

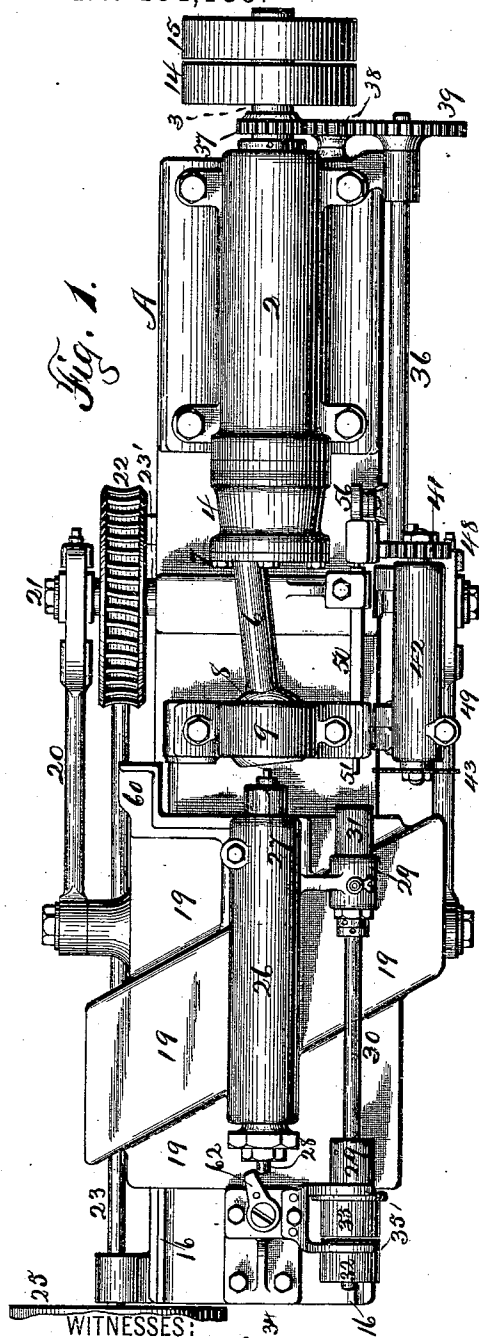
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6 Sheets—Sheet 1.

A. T. BROWN.
TYPE MAKING MACHINE.

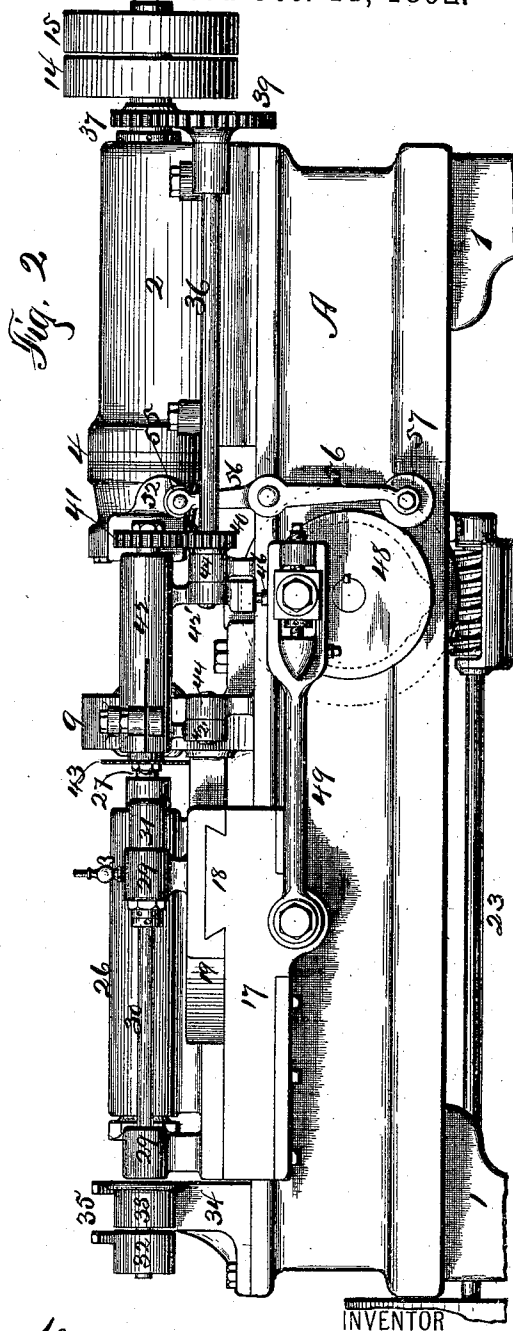
No. 484,135.

