

(No Model.)

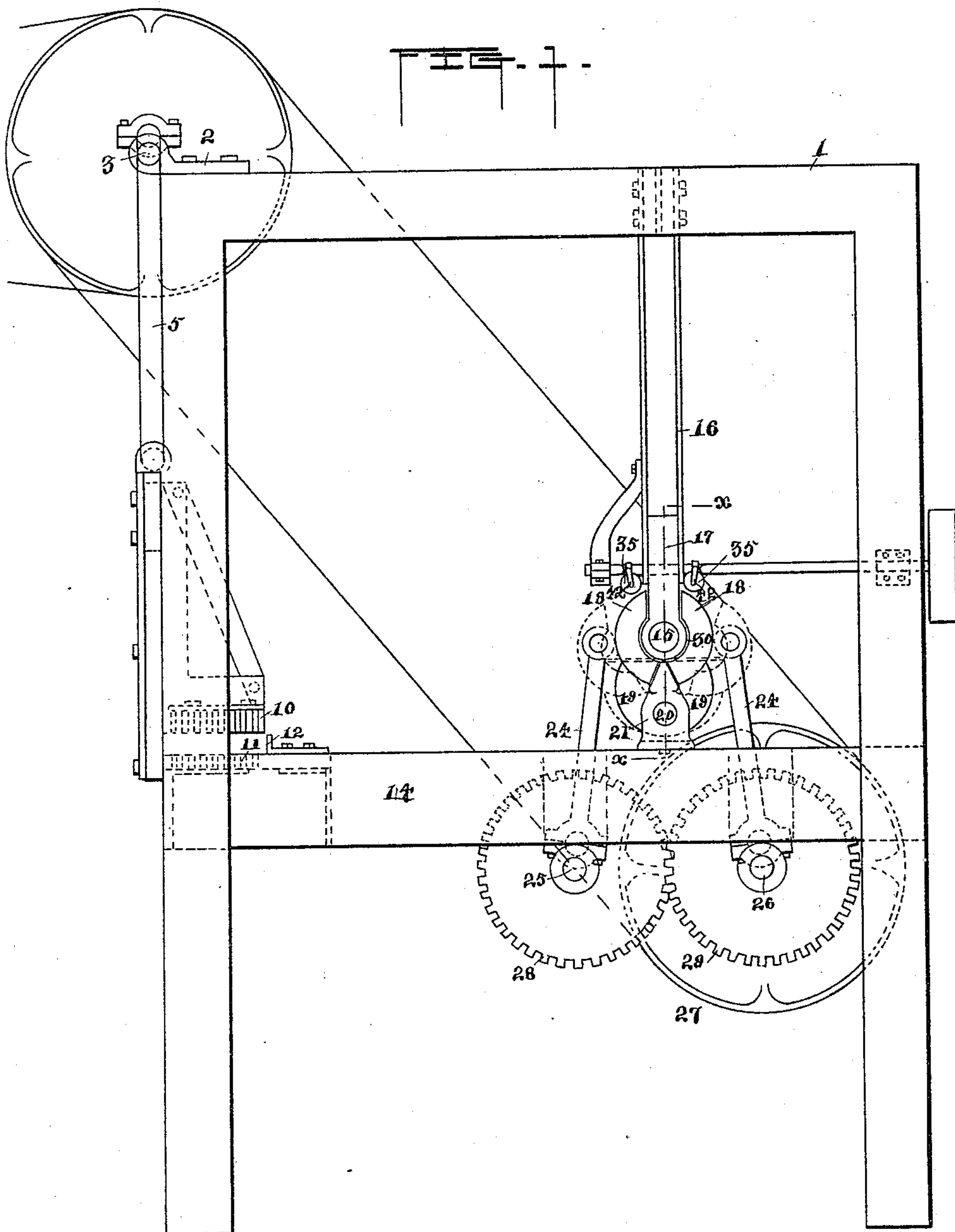
4 Sheets—Sheet 1.

T. J. THORP.

MACHINE FOR FORMING TUBULAR METAL POSTS.

No. 442,556.

Patented Dec. 9, 1890.



