E. COAPMAN.

Machines for Bending Hoops.

No. 145,398. Patented Dec. 9, 1873.

Fig. 1.

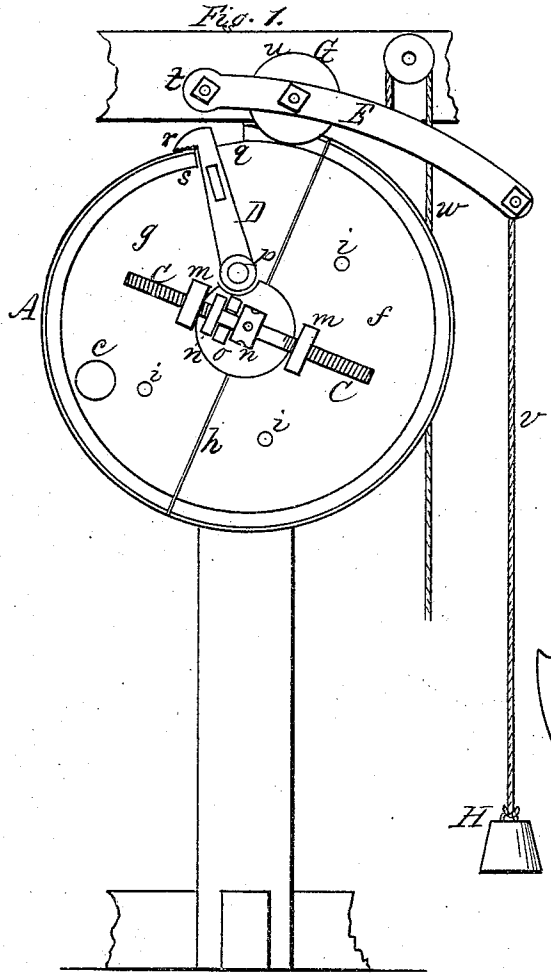


Fig. 2.

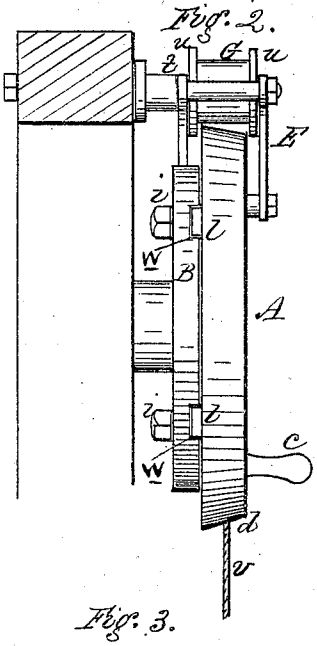


Fig. 3.

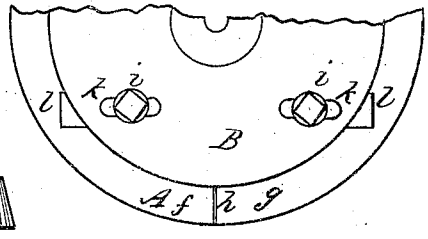
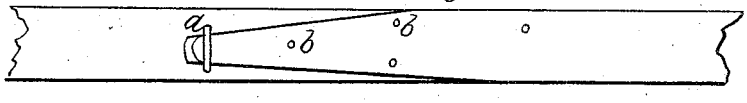


Fig. 4.



Witnesses,
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Inventor:
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atty.

UNITED STATES PATENT OFFICE.

EDGAR COAPMAN, OF ROCHESTER, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO B. H. CLARK, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR BENDING HOOPS.

Specification forming part of Letters Patent No. **145,398**, dated December 9, 1873; application filed June 20, 1873.

To all whom it may concern:

Be it known that I, EDGAR COAPMAN, of the city of Rochester, in the county of Monroe, in the State of New York, have invented certain new and useful Improvements in Machines for Bending Hoops; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of same, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation; Fig. 2, a side elevation; Figs. 3 and 4, detail views.

This invention relates to that class of barrel-hoops in which the lock of the hoop is formed by lapping one end over the other and securing it by a staple, which embraces the lap end. The invention consists in the improvements which are fully hereinafter described and claimed.

