

I. H. HILL.
FORMING DIE.

APPLICATION FILED JAN. 20, 1909.

936,999.

Patented Oct. 12, 1909.

2 SHEETS—SHEET 1.

Fig. 6.

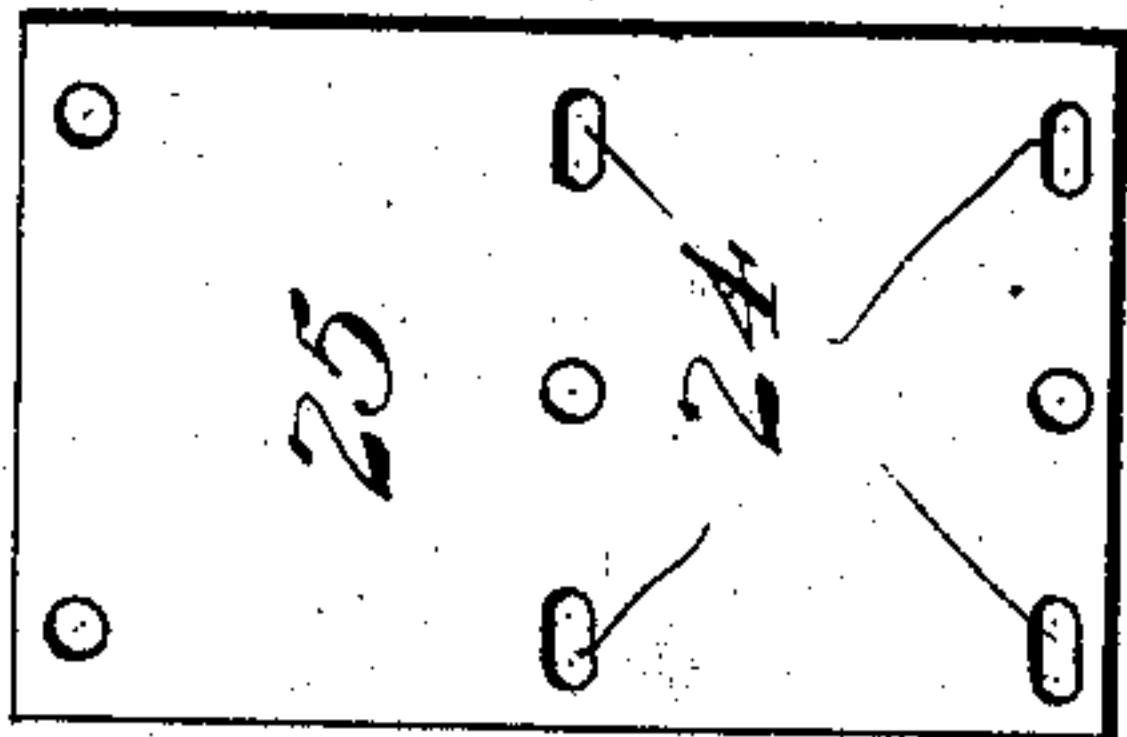


Fig. 5.