Witnesses
Arch. M. Catlin.
[Signature]

Inventor
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(No Model.)

4 Sheets—Sheet 2.

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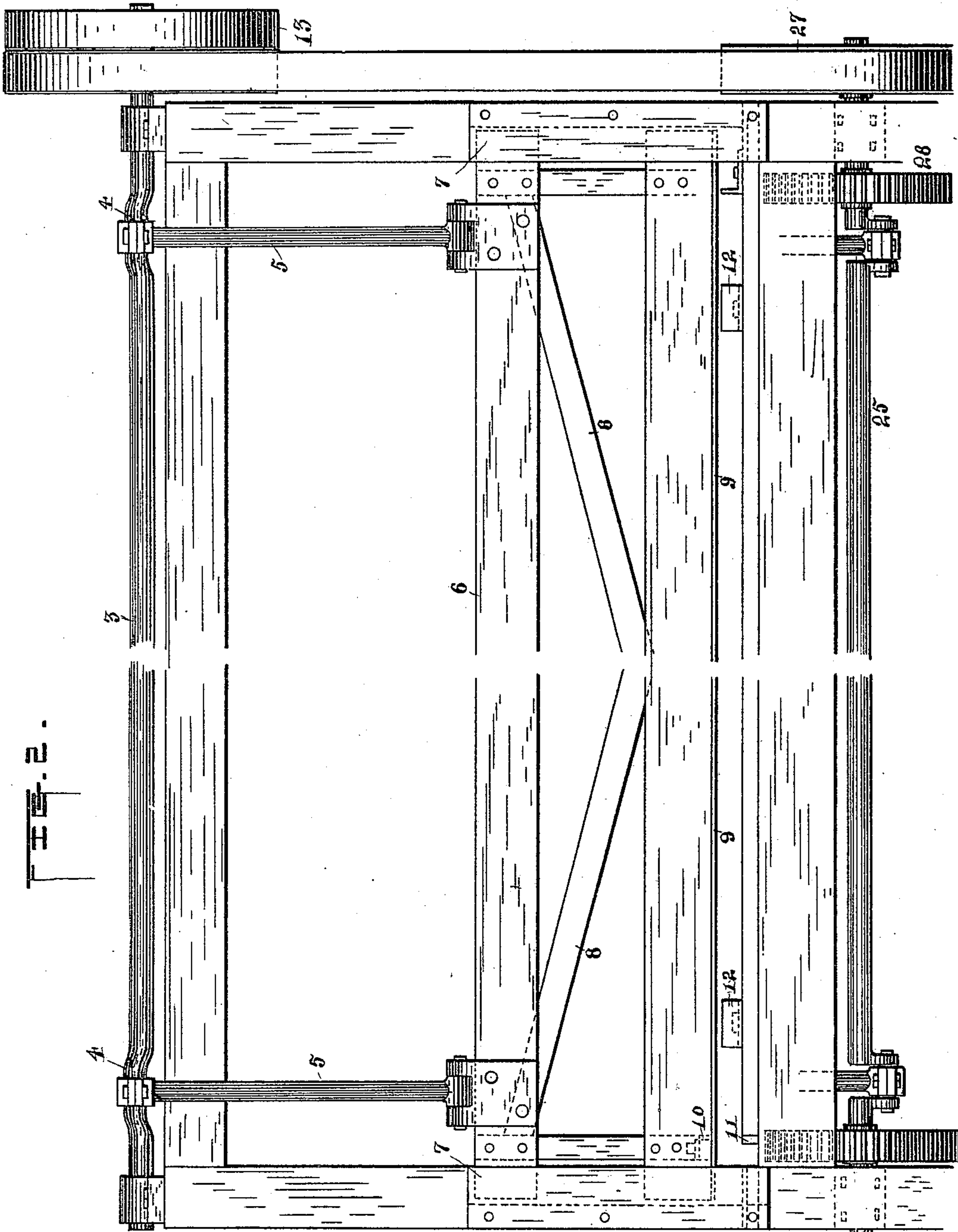


Fig. 2.

