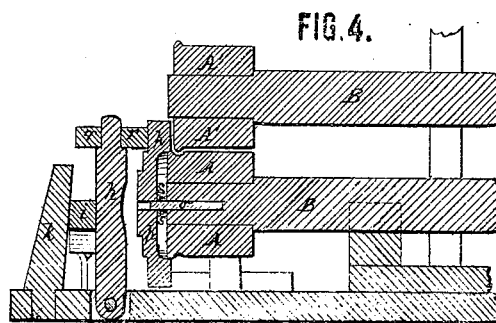
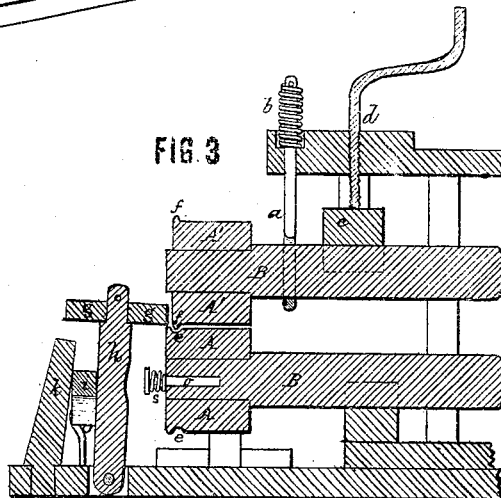
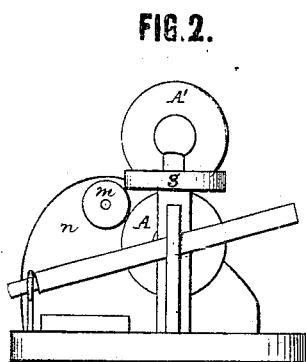
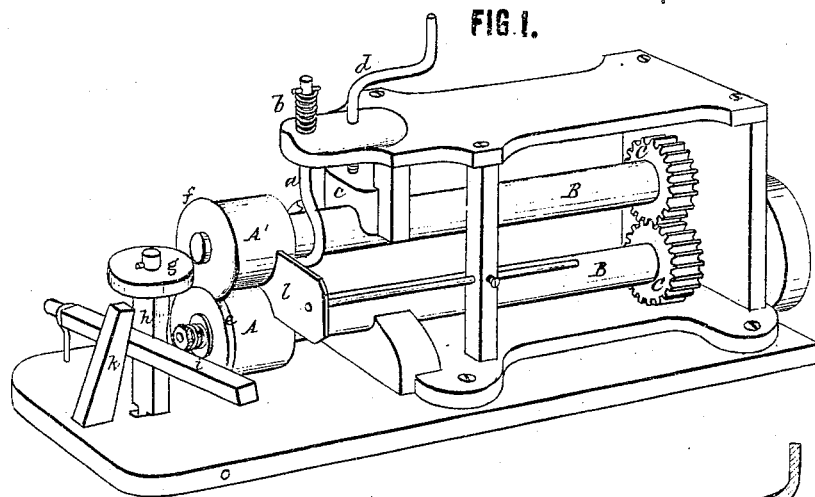


J. Blood,

Bending Sheet Metal.

No. 107,216.

Patented Sep. 13. 1870.



Joel Blood
by his attorney
A. Pollak

WITNESSES.

In Presence
Wm. M. Keal

UNITED STATES PATENT OFFICE.

JOEL BLOOD, OF WATERTOWN, NEW YORK.

IMPROVEMENT IN MACHINES FOR MAKING FLANGED AND BEADED HOOPS.

Specification forming part of Letters Patent No. **107,216**, dated September 13, 1870.

To whom it may concern:

Be it known that I, JOEL BLOOD, of Watertown, in the county of Jefferson and State of New York, have invented a certain new and Improved Machine for Forming Flanged Metallic Bands or Hoops for Cheese-Box Covers and other purposes, of which the following is a specification:

The machine hereinafter described is especially intended for the manufacture of hoops or bands to be used in the manufacture of cheese-box covers, as described in Letters Patent No. 102,755, granted to me on the 10th day of May, 1870. The hoops there shown are made of a strip of sheet metal, having a bent part or flange standing at about right angles to the sides of the hoop and intended to retain in place the top of the cover, while the sides of the hoop hold the sides of the cover, and at the junction of the flange with the sides there is also a bead formed in the hoop, which receives and holds the edges of the top of the cover. While my machine was originated with special reference to the manufacture of these hoops, it may, however, be used for the manufacture of any metallic hoops or strips, which should be furnished with a flange, with or without the bead.

My invention may be stated to consist, first, in the combination, with two rolls, between which the metallic strip is fed, of a flanging-roller, arranged to operate in connection with the end of one of the rolls in such manner that when the metallic strip or hoop is placed between and so as to extend for a portion of its width beyond the ends of the rolls, the projecting portion of the said strip shall be bent and pressed between the flanging-roller and the end of one of the rolls to form a flange upon the hoop or strip; second, in the combination of the flanging-roller and the two rolls between which the strip is fed, as above specified, when the two rolls are formed, the one with a groove and the other with a projection fitting the groove, whereby the bead is made in the hoop at the same time that the flange is formed; third, in minor features of invention, which will be hereinafter described.

The nature of my invention and the manner in which the same is or may be carried into effect will be readily understood by refer-

ence to the accompanying drawing, in which Figure 1 is a perspective view of a machine embodying my invention. Fig. 2 is an end view of the same. Fig. 3 is a longitudinal vertical section of that portion of the machine to which my invention especially relates. Fig. 4 is a like section of the machine, with a modification of the flanging apparatus.

