

J. PENNEY.
Hoop-Machines.

No. 147,017.

Patented Feb. 3, 1874.

Fig. 1.

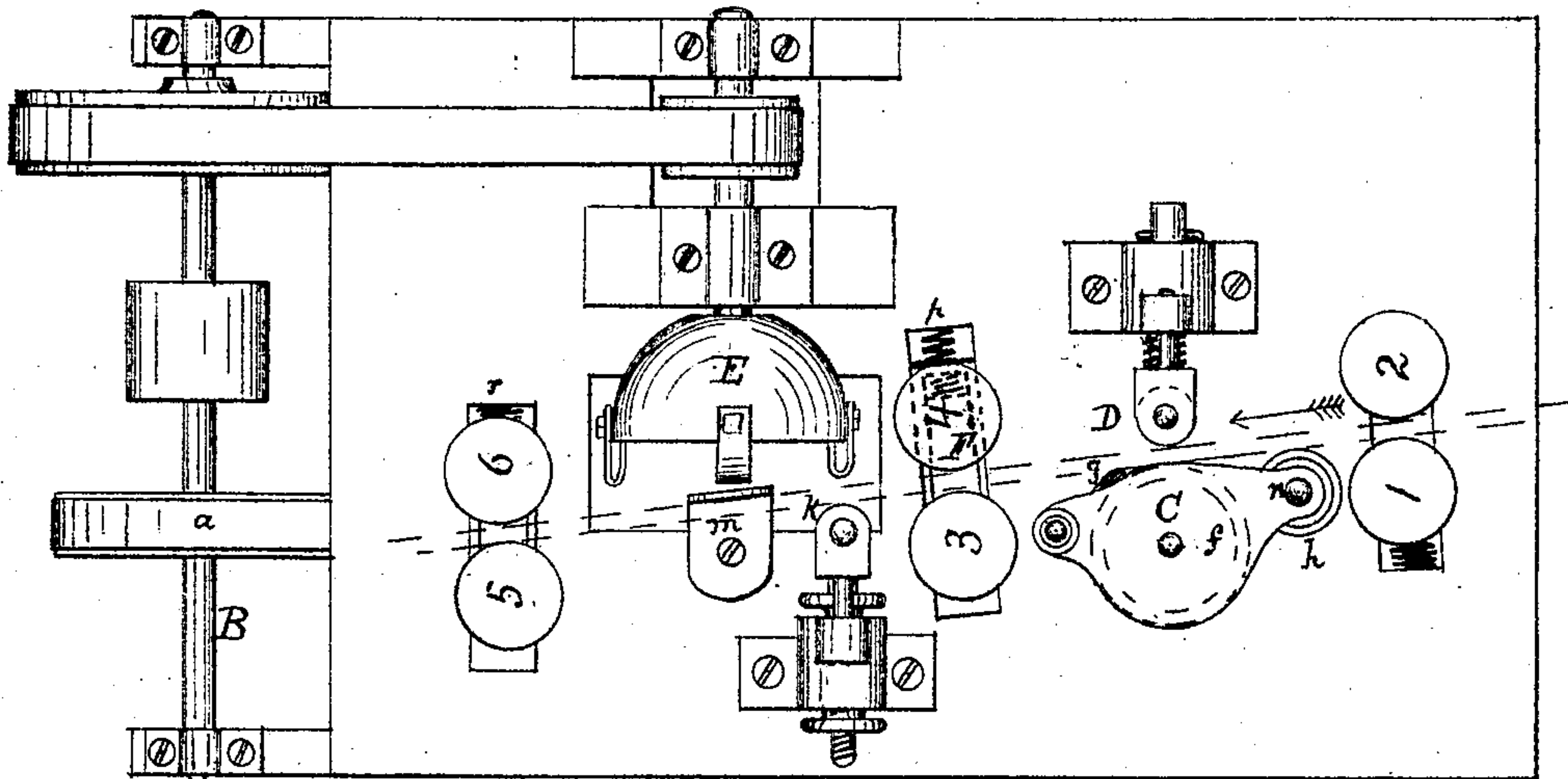


Fig. 2.