Patented Oct. 11, 1892.



WITNESSES:

H. A. Carhart,
Silas J. Hogan



INVENTOR

Alexander T. Brown

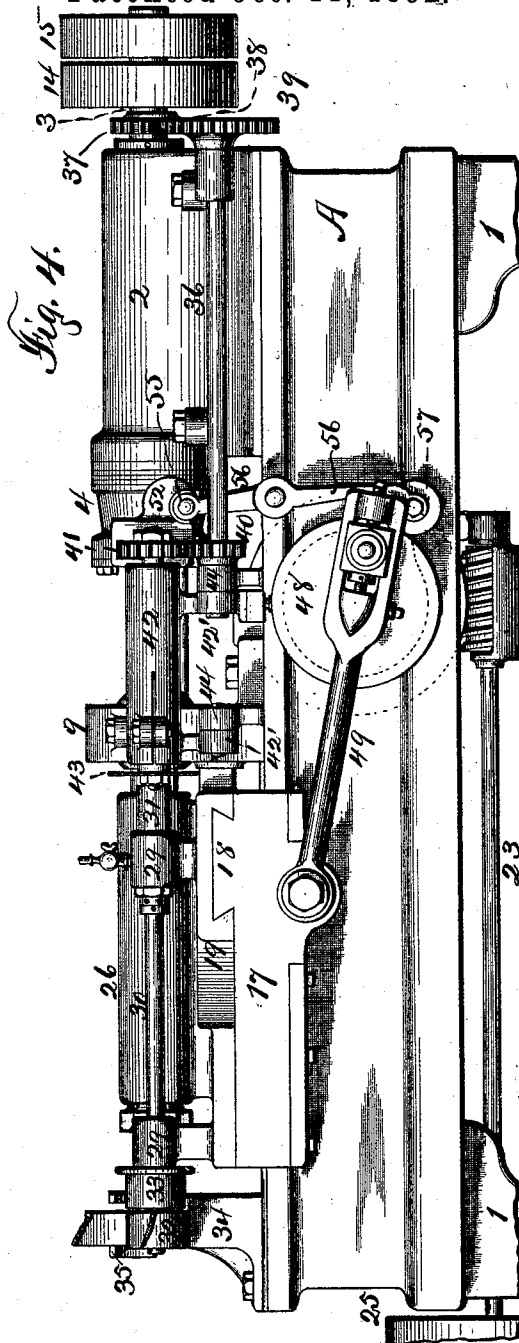
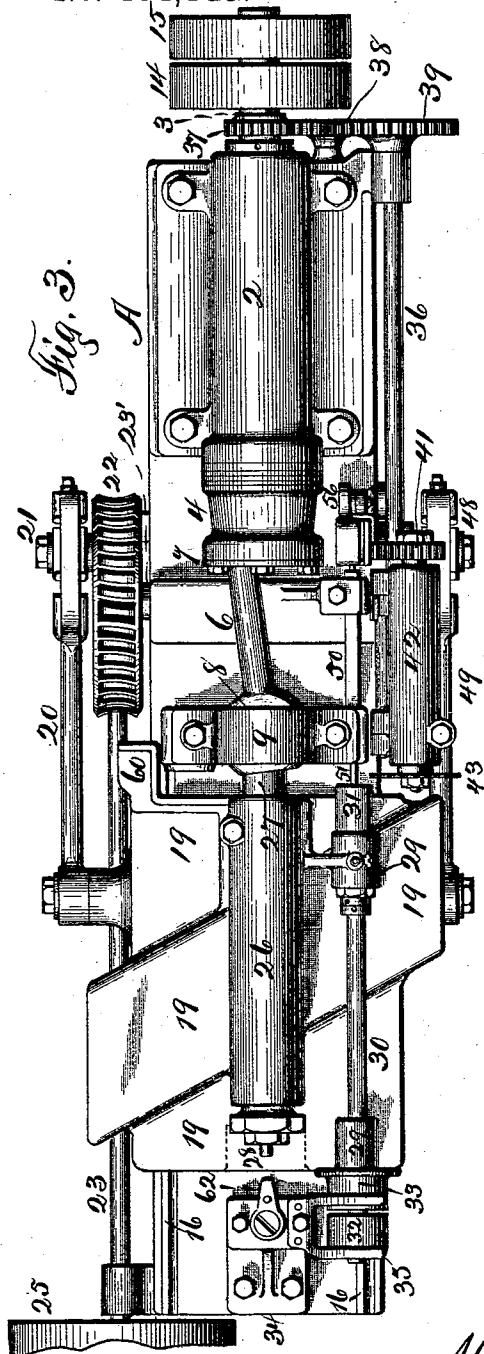
BY