The two rolls, between which passes the hoop or strip to be flanged, or beaded and flanged, are shown at A A'. They are mounted upon shafts B, geared together by toothed wheels C, and are driven in any suitable manner.

It is necessary that the rolls should be capable of being adjusted nearer together or farther apart, to conform to the thickness of the metal which passes between them, and for other purposes; and to this end one of the rolls—in this case the upper one, A'—is made capable of moving toward or away from the other by supporting its shaft in a sliding bearing, *a*, which is upheld by a spring, *b*. There is also a sliding box or half-bearing, *c*, which is pressed upon the shaft by means of a screw, *d*, and by means of these devices the position of the upper roll can always be regulated. The screw *d* serves to hold the roll down, while the spring *b* will draw up the bearing *a* as far as the screw and box *c* will permit.

The two rolls A A', which I will term the "hoop-rolls," in order to distinguish them from the other rollers in the machine, may be provided, the one with a circular groove, *e*, the other with a bead, *f*, to fit the groove, so that when the hoop is flanged, as hereinafter described, it may at the same time be beaded; but this formation of the hoop-rolls may be dispensed with if it be desired only to flange the hoop without beading it.

In order to produce the flange upon the hoop, I arrange opposite, and at right angles or thereabout, to the end of one of the hoop-rolls—in this instance, in the upper roll—a flanging device consisting of a roller, *g*, the periphery of which may be brought into close proximity to or even into contact with the end of the roll, as shown in Figs. 1 and 3.

In illustration of the way in which my invention may be carried into effect, I have represented the flanging-roller mounted so as to

revolve on the end of an upright standard, *h*, hinged so that it may be vibrated toward or away from the end of the hoop-roll *A'*.

The movement of the standard toward the roll is effected by means of the lever *i* and inclined post *k*. When the lever *i* is raised, the wedge-like formation of the inclined post *k* forces it toward the standard *h*, which in turn is forced toward the end of the rolls until the flanging-roller *g* is brought in contact with the end of roll *A'*, or the metal bent over the same. It is manifest, however, that the flanging-roller may be mounted and caused to move in different ways and by different mechanism without departing from the principle of my invention.

The operation of the parts already described is such that when the metal is introduced between the hoop-rolls so as to extend beyond the ends of the rolls for a portion of its width required to form the flange, the flanging roller will, when forced up against the projecting metal, press it up and form it into a flange, which will stand at about right angles to the body of the hoop.

In case the bead *f* and groove *c* are formed on the rolls, the hoop will also be beaded at the same time it is flanged. The general form of the flanged and beaded hoop thus produced is indicated by the shape of the space which intervenes between the rolls *A A'* and roller *g* in Fig. 3.

A pointed gage, *l*, is used, which is mounted on a rod passing through some stationary part of the machine, and held in place by a set-screw, or by other suitable means. The gage is arranged so that its point shall extend as far as possible between the rolls, and is used to regulate the width of the hoop and flange, as will be understood without further explanation.

In rear of the hoop-rolls I place a small friction-roller, *m*, which is mounted upon a standard or support, *n*, so as to be adjustable up and down, and is designed to bend the finished hoop to form a circle of any diameter required for the cover to which the hoop is to be applied.

In lieu of using the flanging-roller, shown in Figs. 1, 2, 3, I can employ a flanging device composed of a circular plate, *p*, fitting and held upon one or more pins, *o*, projecting from the end of the roll to which the plate is applied. This plate sits over the end of the roll, so as to be in close proximity to the end of the roll *A'*, and is pressed up to its work by the small roller *r* on the vibratory standard.

A spring, *s*, is interposed between the flanging-plate and the end of the roll, so as to throw

back the plate when the pressure of the pressing-roller *r* is removed.

The operation of this flanging-plate is substantially that of the flanging-roller *g*, and it may be made to revolve with the roll *A*, or to remain stationary, as may be best. If, for instance, the metal is difficult to work, it may be well to render the flanging-plate stationary, in which case the friction produced between the flange portion of the hoop and the plate will cause the metal hoop to heat and expand at the angle, and thus facilitate the formation of the flange.

Having now described my invention and the manner in which the same is or may be carried into effect, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the hoop-rolls, of the flanging-roller, arranged to move toward or away from the end of and to operate in connection with said rolls, so as to form a flange on the hoop passing between them, substantially as herein shown and set forth.

2. The combination of hoop-rolls and flanging roller or device, substantially as herein described, when the hoop-rolls are provided the one with a groove and the other with a bead fitting said groove, so that the hoop may be beaded at the same time that it is flanged.

3. The combination, with the hoop-rolls and flanging device, of the friction-roller in rear of the rolls for bending the finished hoop to a circle of the required diameter, substantially as shown and set forth.

4. The combination of the hoop-rolls, the flanging device, and the gage for determining or regulating the width of the flange formed on the hoop as it passes between the hoop-rolls, arranged for joint operation, substantially as described.

5. The combination, with the hoop-rolls, of the flanging-plate, mounted upon one of the rolls, so as to operate to form the flange on the hoop, in the manner herein described, the spring interposed between said plate and roll, and the pressing-roller for holding the flanging-plate up to its work under the arrangement substantially as shown and described.

6. A machine for flanging metallic hoops and like articles, the parts of which are combined and arranged for joint operation as herein shown and set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

JOEL BLOOD.

Witnesses:

A. M. UTLEY,
EDWARD D. CURTISS.