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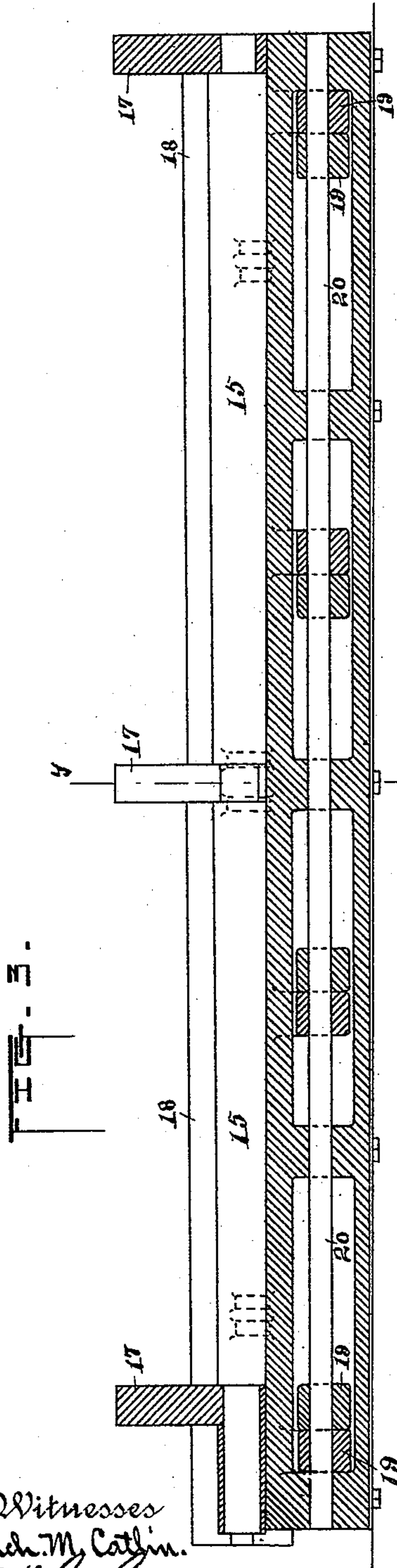


FIG. 3.