Smith & Devison
his ATTORNEY

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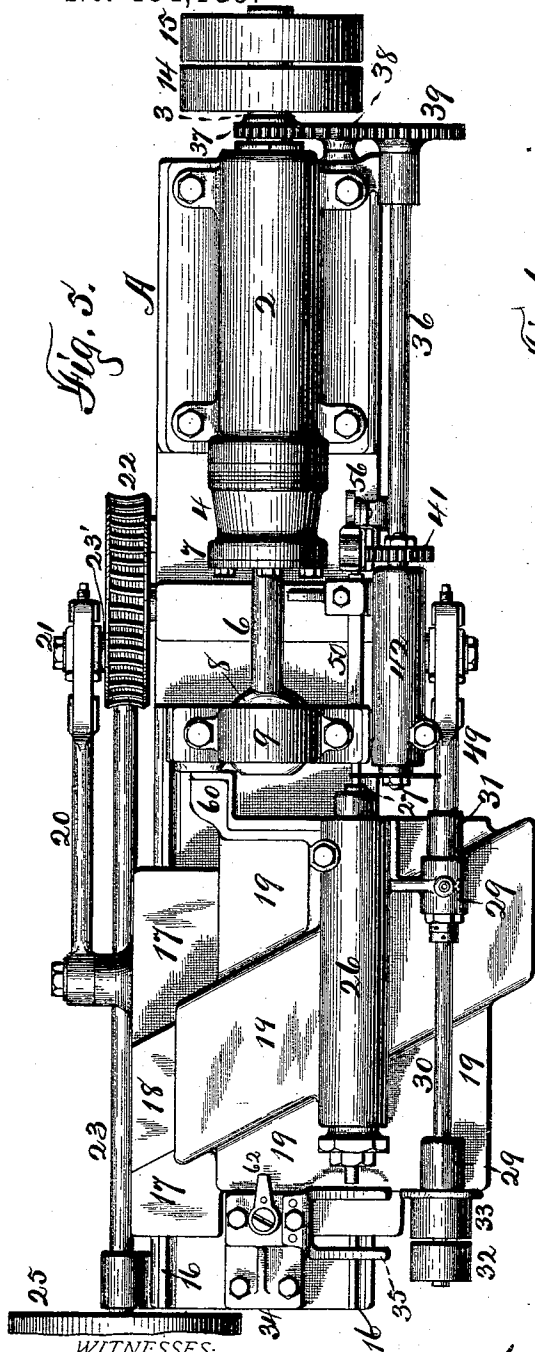
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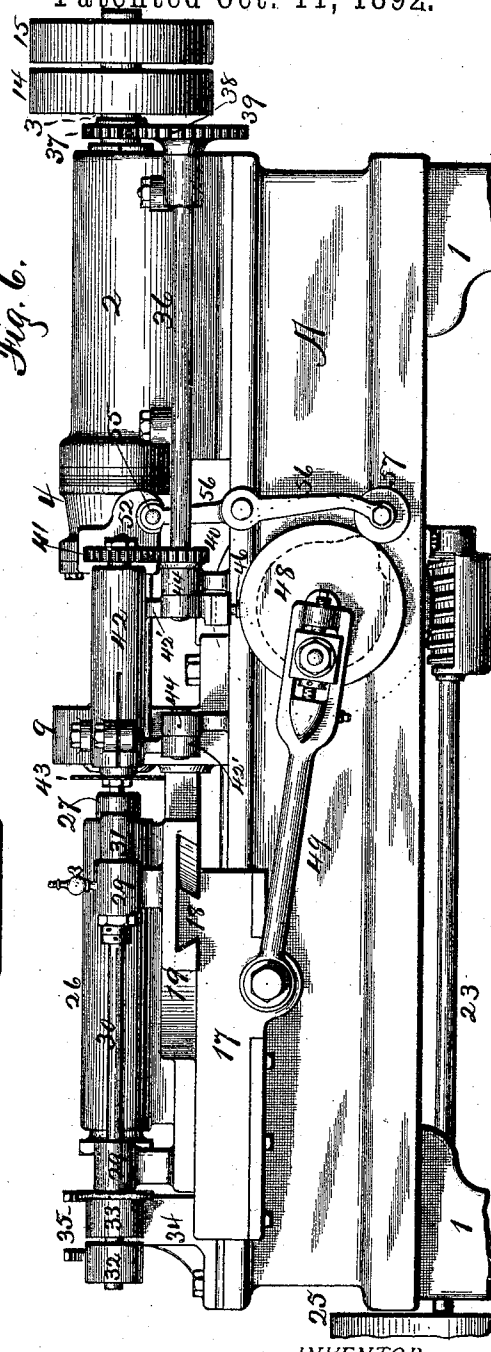
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Fig. 6.