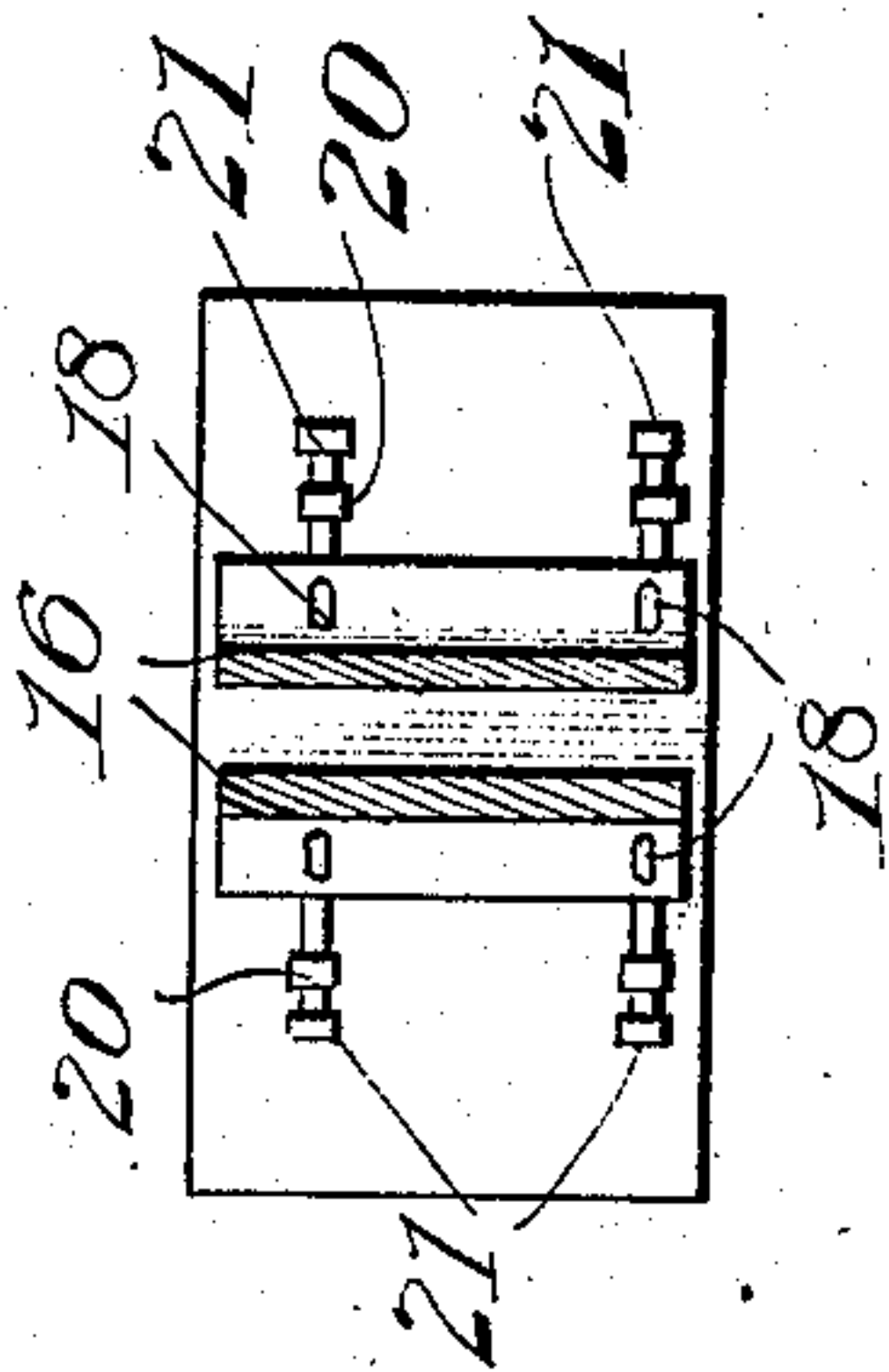


Fig. 2.

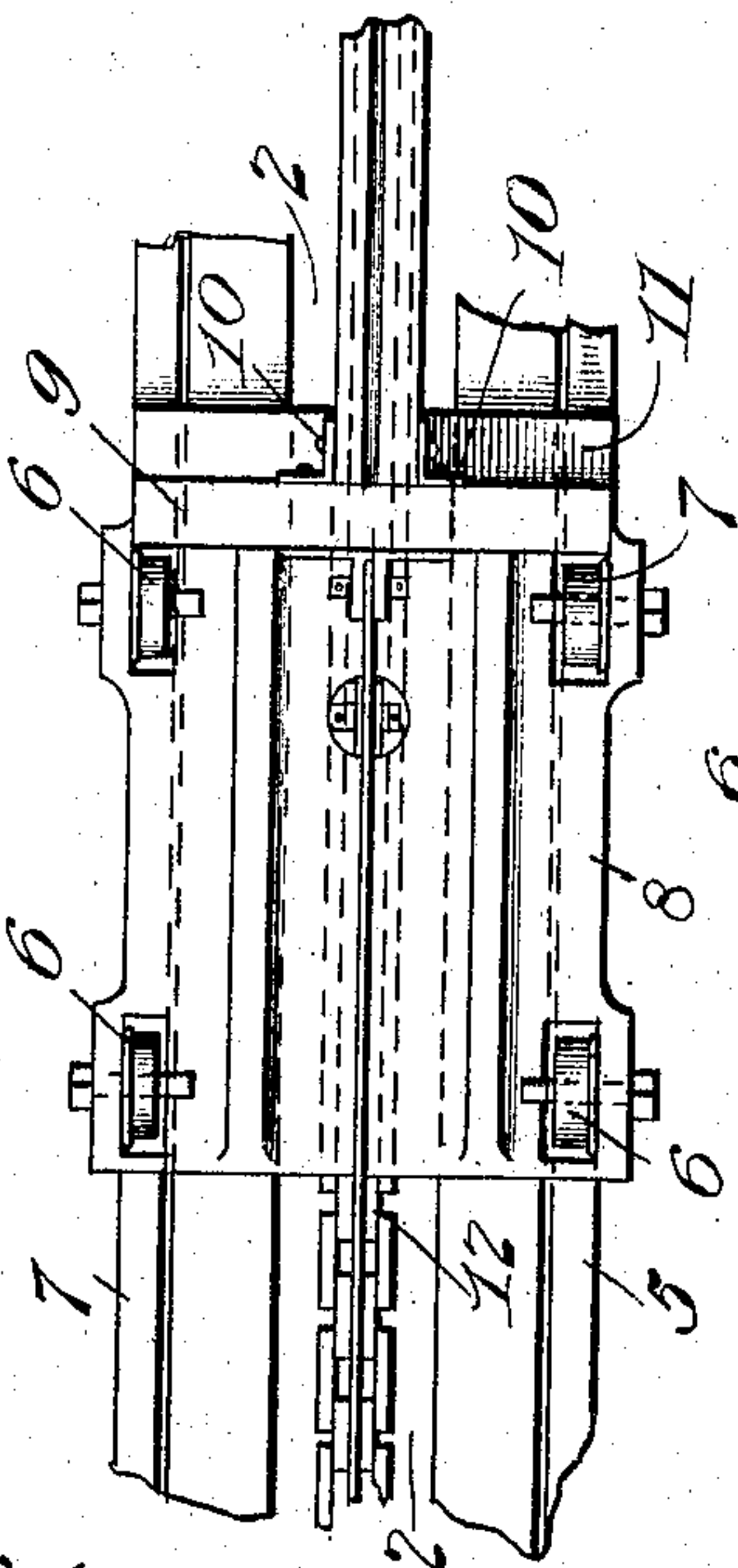


Fig. 1.

