

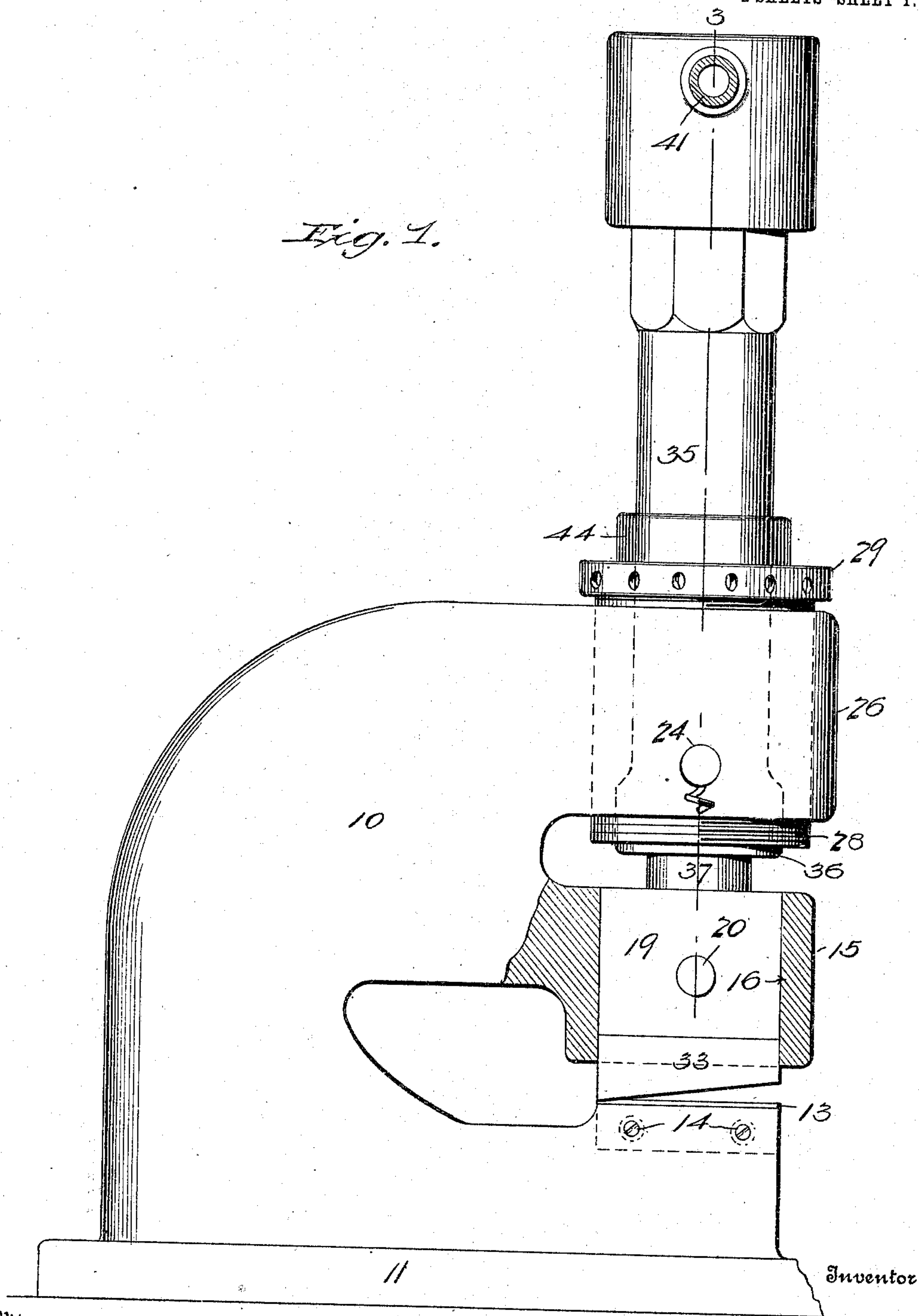
F. R. EDEN.  
CUTTING OR TRIMMING MACHINE FOR SHEET METAL.  
APPLICATION FILED MAY 12, 1908.

