

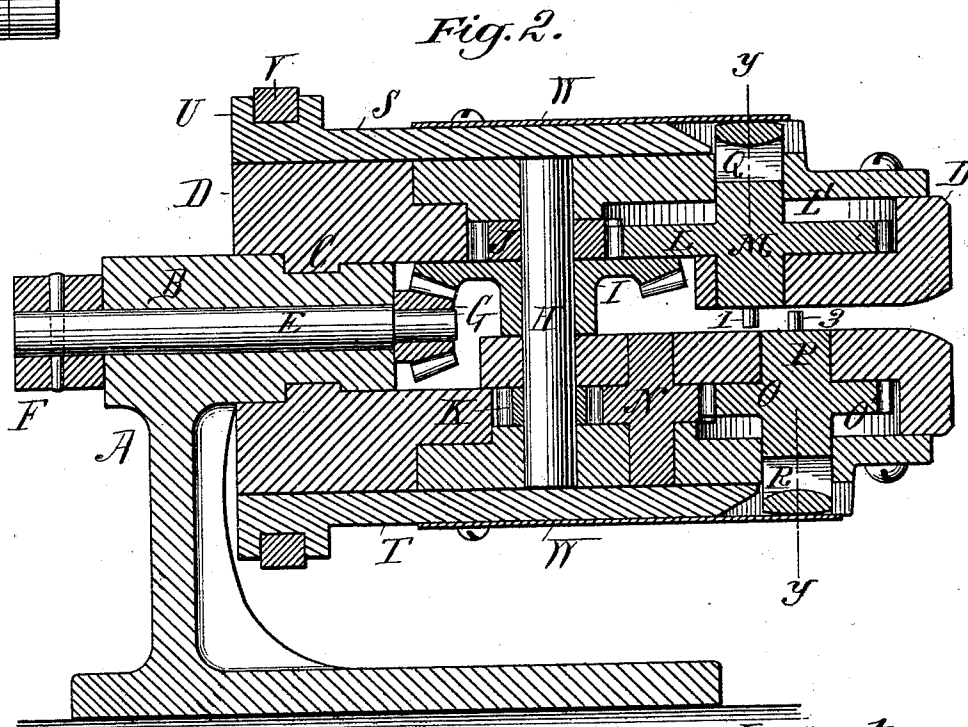
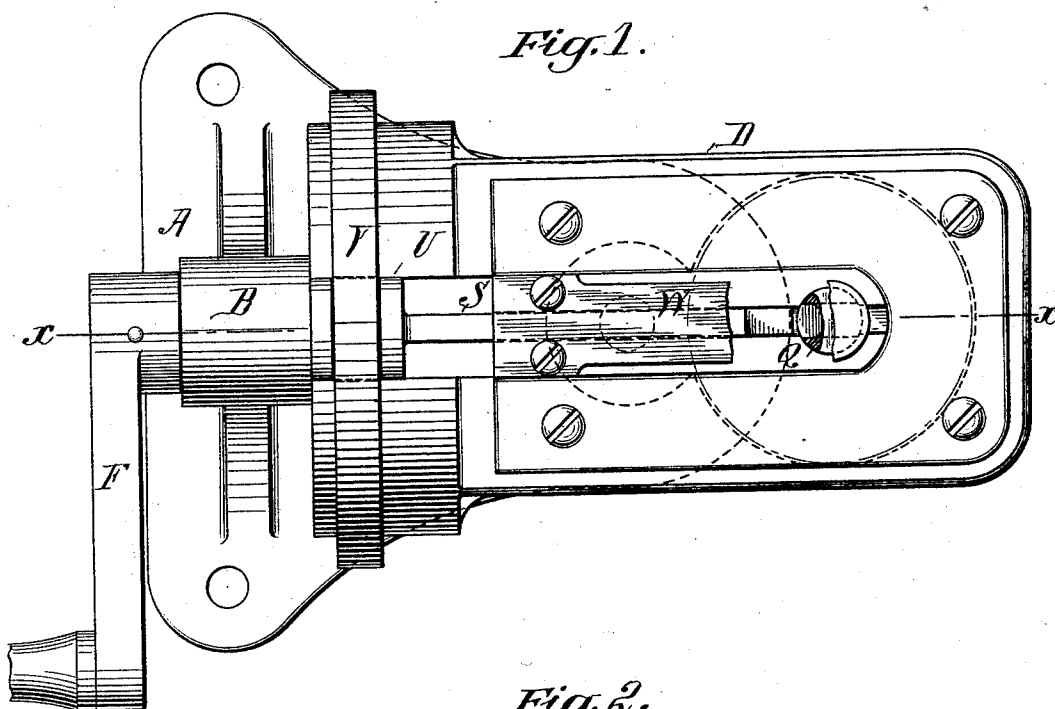
(No Model.)

2 Sheets—Sheet 1.

F. B. GRISWOLD.
WIRE BENDING MACHINE.

No. 519,812.

Patented May 15, 1894.



Witnesses:

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UNITED STATES PATENT OFFICE.

FRANK B. GRISWOLD, OF TROY, NEW YORK.

WIRE-BENDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 519,812, dated May 15, 1894.

Application filed January 30, 1894. Serial No. 498,499. (No model.)

To all whom it may concern:

Be it known that I, FRANK B. GRISWOLD, of Troy, Rensselaer county, New York, have invented a new and useful Improvement in Wire-Bending Machines, of which the following is a specification.