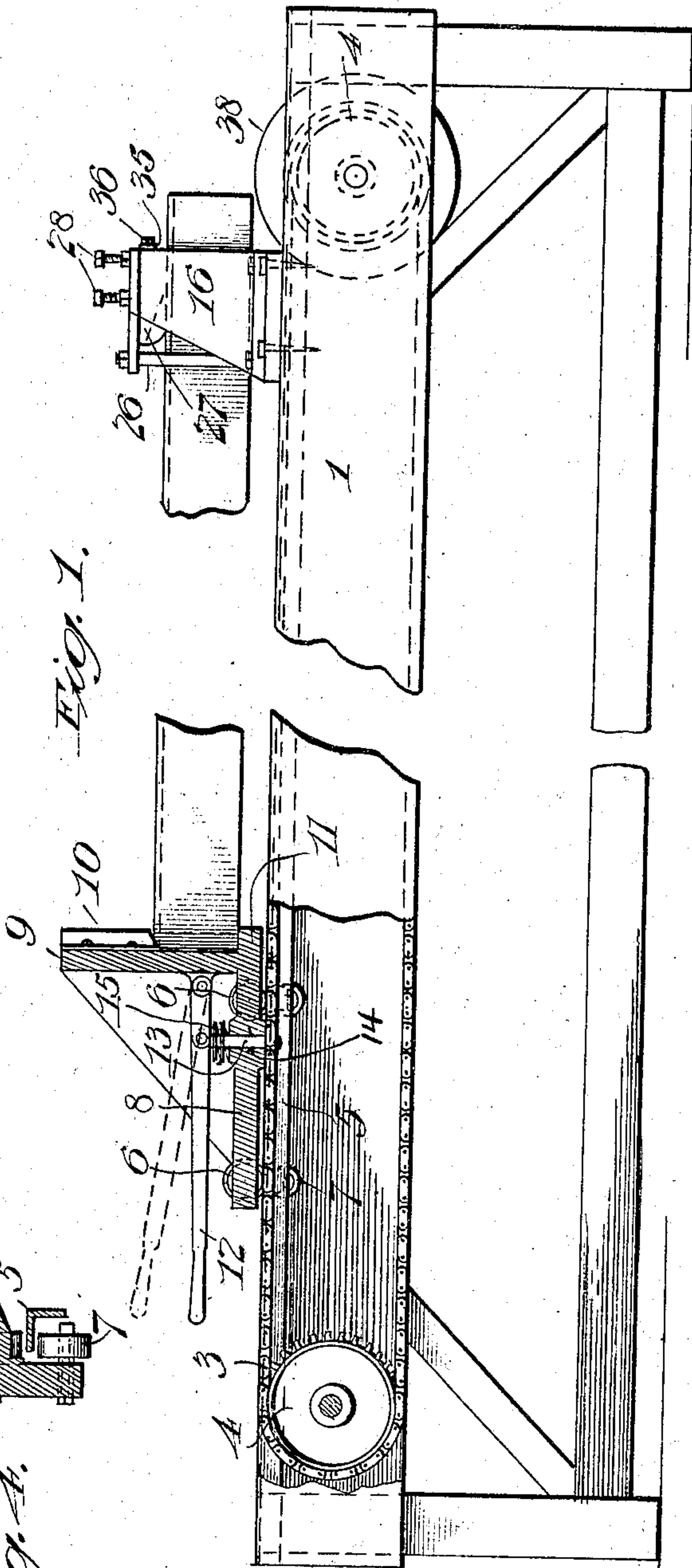
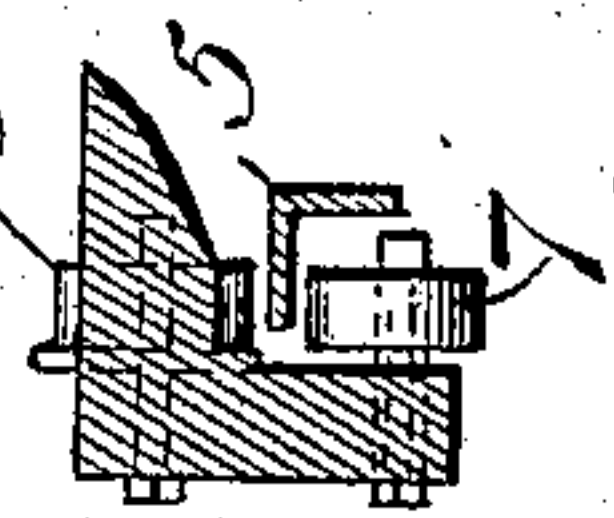


Fig. 4.



