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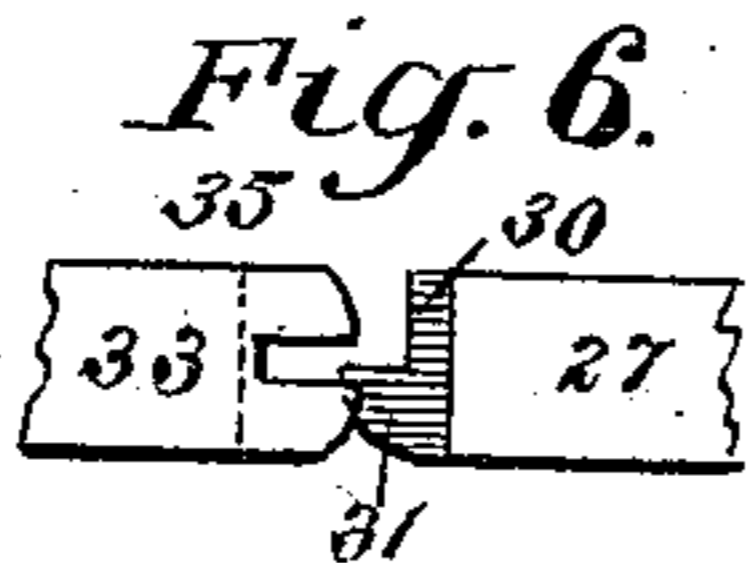
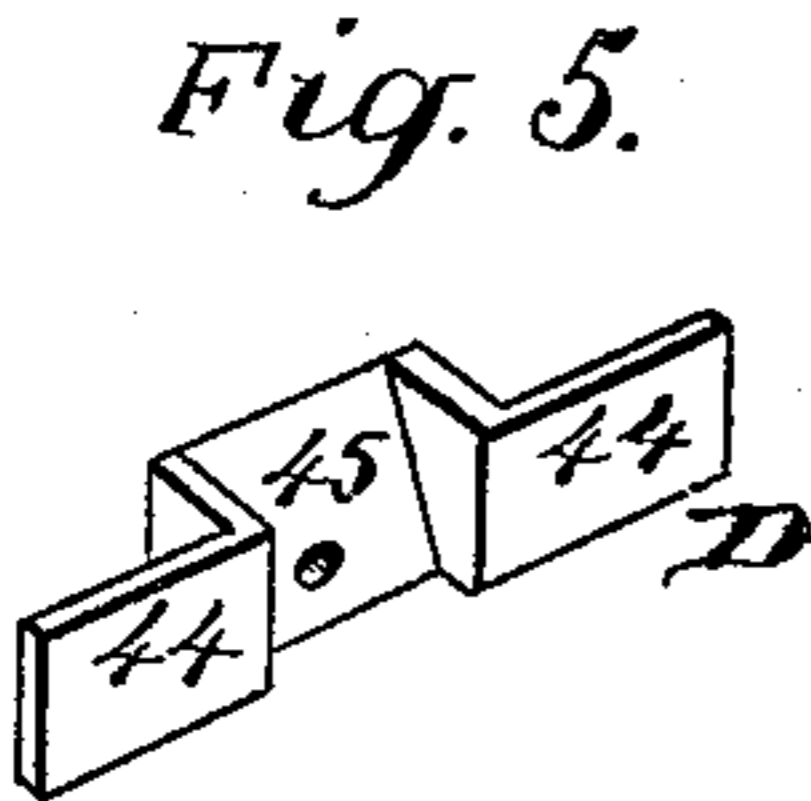
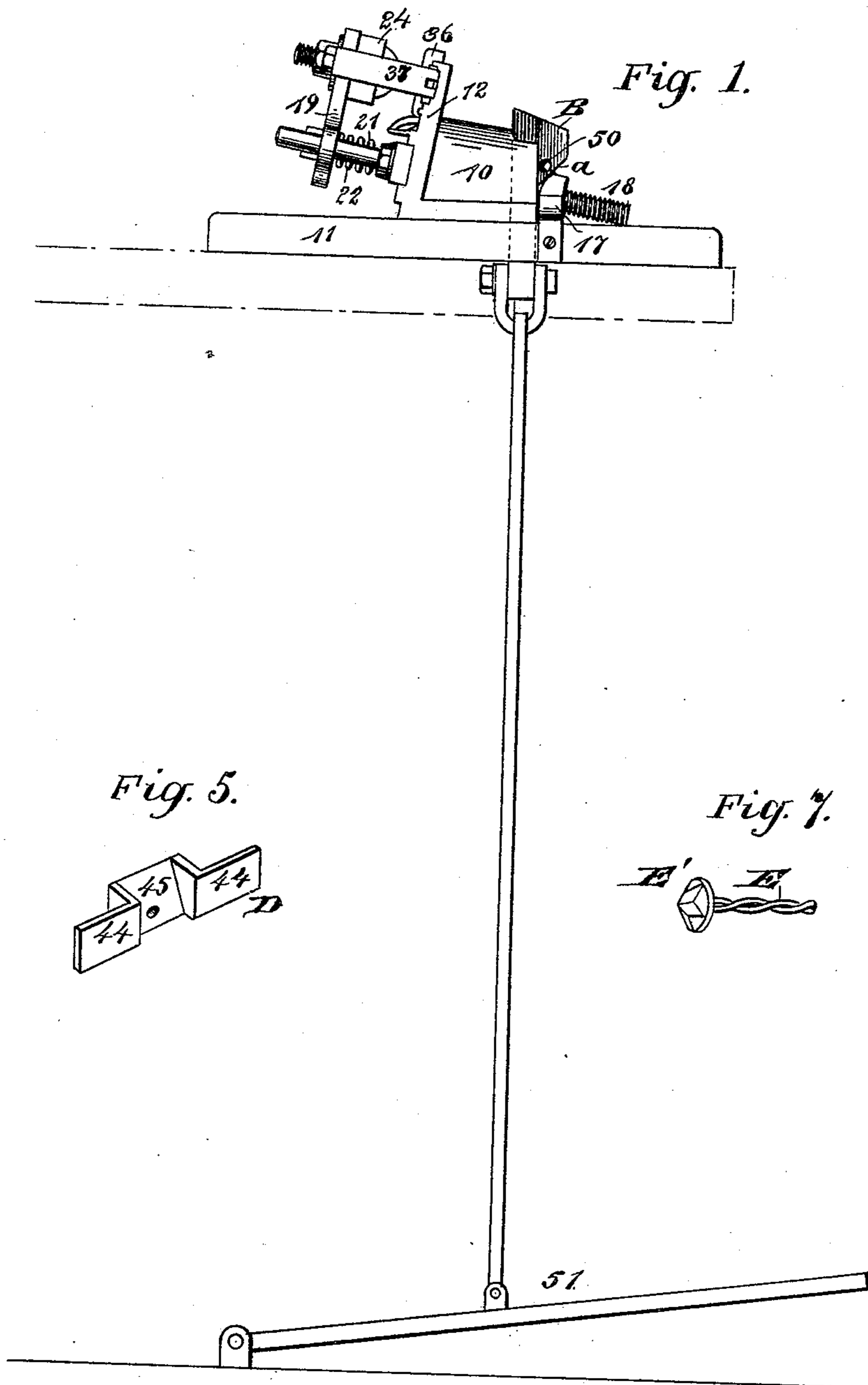
2 Sheets—Sheet 1.