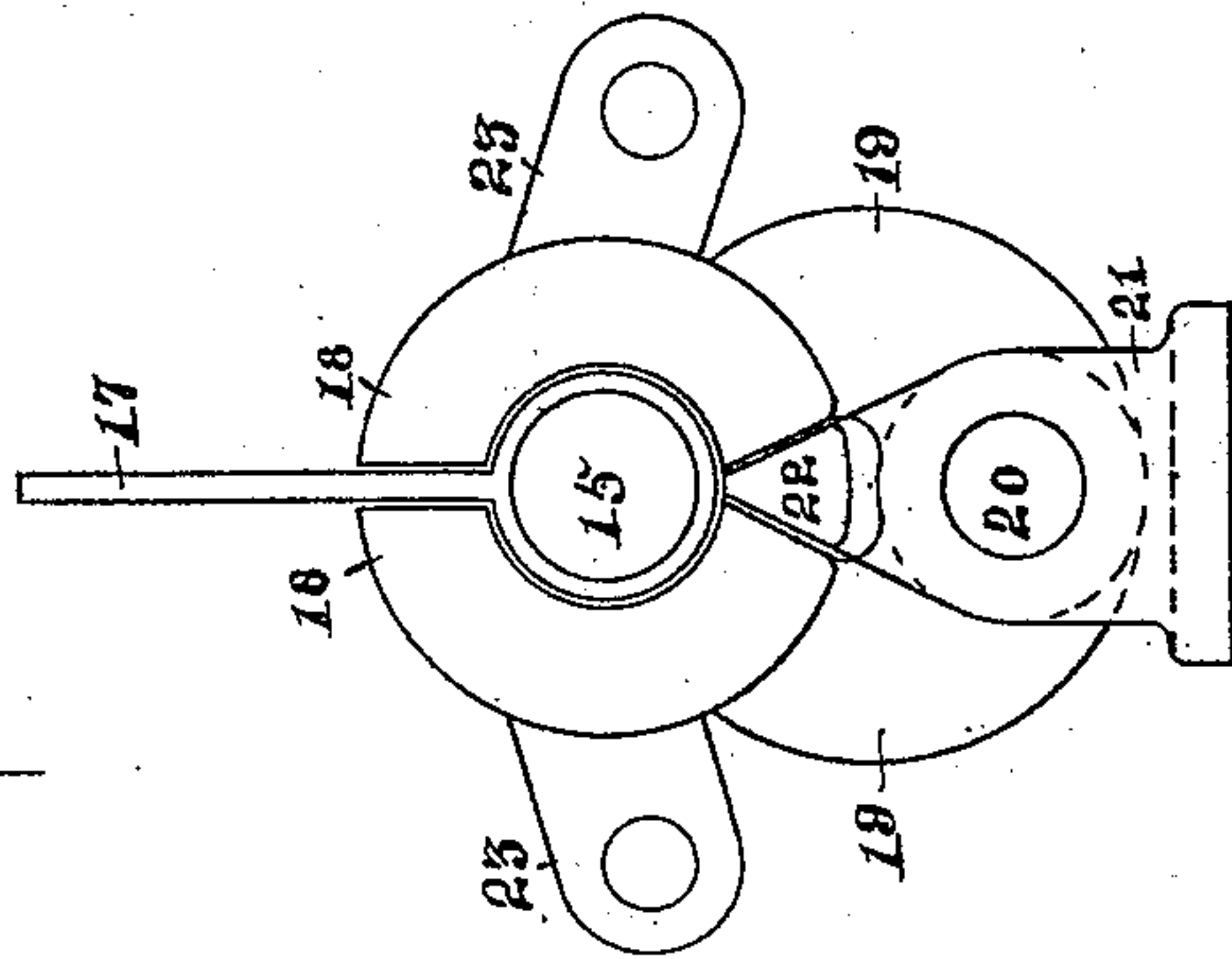


FIG. 4.