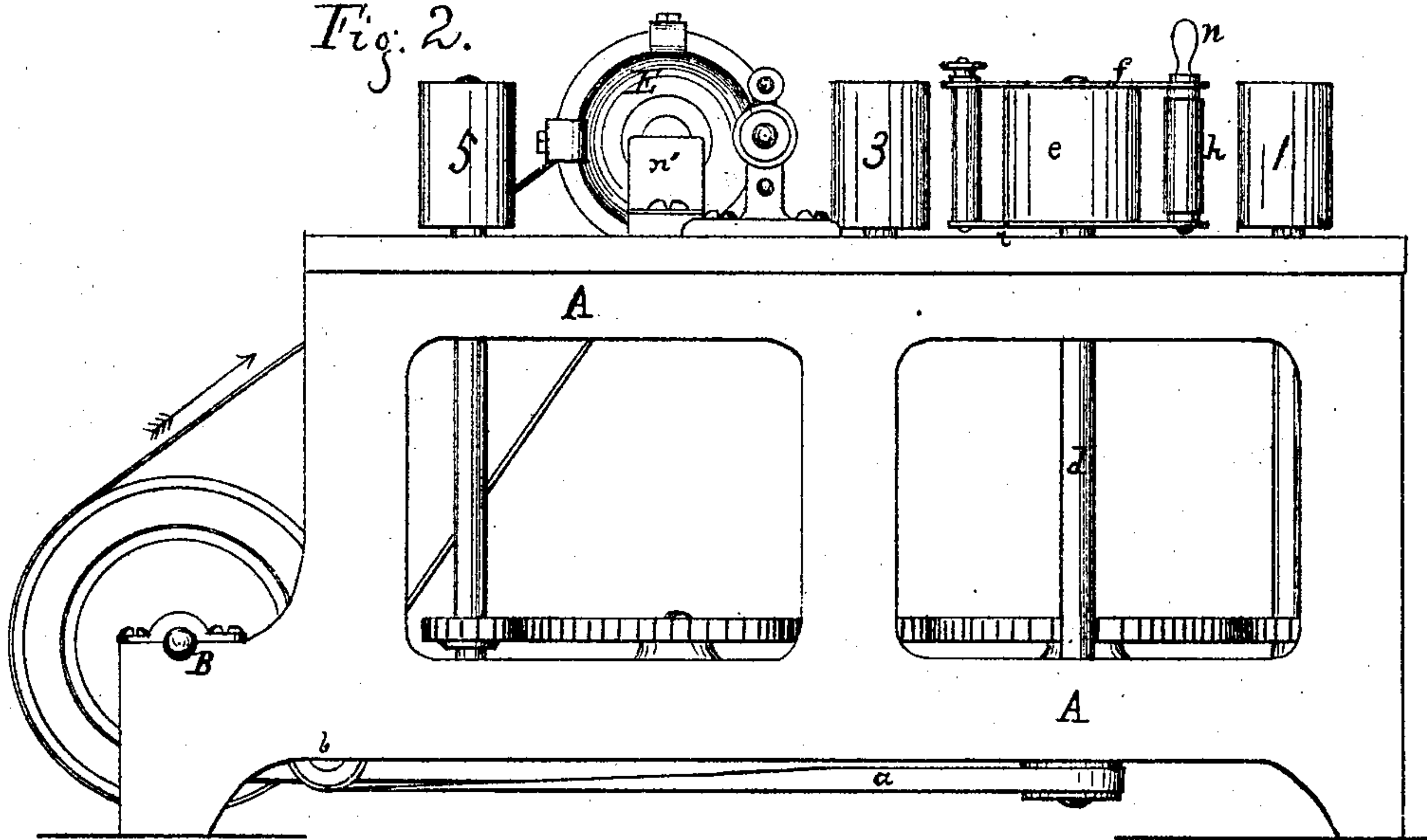


Fig. 3.