L. A. EUCKER.

MACHINE FOR FORMING ORNAMENTS AND CUTTING THEIR SHANKS.

No. 500,480.

Patented June 27, 1893.



WITNESSES:

J. H. Griswell.
C. M. Clark

INVENTOR

L. A. Eucker
BY Munn & Co

ATTORNEYS.

(No Model.)

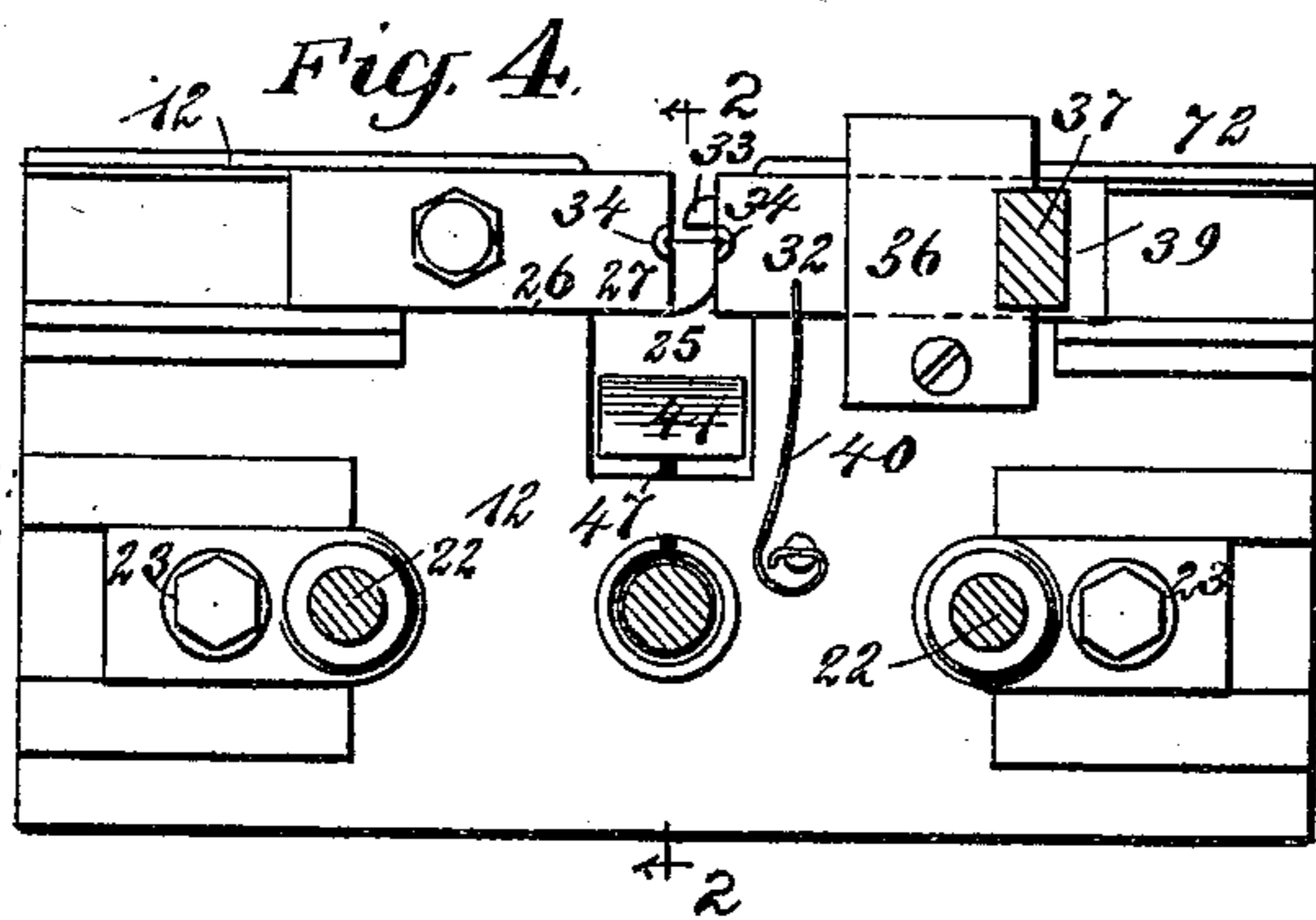
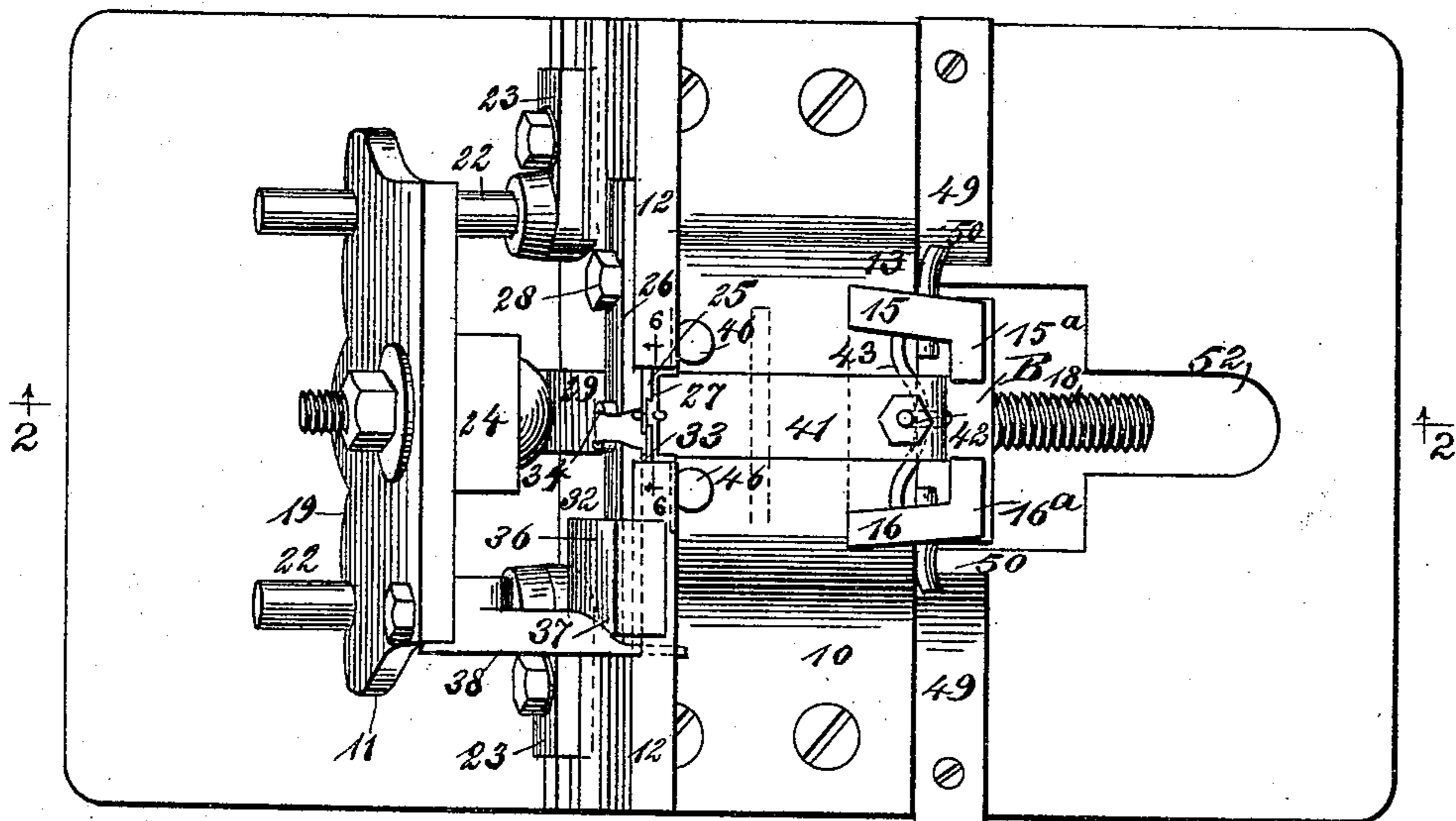