The hoop is made of a splint of wood, sawed or cut from the block, of proper angular form, and then requires only bending and locking or securing the ends together. This lock is shown in Fig. 4, in which one end overlaps the other, being beveled or tapered off to proper form, and when in place it is secured by a staple, *a*, which embraces the tapered end, having also nails *b b* driven in and clinched, when desired. This form of the hoop has been in use; but the hoops have been made by hand—first winding them around the barrel to get the proper gage, then taking them off and driving the staple by a subsequent operation. The object of my improvement is to do this work by machinery. To this end I employ a forming-wheel, A, attached to a disk, B, which is mounted upon an axis, so as to turn by means of the crank *c*, or by suitable gearing. (Not shown.) The hoop-splint is wound upon the periphery of the forming-wheel, which has an angle, *d*, to fit the angle or bevel of the hoop, thereby leaving the upper or outer surface of the hoop, when on the wheel, straight. The forming-wheel is made in two parts, *f g*, fitting at a straight joint, *h*, in the center, so as to preserve the circle, and be capable of expansion or separation from each other, so as to enlarge the circle, thereby making hoops of different sizes. The halves of the forming-wheels are attached to the disk B by set-screws *i i*, which pass through slots *k k* of the disk and enter the forming-wheel. Ways or grooves *w w* are formed in the disk, in which run slides *l l* of the forming-wheel, by which the straight and parallel movement of the forming-wheel is insured.

By the means above described the apparatus may be gaged to any size of hoop.

The forming-wheel is expanded by means of a right-and-left screw, C, which passes through fixed nuts *m m*, attached, respectively, to the halves of the wheel. The screw in the center has two shoulders, *n n*, which embrace a fixed bearing, *o*, that extends through an eye of the forming-wheel, and is attached to the disk. This bearing forms the fulcrum or resistance to the screw, and consequently the turning of the latter will force the forming-wheel apart. One of the shoulders *n* may have sockets for the insertion of a lever to turn the screw. A dog, D, is pivoted, at *p*, to the face of the forming-wheel, and extends up and plays in a notch, *q*, made in the rim of the wheel. It has a jaw, *r*, which, when thrown forward, as in Fig. 1, clamps the end of the hoop-splint, and holds it for winding on the forming-wheel, and when thrown back it releases the hoop. The part *s* of the rim of the forming-wheel on which the dog engages is depressed or sunken below the general periphery sufficiently for the lap of the hoop to roll over without interfering with the dog, and so as to form the full circle of the hoop. A frame, E, is pivoted, at *t*, above the forming-wheel, and carries a pressing-roller, G, which rests over the periphery of the wheel, and has two flanges, *u u*, which embrace the wheel. The body of the roller serves to press the hoop-splint down on the wheel, and to give it tension while the forming-wheel revolves, and the flanges serve to keep the splint in place while it winds, and prevent it from running off the wheel. A cord, *v*, and weight H are attached to the outer end of frame E, to produce the necessary pressure; and a cord, *w*, may also be used, passing up over a pulley, and thence down, connecting with a treadle, for the purpose of raising the frame and roller when the hoop is to be removed from place.

The operation of the machine is as follows:

One end of the hoop-splint is inserted beneath the jaw of the dog, and the forming-wheel is then turned so as to carry the hoop under the pressing-roller. This presses it closely to the wheel, and its flanges carry it around true. A complete revolution is made, so that the lap end of the hoop rests flat over the other end. The staple is then driven in, embracing the lapped end, as shown in Fig. 4. The pressing-roller is then elevated, and the hoop removed from place, when the balance of the nailing can be done at leisure. The pressing-roller is a necessary element in the machine to draw the hoop tightly, and to keep it in place in winding upon the wheel.

Having thus described my invention, I do not claim broadly and absolutely the winding of a strip of wood upon a form or mandrel, for the purpose of lapping and nailing the same; but

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

1. In combination with the pressing-roller G, the disk B, having slots *k k* and ways or grooves *w w*, and the expansible forming-wheel A, with its slides *l l* and the set-screws *i i*, all constructed and operating substantially as described.

2. The right-and-left screw C, the slides *l l*, the set-screws *i i*, and the slots *k k*, when combined with the forming-wheel A and disk B, in the manner and for the purpose specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

EDGAR COAPMAN.

Witnesses:
R. F. OSGOOD,
HENRY M. THOMAS.