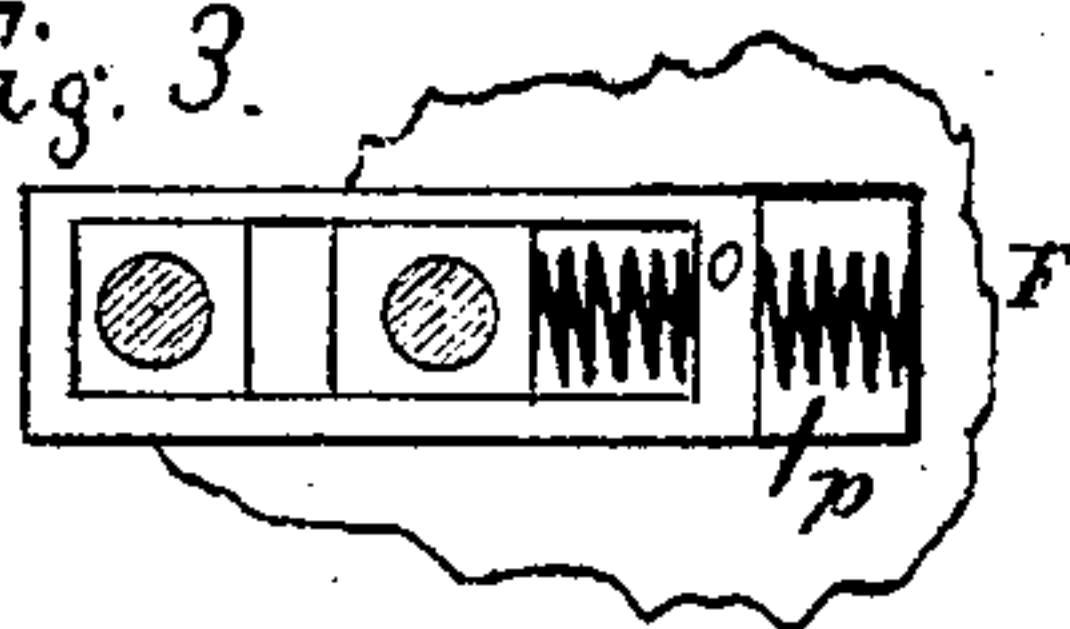
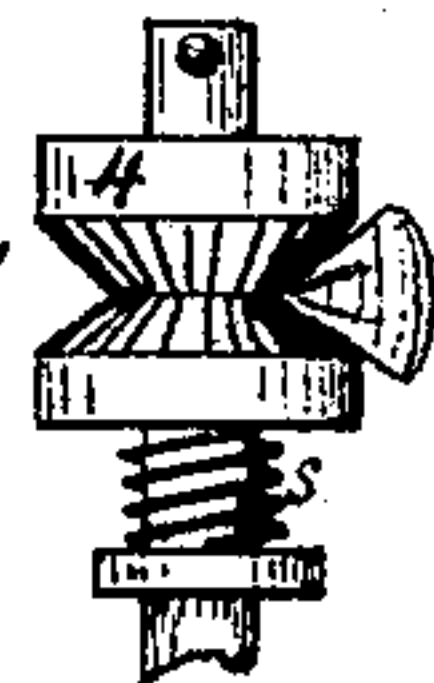


Fig. 4.



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IMPROVEMENT IN HOOP-MACHINES.

Specification forming part of Letters Patent No. **147,017**, dated February 3, 1874; application filed November 16, 1871.

To all whom it may concern:

Be it known that I, JOSEPH PENNEY, of Rochester, in the county of Monroe and State of New York, have invented certain Improvements in Hoop-Machines, of which the following is a specification:

This invention relates to improvements in machinery for dressing half-round hoops. The first part of it consists in the combination of a rotary cutter-head or knot-cutter, controlled in its action upon the bark side of the hoop by suitable guards, with a spring-roller on the flat side of the hoop. The second part of my invention consists in the combination of a fixed roller on the bark side of the hoop with a planing cutter-head and suitable spring guides or rolls on the flat side, to dress the hoop of a uniform thickness from end to end.

Figure 1 is a plan view of a machine embodying my invention. Fig. 2 is a side elevation of the same. Figs. 3 and 4 are details.

A A is the frame of the machine. B is the driving-shaft, from which power is transmitted to its several parts. A splint previously split from a hoop-pole passes through the machine, as indicated by dotted lines in Fig. 1. 1 2, 3 4, and 5 6 are three pairs of feed-rolls, driven at a uniform rate of speed from the shaft B, or the shaft of the cutter-head E, in any convenient manner. The rolls 1, 3, and 5 on the bark side of the hoop are smooth, while those on the flat side are fluted, and the several rolls are held together in pairs by suitable springs, as represented in Fig. 3.

The cutter-head C is driven by a quarter-twist belt, *a*, running under a guide-pulley, *b*. The splint passes through the feed-rolls 1 and 2, and between the cutter-head C and the spring-roll D, which supports it against the stroke of the knives. The cutter-head is controlled in its action upon the hoop by the yoke or bearing-frame (seen in Figs. 1 and 2) above the top plate of the machine. This yoke is free to turn about the shaft *d* independent of the cutter-head, and is composed of five pieces—the semicircular box *e*, surrounding the cutter-head, the upper plate *f*, the lower plate *i*, the roller or forward rest *h*, and the after rest *g*. These various parts are shaped and bolted together as shown in the drawing, the roller *h* turning freely about a bolt, the upper end of

which is prolonged into a handle, for convenience of manipulation when entering the hoop. The rest *g* is fitted to the piece *e*, to which it is secured by a bolt and slot, to make it adjustable.