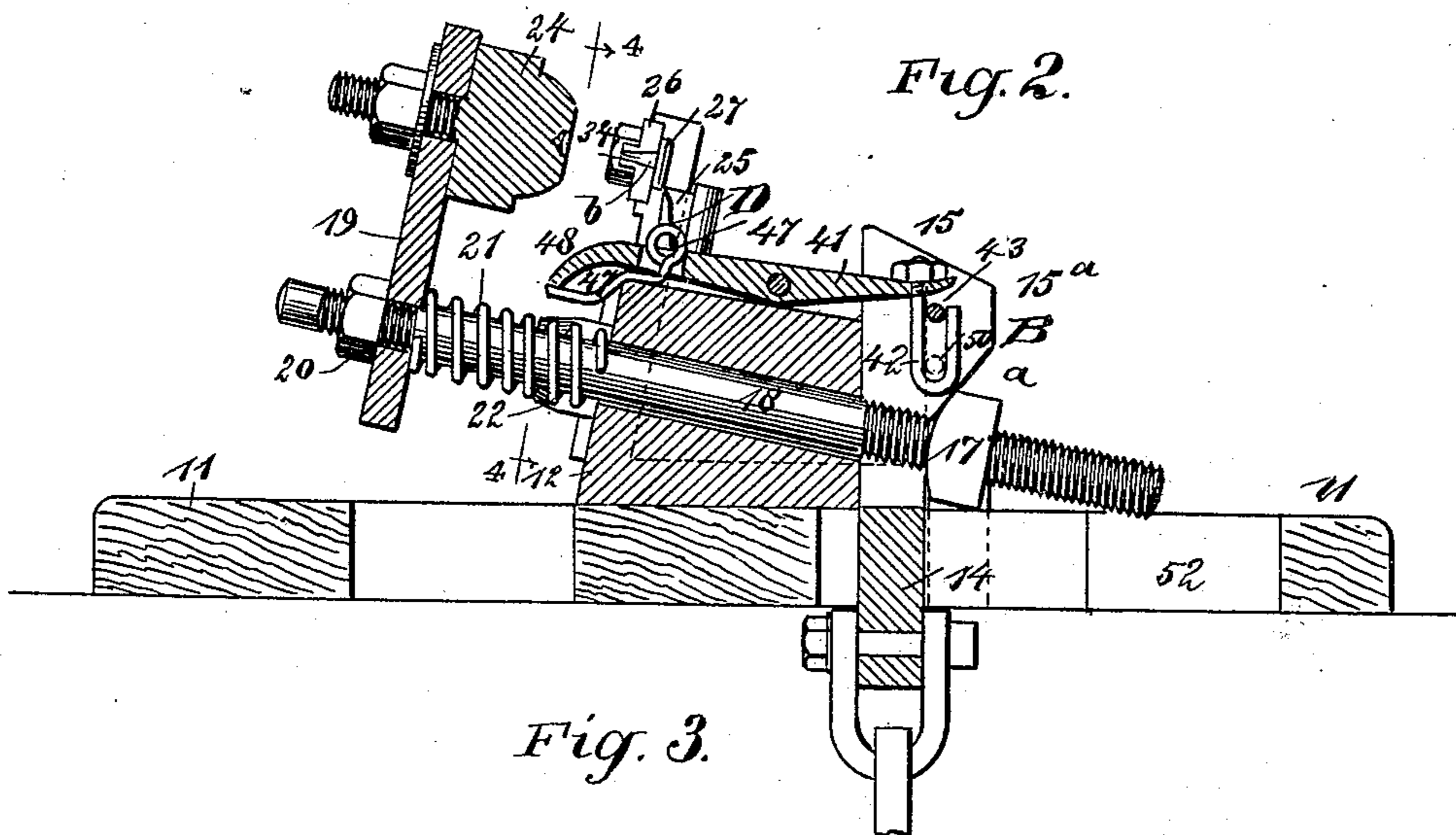
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UNITED STATES PATENT OFFICE.