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Witnesses

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By

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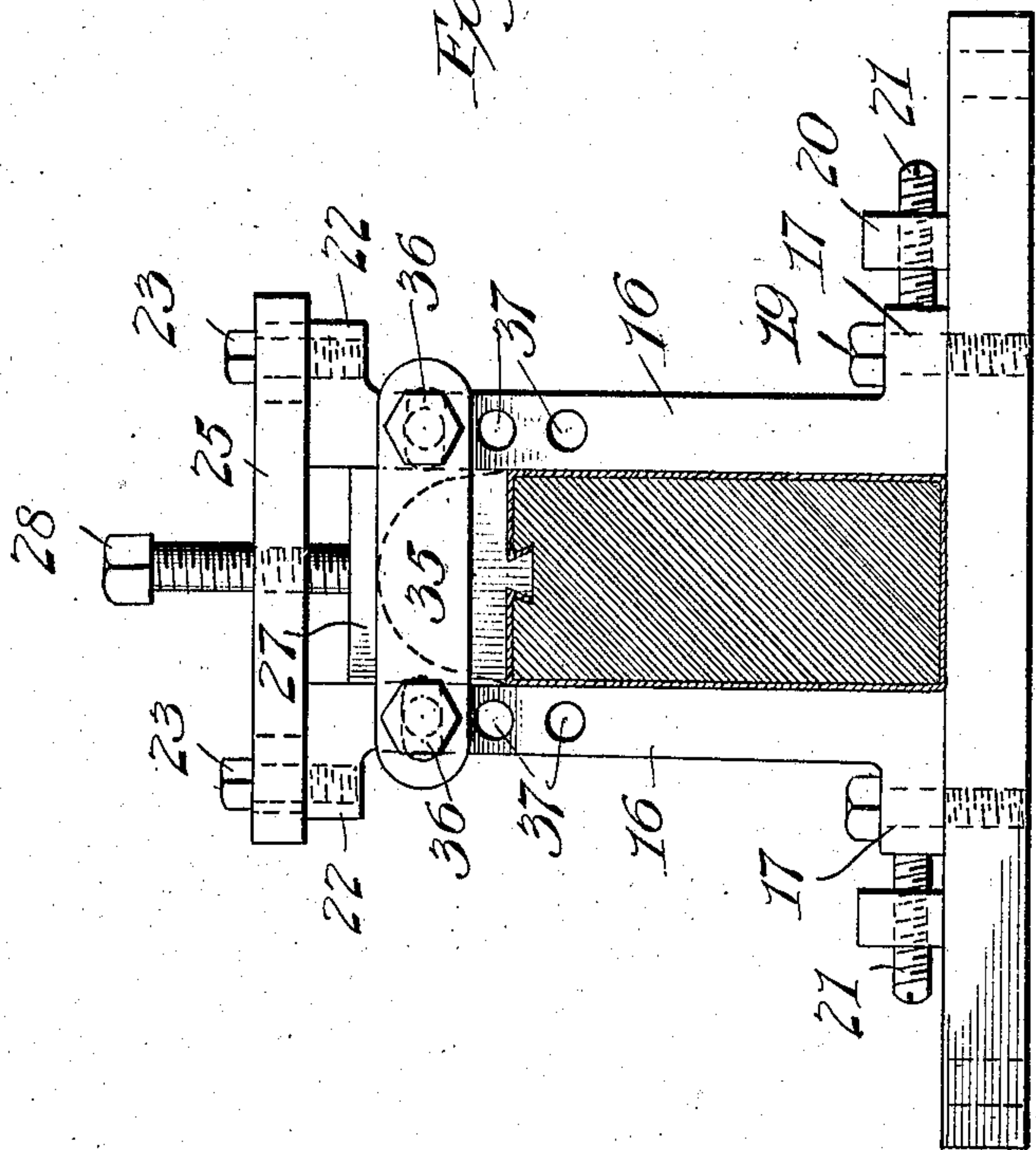