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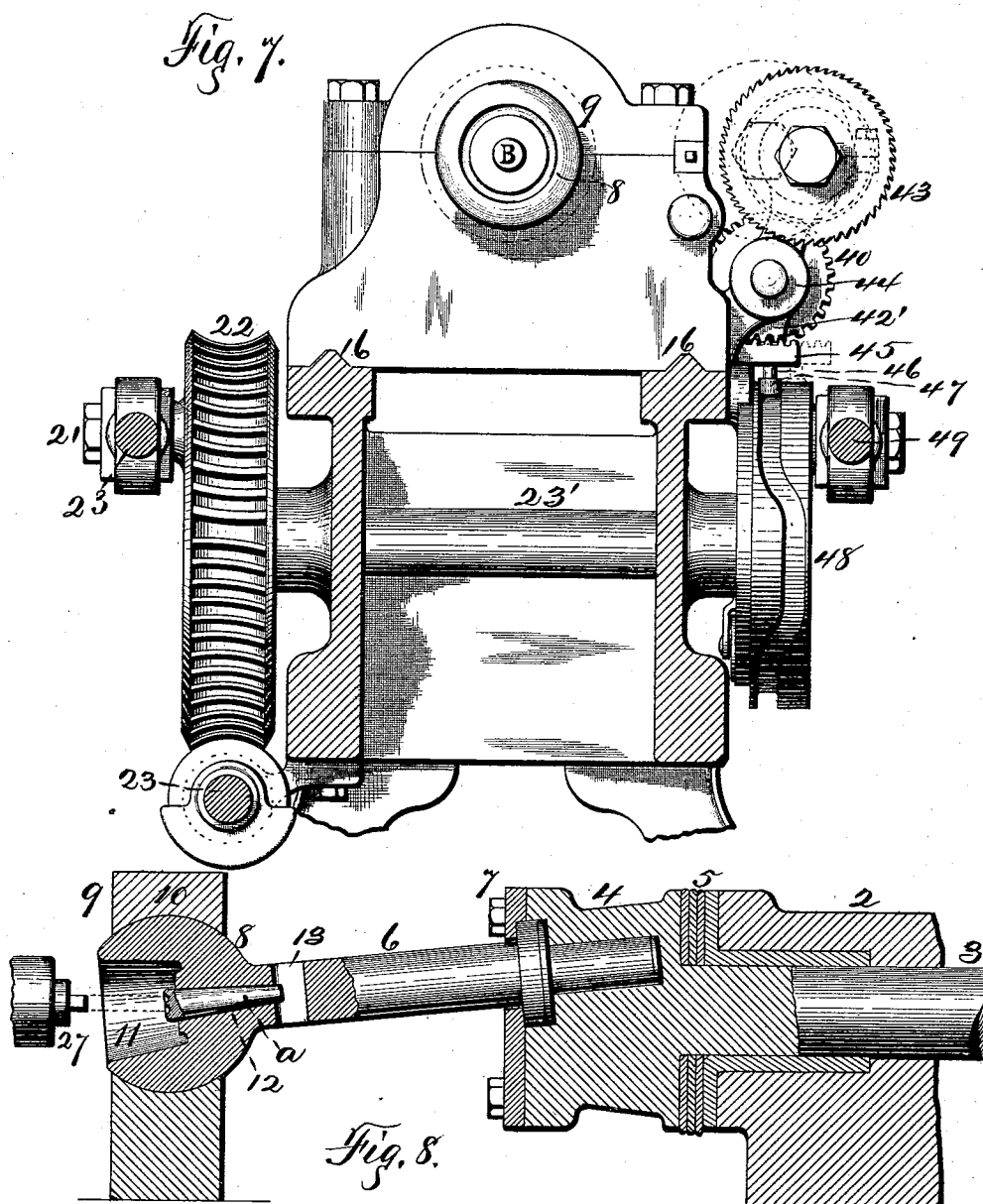
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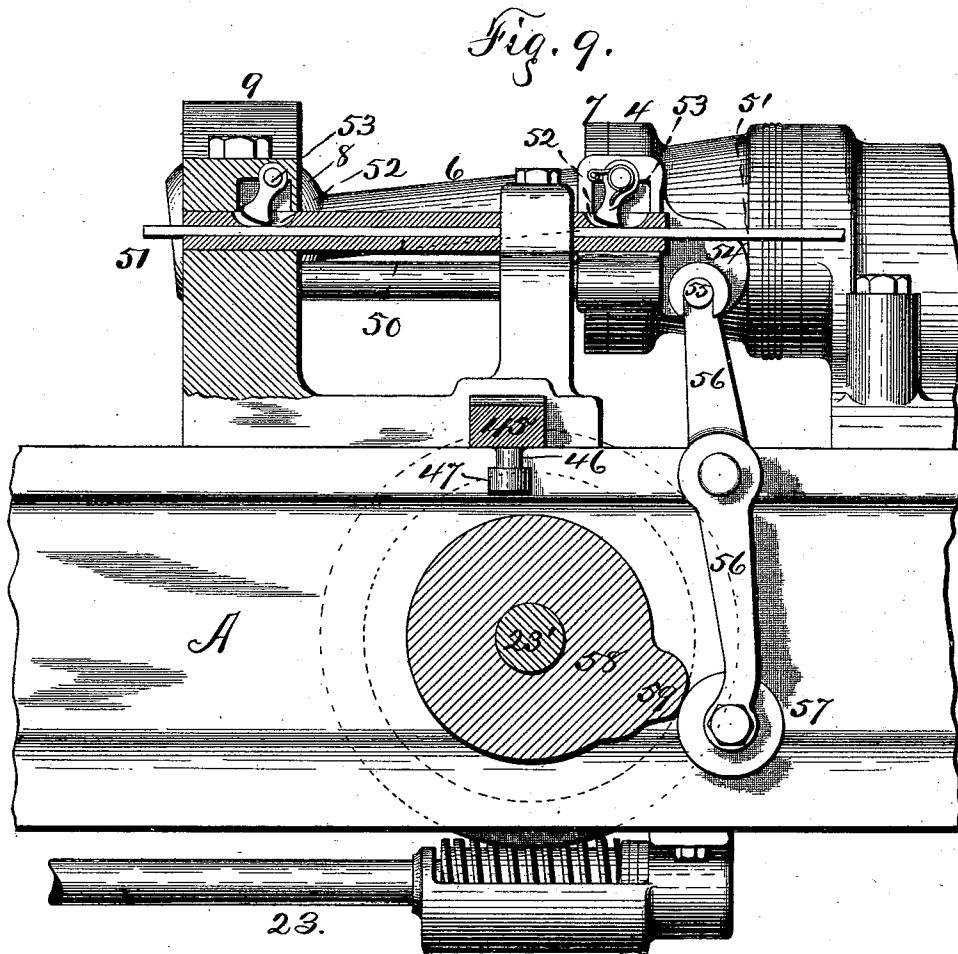
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TYPE MAKING MACHINE.