957,942.

Patented May 17, 1910.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses  
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By Francis R. Eden  
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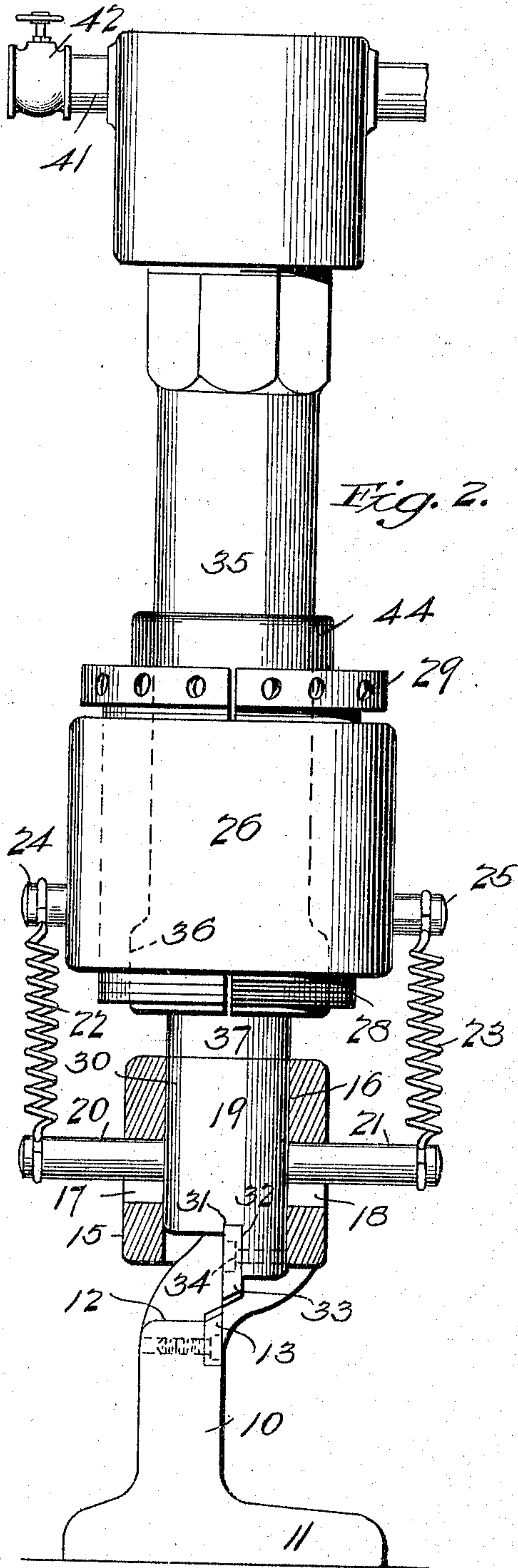


Fig. 2.