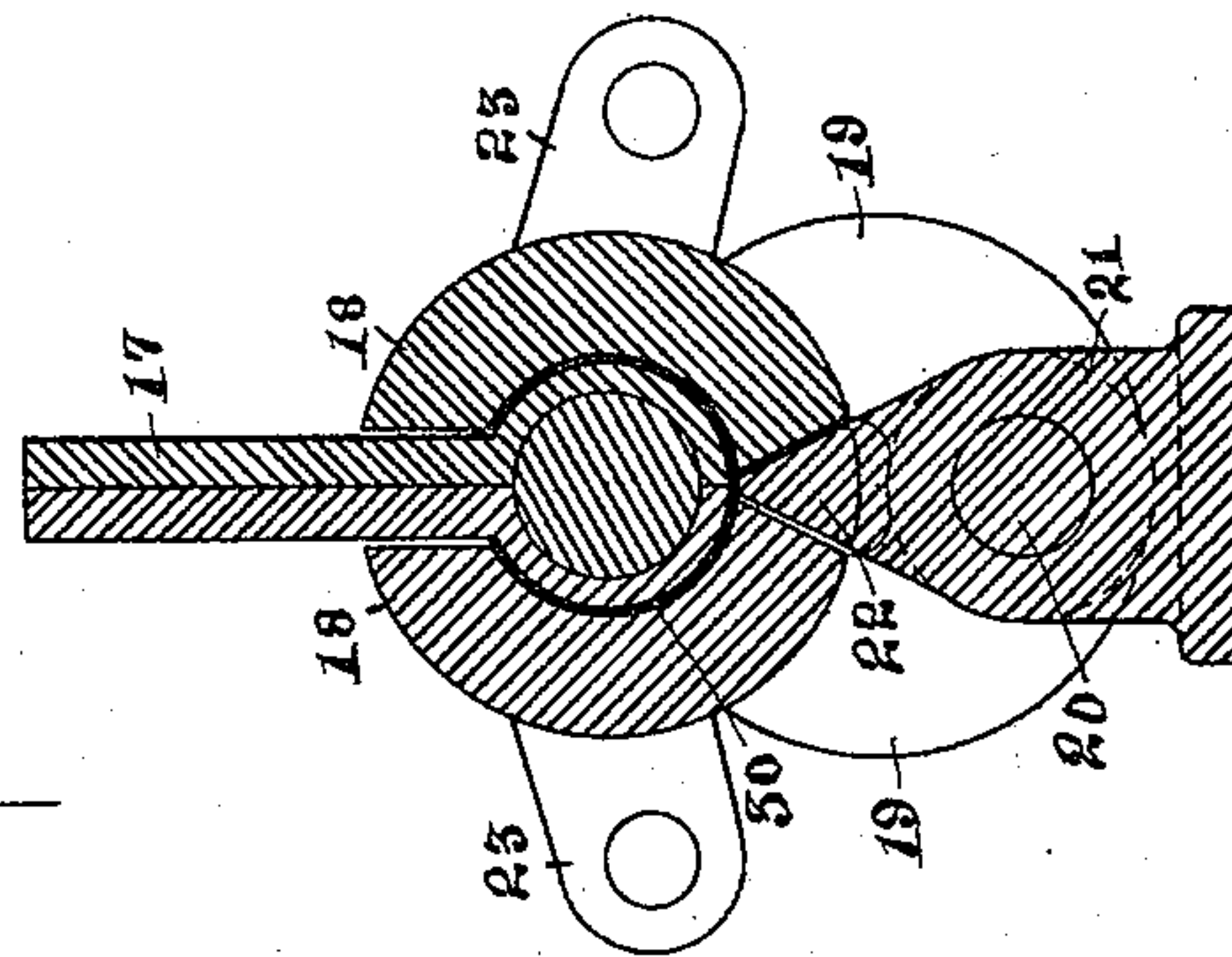


FIG. 5.