LOUIS A. EUCKER, OF HOBOKEN, NEW JERSEY.

MACHINE FOR FORMING ORNAMENTS AND CUTTING THEIR SHANKS.

SPECIFICATION forming part of Letters Patent No. 500,480, dated June 27, 1893.

Application filed August 4, 1892. Serial No. 442,154. (No model.)

To all whom it may concern:

Be it known that I, LOUIS A. EUCKER, of Hoboken, in the county of Hudson and State of New Jersey, have invented a new and Improved Machine for Forming Ornaments and Cutting their Shanks, of which the following is a full, clear, and exact description.

My invention relates to an improvement in devices for forming ornaments and cutting their shanks to suitable length, and the principal feature of the invention is to provide a machine which will be exceedingly simple, durable and economic in its construction and by the use of which cleaner and quicker work can be produced than by the old style of machine, as the fire is located nearer to the molds or dies and the molds are located well above the table of the machine and at one side thereof, thus enabling the operator at all times to conveniently note the progress of the work; and a further object of the invention is to provide a means whereby as the ornament is formed the shank thereof will be automatically cut to a suitable length.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth and pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the machine. Fig. 2 is a central vertical longitudinal section through the body of the machine, the section being taken practically on the line 2—2 of Fig. 3. Fig. 3 is a plan view of the body of the machine. Fig. 4 is a transverse vertical section taken practically on the line 4—4 of Fig. 2. Fig. 5 is a detail perspective view of the knife. Fig. 6 is a detail view of the clamping jaws for the shank of the ornament, the view being taken on the line 6—6 of Fig. 3; and Fig. 7 is a perspective view of an ornament and its shank.

