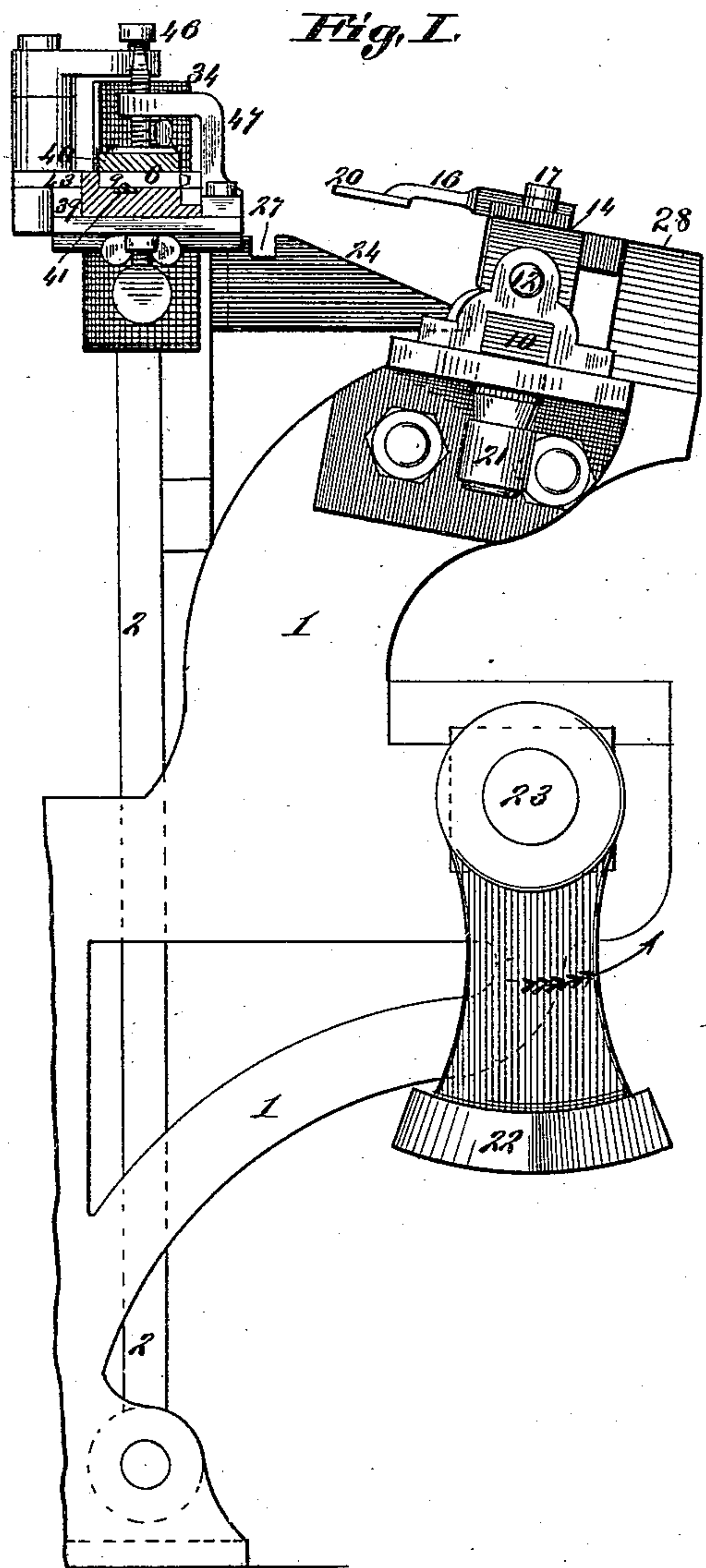
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J. G. PAVYER.

## TYPE CASTING AND DRESSING MACHINE.

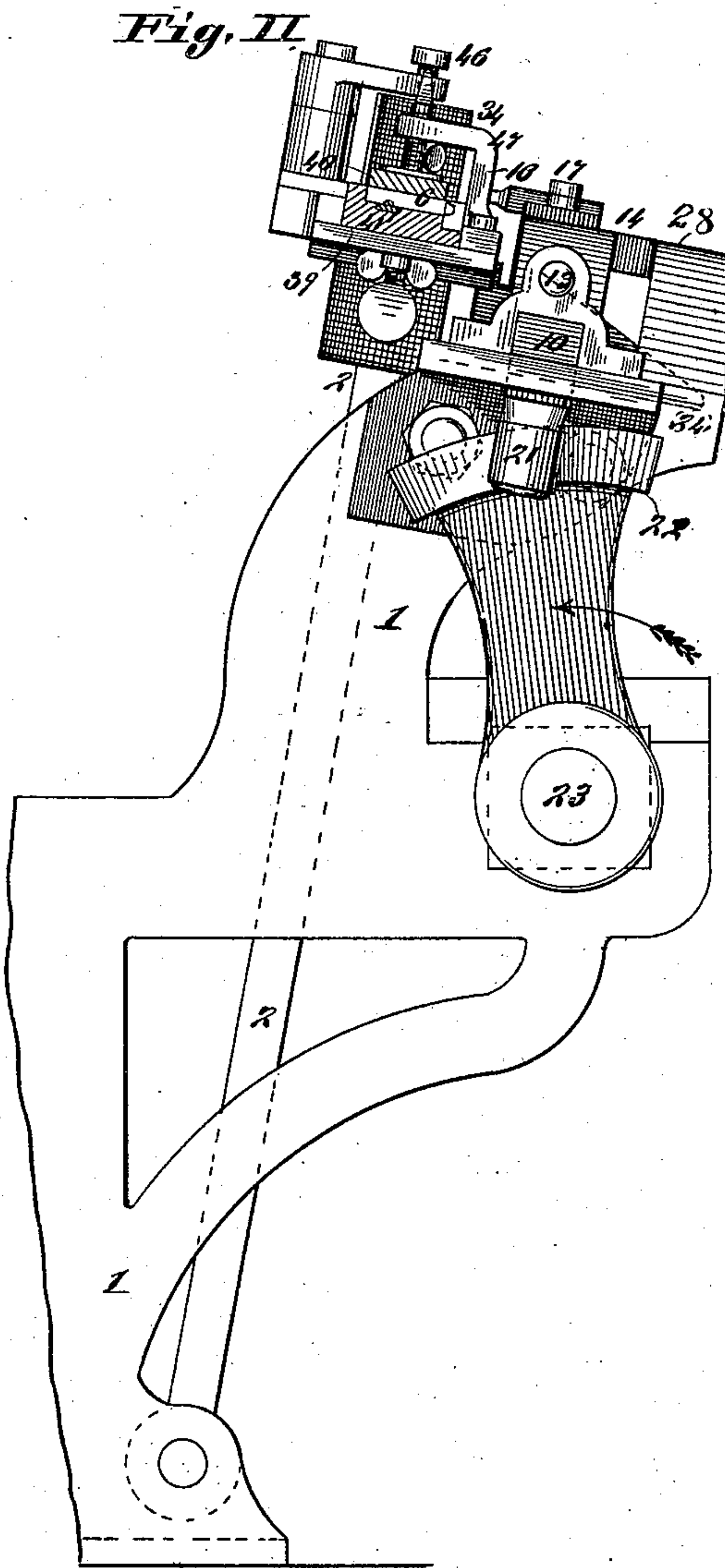
No. 471,890.

Patented Mar. 29, 1892.



*Attest,*

Harry S. Rohrer.  
S. Cotton



*Inventor,*

James G. Farger.

Fr. Knight Bro.

atlys.

(No Model.)