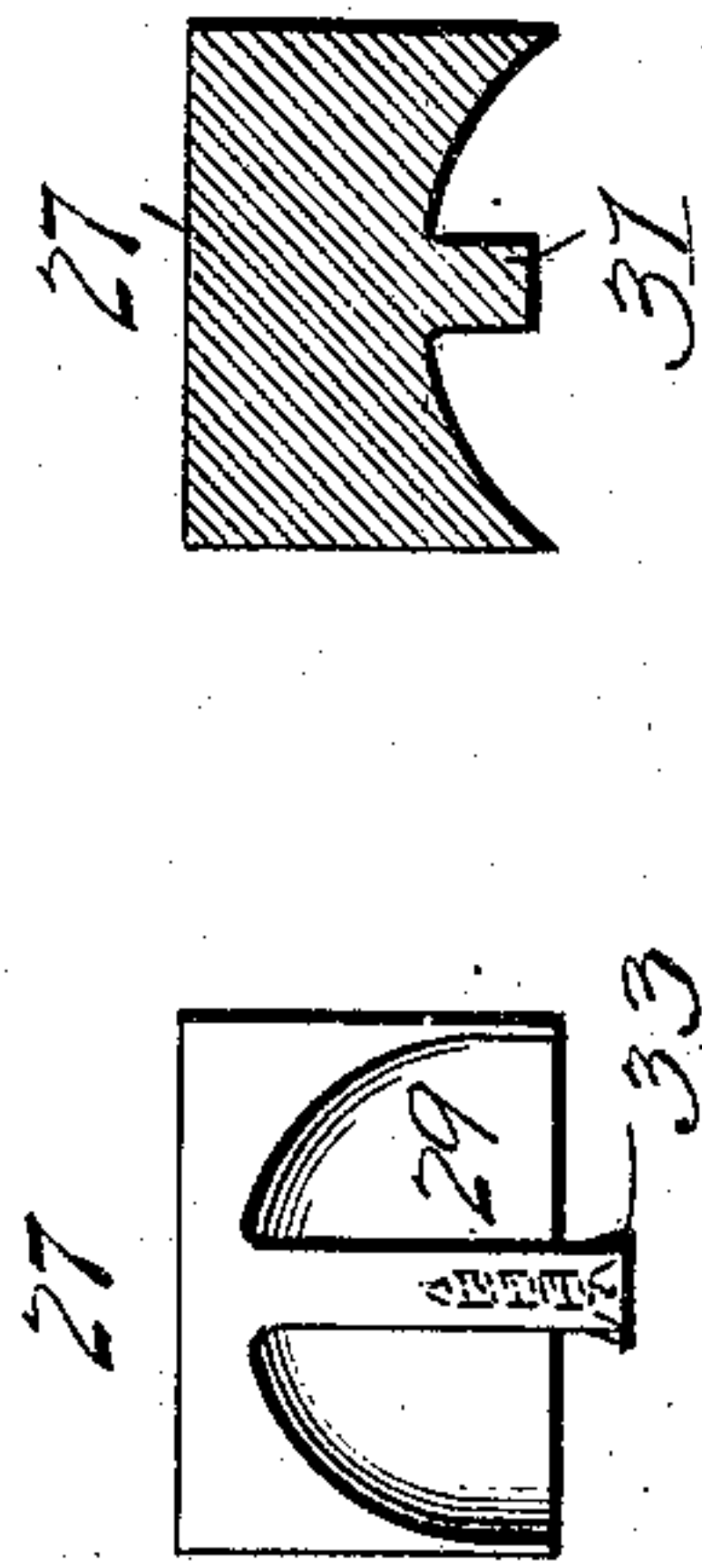
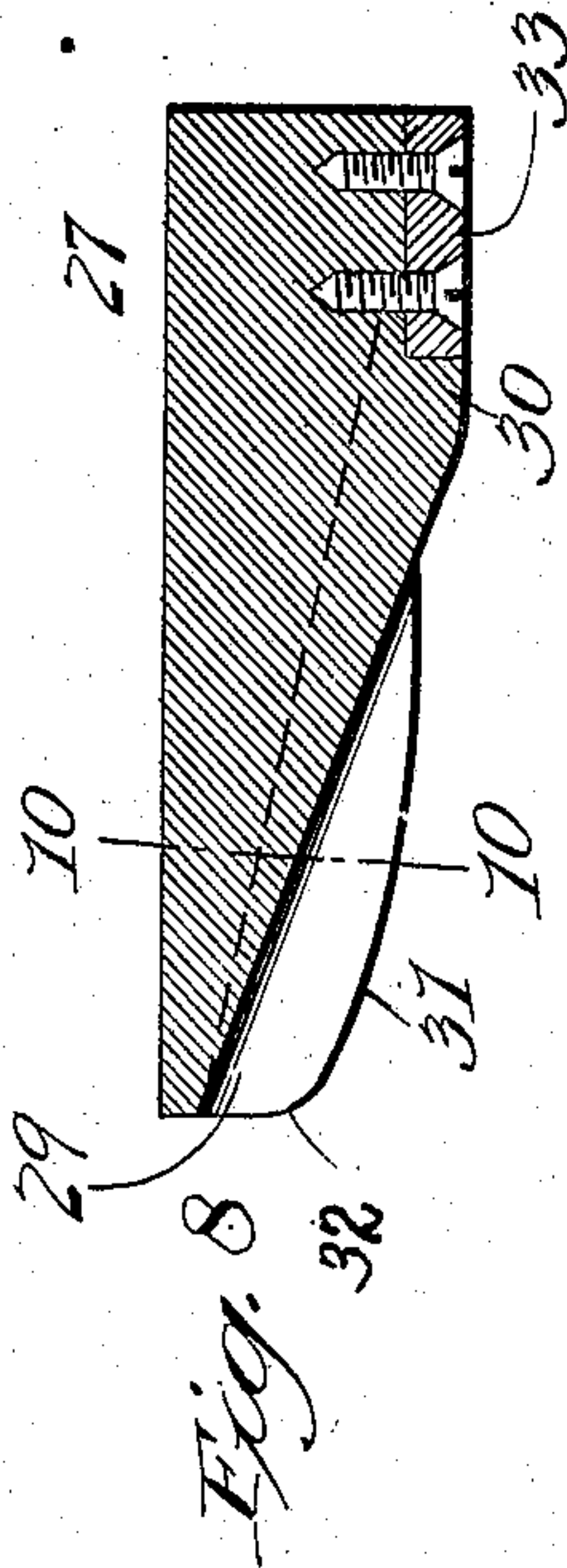
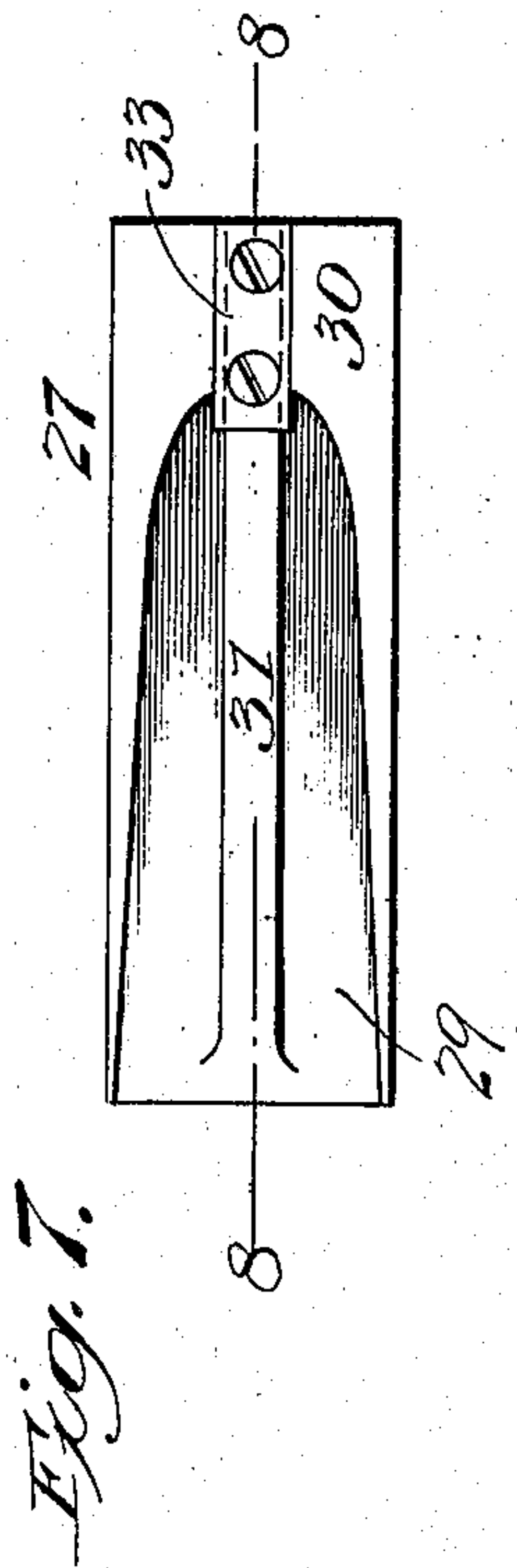
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