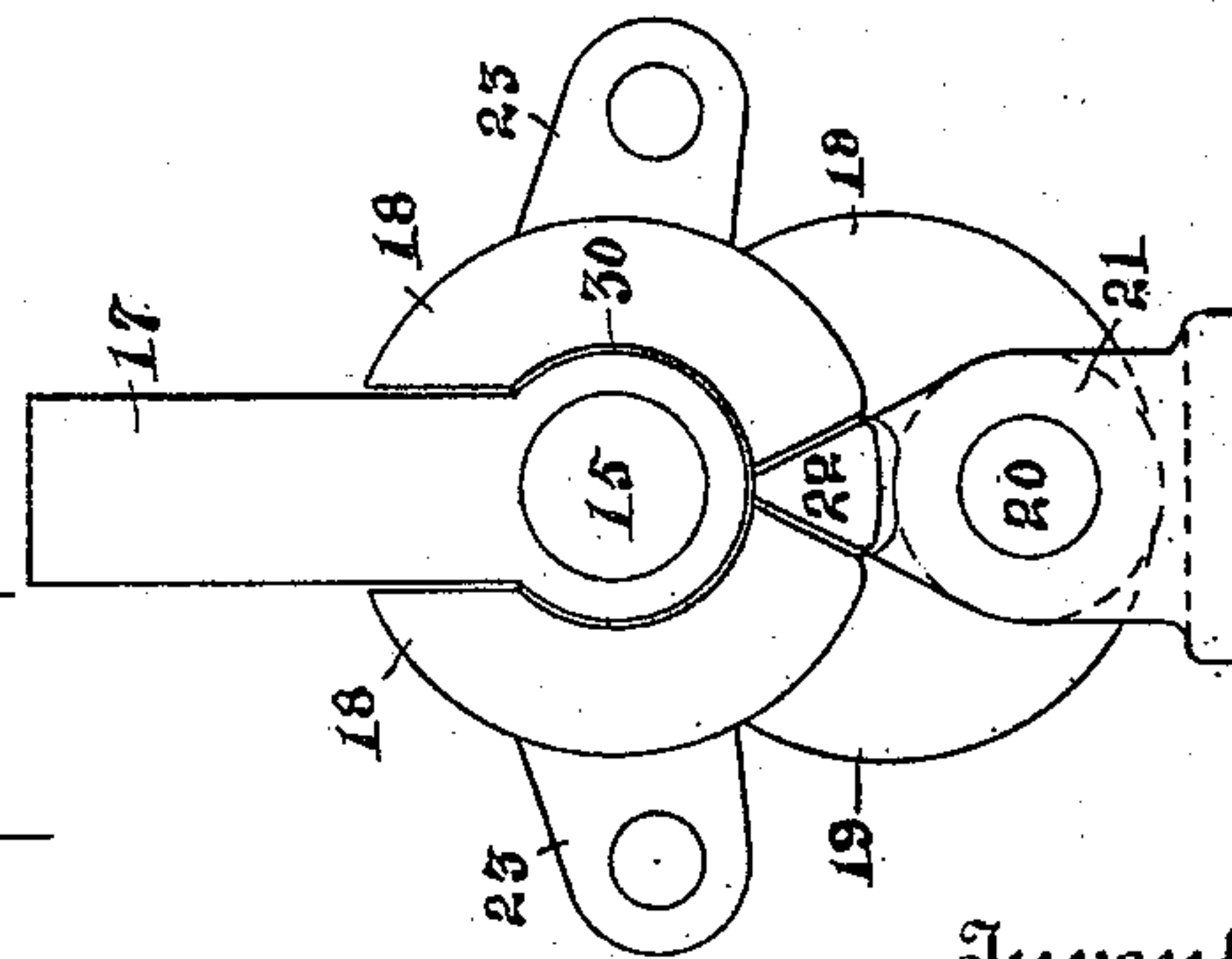


FIG. 6.

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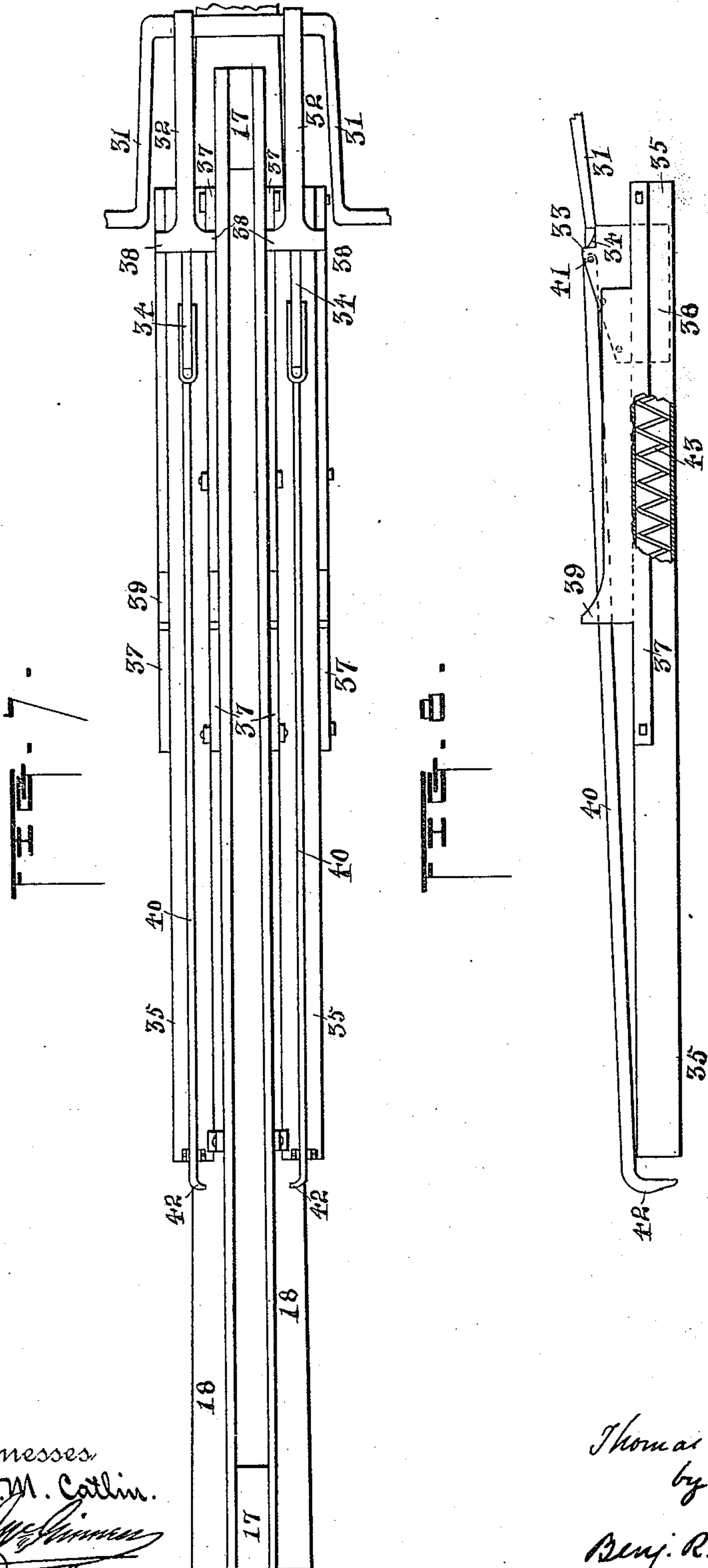
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UNITED STATES PATENT OFFICE.