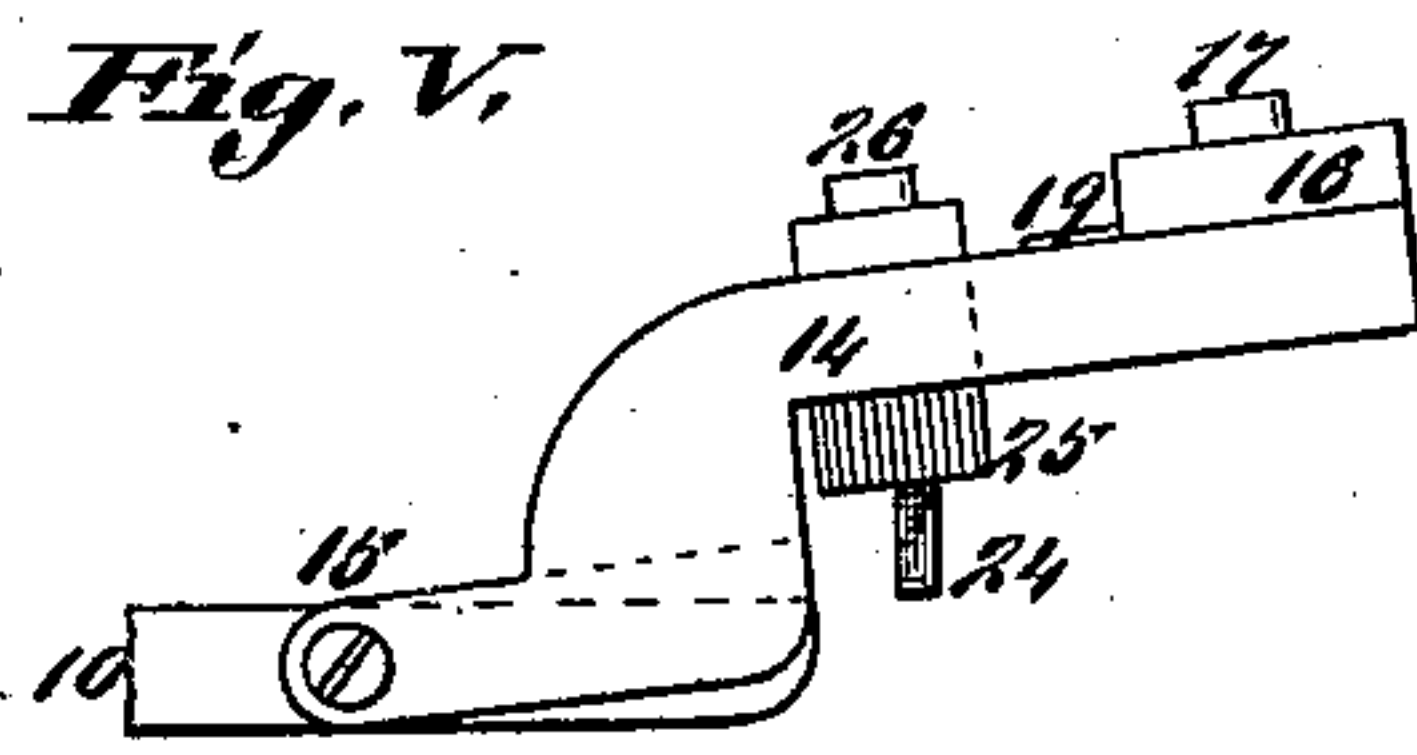
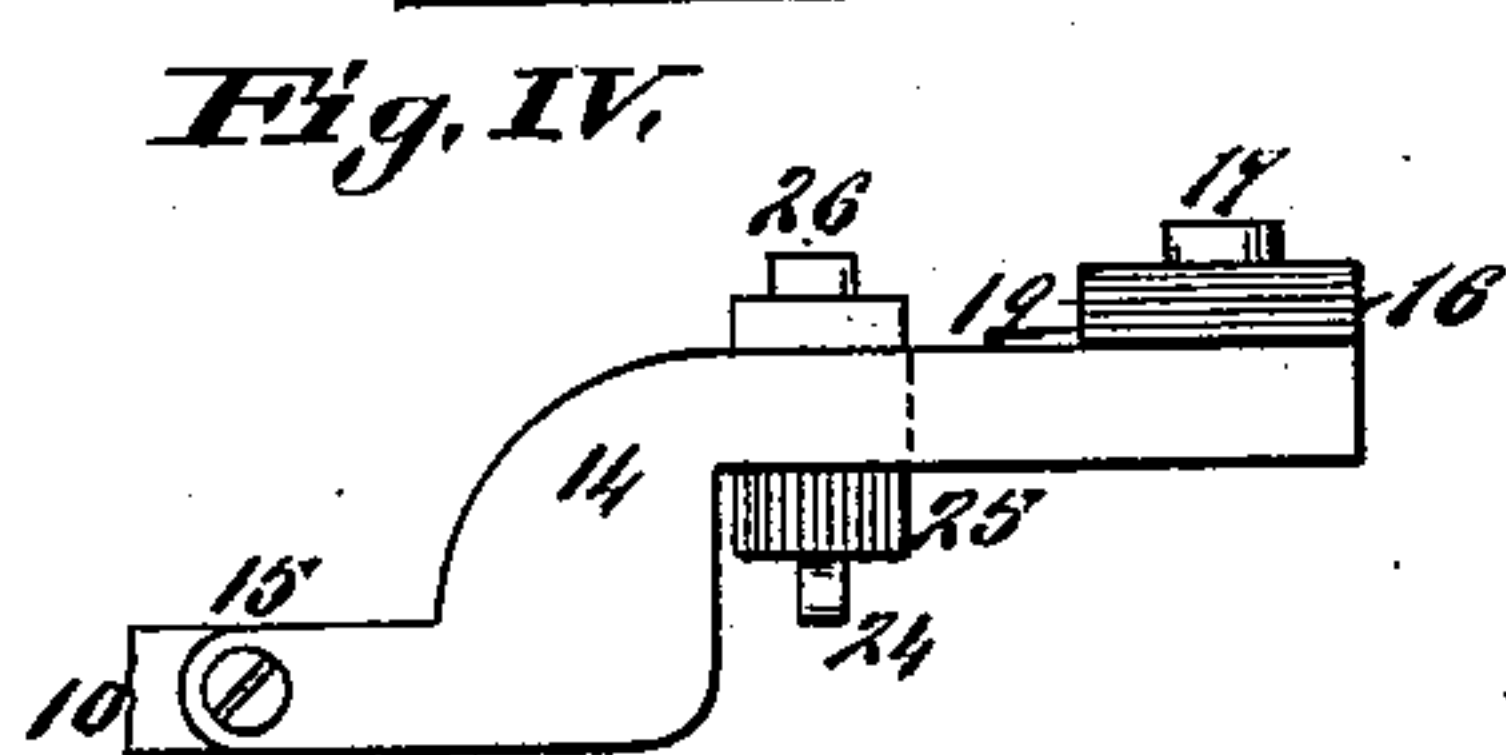
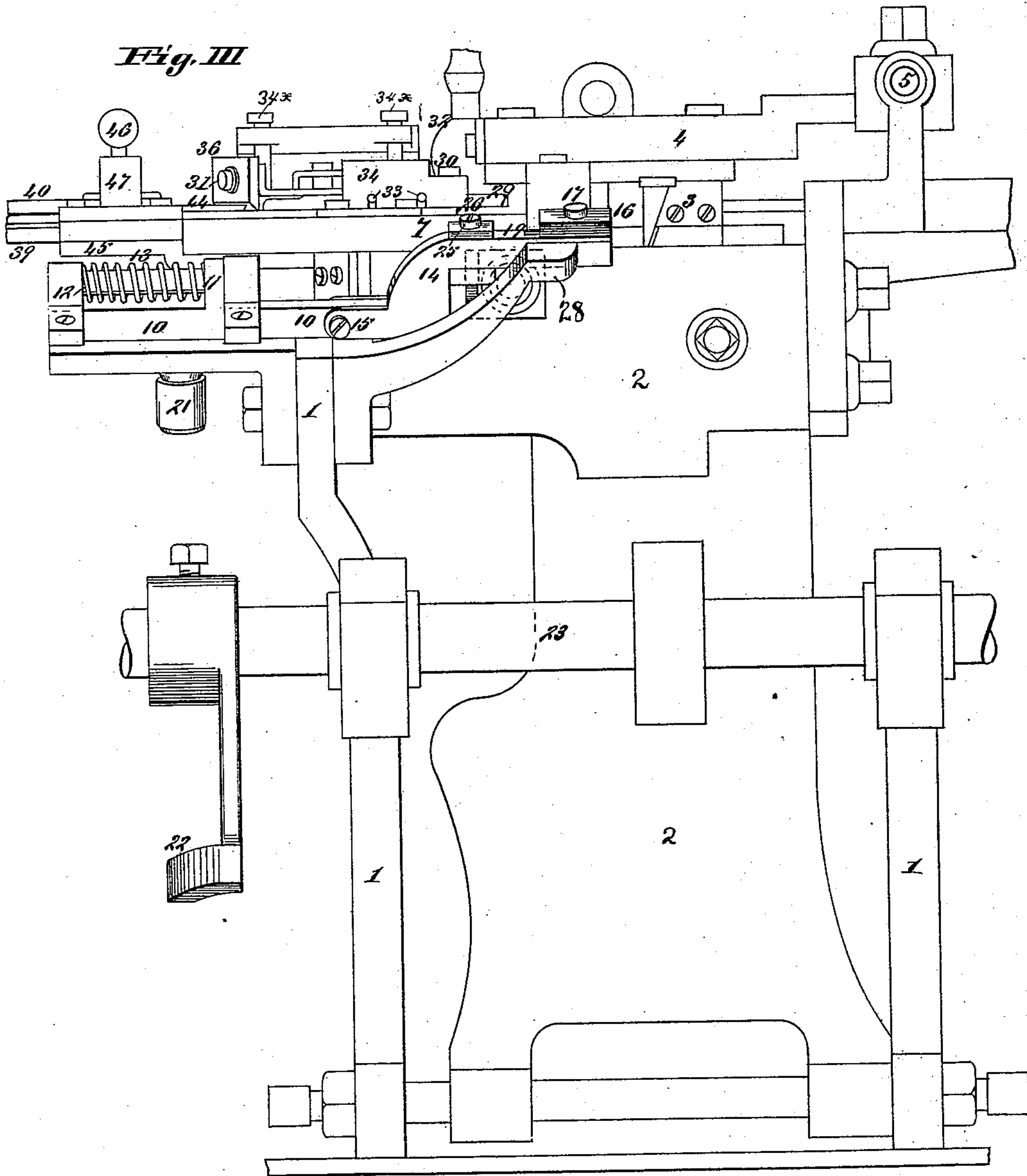
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J. G. PAVYER.