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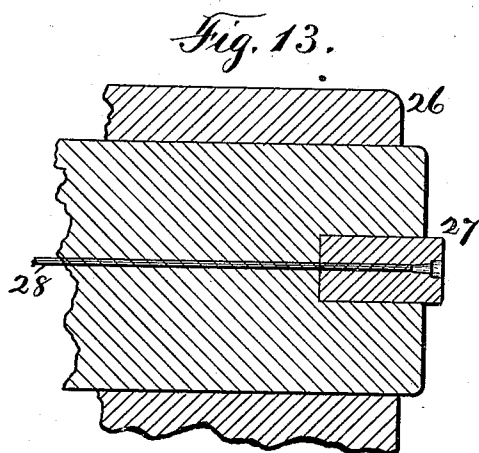
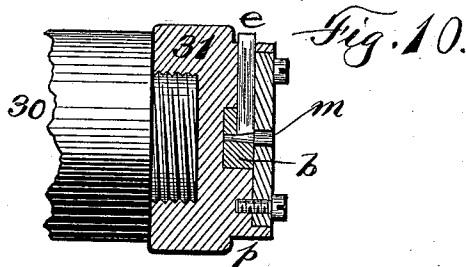
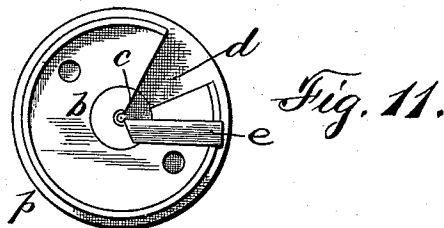
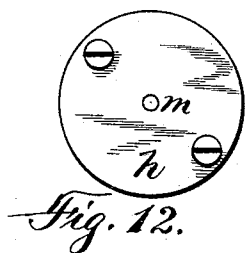
(No Model.)

