H. BALDWIN.

MACHINE FOR MAKING PAPER CLIPS.

APPLICATION FILED FEB. 9, 1920.

1,355,587.

Patented Oct. 12, 1920.

2 SHEETS—SHEET 1.

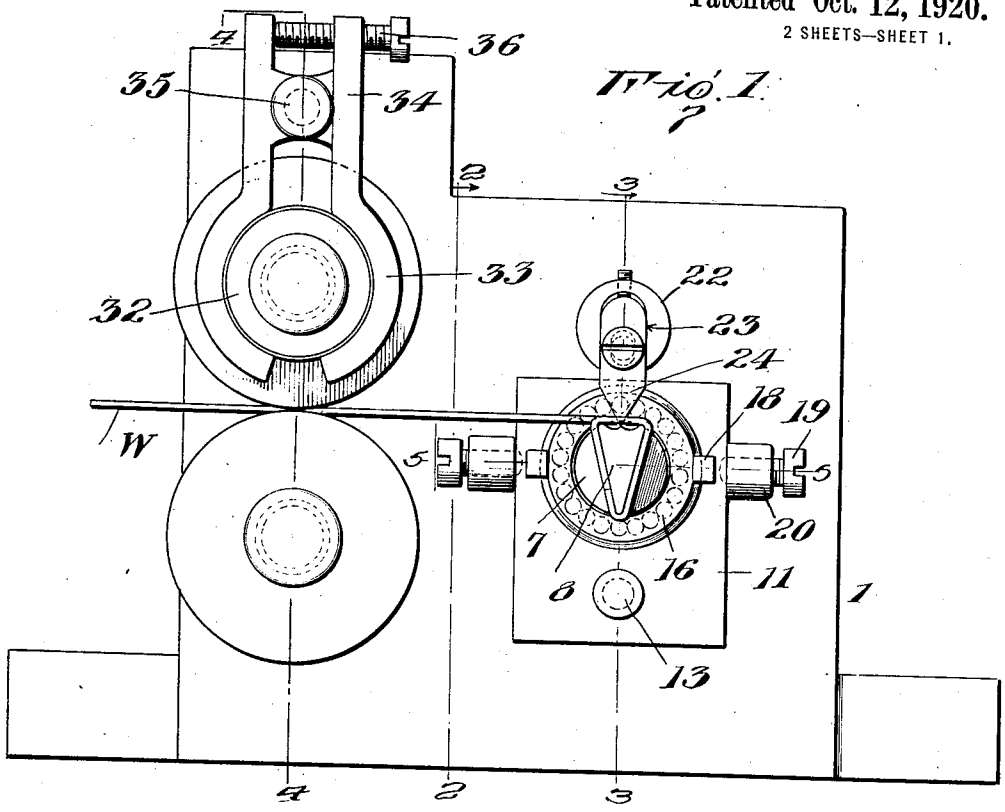


Fig. 1.

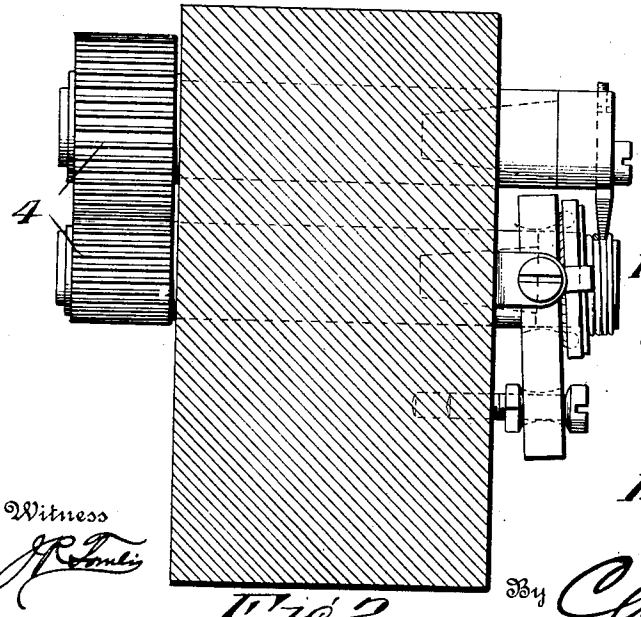


Fig. 2.

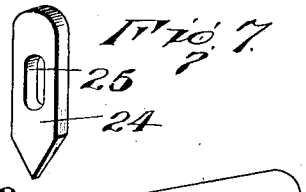


Fig. 7.

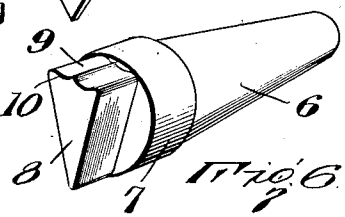


Fig. 6.

Witness

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2 SHEETS—SHEET 2.

Fig. 3.