The main body of the frame of the machine consists of a block 10, which is preferably made quite thick at its central portion and reduced at its ends, the end portions being apertured to receive screws or other fasten-

ing devices whereby the block may be attached to a table or the equivalent thereof; and the block has formed integral with its outer face, or attached thereto, a transverse breast plate 12. The outer end of the body block is provided with a slide-way 13, vertically arranged, the said slide-way being preferably somewhat dove-tail shape in cross section. In this slide-way a trip plate B, has vertical movement. The lower end of the trip plate is made solid, the solid portion being indicated at 14 in Fig. 2, but the upper portion thereof comprises two members 15 and 16, and these members are located one at each side, engaging with the side walls of the slide way. Each member 15 and 16 extends transversely beyond the slide-way in the body block, and the under faces of the extensions 15^a and 16^a of the trip plate are downwardly beveled, as indicated at *a* in Figs. 1 and 2, and these beveled faces of the trip plate are adapted to engage with the upper beveled surface of a cross bar 17, which cross bar is located immediately in front of the slide-way; and through said cross bar, at its center, the threaded end of a shaft 18, is passed. The shaft 18 is held to slide in a suitable bearing in the body block, and it occupies an inclined position, slanting from the breast plate downward in direction of the table, as best shown in Fig. 2. The cross bar is provided with a threaded opening through which the threaded end of the shaft passes.

The breast plate, 12 has an upward inclination in direction of the end carrying the trip plate, as is shown in Fig. 1; and upon the outer end of the shaft 18, which extends some distance beyond the breast plate a die-plate 19, is secured to it, the attachment being made at or near the center of the plate. That portion of the shaft passing through the die plate is threaded, as is likewise the wall of the aperture receiving the threaded portion of the shaft, and a lock nut 20, is screwed upon the outer end of the shaft to a bearing against the outer surface of the die-plate. A spring 21, is coiled around the shaft 18 between the breast plate and the die plate, having an engagement with each, so that when the shaft is carried endwise downward to draw the die-plate in direction of the breast plate

the spring 21, is compressed, and when tension is removed from the shaft 18 the spring 21 restores the shaft to its normal position.

The die plate 19 is guided in its movement to and from the breast plate by means of guide rods 22, located one near each end of the die plate and passing loosely through it. The inner ends of the guide rods are secured to blocks 23, and these blocks are adjustably attached to the outer face of the breast plate near the lower end thereof, suitable channels being provided in that side of the face of the plate for their reception. The channels are preferably made somewhat dove-tail shape in cross section, but may be otherwise formed, and the blocks are secured to place by means of set screws or their equivalents.

At the upper central portion of the die-plate one section of a die is located, preferably the female section 24, and this section of the die engages with the inner face of the die-plate, extending essentially at a right angle therefrom. The die section 24, is removably attached to the plate, being screwed thereon and the screw shank being provided with a lock nut or washer. By this means the section 24 of the die may be expeditiously and conveniently removed if in practice it is found desirable.

Above the slide-ways in the breast-plate receiving the blocks 23 carrying the guide rods 22, another set of horizontal channels are formed; and at the upper central portion of the breast plate a vertical opening 25, is produced, the upper channels being one at each side of this opening. In one of the channels two slides are securely fastened, which slides are designated in the drawings as 26 and 27. These slides are permanently held in connection with the breast plate by means of an adjusting screw 28, or the equivalent thereof. The slides at their inner ends project over or into the opening 25 in the breast plate, and the slide 26, which is opposite the die-plate 19, carries at its inner end the male section 29 of the die, that is, this slide 26 carries one-half the male section of the die, and the inner end of the plate back of the die section is inclined and channeled, as illustrated at *d* in Fig. 2, the inclination being shown to much greater advantage in Fig. 3.

The slide 27, which is back of the die-carrying slide 26, is provided at its inner end upon its rear face with a rabbet 30, as shown best in Fig. 6, and the rabbeted portion of the slide 27, which may be termed a locking plate, is recessed, forming thereby a lip 31, likewise shown in Fig. 6.