IRWIN H. HILL, OF BERKELEY, CALIFORNIA, ASSIGNOR TO NORMAN C. HILL, OF OAKLAND, CALIFORNIA.

FORMING-DIE.

936,999.

Specification of Letters Patent.

Patented Oct. 12, 1909.

Application filed January 20, 1909. Serial No. 473,389.

To all whom it may concern:

Be it known that I, IRWIN H. HILL, citizen of the United States, residing at Berkeley, in the county of Alameda and State of California, have invented certain new and useful Improvements in Forming-Dies, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to machines for applying fire-proof sheathing to doors, and has specially in view a machine of the type specified which is adapted to fit the sheathing around the top and side pieces of doors and securely and squarely fit the edges of the sheathing within the panel grooves of said top and side pieces of doors before the door sides and top and panels are assembled.

20 With the above generally stated objects of the invention in view it is contemplated providing a work table or bench which carries a movable work holder and a stationary but adjustable die, the movable work holder carrying the parts of the door to, and forcing the same through the holder for the die so that the latter can operate upon the parts of the door to turn the edges of the metal sheathing snugly and squarely into the panel groove.

30 In carrying out the objects of the invention generally stated above, it will, of course, be understood that the same is susceptible of wide variations as to details and structural arrangements, but a preferred and practical embodiment of the same is shown in the accompanying drawings, wherein—

40 Figure 1 is a side elevation of the improved sheathing machine, the same being shown partly in section. Fig. 2 is a top plan view of a portion of the bench or table showing the movable work-holder thereon and a portion of a door held by said work-holder. Fig. 3 is a rear elevation of the forming die and holder therefor, showing a part of a door with the sheathing secured thereon. Fig. 4 is a detail sectional view of one corner of the work-holder, showing the supporting roller therefor. Fig. 5 is a similar view of the base of the die holder. Fig.

6 is a top plan view of the top plate of the die holder. Fig. 7 is a bottom plan view of the forming die. Fig. 8 is a longitudinal sectional view taken on the line 8—8, Fig. 7. Fig. 9 is a rear end view of the forming die. Fig. 10 is a vertical sectional view taken on the line 10—10, Fig. 9.