6 Sheets—Sheet 6.

A. T. BROWN.
TYPE MAKING MACHINE.

No. 484,135.

Patented Oct. 11, 1892.



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Alex. T. Brown INVENTOR.

BY

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ATTORNEYS.

UNITED STATES PATENT OFFICE.

ALEXANDER T. BROWN, OF SYRACUSE, NEW YORK.

TYPE-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 484,135, dated October 11, 1892.

Application filed August 31, 1891. Serial No. 404,244. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER T. BROWN, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Type-Making Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to type-making machines which are adapted to automatically produce from a rod or continuous wire, type having signs, symbols, characters, or letters upon the end, having their bodies all cut to length and their base ends all made to conform to a certain size or pattern.

My object is to produce a machine in which the matrix-die is mounted upon the axis of a universal joint and which is adapted to automatically cut off the wire or rod in equal lengths, feed the cut-off lengths into the chuck, emboss or form a sign, symbol, character, or letter upon the projecting end by a combined rolling and compression of the die upon the end of the wire, at the same time shape the base end, and then discharge the same ready for use into a convenient receptacle.

My invention consists in the several novel features of construction and operation hereinafter described, and which are specifically set forth in the claims hereunto annexed.

It is constructed as follows, reference being had to the accompanying drawings, in which—

Figure 1 is a top plan view of the machine complete ready to have the chuck drawn forward to bring the rod into contact with the matrix or character-forming die. Fig. 2 is a side elevation of Fig. 1. Fig. 3 is a top plan of the machine with the rod or wire in engagement with the die while the character is being formed upon its end. Fig. 4 is a side elevation of Fig. 3. Fig. 5 is a top plan of the machine at the time when the chuck has been shifted over to one side and has received the end of the rod or wire and the saw is cutting the same off to length. Fig. 6 is a side elevation of the same. Fig. 7 is a vertical transverse section of the machine, showing the matrix-die and cut-off saw in front elevation. Fig. 8 is a sectional detail of the rocking matrix-holder and the eccentric operating the same, with the chuck and wire in front

of the die. Fig. 9 is a vertical sectional elevation taken on a line diametrical to the feed-sleeve 50 and the cam-pulley 48, cutting the cam 58 within said pulley. Fig. 10 is a sectional detail of the outer end of the cutter 31. Fig. 11 is a plan view of the outer face of the cutter with the cover-plate removed. Fig. 12 is a plan of the cover-plate detached. Fig. 13 is a vertical diametrical section of the outer end of the holding-chuck.

A is the bed, supported upon legs 1, and 2 is a tubular bearing secured upon said bed, through which the shaft 3 passes loosely and is provided with a head 4, separated from the bearing by suitable gaskets or other packing 5, Fig. 8. In a suitable recess in said head and off from the center thereof, or out of line with the shaft 3, I mount the rear end of the shank of the die-holder 6, and this is removable by the removing of the face-plate 7. Upon the front end of the die-holder is a ball 8, enlarged, and is mounted in a socket bearing in the head-block 9, which is secured upon the top of the body in about the position shown and is provided with a removable upper section 10. The front end of this ball is cut off and recessed, substantially as shown at 11, and it is provided at the bottom of said recess with a die-seat 12, in which the die *a* fits closely, and 13 is a slot in the shaft 3 to receive a drift-pin for driving the die-shank loose, so that the die can be removed. This die is provided upon its projecting end with a suitable design of the sign, symbol, type, character, or letter to be formed. A drive-pulley 14 is secured upon the shaft 3, and also a loose pulley 15 is mounted thereon, and the driving-belt is shifted from one to the other by any ordinary belt-shifter. (Not shown.) The opposite end of the bed is provided with longitudinal ways 16, upon which I mount the table 17, Fig. 5. Upon the top of this table I construct a way or ways 18, shown as a dovetail and extending diagonally across it. Upon said way I mount a slide 19, which traverses said way.

The table 17 is operated by means of the pitman 20, connected to one side thereof and to a crank-pin 21 upon the worm-gear 22 on the shaft 23, which is rotated by the worm-shaft 24, the latter being driven by the pulley 25, connected to any suitable source of power.