TYPE CASTING AND DRESSING MACHINE.

No. 471,890.

Patented Mar. 29, 1892.



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*Harry S. Rohrer.*  
*S. Cotton*

*Inventor:*  
*James G. Pavyer.*  
*By Knight Bros.*  
*attys.*

(No Model.)

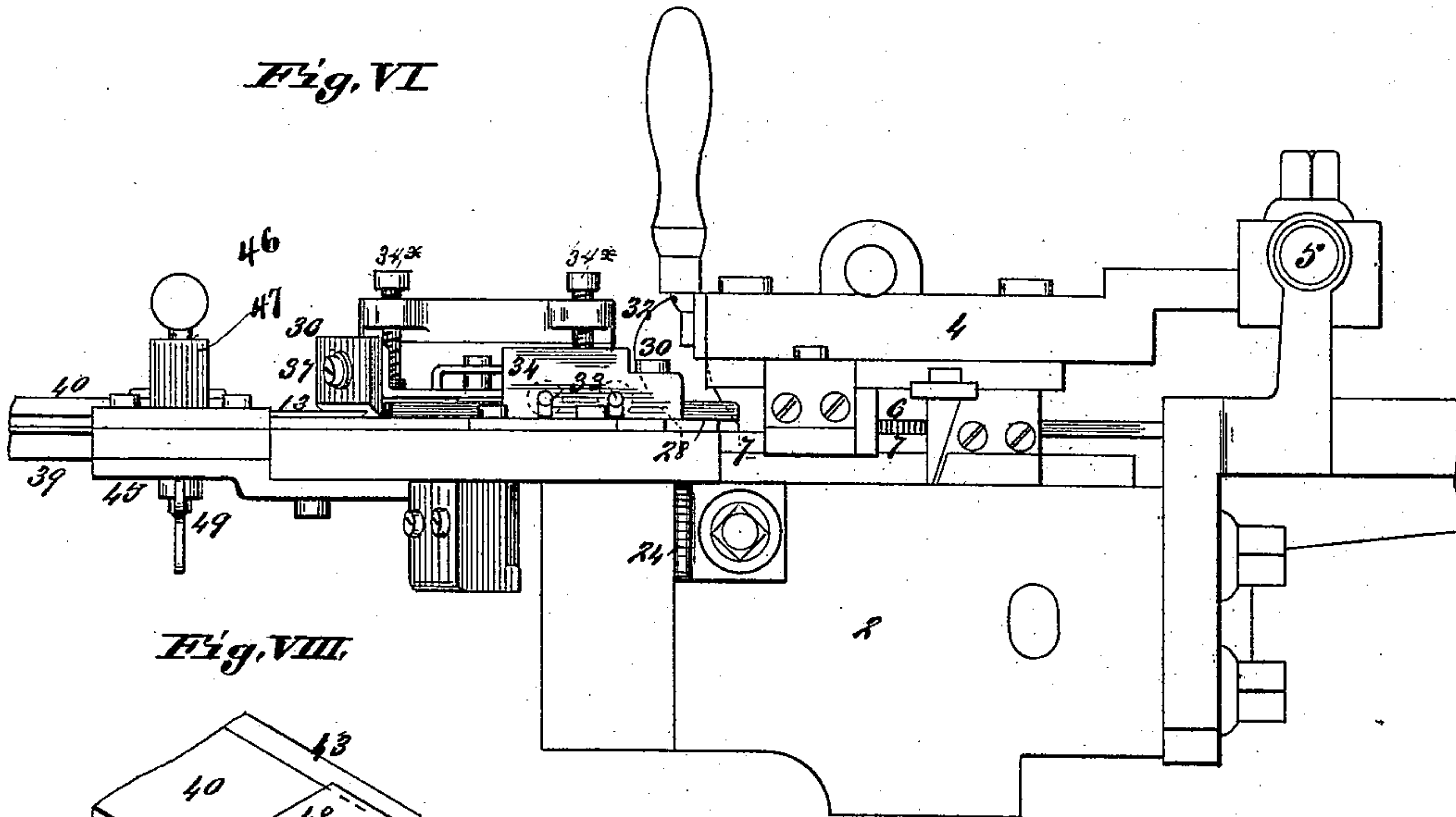
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J. G. PAVYER.  
TYPE CASTING AND DRESSING MACHINE.

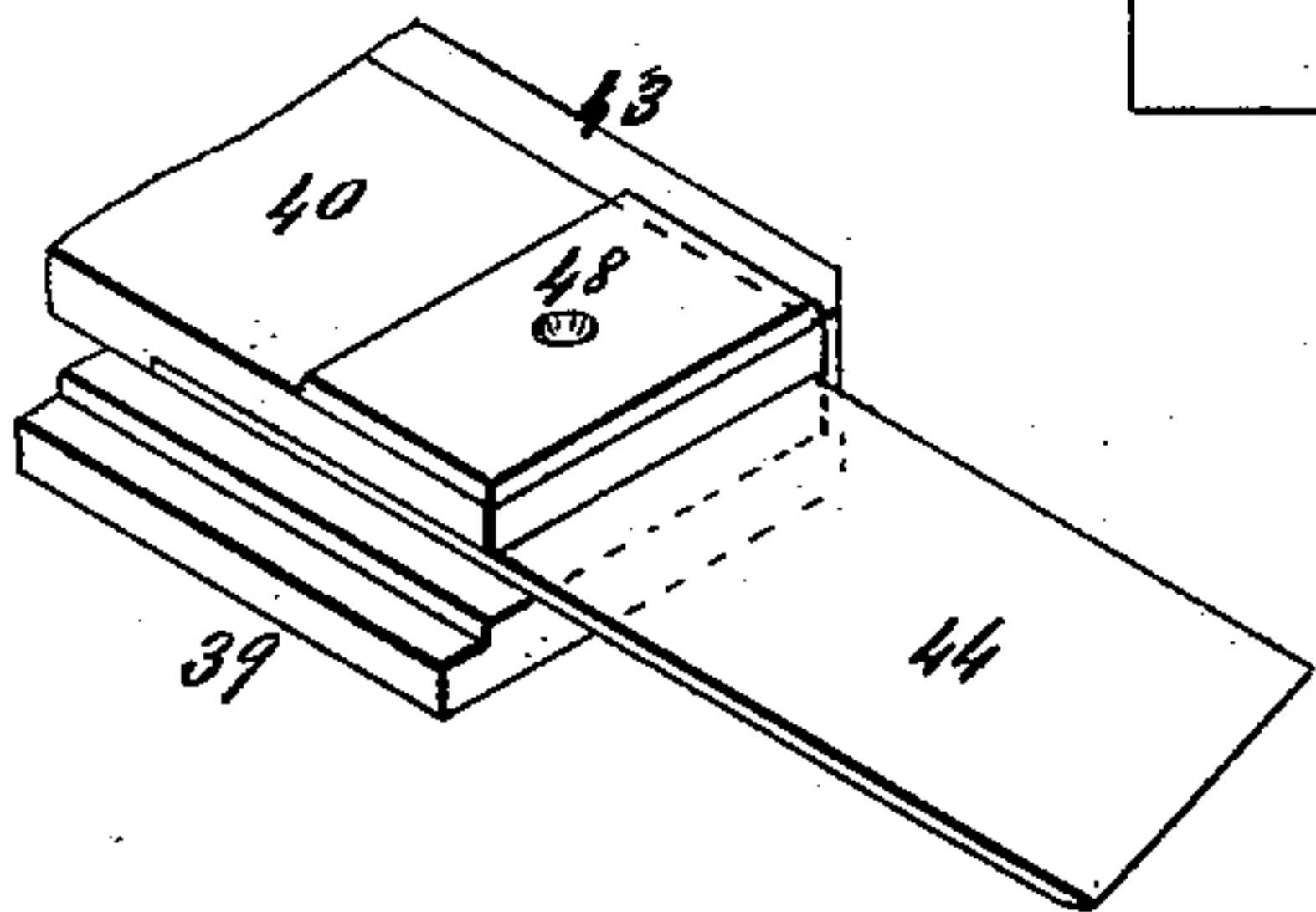
No. 471,890.