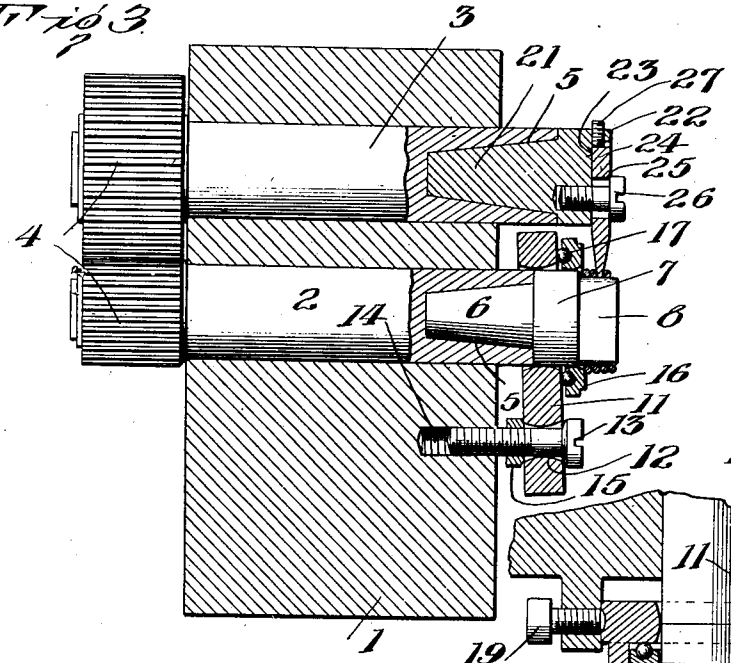


Fig. 5.

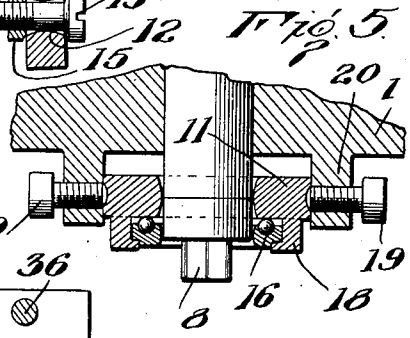
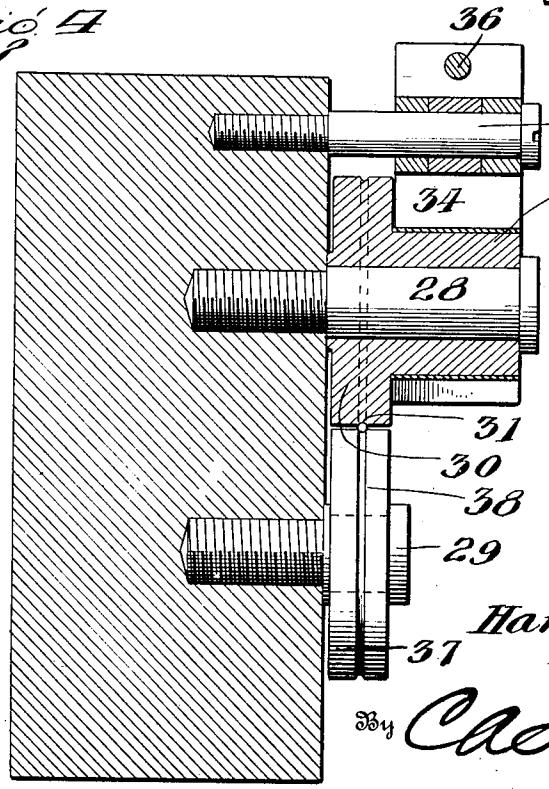


Fig. 4.



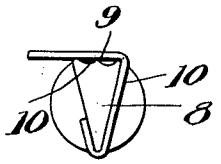


Fig. 8.

Witness

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UNITED STATES PATENT OFFICE.

HARRY BALDWIN, OF SEYMOUR, CONNECTICUT.

MACHINE FOR MAKING PAPER-CLIPS.

1,355,587. Specification of Letters Patent. Patented Oct. 12, 1920.

Application filed February 9, 1920. Serial No. 357,455.

To all whom it may concern:

Be it known that I, HARRY BALDWIN, a citizen of the United States, residing at Seymour, in the county of New Haven and State of Connecticut, have invented a new and useful Machine for Making Paper-Clips, of which the following is a specification.

This invention relates to a machine for making paper clips, one of its objects being to cut from a wire strand a plurality of clips of the desired shape, the operation being continuous and automatic, the various parts being so timed that the wire supplied to the machine will be successively shaped, cut and delivered in proper succession.

A further object is to provide improved means for holding the wire under tension during the winding operation so that it will be properly shaped upon the die provided therefor.

Another object is to provide improved adjustable means for holding the wire at the desired pitch upon the die.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that within the scope of what is claimed, changes in the precise embodiment of the invention shown can be made without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings—

Figure 1 is a front elevation of the machine and showing the wire in position thereon.

Fig. 2 is a section on line 2—2, Fig. 1.

Fig. 3 is a section on line 3—3, Fig. 1.

Fig. 4 is a section on line 4—4, Fig. 1.

Fig. 5 is a section on line 5—5, Fig. 1.

Fig. 6 is a perspective view of the die.

Fig. 7 is a perspective view of the cutter coöperating therewith.