THOMAS J. THORP, OF CHICAGO, ILLINOIS.

MACHINE FOR FORMING TUBULAR METAL POSTS.

SPECIFICATION forming part of Letters Patent No. 442,556, dated December 9, 1890.

Application filed August 29, 1890. Serial No. 363,436. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. THORP, a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machines for Forming Tubes for Posts and Like Purposes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

The object of the invention is to provide a machine for cutting metal blanks suitable for making posts or sections of telegraph-poles and bending and otherwise preparing the same; and it consists in the construction hereinafter described and pointed out.

In the accompanying drawings, Figure 1 is a side elevation, and Fig. 2 an end elevation, of the improved machine. Fig. 3 is a section of the bending mechanism on line *x x* of Fig. 1; Fig. 4, an elevation of the same. Fig. 5 is an elevation of the large end of a transverse section on line *y y* of Fig. 3; Fig. 6, an elevation of the small end of the bending mechanism. Fig. 7 is a plan of the ejector and post, and Fig. 8 is a side elevation of the ejector.

1 indicates a frame, of any suitable form and material, what is known as "angle iron" being well adapted for the purpose.

In brackets 2, located on top of the frame and at one side thereof, a shaft 3 has its bearings, said shaft having cranks at 4 4.

5 5 denote pitmen (crank-shafts) loosely connected to a shears-supporting frame 6, able in vertical guides at 7.

8 8 denote braces, and 9 the shear-blade.

10 is a male and 11 a female die for notching or serrating one end of the piece of metal cut by the shears. The female die has depressions below the plate, which supports the metal blank, so that teeth or serrations are cut in the end of said blank.

12 12 are stops for the metal sheet when inserted in readiness to be cut.

14 denotes one of the cross-bars of the frame, which support the die 11, and also the plate which supports the metal sheet along or near the line of section of the blade 9.

13 is a pulley for revolving the shaft and raising and lowering the blade.

In operation a sheet of metal having a width sufficient to form a section of the pole or post to be made is pushed under the cutting-blade against the stops, and the blade and die are then brought down upon it by power applied in any suitable manner to turn the pulley 13, whereupon a blank is produced with notches or serrations at one end, which serrations have relation to means for coupling the sections of the pole, and need not be further described herein.

The blanks produced as above described are preferably made wider at one end than at the other to provide for making a tapering pole-section. It is bent into an approximately tubular form by the following mechanism: A mandrel 15 is supported between hangers 16, which are bolted to the lateral extension 17 of the mandrel near the ends of the latter. 18 18 are curved formers or sleeves supported on arms 19, which are journaled upon the rod having bearings in the slotted bar 21. Said bar is provided with a wedge-shaped edge 22 on its upper side. 23 23 are ears or brackets fixed on the sleeves 18, and to these are loosely connected the crank-shafts 24 24. The lower end of said shafts are similarly connected with cranks on the shafts 25 and 26, respectively, supported in or below frame-bars 14.