In the channel-way of the breast plate at the opposite of the breast plate opening 25 a die-carrying plate and a locking plate are located, bearing the same relation to each other and being directly opposite the die and locking plates 26 and 27 stationarily attached to the breast plate. The slide-die-carrying plate and locking plate are designated respectively

as 32 and 33, and the inner end of the plate 32 carries a section 34 of the male die, corresponding to the section 29 upon the stationary plate; and when the two sections of the die are brought together and the complete male die is formed it is capable at that time of readily entering the female section of the die.

The locking plate 33, is provided with a rabbet upon its side facing the die plate 19, and the rabbeted portions of the two locking plates 27 and 33 are such that when these two portions of the plates are slid one over the other, a cross section taken at that point will show the same thickness as that of the body portion of either plate. The rabbeted portion of the sliding locking plate 33, however, as shown in Fig. 6, is provided with a longitudinal slot 35, the lower wall of which slot is about upon a level with the upper edge of the lip 31 of the opposite sliding plate.

The sliding, locking and die-carrying plates are guided in their movements in their slide-way by means of a strap-like plate 36, which is secured to the outer surface of the breast plate; the outer side face of the strap-like guide 36, is provided with a recess, and through this recess the cam surface 37 of a cam bar 38, is passed, the cam surface of the bar being constantly in engagement with the outer ends of the locking and die-carrying plates 32 and 33. After passing the recess in the guide strap 36, the cam bar 38, passes through an opening 39, produced in the breast plate, as shown in Fig. 4. The outer end of the cam bar 38, is securely fastened to the die 19 at one side thereof. A spring 40, secured to the outer face of the breast plate engages with the sliding die-carrying plate 32, as shown in Fig. 4, and the tendency of this spring is to force said die-carrying plate away from the opening 25; and a connection is made between the plate 32 and the locking plate 33, whereby when the former plate is carried outward by the spring 40 the latter plate is also carried in the same direction.

In a longitudinal recess in the top of the body block 10, a knife-carrying plate 41, is pivoted. This knife-carrying plate extends forwardly through an opening 25, as shown in Figs. 2 and 4, some distance below the die-carrying plates 26 and 32; and the opposite end of the knife-carrying plate extends over the slide-way in the rear end of the body block 10, between the members of the trip plate B. To the rear end of the knife-carrying plate a link 42 is secured, and a cross bar 43, connecting the arms of the trip plate passes through the link, as is best illustrated in Fig. 2.

The knife *D* is shown in detail in Fig. 5, and the knife comprises preferably two L-shaped or angular sides 44 and a cutting surface 45 connecting the said sides, the back of the cutting surfaces of the knife being straight and the front portion more or less inclined. The cutting portion of the knife is adapted to enter into the opening 25 in the breast plate,

and it is also adapted to have sliding movement upon the rear faces of both of the locking plates 27 and 33, the side sections 44 of the knife having free movement between studs 46 and the back face of the breast plate, the studs being made to extend upward from the body block 10. The knife is raised when the forward end of its carrying plate or lever 41, is elevated. The knife is not positively secured to the lever, but is connected thereto ordinarily by a link 47, connected with the central lower portion of its cutting surface, which link is carried downward through an opening 48 in the lever, as shown in Fig. 2, and then outward beyond the breast plate.

Two springs 49, are located one at each side of the table in front of the rear end of the body block, and these springs are adapted to assist the trip plate 14 in its upward or return movement, the springs being engaged by studs 50, projected from the outward members of the studs of that plate.

The machine is designed primarily to mold ornaments from glass or from other substance either pliable when cold or when heated, and to secure to the ornaments at the time that they are formed a shank of wire or any other approved material, and simultaneously with the formation of the ornament and its fixture upon its shank to cut the shank to a predetermined or desired length. This is accomplished in the following manner: One end of a length of wire, a section of which is shown in Fig. 7 and is designated as E, is dipped in molten glass, or other material from which the ornament is to be formed, and while the material is still hot the wire is passed into the opening 25 in the breast plate and between the locking plates in such a manner as to bring the heated material against the outer surfaces of the male die sections. While this is being done the trip plate 14, is drawn downward by means of a treadle 51, or other power, and upon the downward movement of the trip plate it forces the shaft 18 rearward, bringing the die plate 19 in direction of the breast plate; and as these two plates approach the cam bar 38 is made to act upon the movable locking plate and the movable plate carrying the male die section in a manner to force these plates in direction of and in contact with the opposing and equivalent fixed plates. By this means the locking plates sliding one upon the other clamp the shank or the wire, as the wire enters the slot 35 of the locking plate 33, and the solid portion of this plate is carried over the lip of the opposing locking plate 27. Just at this time the male and female sections of the die will be brought together and the ornament formed, as shown at E' in Fig. 7, and just as the formation of the ornament is about completed the trip block 14 will have descended a sufficient distance to cause its cross bar 43 to bear down upon the link 42, thus raising the forward end of the lever 41, which carries the knife D upward and severs the wire, the wire attached to the ornament con-