Fig. 8 is an end view of the die and showing how the wire is started thereon at the beginning of the operation of forming the clips.

Referring to the figures by characters of reference 1 designates a supporting structure in which are journaled superposed shafts 2 and 3 having meshing gears 4 at one end so proportioned that shaft 2 will rotate twice to one revolution of the shaft 3. These shafts may be driven in any manner desired and each of them is provided in one end, with a tapered socket 5. The socket in the shaft 2 is adapted to receive a tapered shank 6 extending from a circular head 7 on the outer face of which is provided a die 8 preferably triangular, as shown particularly in Figs. 6 and 8, the base of the triangle being formed with a stencil cutting edge 9 located between depressions 10.

A backing plate 11 is tiltably mounted on the shaft 2 and head 7 and has a flared opening 12 through which extends an adjusting screw 13, this screw entering a threaded recess 14 within the structure 1. A nut 15 is mounted on the screw back of the plate 11 and coöperates with the head of the screw for holding the plate at a desired angle relative to the longitudinal axis of the shaft 2. A collar 16 is loosely mounted on the head 7 and is provided with antifriction bearings 17 adapted to engage the plate 11. It will be obvious that by tilting the plate 7 the collar 16 will also be tilted. This collar is held against displacement relative to the shaft 2 by means of two diametrically opposed jaws 18 extending from the plate 11. Diametrically opposed screws 19 engage opposed edges of the plate 11 and are carried by gears 20 extending from the structure 1.

Extending into the socket 5 in the shaft 3 is a tapered shank 21 provided at its outer end with a circular head 22 having a diametrical slot 23. This slot is adapted to receive a cutting blade 24 having a longitudinal slot 25 for the reception of a fastening screw 26. An adjusting screw 27 extends into peripheral portion of the head and against the inner end of the blade 24 and by means thereof the blade can be adjusted longitudinally relative to the die 8.

Mounted on the structure 1 are studs 28 and 29. The stud 28 carries a gripping disk 30 having a peripheral groove 31 and on the outer side of this disk is arranged a boss 32 extending between friction jaws 33 provided at the lower ends of levers 34. These levers are fulcrumed on a pin 35 and one of the levers carries a screw 36 adapted to be adjusted against the other lever, thus to shift the jaws 33 toward or from the boss 32. The jaws 33 constitute brake shoes and can be pressed against the boss with any desired

degree of pressure thus to retard the rotation of the disk 30.

Mounted on the stud 29 is another disk 37 having a peripheral groove 38 adapted to register with the groove 31. The two grooves coöperate to form a pass for the reception of the wire W from which the clips are to be formed.

In using the apparatus the wire is inserted between the two disks 30 and 37 so as to be gripped thereby within the grooves 31 and 38. The end of the wire is bent around the die 8 as shown in Fig. 8. The machine is then set in operation and the wire will be wrapped about the die 8, the pitch of the wire being regulated by the inclination of the collar 16, which collar, in turn, is held at a desired angle by the plate 11 and the screw 13. Every second rotation of the die 8 will result in the cutting blade 24 coming against one of the convolutions of the wire and severing it. As the wire is fed to the die close to the collar 16 it will be apparent that after the clip has been formed by cutting a link of wire in the manner described, said clip will ultimately be forced off of the end of the die by a new clip produced by the constant wrapping of the wire. The cutting of the wire takes place between the edges of the blade 24 and the die 8 at 9. By tightening the jaws 33 on the boss 32 the paying out of the wire is retarded to the desired extent so that the wire is thus caused to wrap tightly about the die so as to assume the proper shape.

What is claimed is:

1. The combination with a die mounted for rotation and a cutter coöperating with the die, of a tiltable backing plate, a thrust collar mounted for rotation upon and tiltable with this backing plate, for holding the convolutions of a wire on the die at a predetermined pitch.

2. The combination with a die mounted for rotation, of a backing member tiltably mounted, means for adjusting said member angularly, a thrust collar mounted for rotation on the die and bearing against the member, and friction controlled retarding means for engaging a wire while being wrapped upon the die, thereby to hold the wire under tension and pressed against the thrust collar.

3. The combination with a die mounted for rotation, of a backing member, means for adjusting said member angularly, a thrust collar revoluble with the die and bearing against said member, means for holding the collar to the member, said member and collar being adjustable angularly to vary the pitch of a wire wound spirally around the die.

4. The combination with a die mounted for rotation, and a cutter coöperating therewith, of a backing member, means for adjusting said member angularly, a thrust collar revoluble upon the die and bearing against said member, means for holding the collar to the member.

5. The combination with a die mounted for rotation, and a cutter coöperating therewith, of a backing member, means for adjusting said member angularly, a thrust collar revoluble upon the die and bearing against said member, means for holding the collar to the member, coöperating wire gripping elements actuated by a wire being wrapped on the die, and adjustable friction means for engaging one of said elements to retard the movement of the wire during the wrapping operation.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

HARRY BALDWIN.

Witnesses:

THOS. F. HANCOCK,

G. A. HAMEL.