The formers are operated by means of pulley 27 and gear-wheels 28 and 29, fixed one on each of the shafts 25 and 26. Their open position is indicated by dotted lines in Fig. 1. When thus situated, the blank produced as above set forth and denoted by 30 is introduced between them and above the wedge-shaft support 22. Power being applied to pulley 27, the pitmen are raised and the formers are moved up about the mandrel, with the effect to bend the blank so that the edges rest against or near the part 17 of said mandrel. The formers are so shaped and pivoted that when closed the lower ends are adjacent to the wedge 17 and their upper ends are close to the wedge 22.

In Fig. 7 is shown mechanism for ejecting the tube after it has been formed. 31 is a crank-shaft suitably supported and driven to move the connecting-rods 32 32 by means of the crank 31. These rods at their other ends rest loosely in notches cut in the heads 33 and have curved or inclined ends, as shown at 34.

The heads 33 pass down through slots in tubes 35 and connect with cylindrical bodies that fit loosely in said tubes. These cylinders or pistons 36 receive one end of a coiled spring, its other end bearing against the front end of the tube 35. 37 37 are side bars or ways having their upper edges so arranged that the laterally-extended parts 38 38 of the connecting-rod 32 move above them until they are brought upon the upwardly-inclined parts 39 39 of said side bars. The rods are carried up as their driving-crank pushes them outwardly by these inclines, and thereby lifted from the heads, as indicated in dotted lines. The above-described outward movement of the rods pushes forward the arms 40, which are pivoted at 41 to their piston-heads 38 until the heads are relieved from the rods by the inclines, as just stated. The parts are so constructed and their operation timed that the arms 40 will reach to the ends of the tubes that have been formed just as the dies are opening. The tube will when relieved from the dies open a little and its edge will be engaged by the fingers 42 42 on the upright arms. Said arms are operated to throw the tube off from its former by the springs 43, which, having been compressed by the forward movement described, will return the piston-heads and their connected arms 32 32 as soon as the rods are relieved from the same by the inclines 39.

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

1. In a machine for forming tubes, the frame, the former or mandrel suspended from said frame, the dies or hinges, bending-pins, and mechanism for closing the dies upon the former, substantially as set forth.

2. In a machine for forming tubes, the frame, the former or mandrel suspended from said frame, the dies or hinges, bending-pins, and mechanism for closing the dies upon the former, and a blank-supporting block located between said dies, substantially as set forth.

3. In a machine for forming tubes, the frame, the cutting-dies for serrating the end of a blank, the former or mandrel suspended from said frame, the dies or hinges, bending-pins, and mechanism for closing the dies upon the former, substantially as set forth.

4. In a machine for forming tubes, the frame,

the former or mandrel suspended from said frame and having upward extensions to arrest the closing of the dies and provide for producing a slot in the tube, the dies or hinges, bending-pins, and mechanism for closing the dies upon the former, substantially as set forth.

5. In a machine for forming tubes, the frame, the former or mandrel suspended from said frame and having upward extensions to arrest the closing of the dies and provide for producing a slot in the tube, said extensions being made of parts secured in recesses cut in the body of the cylindrical former, the dies or hinges, bending-pins, and mechanism for closing the dies upon the former, substantially as set forth.

6. In a machine for forming tubes, the frame, the shears for cutting blanks, the former or mandrel suspended from said frame, the dies or hinges, bending-pins, and mechanism for closing the dies upon the former, substantially as set forth.

7. In a machine for forming tubes, an ejector consisting of the arm and finger mechanism for moving the same to the end of a removable tube and for compressing a spring, said spring bearing on the arm and adapted to retard the same and eject the tube, and a tripping device adapted to free the arm and spring from the arm-moving mechanism, substantially as set forth.

8. In a machine for forming tubes, an ejector consisting of an arm and finger, said arm being provided with a piston, a fixed slotted tube receiving the piston, the latter being connected with the arm through the slot in the tube and the connecting-rod normally resting loosely on the arm, an inclined plane attached to said fixed tube by the side of its slot and in the path of said connecting-rod, arm-retarding mechanism, and devices for moving the connecting-rod and the rod until the former is thrown out of engagement with the latter by the incline, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

THOMAS J. THORP.

Witnesses:

BENJ. R. CATLIN,
ARCH. M. CATLIN,