Upon the slide 19 I secure a tubular block 26, in which I mount my chuck 27, consisting of a cylindrical and tubular bar of metal recessed in its front end and secured therein in any ordinary manner, and 28 is a rod adapted to slide freely through said chuck and block with, normally, one end projecting, as seen in Fig. 1. Upon the slide 19 I also mount suitable bearings 29, for the shaft 30, in the front end of which I removably mount the tubular cutter 31, and upon the other end I secure the pulley 32 and mount the loose pulley 33. The cutter 31 comprises a body *p*, adapted to be screwed onto the end of the shaft and also recessed to receive the die-block *b*, provided with a central opening, and which has a portion of its outer face cut out on radial lines, as at *c*, and the body is also cut away on substantially the same lines as at *d*. A cutting-tool *e* is mounted in a groove cut on substantially-radial lines, so that its cutting-edge is adjacent to the central opening. A removable cap or cover *h* is secured over the end of said body and is provided with a central opening *m*, which coincides with the opening in the die-block and also to guide the wire to the cutter and hold it laterally while said cutter is turning off the inner portion to produce a tapered shank on the type and also a shoulder above the taper. This reduces the shank and body of the type so that it will fit into the recess in the chuck 27, (shown in Fig. 13,) said shoulder regulating the depth of such entrance and also the extent of the projection of the wire to be operated upon by the type-forming die and be ejected, when finished, by the rod 28, as hereinafter described. This produces a type having a cylindrical body and a tapered shank or stem having the character, sign, or symbol upon the end of the cylindrical body.

Upon the standard 34, secured upon the bed of the machine, I secure the forked belt-shifter 35.

Power is applied to the pulley 32 in any ordinary manner from any convenient source.

The shaft 36 is journaled in bearings upon the bed and it is rotated by the gear 37 upon the shaft 3, the pinion 38, loose upon its bearing, and the gear 29, secured upon the shaft. A pinion 40 upon the inner end of this shaft meshes with the gear 41, mounted upon a shaft which is mounted in an elongated bearing 42, and 43 is a cut-off saw mounted upon the inner end of this shaft. The bearing 42 is supported upon arms 42', pivoted upon the stationary bearings 44, and one end of said arms extends down below its pivot and is there provided with a series of gear-teeth, Fig. 7, concentric with said pivot, which mesh with the teeth of a sliding rack 45 suitably upon the bed. A stud 46 projects downward from the outer end of this rack and is provided upon its lower end with a loose roller 47. The shaft 23 extends across the bed, Fig. 7, and upon the end opposite to the gear 22 the cam-grooved pulley 48 is secured, and the

roller 47 engages with the groove therein, and the saw is swung in or out, according to the position of said roller in said groove. A pitman 49 is connected at one end to a crank-pin upon this cam and at the other to a bearing-stud upon the sliding table 17, and the rotation of this cam and the throw of the pitman are equal, so that both of the pitman-rods operate to traverse the table.

My feed mechanism, Fig. 6, is as follows: A sleeve 50 is loosely mounted above the top of the table, the bore of which freely receives the rod or wire 51, and is provided with grooves 52 in its upper side, in which the dogs 53 hang and engage with said wire, permitting it to be moved forward but not back. This sleeve has a head 54 on its outer end provided with a socket for receiving the pin 55 on top of the arm 56, which is pivoted upon the bed and carries a roller 57 upon its lower end, which is in engagement with the cam 58, which cam is mounted alongside of the grooved cam upon the shaft 23, so that as the cam 58 revolves when the roller reaches the enlargement 59 thereon the arm 56 causes the sleeve wire-holder 50 to slide in its seat, and then as the cam leaves such enlargement the arm retracts said sleeve, leaving the wire projecting a distance equal to the throw of this cam, it being caught by the dogs. It is operated as follows, starting with the operation of the wire-feed: As shown in Fig. 2, the projecting end of the wire 51 is within the rotating cutter and is being cut to enable it to fit a given socket, as when the wire is rectangular the cutter turns off the end to fit into a round socket, either straight or tapered. While the hollow cutter 31 is turning the shank the chuck 27 is simultaneously carrying the type to the matrix-die. The spindle and cutter are then retracted by the pitmen 20 and 49, which carry the table backward until the upper slide strikes the abutment 34, which prevents the upper side of the table mechanism from any further movement backward. The lower part of the table, however, continues traveling. The angular slide connection between the two causes the upper half of the table to move over until the spindle, with its chuck, comes in line with the wire shank which has just been turned. The cam 58, operating the lever 56, Fig. 9, moves the wire-feed forward and forces the turned shank of the wire into the chuck 27 solidly. The cam controlling the cut-off saw then operates, throwing it in contact with and cutting off the wire, leaving the proper amount of material projecting to form the next type. The motion of the lower slide is then reversed and it travels again toward the head of the machine. The upper slide is prevented from going forward by the arm coming in contact with the head-block and the angular slide forces the upper portion of the table over to its former position until the arm 60 upon the slide 17 passes the head-stock 61 upon the bearing 9. It then moves forward in a right

line, completing the operation. The type are expelled from the chuck by the rod 28 coming in contact with the dog 62.

