G. F. EVANS.

Machine for Coiling Metal Bars.

No. 207,802. Patented Sept. 10, 1878.

Fig. 1.

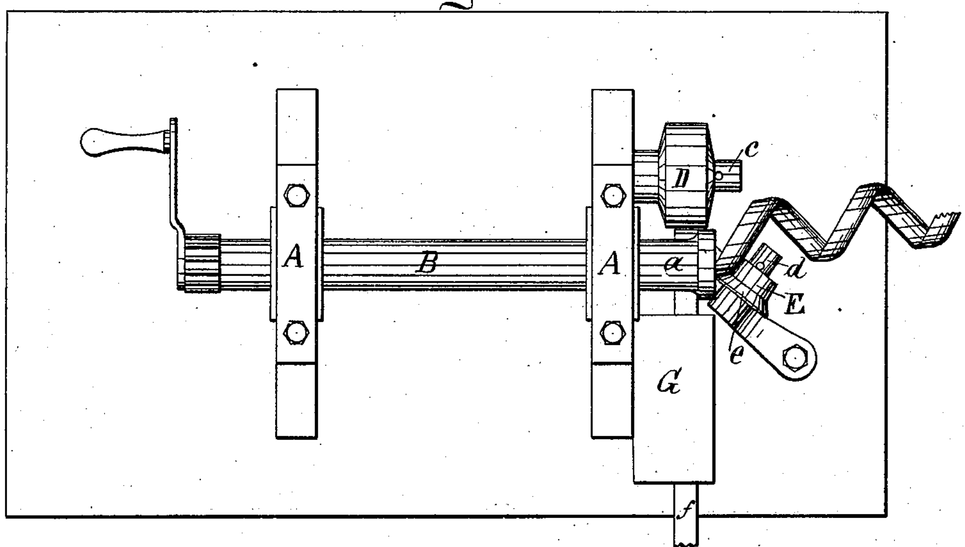


Fig. 2.

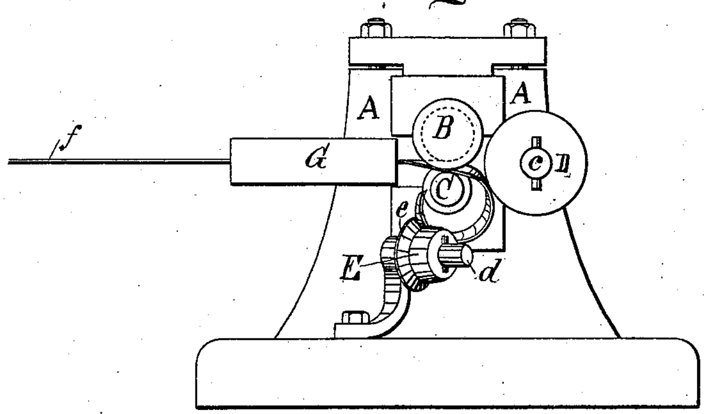
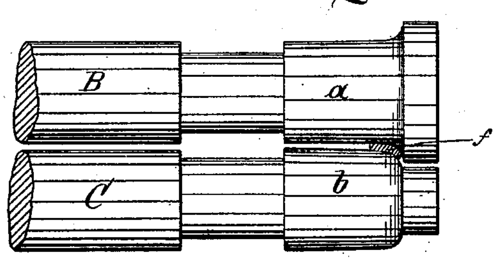


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE F. EVANS, OF POLAND, MAINE.

IMPROVEMENT IN MACHINES FOR COILING METAL BARS.

Specification forming part of Letters Patent No. **207,802**, dated September 10, 1878; application filed June 15, 1878.

To all whom it may concern:

Be it known that I, GEORGE F. EVANS, of Poland, county of Androscoggin, State of Maine, am the inventor of an Improved Machine for Bending Flat Bars of Metal into Spiral Coils, of which the following is a specification, reference being had to the accompanying drawings, forming part of same.

Figure 1 is a plan of a top view of my machine. Fig. 2 is an end elevation of the same, and Fig. 3 is an enlarged side view of the first pair of rollers between which the bar passes in the process of bending.

My invention relates to a machine for bending flat bars of metal into spiral coils; and consists of the combination of rollers hereinafter described and claimed.

A is a frame, in which the rollers are mounted. B and C are two rollers, arranged to turn, one over the other, in suitable bearings in said frame, the upper roller, B, being adjustable vertically. The ends *a b*, respectively, of these rollers project beyond the frame, and are preferably formed with the lower one, *b*, tapering somewhat from the bearing outward, and the upper one, *a*, tapering also, but in the opposite direction.

D is a loose roller, which turns freely on its axis *c*. This roller D is placed immediately behind the rollers B and C, as shown in Fig. 2. Its axis is parallel to those of B and C, and its form is cylindrical.

E is a loose roller, turning freely on its axis *d*, which is inclined to the axes of the other rollers at an angle of about forty-five degrees. At its rear end is a flange, *e*, the inner face of which is beveled back from the cylindrical face of the roller, as seen in Figs. 1 and 2.

G is a rest or guide for conducting the bar to be operated on into the rollers. *f* represents such bar. As the bar passes between the rollers B and C it is tilted a little, the inner edge being thrown up and the lower edge down. When thus acted upon by the rollers B and C, the bar, as it is driven against the roller D, and striking it a little below the horizontal plane of its axis, will be bent downward, and also outward, into a spiral coil.

In Fig. 3 the ends *a* and *b* of the rollers B and C are shown formed with the taper of the upper roller made a little less than the taper of the lower roller, whereby the pinch or pressure is greatest on the inner edge of the flat bar, thereby rolling out, elongating, and thinning that edge of the bar; and in the said figure the ends *a* and *b* are shown as having a peculiar form, whereby the outer edge of the bar is curved downward by the rollers. When the rollers are given this peculiar form and arrangement, the spiral made by passing a flat bar through the machine is adapted to a special use—namely, the fixed spiral in the magazine of the gun for which Letters Patent No. 84,685 were granted to Warren R. Evans, December 8, 1868.

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

1. In a machine for bending flat bars into spirals, the rollers B, C, D, and E, constructed and combined to operate as and for the purpose described.

2. In a machine for bending flat bars into spirals, the rollers B and C, tapered reversely, as shown, the taper of the upper roller being somewhat less than that of the lower roller, and said rollers having the ends *a* and *b*, together with the roller D, constructed and arranged to operate as and for the purpose specified.

In witness whereof I have set my hand this 12th day of June, 1878.

GEORGE F. EVANS.

Witnesses:

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