Referring to the accompanying drawings by numerals, 1 designates a work bench or table having a central longitudinal opening 2 therein in which a sprocket chain 3 operated by sprocket wheels 4—4, at each end of the table, runs. An angle iron track or rail 5, which is preferably of an inverted L-shape extends lengthwise of each top edge of the work table or bench and forms a track for the upper and lower rollers 6 and 7 of a movable carriage 8 the front portion of which carries an upstanding plate 9 upon which two vertically arranged spaced apart angle irons 10 are securely attached and which form a work-holding groove or socket into which the end of a piece of work is inserted, as will be presently explained. It will be noted that the upstanding plate 9 is so located upon the movable carriage that a bottom rest or flange 11 is provided for supporting the work. The rollers 6 and 7 of the carriage are arranged in pairs at each corner of the carriage, the members of each pair of rollers being arranged one above the other so that they will run upon the top and the bottom of the tracks 5 so as to prevent the carriage being displaced from said rails, or tracks.

85 A handle or lever 12 has one end pivoted to the rear face of the upstanding plate 9, and at an intermediate point said lever has a pivotal connection with a pin or lug 13 which passes through an opening 14 in the carriage body to engage with one of the links of the sprocket chain 3 and thereby impart a movement to the carriage. A spring 15 is interposed between the lever 12 and the carriage body and preferably coiled about the pin 13, said spring exerting a pressure to raise the lever and thereby withdraw the pin from engagement with the sprocket chain. As thus far described, it

will be seen that when the lever 12 is depressed the pin will engage with the sprocket chain, and as said chain is a constantly moving one, the carriage will be pulled longitudinally of the table by said chain until the lever is released, whereupon the pressure of the spring will raise the lever and disengage the pin from the chain.

A die holder is mounted upon the end of the bench or table opposite to that upon which the work holder is when in its normal position; said die holder comprising two vertically arranged plates 16 having outstanding base flanges 17 through which bolt slots 18 are formed for the reception of fastening bolts 19 which engage with the table or bench and prevent a vertical movement of said plates. An adjusting lug 20 is located adjacent to each of the base flanges of the plates 16 and carries a horizontally arranged bolt or set screw 21 one end of which bears against said base flanges and which is adapted to adjust the side members horizontally relatively to one another when turned through said lugs 20, as will be readily understood. The upper end of the side plates 16 are also provided with outstanding flanges 22 having bolt openings formed through them for the reception of fastening bolts 23 which pass through bolt slots 24 formed in a top plate or cap 25. It will be understood that the bolt slots 24 in the cap plate 25 are similar to the bolt slots 18 in the base flanges of the side members 16, so as to permit of the horizontal adjustment of said side members or plates by means of the screw carried by each adjusting lug 20. The side plates 16 are narrower at their top than at their bottom, and the cap 25 therefore projects considerably beyond the front edge of the tops of said side members, the overhanging edge of said cap being connected to the table by means of bolts 26 to impart strength to said overhanging edge.

A forming die 27 is suspended beneath the top plate or cap 25 by means of the bolts 28—28 which pass through said cap plate, said die having an inclined or beveled under surface 29 which extends from its front edge to a point adjacent to its rear flat bottom 30, the central portion of the inclined or beveled surface being provided with a longitudinal rib 31 the front end of which is rounded as indicated at 32 and said rib merges into the flat bottom 30, a recess being formed at the junction of the rib and the flat bottom into which a dovetail block 33 is inserted the beveled longitudinal sides of which project slightly beyond the sides of the rib. The details of the forming die are set forth in Figs. 7, 8, 9 and 10 of the accompanying drawings and by reference thereto it will be seen that the same, in inverted plan, is of a substantially scoop-shape.

A stop plate 35 extends across the rear of the two plates 16 and carries end bolts 36 which are adapted to engage with the bolt holes 37 in the rear faces of said plates 16 to permit of the plate being placed in various vertical positions to act as a rear stop for the forming die to prevent any rearward movement thereof incident to the operation of the same upon the work.

From the foregoing description it will be seen that the die holder may be adjusted to accommodate various pieces of work of different widths, and through the connection of the forming die with the cap plate of the die holder, it will also be seen that said die holder may be adjusted vertically relatively to said die holder.

The operation of the machine is as follows:—A piece of the door with the metal sheathing around it is placed in the work holder with its panel groove upward and the carriage of the work holder is engaged with the sprocket wheel 3 by means of the lever 12 and pin 13 which causes said carriage and work-holder to move longitudinally of the table to pass the work through the die holder. The rounded end of the rib 31 enters the panel groove of the work and a continued movement causes said rib to force the edges of the sheathing down into said panel groove until the dovetailing block 33 is reached, whereupon the metal edges will be forced into binding contact with sides of the panel groove so as to fit snugly and firmly in said groove, as is shown in Fig. 3 of the accompanying drawings. To facilitate the delivery of the work from the disk holder, a roller, or rollers, may be mounted in the table adjacent to the rear end thereof, such as is indicated at 38.