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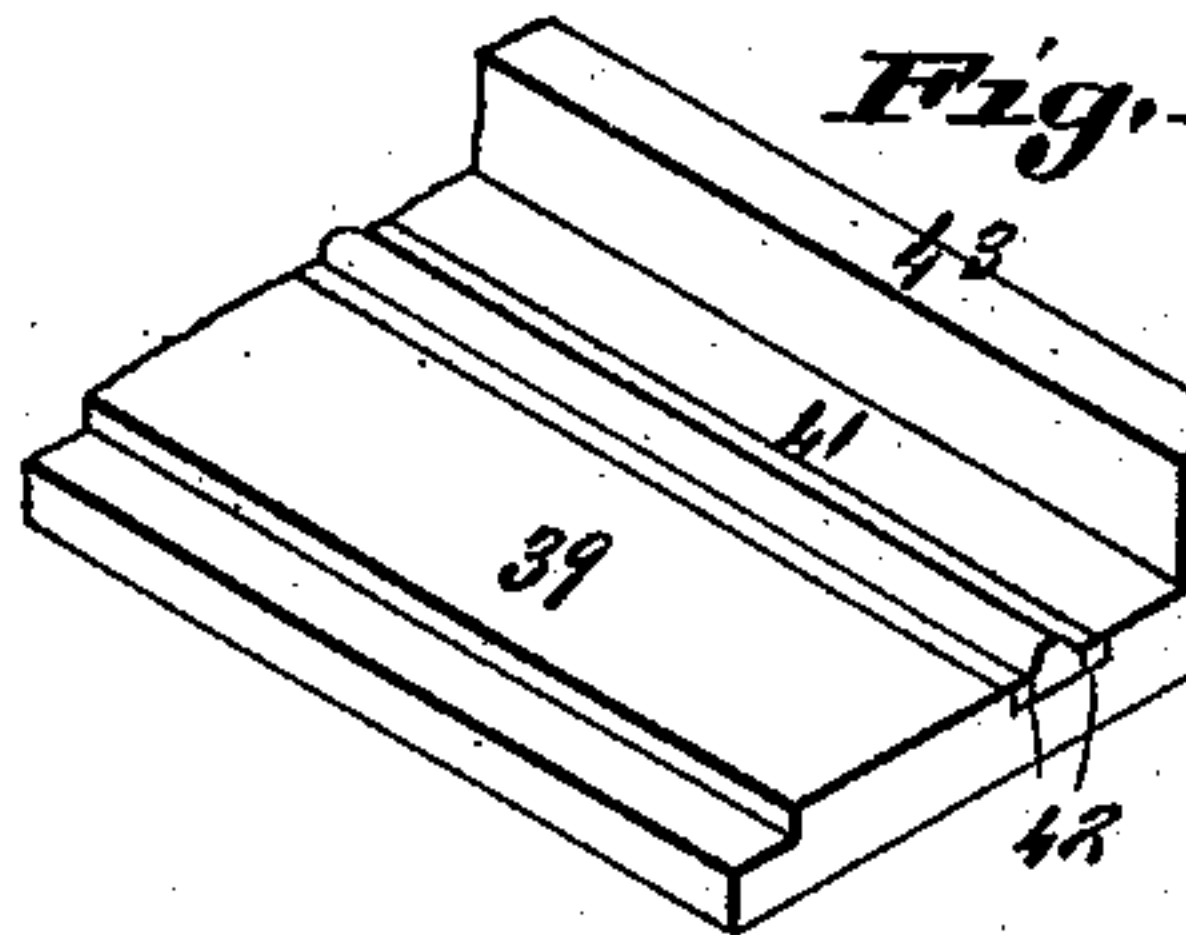
*Fig. VI*