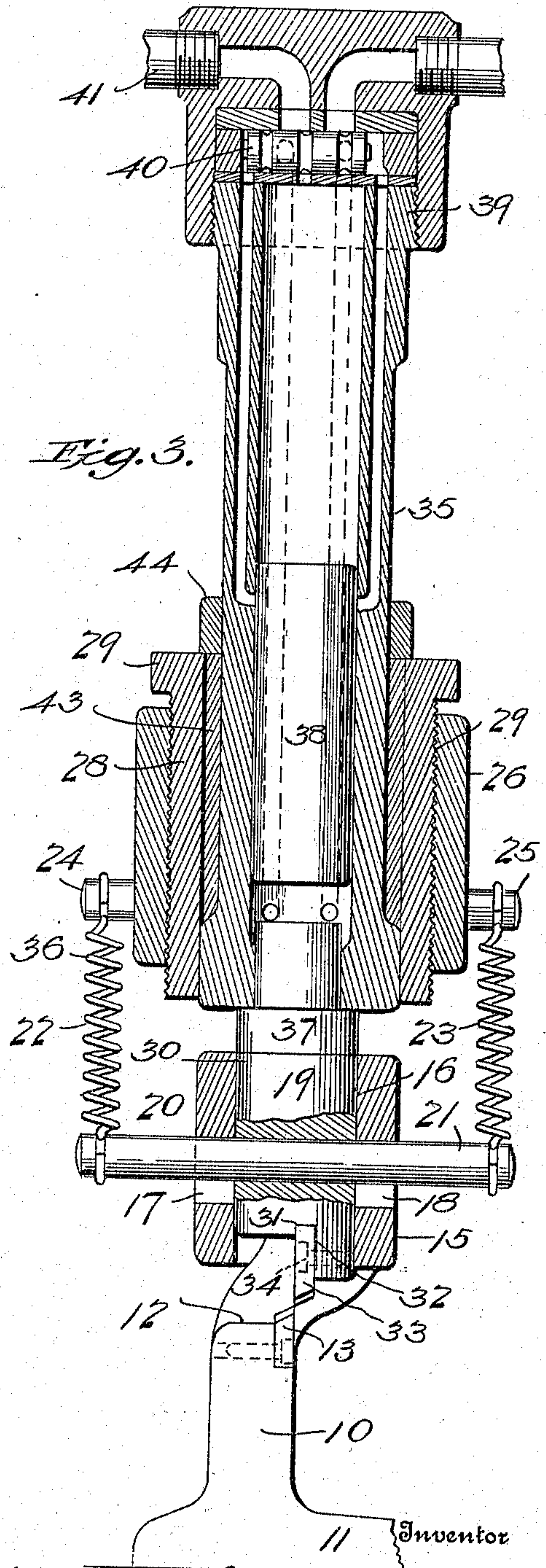


Fig. 3.

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# UNITED STATES PATENT OFFICE.

FRANCIS R. EDEN, OF MONTCLAIR, NEW JERSEY.

CUTTING OR TRIMMING MACHINE FOR SHEET METAL.

957,942.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed May 12, 1908. Serial No. 432,483.

*To all whom it may concern:*

Be it known that I, FRANCIS R. EDEN, a citizen of the United States, and resident of Montclair, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Cutting or Trimming Machines for Sheet Metal, of which the following is a specification.

The present invention consists of improvements in metal cutting or trimming machines adapted especially for cutting or trimming sheet material, in which a reciprocatory movement is imparted to one of the cutting blades through the medium of a fluid pressure motor.

With the above and many other objects in view the invention contemplates the employment of a suitable frame carrying a stationary cutting knife with which coöperates a reciprocating knife, the cutting edge of which is arranged to make a shear cut and which carries means which are acted upon by a hammer or the like to drive the same to its cutting position, and also in the provision of automatic means for returning said reciprocating knife to its inoperative position ready to be acted upon again by said hammer.

In carrying out the objects set forth above many changes may be resorted to in the structural arrangement of the machine and in the details of the mechanism, a preferred and practical example thereof being shown in the accompanying drawings, in which—

Figure 1 is a side elevation of the machine, a portion of the frame being broken away to show the movable cutter carrier and the guide therefor. Fig. 2 is a front elevation thereof, partly in section. Fig. 3 is a vertical sectional view through the machine and its attached motor.

Like characters of reference designate corresponding parts.