The machine is preferably driven by a counter-shaft located above and parallel with the bed thereof, with the various pulleys of suitable size operating through vertical belts from said counter-shaft pulleys, the pulleys on the machine.

10 What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a horizontally-reciprocating chuck, of a universal rocking matrix-die and means to operate them.

15 2. The combination, with a reciprocating chuck, of a spherical die-holder concaved in its front face, a matrix-die mounted in said concavity, and means to impart a rocking motion to said die-holder.

20 3. The combination, with a reciprocating chuck, of a spherical die-holder concaved in its front face, a matrix-die mounted in said concavity, a concaved bearing for said die-holder, and means to rock the same in its bearing.

4. The combination, with the bed-plate provided with longitudinal ways and a sliding table mounted thereon, provided with diagonally-transverse ways, of a slide mounted upon said diagonal ways, and a chuck-carrier secured upon said slide, and means to operate it in a direct line and to shift it sidewise simultaneous with the traverse of the table.

5. The combination, with the cam mounted upon the drive-shaft, of the lever pivoted upon the bed of the machine and having one end engaging with the cam and the other pivotally connected to the wire-feed slide, a tubular wire-feed slide mounted in suitable bearings and through which the wire passes, and dogs pivoted in said bearings and engaging with the wire through slots in said slide.

6. The combination, with the traversing table and the slide mounted in the diagonal ways thereon, of the cutter-shaft journaled in bearings mounted thereon, a cutter mounted upon the inner end of said shaft, and means to rotate it.

7. The combination, with the diagonally-traversing slide and the cutter-shaft journaled thereon, of the belt-shifter secured upon a stationary standard secured upon the bed-plate.

8. The combination, with the longitudinally-traversing table and the diagonally-traversing slide mounted thereon, of the cutter-shaft and cutter mounted in bearings erected upon said slide, and means to rotate said shaft, of the belt-shifter mounted upon a standard erected upon the bed-plate.

9. A matrix-die located substantially at the

axis of a universal joint and means to operate it, in combination and in line with a chuck for holding the material to be impressed by the die and means for feeding said chuck. 65

10. The combination, with the traversing table and the slide mounted in the diagonal ways thereon, of the cutter-shaft journaled in bearings erected upon the slide, and means to rotate it, the cutter mounted in said shaft, and means to feed the wire to said cutter, the chuck mounted upon said slide, the matrix-die, and means to actuate the table and slide. 70

11. In a type-making machine, a chuck and a rotating cutter-shaft erected parallel to each other upon a diagonally-operated slide carried by a longitudinally-reciprocating table, and means to shift said slide upon the table, a cutter upon said shaft, and means to feed the wire to said cutter, and a matrix-die normally in line with the chuck. 80

12. The combination, with the traversing table, the slide mounted in diagonal ways thereon, the chuck mounted upon said slide, the rotating cutter-shaft erected in bearings thereon, the wire-trimming cutter mounted in said shaft, and means to actuate said table and slide, of the longitudinally-reciprocating wire-feed tube with which the cutter-shaft is normally in alignment and a matrix-die normally in alignment with the chuck. 90

13. The combination, with the traversing table, the slide mounted in diagonal ways thereon, the chuck mounted upon said slide, the rotating cutter-shaft erected in bearings thereon, a wire-trimming cutter on said shaft, and a matrix-die normally in alignment with the chuck, of the longitudinally-reciprocating wire-feed tube, and the wire-cut-off saw contiguous thereto, and means to operate said table, slide, cutter, wire-feed, and saw in unison. 100

14. In a type-making machine, a type-blank-holding chuck, and a matrix-die, and a cutter for shaping the butt-end of a type-blank, a wire-feed, and means for operating them simultaneously to feed the wire to the cutter to prepare a blank thereby and to finish a type with the matrix. 105

15. In a type-making machine, a matrix-die, a type-blank-holding chuck, and a cutter for shaping the butt-end of a type-blank, means for shifting said chuck to receive the prepared blank and return it into alignment with the die, and means to feed the wire to the cutter. 115

In witness whereof I have hereunto set my hand this 21st day of August, 1891.

ALEXANDER T. BROWN.

In presence of—

HOWARD P. DENISON,
C. W. SMITH.