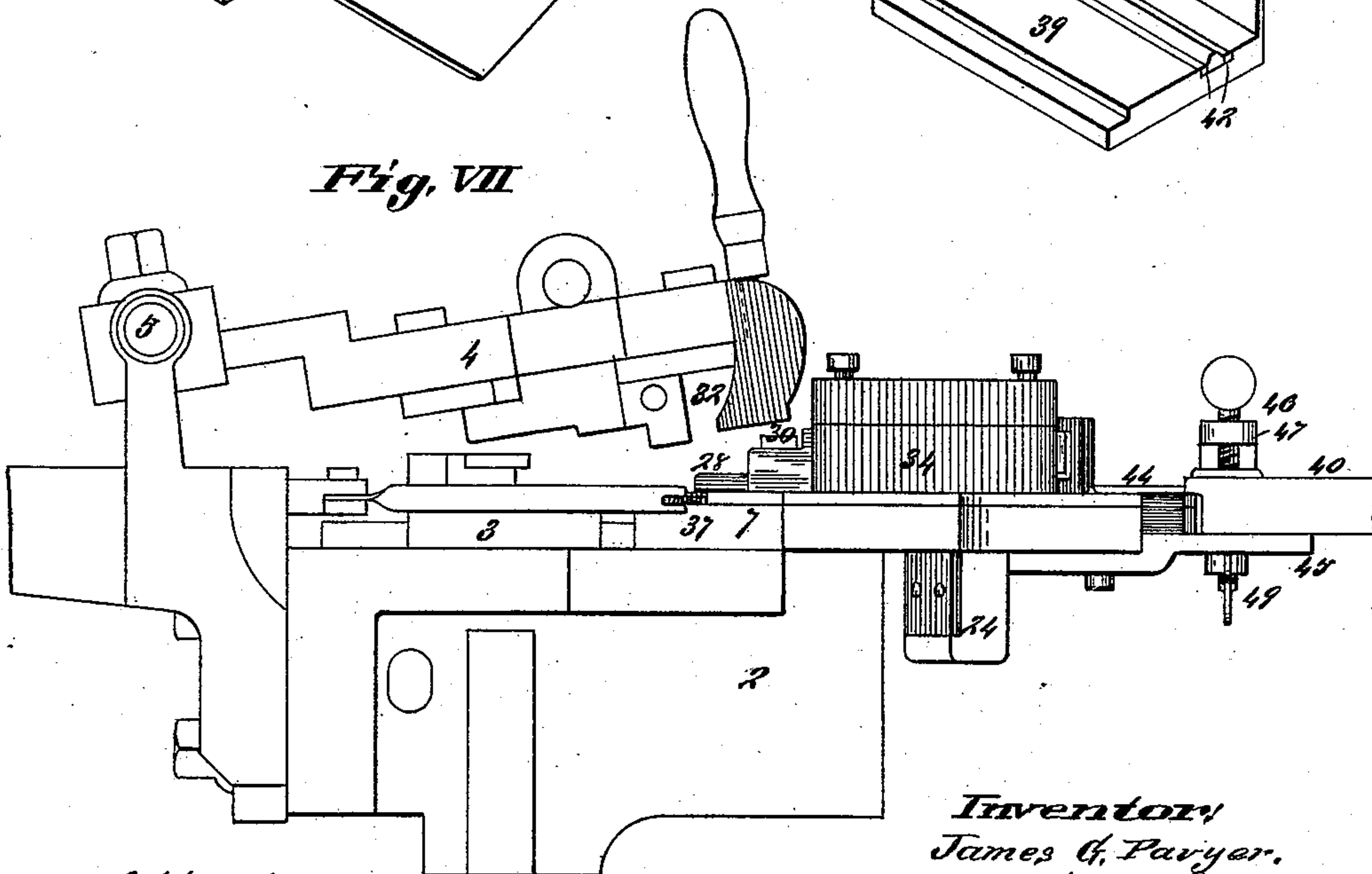
*Fig. VIII*



*Fig. IX*



*Fig. VII*



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*Harry S. Rohrer*  
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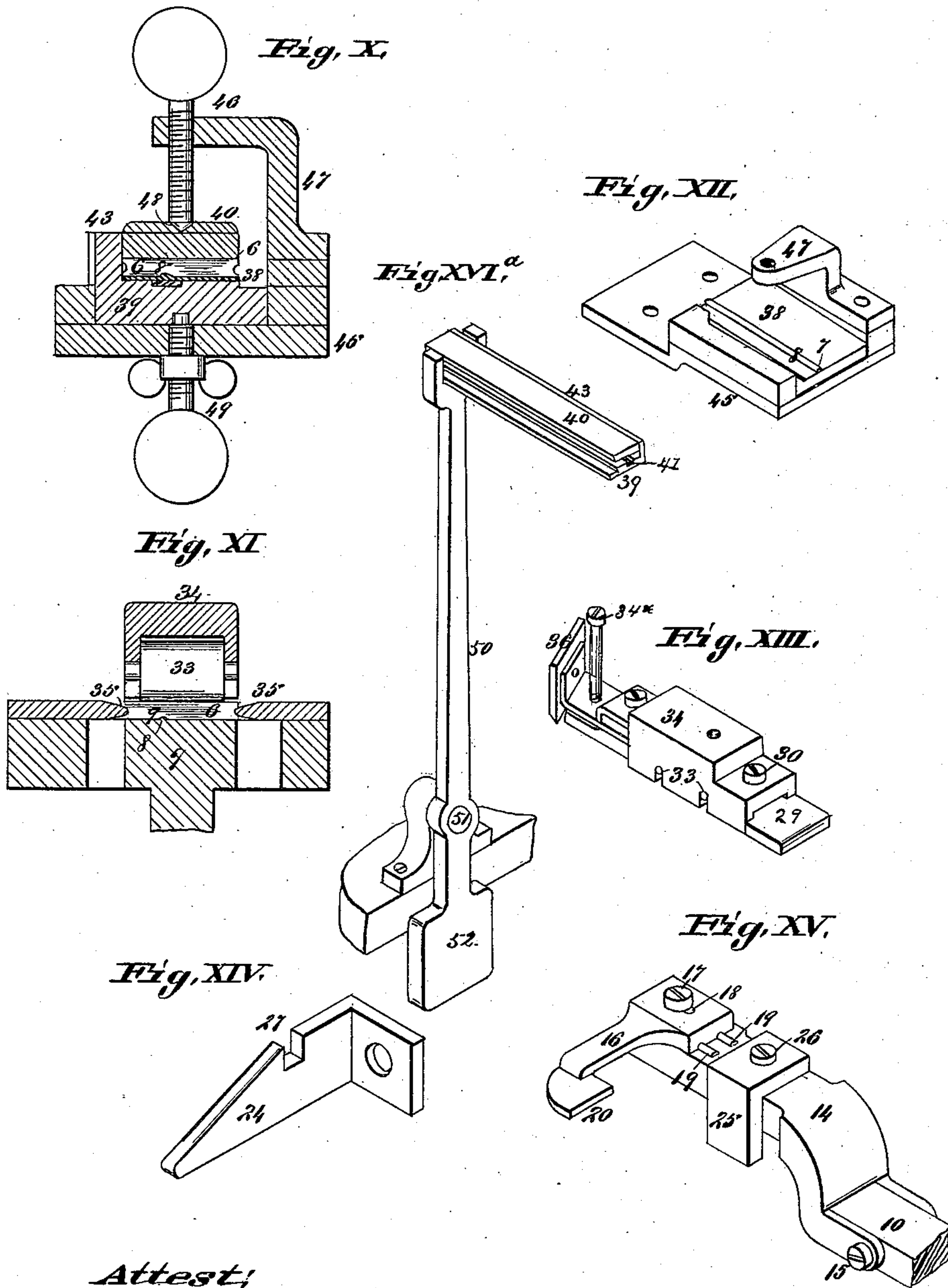
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J. G. PAVYER.  
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No. 471,890.

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Attest;

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(No Model.)