In the embodiment of the invention shown in the accompanying drawings, 10 designates a cutter frame, which is provided with a wide, flat, base 11, and a shouldered rest 12 to which a stationary cutter blade 13 is connected by means of bolts, or screws 14. A cutter guide 15 is arranged above said cutter rest 12, said cutter guide comprising an arm which projects from the frame body, is laterally offset as shown and has a vertical opening 16 formed therethrough which is in alinement with the cutter rest, and which

is also provided with vertical side slots 17—18 through which arms 20—21 carried by a movable cutter holder 19 project. The outer ends of the arms 20—21 are each connected with an end of a spiral spring 22—23, the upper end of each of which is connected with the outer ends of lugs, or arms, 24—25, carried by an arm which projects from the upper portion of the frame 10. Said arm 26 has a vertical opening 27 formed there- through which is threaded for engagement with a similarly threaded and longitudinally split spring coupling sleeve 28, the upper end of which projects beyond the upper portion of the frame and carries an adjusting nut 29. The movable cutter holder or carrier 19 is provided with a stem 30, and the face of the holder proper is provided with a recess 31 and a shoulder 32 which form a seat for a shearing cutter blade 33 which is held in engagement with said seat by locking screws 34 and which is adapted to coöperate with and oppose the stationary cutter blade 13.

It is preferred to impart the necessary reciprocatory movement to the movable cutter holder through the instrumentality of a fluid pressure motor which consists of a cylinder 35, the lower end of which projects through the coupling sleeve 28 and into close proximity to the stem 30 of the movable cutter holder 19. Said lower end of the cylinder is provided with an annular shouldered portion 36 with which the adjusting nut 29 has a binding engagement thereby retaining the same in a fixed position relatively to the frame. A hammer 37 extends from the bottom of the cylinder and normally rests upon the upper end of the stem 30 of the cutter holder. The necessary power is applied to the hammer 37 through a reciprocating piston 38 in the cylinder 35, said piston receiving its movement through the fluid pressure which enters the cylinder through the head 39 thereof in which is mounted a controlling valve 40 which alternately opens and closes inlet and outlet ports in the usual manner. Preferably, the admission of the fluid pressure is through a pipe 41 which communicates with a source of power, and which is provided with a manually operable valve 42 for regulating the supply of power to said piston.

From the foregoing description it will



be understood that the reciprocation of the piston imparts a blow to the hammer 37, which in turn imparts a blow to the movable cutter holder 19 and causes the latter to forcibly descend and cause its attached shearing cutter to cooperate with the stationary cutter in acting on the material resting thereon. And it will be further observed that through the described spring connection between the movable cutter holder and the arm 26 of the frame, the said cutter holder with its attached shear cutter will be automatically raised from contact with the work immediately upon the removal of the pressure of the hammer thereon and caused to assume its inoperative position ready for the next downward stroke of said hammer.

Another prominent and distinctive feature of the invention is in the detachable connection between the fluid pressure motor and the frame, whereby they may be normally retained in a rigid relative position, but through manipulation of the adjusting nut, may be readily disconnected.

Still another prominent and distinctive feature of the apparatus is the double offset of the frame 10, which permits the right hand portion of the divided sheet to pass below the frame, and the left hand section to pass above the frame, avoiding the necessity of forcing the divided edges of the strips of metal apart, thereby causing them to buckle, and rendering it possible to cut sheets of metal of any length or width.

#### Claims.

1. A metal cutting machine comprising a frame provided with a stationary cutter blade seat, a cutting blade connected with said seat, a stationary guide carried by said frame, a movable blade carrying member slidable vertically in said guide, an arm carried by said frame and projecting over said guide and being provided with a vertical opening, a spring connection between said movable blade carrying member and said arm whereby the former is automatically raised, and a motor-controlled hammer detachably connected with said arm and cooperating with said movable blade carrying holder.

2. A metal cutting machine comprising a frame provided with a fixed cutter blade, a vertically movable member carrying the movable cutter blade, a guide for said movable member, an arm carried by said frame and provided with a vertically arranged threaded opening, a threaded and longitudinally split coupling sleeve in engagement with said threaded opening and provided with an outer adjusting nut, and a motor-controlled hammer held in operative engagement with the said frame by said coupling sleeve.

Signed at New York city in the county of New York and State of New York.

FRANCIS R. EDEN.

Witnesses:

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MARION VAUGHAN.