My invention is a machine for producing upon the end of a wire bale band a head or hook by bending said wire into a certain shape.

My invention consists more particularly in the construction and arrangement of the mechanism for the aforesaid purpose substantially as hereinafter set forth.

In the accompanying drawings, Figure 1 is a plan view of my machine. Fig. 2 is a vertical longitudinal section on the line $x-x$ of Fig. 1. Fig. 3 is a transverse section on the line $Y-Y$ of Fig. 2. Figs. 4, 5 and 6 are detail views showing different positions of the bending pins in the formation of the head on the end of the band.

Similar letters and figures of reference indicate like parts.

A is a standard, having a fixed bearing, B. On the exterior of the bearing B there is a groove which receives a collar, C, formed on the cylindrical body frame D, which is fast on the bearing B. Passing through the bearing B is a shaft, E, having at its outer end a crank, F, with which it is rotated. On the inner end of shaft E, within the body frame D, is a bevel gear, G. Journaled transversely in body frame D is the shaft H, upon which are three gear wheels; namely, a bevel gear, I, which engages with gear G, and two straight gears, J and K, on opposite sides of said bevel gear I. The gear J meshes with a gear, L, which is placed in a chamber, L', in the wall of body frame D, and is fixed upon, or made integral with, its axial shaft M. From the end of said shaft, within the body frame D, protrude two pins, 1 and 2, as shown in Figs. 4, 5, and 6. The gear K meshes with a small gear, N, also journaled in the body frame, and said gear N engages with a gear, O, arranged in a chamber, O', and fixed upon, or made integral with, its axial shaft P, the end of which shaft faces the end of shaft M and carries two projecting pins, 3 and 4, similar to pins 1 and 2 on said shaft M, and also as shown in Figs. 4, 5 and 6. When the crank

F is turned, motion is communicated by the gearing above described from shaft E to the shafts M and P, so that said shafts are caused simultaneously to turn in opposite directions. The said shafts are therefore rotary supports for the pins 1, 2, 3, 4. The mode of operating the machine and its action upon the wire is therefore as follows: The shafts M and P, being in the position indicated in Fig. 4, so that their pins 1, 2, 3, 4 stand as shown, the end of the wire Z is introduced between the pins. The crank F is then turned, rotating the shafts M P in opposite directions, as shown by the arrows in Fig. 5, so that the pin 3 produces a bend in the wire at a , the pin 4 at b , and the pins 1 and 2 at c . The rotation of the shafts M and P continues until the wire is bent into the desired form, as indicated in Fig. 6.

I will now describe how the finished head is released from the machine. In the shafts M and P are made transverse slots Q and R, respectively, each having a rounded inner side, as shown in Fig. 2. Upon the outside of the body frame D and freely sliding in grooves as channels therein, are two bars, S and T, having beveled ends arranged to enter the slots Q and R, and to bear, at their wedge-shaped or inclined portions, upon the rounded inner sides of said slots. The opposite ends of said bars are provided with recessed projections, U, which recesses receive a ring, V. By moving said ring in a direction longitudinal of the body frame D, both bars S and T are caused to enter the slots Q, R, and the inclined ends of said bars, acting upon the rounded inner surfaces of said slots, produce a sliding longitudinal movement of the shafts M and P in their bearings. The chambers L' and O' are sufficiently large to allow of the gear wheels L and O thus to be moved backward, and therefore as the shafts M and P are retracted, the pins 1, 2, 3, 4 are moved out of the bends made in the wire, and no further obstacle remains to said wire, with the head formed upon it, being drawn out of the body frame D.

In order to insure the return of the shafts M and P to their normal position, I provide leaf springs, W, secured to the outer sides of the bars S and T and bearing upon the extremities of said shafts. As the bars S and

T are retracted out of the slots Q, R, the springs W push the shafts M and P inwardly.

I claim—

1. In a wire bending machine, a rotary support and two pins projecting from the face thereof, a second rotary support facing in the opposite direction to said first support, and two pins projecting from the face thereof; the said supports not having their axial lines coincident and being disposed so that a wire may be introduced successively between the pins of one support and then between the pins of the other support.

2. In a wire-bending machine, the combination of the cylindrical body frame D and support A therefor, the rotary shaft E in said support and entering said body frame D, shafts M and P and intermediate gearing between said shaft E and shafts M and P, pins 1 and 2 on shaft M, and pins 3 and 4 on shaft P, substantially as described.

3. In a wire-bending machine, the combination of the cylindrical body frame D and support A therefor, the rotary shaft E in said support and entering said body frame D, shafts M and P and intermediate gearing between said shaft E and shafts M and P, pins 1 and 2 on shaft M, pins 3 and 4 on shaft P,

and means for moving said shafts M and P longitudinally, substantially as described.

4. In a wire-bending machine, the combination of the cylindrical body frame D and support therefor, shaft M therein having slot Q and pins 1 and 2, means of rotating said shaft, and bar S supported and sliding on said cylindrical body frame D and having a wedge or bevel end adapted to enter said slot Q, and thereby to move said shaft M in a longitudinal direction, substantially as described.

5. In a wire-bending machine, the combination of the cylindrical body frame D and support therefor, shaft M therein having slot Q and pins 1 and 2, means of rotating said shaft, bar S supported and sliding on said cylindrical body frame D, and having a wedge or bevel end adapted to enter said slot Q and thereby to move said shaft M in a longitudinal direction, and spring W bearing upon the outer end of said shaft M, substantially as described.

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Witnesses:

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