5 Sheets—Sheet 5.

J. G. PAVYER.  
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Fig. XVI

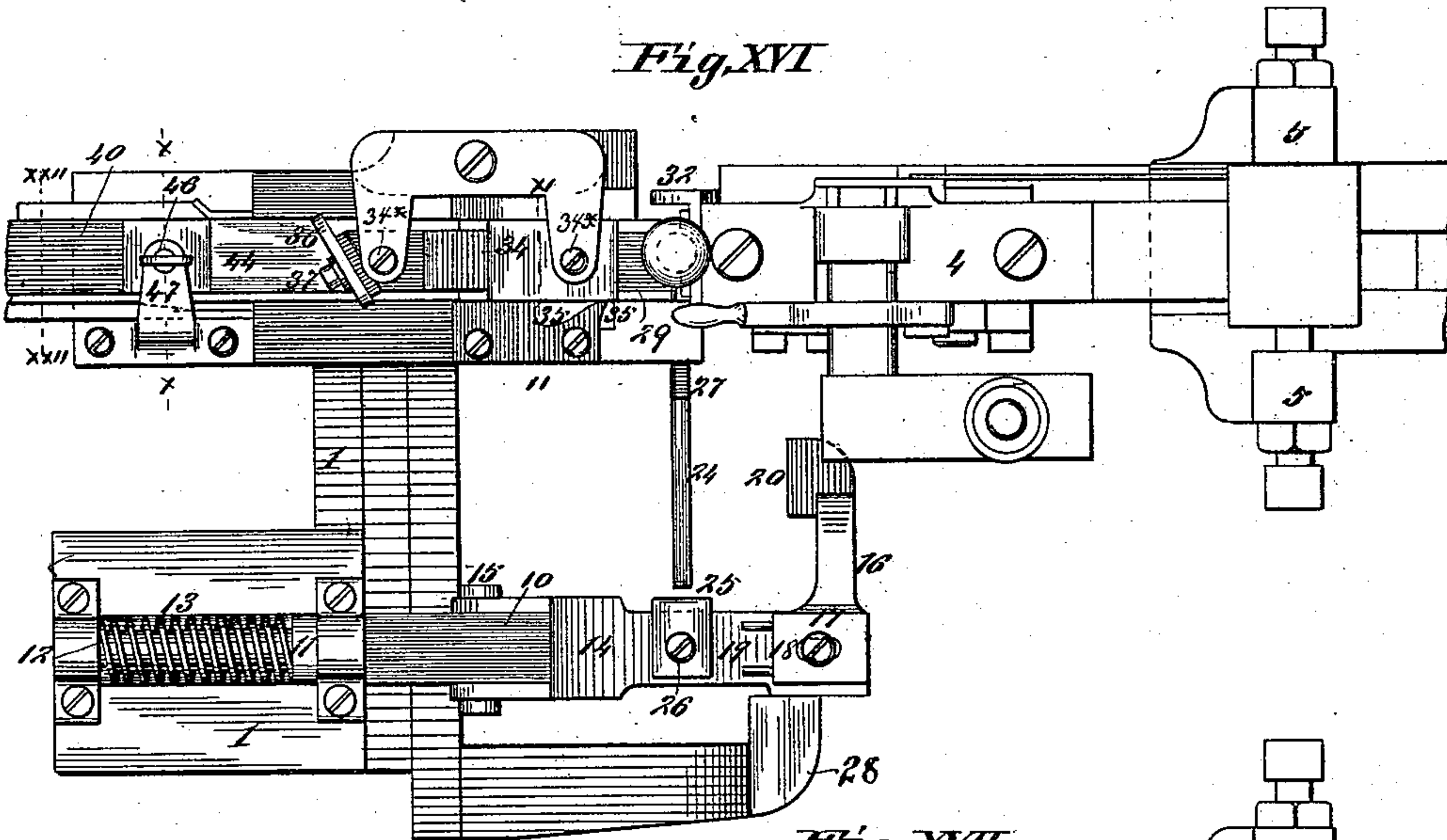


Fig. XVII

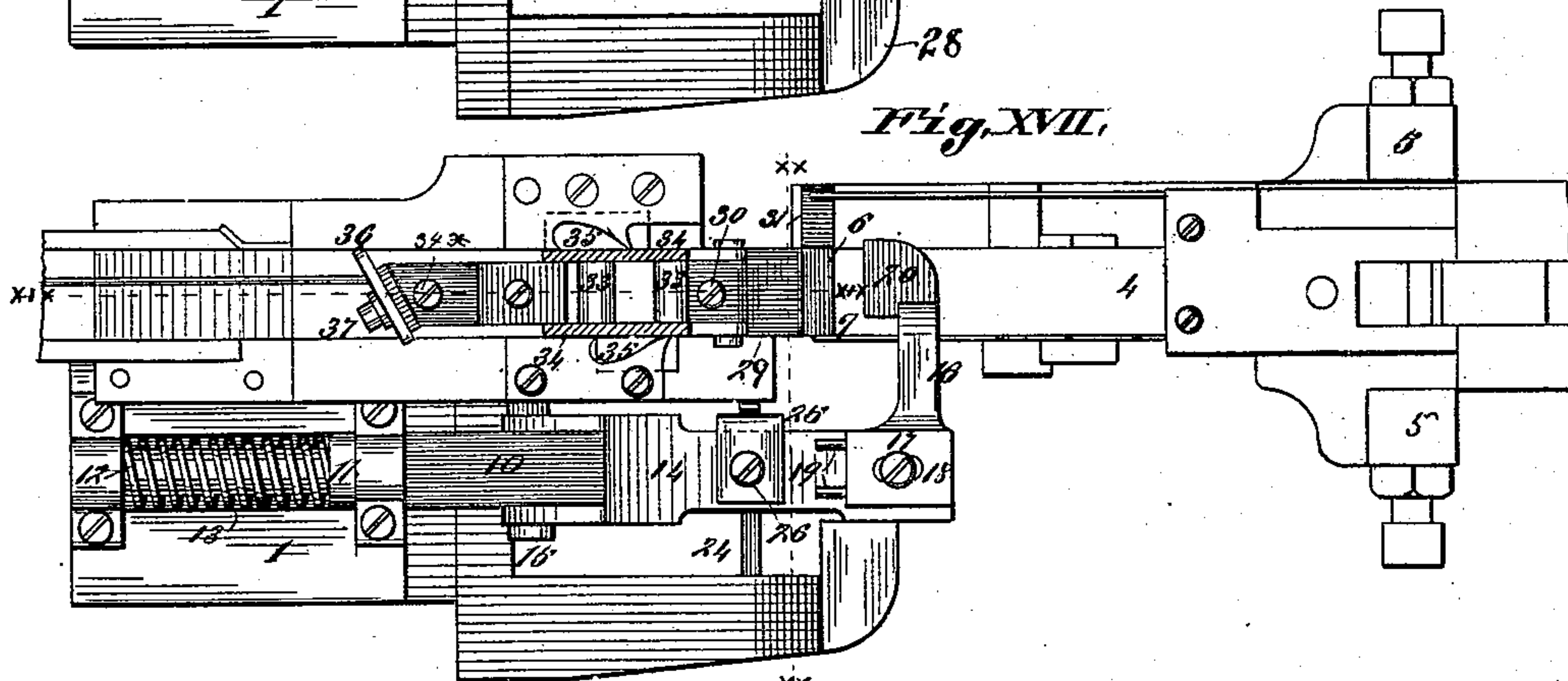


Fig. XVIII

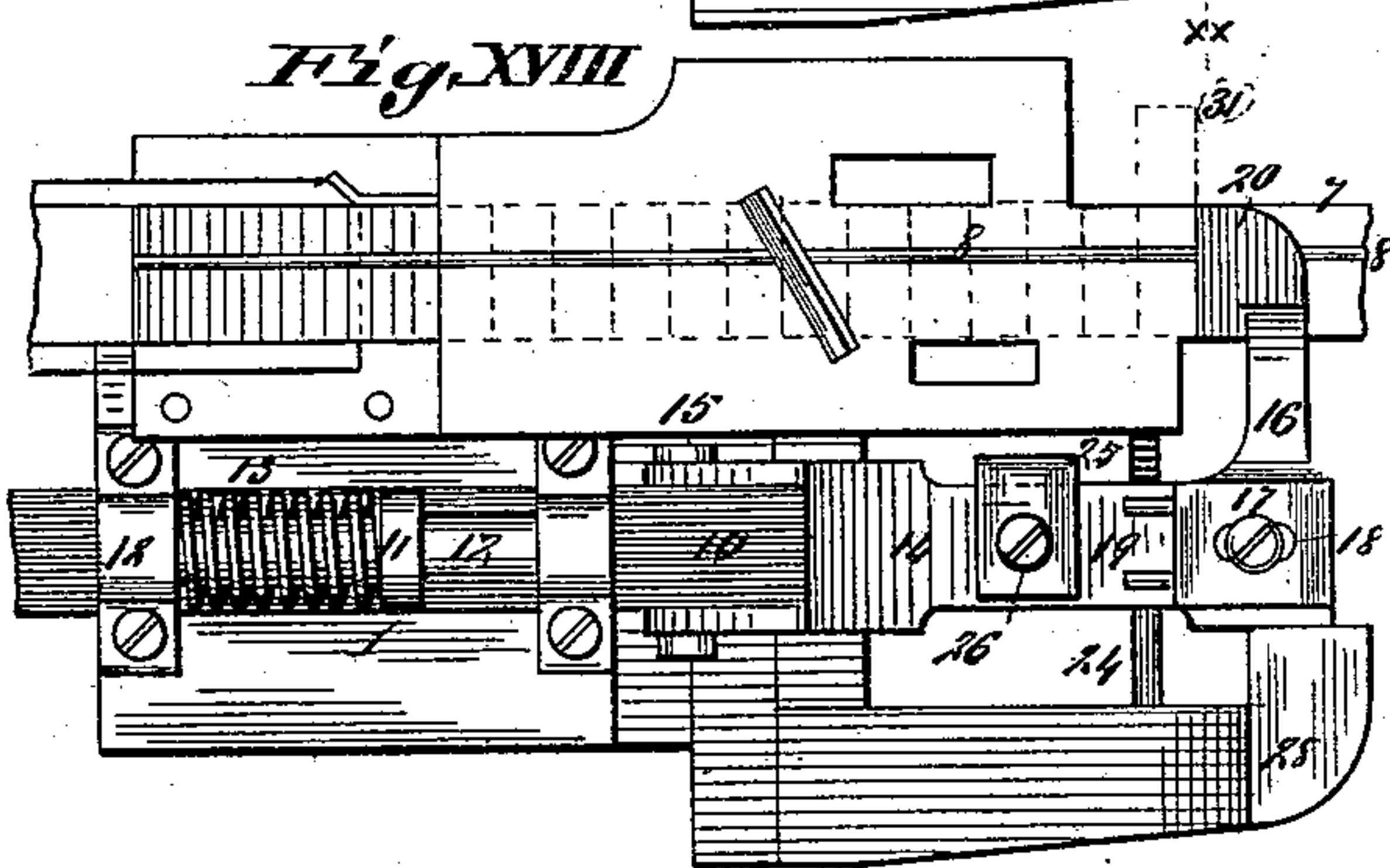


Fig. XX

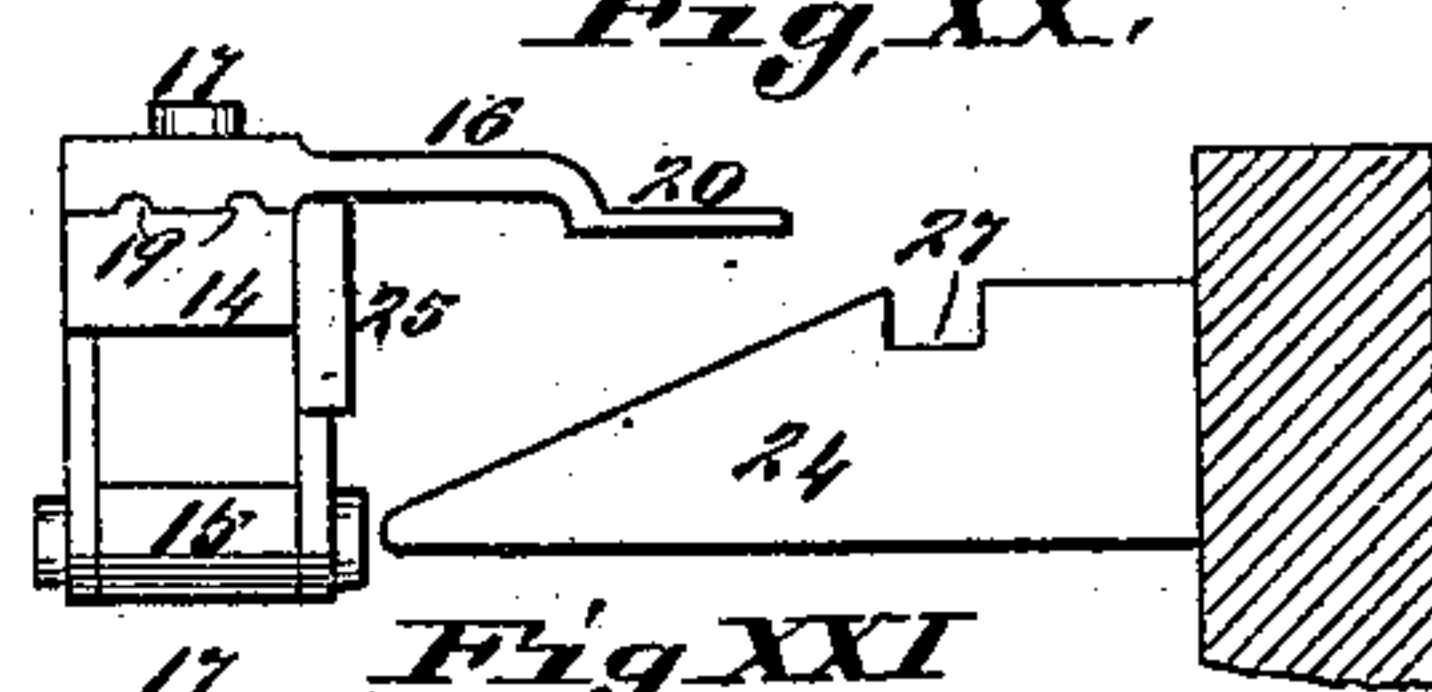


Fig. XXI

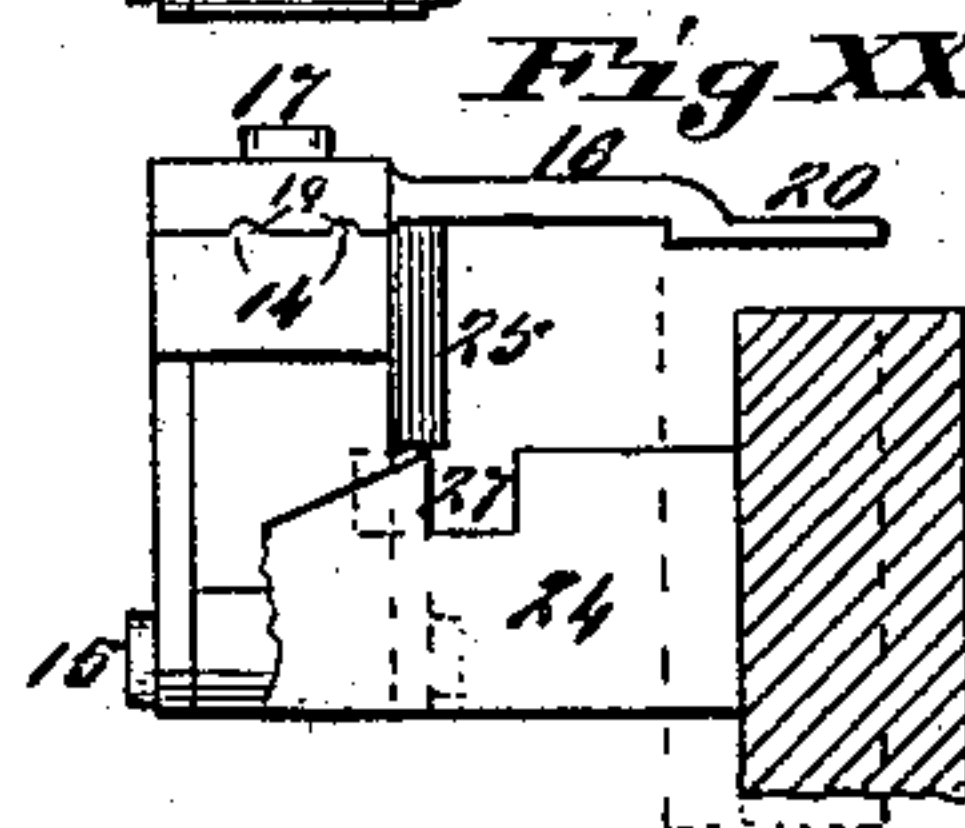


Fig. XXII

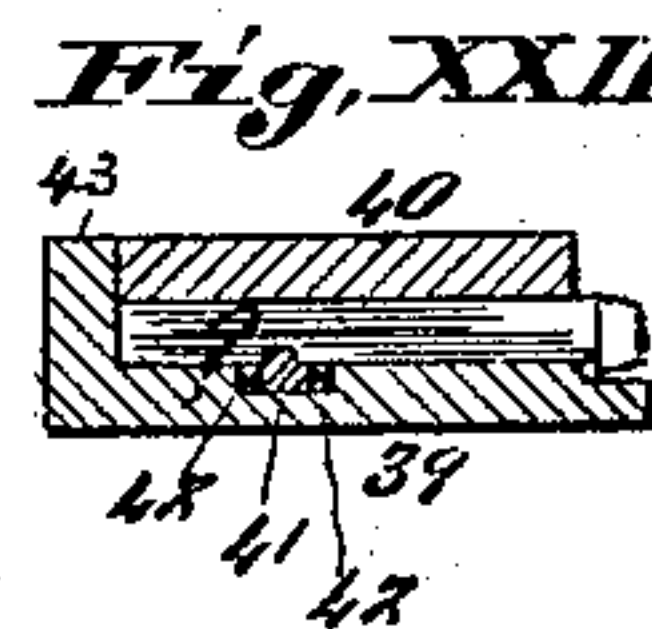
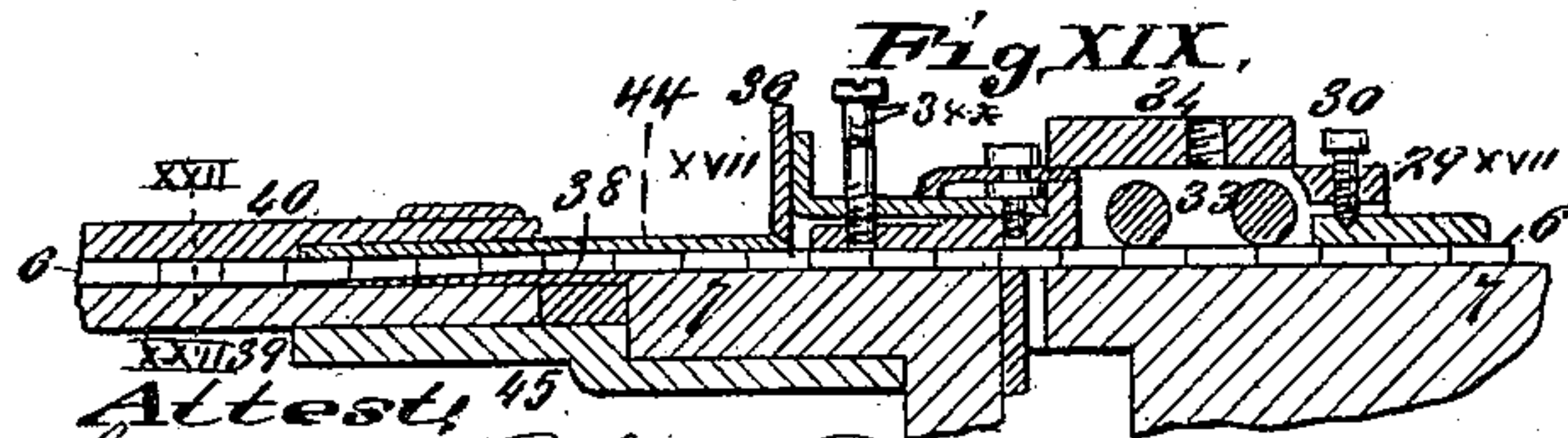


Fig. XIX



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S. Cotton

Inventor:  
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By Knight Bros.  
attys.



# UNITED STATES PATENT OFFICE.

JAMES G. PAVYER, OF ST. LOUIS, MISSOURI.

## TYPE CASTING AND DRESSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 471,890, dated March 29, 1892.

Application filed December 27, 1890. Serial No. 375,989. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES G. PAVYER, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Type Casting and Dressing Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This is in some respects an improvement on Letters Patent of the United States granted to me October 15, 1889, No. 413,087.

The features of novelty will be set forth in the claims.

Figure I is an end elevation of the machine, partly in section, on line 2 2, Fig. XVI, showing the position of the parts before the discharge of the type from the mold. Fig. II is a detail end elevation of the machine, showing the position of the parts when the type is passing through the dresser. Fig. III is a detail front elevation of the machine with the parts in the same position shown in Fig. I. Fig. IV is a detail elevation of the feeding-arm in normal position, and Fig. V is a detail view of the arm in elevated position. Fig. VI is a detail front view of the mold-frame