I claim as my invention:—

1. A machine of the character described comprising a bench or table, a sprocket chain running longitudinally thereof, a work holder on said table, a lever carried by said work holder, a pin passing through said work holder and having one end connected to said lever and its other end adapted to engage with said sprocket chain to hold the work holder in engagement therewith, a die holder on the table, and a die carried by the die holder.

2. A machine of the character described comprising a bench or table, a sprocket chain running longitudinally thereof, tracks carried by said table, a work holder provided with rollers which run on said tracks, a lever-carried by the work holder, a pin projecting through the work holder and having one end connected with the lever and its other end adapted to engage with the sprocket chain when the lever is moved in one direction, a spring for normally holding said pin out of engagement with the sprocket

chain, a die holder carried by the table, and a die mounted in said die holder.

3. A machine of the character described comprising a bench or table, a sprocket chain 5 running longitudinally therein, tracks formed of inverted angle irons carried by said table, a work holder having upper and lower rollers for engagement with the upper and lower side of the top of said track, a lever 10 carried by said work holder, a pin projecting through the work holder and having one end connected with the lever and its other end adapted to be engaged with the sprocket wheel when the lever is moved in 15 one direction, a die holder, and a die carried by said die holder.

4. A machine of the character described comprising a bench or table, a work holder movable thereon and provided with spaced 20 apart angle irons forming a work holding groove for the end of the work and a bottom rest flange for the work, a die holder through which the work is forced by said work holder, and a die adjustably carried by said 25 die holder for operating on the work forced through the die holder.

5. A machine of the described character comprising a bench or table, a work holder movably mounted thereon and provided with 30 an end plate carrying spaced apart angle irons forming a work holding groove for the end of the work and a bottom rest flange, a sprocket chain carried by the table for imparting a movement to said work holder, a 35 die holder mounted on the table, and a die carried by said die holder.

6. A machine of the character described comprising a bench or table, a work holder movably mounted thereon, a die holder on 40 said table and through which the work is forced by said work holder, and an adjustable die suspended within the die holder and provided with a forming rib and a dovetailing block for operating on the work 45 forced through said die holder.

7. A machine of the character described comprising a bench or table, a sprocket chain running longitudinally of said table, a work 50 holder on said table and adapted to be engaged with said sprocket chain and be moved thereby, a die holder on the table, an adjustable die carried by said die holder and provided with a central forming rib terminating in a dovetailing block for operating 55 upon the work forced through said work holder.

8. A machine of the character described comprising a bench or table, a chain running longitudinally of said table, a work holder 60 on said table and adapted to be engaged with said chain and be moved thereby, a die holder on the table, and a die adjustably suspended within the die holder and provided with a tapering, longitudinally arranged

forming rib and dovetailing block for acting 65 upon the work forced through the die holder.

9. A machine of the character described comprising a movable work holder, a die holder composed of side members which are 70 relatively adjustable, an adjustable die suspended between said side members and provided with a beveled front under surface and a centrally located longitudinally arranged rib for operating upon the work forced 75 through the die holder, and a dovetailing block carried by said die at the end of the rib.

10. A machine of the character described comprising a movable work holder, a die 80 holder composed of side members held in adjustable relation and a top plate connecting said side members, a die adjustably suspended from said top plate between the side members, a forming rib carried by said die, 85 and a dovetailing block at the rear end of said rib.

11. A machine of the character described comprising a movable work holder, a die holder through which the work is forced by 90 said work holder, said die holder being composed of side plates held in adjustable relation and a top plate connecting said side plates, a die adjustably suspended between said side plates and provided with a beveled 95 front bottom surface and a centrally arranged longitudinally tapering rib, and a dovetailing block seated in said die at the rear end of said rib.

12. A machine of the character described 100 comprising a movable work holder, a die holder through which the work is forced by the work holder, said die holder being composed of spaced apart side members, means for adjusting said side plates horizontally, a 105 top plate connecting said side plates, a forming die adjustably suspended from said top plate between said side members and provided with an inclined front under surface and a tapering rib, and a dovetailing block 110 seated on the under surface of the die at the rear end of said rib.

13. A machine of the character described comprising a bench or table, a chain running 115 lengthwise thereof, a work holder on the table and adapted to be moved by said chain, a die holder through which the work is forced by said work holder, and a forming die adjustably suspended within said die holder and provided with a tapering rib and 120 a dovetailing block for operating on the work forced through the die holder.

14. A machine of the character described comprising a bench or table, a chain running 125 lengthwise thereof, a work holder on the table and adapted to be moved by the chain, a die holder through which the work is forced by the work holder, and a forming

die adjustably suspended within said die holder and provided with a beveled under surface having a tapering rib formed thereon, and a dovetailing block seated in the die at the rear end of the rib.

15. A machine of the character described, comprising a movable work holder, a die holder composed of adjustable side members and a top plate connecting said side mem-

bers, and a forming die adjustably suspended from said top plate between the side members. 10

In testimony whereof I hereunto affix my signature in presence of two witnesses.

IRWIN H. HILL.

Witnesses:

H. C. SCHROEDER,
NORMAN C. HILL.