stituting its shank. In order that the trip plate 14 may work up and down without interruption an opening 52, is produced in the table through which it passes.

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

1. In a machine of the character described, the combination with dies, one of which is movable toward and from the other, of a clamp for holding the wire carrying the material to be acted upon by the dies, and means for operating the clamp from the movable die, substantially as described.

2. In a machine of the character described, the combination with a male die, and a female die movable toward and from the male die, of a clamp for holding the wire carrying the material to be acted upon by the dies, said clamp being formed of a stationary and movable part, and means for operating the movable part of the clamp from the movable female die, substantially as described.

3. In a machine of the character described, the combination of a sectional male die, one section of which is movable, a female die movable toward and from the male die, and means for moving the movable section of the male die toward the other section as the female die approaches the male die, substantially as described.

4. In a machine of the character described, the combination of a sectional male die, one section of which is movable, a female die movable toward and from the male die, and means between the female die and the movable section of the male die to move the said movable section toward the other section, when the female die approaches the male die, substantially as described.

5. In a machine of the character described, the combination with a movable female die, and means for operating it, of a sectional male die, one section of which is movable, a clamp for holding the wire carrying the article, and means for operating the movable section of the male die and the clamp from the female die, substantially as described.

6. In a machine of the character described, the combination with a movable female die, and means for operating it, of a sectional male die, one section of which is movable, a clamp for holding the wire carrying the article, means for operating the clamp, and movable section of the male die from the female die, a knife for cutting the wire, and means for operating the knife, substantially as described.

7. In a machine of the character described, the combination with a movable female die, of a sectional male die, one section of which is movable, a sectional clamp for holding the wire carrying the material to be acted upon by the dies, the movable section of the clamp moving with the movable section of the male die, and means for operating the movable sections of the clamp and male die from the female die, substantially as described.

8. In a machine of the character described, the combination with the male and female dies, and a clamp for holding the wire carrying the material to be acted upon by the dies, of a pivoted knife carrying plate, a knife loosely connected with one end of the said plate, and means for operating the knife, substantially as described.

9. In a machine of the character described, the combination with dies, one of which is movable toward and from the other, and a clamp for holding the wire carrying the material to be acted upon by the dies, of a trip plate and a connection between the trip plate and the movable die for operating the latter, substantially as described.

10. In a machine of the character described, the combination with dies, one of which is movable toward and from the other, and a clamp for holding the wire carrying the material to be acted upon by the dies, of a trip plate, a connection between the trip plate and movable die for operating the latter from the former, and a knife connected with and operated from the trip plate, substantially as described.

11. In a machine of the character described, the combination with a movable female die, of a sectional male die, one of which sections is movable, a clamp for holding the wire car-

rying the material to be acted upon by the dies, a trip plate, connections between the trip plate and female die for operating the latter from the former, a pivoted knife plate loosely connected with the trip plate, and a knife carried by said plate, substantially as set forth.

12. In a machine of the character described, the combination, with a fixed body portion provided with a breast plate having an opening in its upper portion, a plate carrying a section of the die, and a locking plate fixed to the breast plate, and corresponding die and locking plates having sliding movement in the breast plate, the two sets of locking and die plates being located one at each side of the breast plate, of a plate having movement to and from the breast plate and carrying a die to co-act with the sectional die, a knife having guided movement upon the locking plates, an actuating mechanism controlling the sliding die and locking plates, giving them concerted movement, and a time movement between the said mechanism and the knife, substantially as and for the purpose set forth.

LOUIS A. EUCKER.

Witnesses:

J. FRED. ACKER,
C. SEDGWICK.