with the type in place, and Fig. VII is a rear elevation of the same with the mold just opened. Fig. VIII is a detail perspective view of the end of the type-stick. Fig. IX is a detail perspective view showing part of the lower member of the type-stick. Fig. X is a vertical transverse section taken at line X X, Fig. XVI. Fig. XI is a vertical transverse section taken at line XI XI, Fig. XVI. Fig. XII is a detail perspective view of the stick-clamp. Fig. XIII is a detail perspective view of the frame which carries the bearing-rollers. Fig. XIV is a detail perspective view of the lifting-cam. Fig. XV is a detail perspective view of the feed-arm. Fig. XVI is a detail top view of the mold-frame and feed-arm in position indicated in Fig. I. Fig. XVI<sup>a</sup> is a detail perspective view showing the manner of supporting the outer end of the type-stick. Fig. XVII is a detail top view of the mold-frame, showing the parts in the position indicated in Fig. II, with the stick-clamp removed and the roller-frame in horizontal section, taken at XVII XVII, Fig. XIX. Fig. XVIII is a detail plan view of the mold-frame with the feed-

arm at the limit of its movement. Fig. XIX is a detail vertical section taken at XIX XIX, Fig. XVII, showing the rear end of the stick in place. Fig. XX is a detail vertical section through the mold-frame, taken at XX XX, Fig. XVII, showing the feed-arm in elevation and in its lower position; and Fig. XXI is a similar view, except that the feed-arm is shown in upper position. Fig. XXII is an enlarged transverse section of the type-stick, taken at XXII XXII, Fig. XVI.

1 is part of the main frame of the machine.

2 is an oscillating frame or carriage to which the lower member 3 of the mold is fixed and to which the upper member 4 of the mold is connected by a hinge 5.

The types 6 may be discharged from the mold by "pushers," as described in my patent aforesaid, No. 413,087. My present improvement does not apply to the means for discharging the type from the mold, but for actuating and operating on the type after it has left the mold. The type is left by the pushers upon a plate 7, having a longitudinal guide-rib 8, that enters the transverse nick 9, cast in the side of the type.

10 is a bar sliding in guides upon the fixed frame and having a vertical lug 11, that works endwise on a fixed rod 12.

13 is a spiral spring surrounding the rod and bearing against the lug 11. The spring 13 pushes the sliding bar 10 to the right.

14 is an arm hinged at 15 to the sliding bar or slide 10.

16 is a finger adjustably attached to the arm 14 by a screw 17, which passes through a slot 18 of the finger and screws into the arm 14. Ribs 19 upon the arm rest in grooves of the finger and prevent the finger turning on the bolt, while allowing its adjustment lengthwise of the slot. (See Fig. XVI.) The finger 16 has at the end a plate or flat part 20, which is adapted in the lower or active position of the finger to lie upon or almost touching the rib 8, on the plate 7, and whose working edge is parallel to the type, so that it is adapted as the plate moves to the left to bear against the rear edge of the type and force the type along the plate 7. The slide 10, to which the finger is hinged, has at the under side a stud carrying an anti-friction wheel 21, against which acts a cam



22 upon the cam-shaft 23. The cam 22 acts to move the slide 10 to the left, and the slide is moved to the right by the spring 13 as soon as the stud is relieved from the pressure of the cam. It is necessary that the finger 16 should be raised as the mold is moved toward it, so as to be lifted above the plate 7 as the mold passes from the position seen in Fig. I to the position seen in Fig. II. This lifting is done by an incline 24, projecting forwardly from the mold-frame 2 and carried by the forward movement of this frame beneath the arm 14. The incline acts directly on a plate 25, attached to the arm by a screw 26. The incline has a notch or recess 27, into which drops the lower edge of the block 25 when the mold-frame reaches its forward position, and this allows the plate 20 to drop down behind the type 6 which has just been pushed from the mold. At this time the cam 22 acts on the anti-friction roller 21 of the slide 10 and the type is pushed to the left, pushing before it the whole line of types previously cast and remaining on the plate 7 and the stick, to be hereinafter described. It will be understood that as the mold-frame moves forward the upper member 4 of the mold is lifted, giving way for the discharge of the type and allowing the plate 7 to pass beneath the plate 20.

28 is an arm forming a front brace for the hinged arm 14 to resist the horizontal pressure of the incline 24 upon the arm and relieve the hinge 15 from strain. The type is pushed by the plate 20 beneath the plate 29, held down by a screw or screws 30, so as to hold the type flat down on the plate 7, while allowing its free movement to the left. While the type is beneath and being held down by the plate 29 the "jet" or sprue 31 is broken off by the jet-breaker 32, which is attached to the free end of the upper member 4 of the mold, so that the jet is broken off as the mold closes for the casting of the next type. On leaving the plate 29 the type passes beneath the first of two rollers 33, having bearing in a housing 34. The housing has upon its sides apertures for the entrance of the grooving-cutters 35, by which the lower ends of the types and quads and the upper ends of the quads may be grooved. If any dressing is needed to reduce the types to a uniform thickness or width, it is done by an oblique cutter 36, held by a screw 37.

34<sup>x</sup> 34<sup>x</sup> are screws held in a suitable bracket for engaging and holding the housing 34 and an adjunctive part thereof carrying the cutter 36. The plate 7 ends in a flexible plate or lip 38, coming to a knife-edge, and over which the types pass to a stick, which will be now described. The stick is composed of a lower member 39 and an upper member 40 and is adapted to hold a large number of types 6, lying side by side and transverse to the stick. The lower member has a channel made from end to end to receive a rib 41, that

is inserted in the channel and locked in the channel by a key strip or strips 42. This occupies the nicks in the sides of the types and keeps them from transverse displacement as they travel along the stick. The purpose of making the rib removable is to allow its adjustment to types having the nicks in different positions. The member 39 of the stick has a standing flange 43, against which rests the side of the upper member of the stick. The upper member has a tongue 44, whose end rests against the oblique cutter 36, so as to form a top guide for the types. The end of the lower member is inserted between the flexible plate 38 and the supporting-plate 45, which is fixed to the plate 7. The upper member 40 is secured to the lower member 39 by any suitable clamp or clamps. The outer end of the stick is supported upon a rocking standard 50, having a pivotal support 51, in line with the axis of oscillation of the mold-frame 2, so that the stick may have free movement with the mold-frame.

52 is a counterbalance-weight tending to keep the standard 50 upright.

46 is a screw working in an arm 47, and whose end is made conical or cylindrical to fit a conical or cylindrical recess 48 in the upper member of the stick.

49 is a screw having a conical or cylindrical point and working in the bearing-plate 45. The point of the screw 49 rests in a conical or cylindrical recess in the under side of the lower member of the stick.

The operation of the machine, as far as relates to the novel features, is as follows: As the mold-frame swings forward, the upper member 4 of the mold is thrown up and the type pushed out ready to be acted on by the plate 20. At the same time the arm 14 is thrown up by the incline 24, lifting the plate 20 above the plate 7. As the mold-frame reaches its forward position, the edge of the plate 25 falls into the recess 27 and the plate 20 descends into position to act on the type. The cam 22 acts on the slide 10 and moves the plate 20 and the whole line of types to the left, the types being grooved by the cutter or cutters 35 and dressed by the cutter 36 where required. As the cam 22 leaves the anti-friction wheel 21, the mold-frame having moved backward somewhat, the side of the inclined plate impinges against the rear edge of the plate 25 and slips along it until the movement of the mold-frame carries the plate past the end of the arm 14, when the spring 13 throws the arm to the right into normal position, as seen in Figs. XVI and XVII. As the mold-frame 2 rocks forward and backward, the type-stick and its supporting-standard 50 move with it. When the stick is full of types, it may be removed by simply loosening the screws 46 and 49 and slipping the rear end of the stick from its bearings.

I claim as new and of my invention—

1. In a type casting and dressing machine,



the four-motion feed consisting of an arm 14, having pusher 20 and hinged upon a slide 10, having a cam-stud, an actuating-cam 22 and its shaft-spring 13, and a swinging mold-frame having a notched incline 24, adapted to lift the arm 14 on the forward movement of the mold-frame, substantially as set forth.

2. The combination, in a type-casting machine, of the movable upper member 4 of the mold, a jet-breaker 32, secured thereto, and the type-holding plate 29, arranged adjacently to and below the jet-breaker, substantially as set forth.

3. The combination, in a type-dresser, of an unyielding roller 33, arranged in the path of the movement of the type and adapted to bear on the upper side of the type, a plate 7 beneath the roller, having a rib or bead 8 to fit the side nick of the type, and the grooving-cutter 35, arranged to act upon the lower ends of the types and quads and upon the upper ends of the quads, substantially as and for the purpose set forth.

4. The combination, in a type casting and dressing machine, of a swinging mold-frame and a type-stick 39 40, supported at one end upon a standard having a pivoted support in line with the axis of oscillation of the mold-frame in position to receive the types discharged from the swinging mold-frame, substantially as and for the purpose set forth.

5. The stick 39 40 for type casting and dressing machines, the part 39 having a longitudinal recess, a removable guide-rib 41, and key-strips 42, constructed and adapted to operate substantially as set forth.

6. The combination, in a type-machine, of a rocking mold-frame, a type-stick secured to the mold-frame at one end, and a rocking

standard supporting the other end of the type-stick, substantially as set forth.

7. The combination, in a type-machine, of a pivoted mold-frame, a type-stick 39 40, removably connected to the mold-frame at one end and adapted to receive the types from the mold-frame, and a pivoted standard supporting the other end of the type-stick, pivoted on an axis coincident with that of the mold-frame, and having a counterbalance-weight attached to it and adapted to elevate it, substantially as set forth.

8. The combination, in a type-machine, of a pivoted mold-frame, a removable type-stick arranged to receive the types from the mold-frame, and a pivoted standard supporting one end of the said stick, pivoted on an axis coincident with that of the mold-frame, and having a counter-balance, substantially as set forth.

9. In a type-casting machine, the combination, with the movable upper member of the mold, of the jet-breaker 32, secured to and projecting from said member, and the clamping-plate 29, arranged adjacent to and below the jet-breaker, for holding the type while the jet is broken, substantially as set forth.

10. In a type casting and dressing machine, the type-stick having members 39 40, and the member 39 being provided with a longitudinal recess containing the movable guide-rib 41 and the flange 43, against which the member 40 rests, and the strips 42, substantially as set forth.

JAMES G. PAVYER.

In presence of—

SAML. KNIGHT,

BENJN. A. KNIGHT.