The knives of the cutter-head C may have either a straight or slightly-concave edge, and the bearing-edge of the after rest *g* agrees with them in shape, and is placed as near as possible to the circle described by them in revolving. The knives cannot reach beyond the straight line joining the bearing-surfaces of the rest *g* and the roller *h*, and since the hoop is held by the spring-roll D firmly against these bearing-surfaces, which ride on the bark, it is evident that knots can only be removed down to the bark line.

If the roll *h* be elastic, of rubber, or provided with springs, which enable it to give back a little when forced against the hoop, the operator is enabled to clip a knot out of a hollow bend in the hoop by compressing the roll *h* against the hoop by means of the handle *n*.

I prefer to feed the splints small end first into the machine, and in order to avoid tearing the bark, the knot-cutter should run so that its knives strike the knot from behind forward in the direction in which the hoop is moving. In entering the hoop the bearing-frame is swung round so as to oppose the rest *g* to the roll D, in which position the knives cannot act upon the hoop. After the forward end of the hoop has passed beyond the rest, the roller *h* is immediately brought into contact with the hoop; or the withdrawing of the handle may, by an arrangement of levers, be made to push back the roller D until the hoop is entered.

A modification of this device or knot-cutter consists in bolting the after rest *g* in the proper position on the top plate of the machine, and in making the forward roll *h* one of the first pair of feed-rolls, or mounting it in a yielding box. In this case the roller D must be withdrawn in some suitable manner in order to enter the hoop. The splint thus freed from knots passes between the feed-rolls 3 and 4, and is subjected to the action of the planing cutter-head E, which reduces it to an even thickness from end to end. The splint passes diagonally by this cutter-head, so that it receives the downward stroke only of the knives. Opposite the cutting side of the head is placed a

fixed roll, *k*, firmly fastened to the top plate, but adjustable in any suitable manner, in its distance from the cutter-head, for any desired thickness of the hoop. A rest, *m*, supports the hoop against the downward stroke of the knives, and by its upright portion *n'*, Fig. 2, prevents a crooked hoop from being struck by the knives in their upward motion. The rolls 3 and 4, while they are clamped together by the spring *o*, Fig. 3, are at the same time pressed strongly toward the fixed roller *k*, away from the cutter-head *E*, by the spring *p*. A similar arrangement is adopted on the rolls 5 and 6. As the hoop passes through between the fixed roller *k* and the cutter-head *E*, it is held firmly against the fixed or gage roll *k* by the springs *p* and *r* on the rolls 4 and 6, which follow the sinuosities of the hoop, but keep the bark side continuously in contact with the gage-roll, by which means the cutter-head is not allowed to shave the hoop thinner than the desired thickness for which the gage-roll is set.

If the function of the rolls 3 and 4 be limited to feeding only, the same result is attained by an additional roll or spring, to push the hoop away from the cutter-head and hold it against the gage-roll opposite, or by any device which performs this essential function.

The rolls 5 and 6 may be limited to pulling only, in which case the rest *m* may slide in ways on the top plate, and be provided with a spring forcing it away from the cutter-head, and a stop to limit its motion toward the cutter. A roller may also be substituted for its upright portion *n'*.

A throat may be placed before each pair of feed-rolls, to insure the passage of the hoops between them.

Either of these devices may be used in combination with one of the devices for accomplishing the same results described in my patent of November 1, 1870, or they may be used in combination with the devices described therein for edging and crimping the hoop.

If the hoop-pole is split through the center into three or more parts, the splints are angular on the split side. In order to feed such splints through the dressing-machine, the

fluted rolls before the planing cutter-head are removed, and grooved rolls suitably roughened are substituted in their place. These rolls may be feathered on the shaft and slide up and down on it, being supported by a spring, *s*, Fig. 4. A grooved roll may also be placed opposite the knot-cutter *C*.

I do not claim, specifically, anything presented in my patent of November 1, 1870; but I claim—

1. A hoop-dressing machine having a spring or yielding roller, *D*, acting conjointly with the knot-cutter *C*, when the latter is hung in a fixed axis, and its cutting gaged by two points of bearing of its rocking yoke, as shown and described.

2. The rocking yoke of the knot-cutter *C* in hoop-dressing machines, when provided with an elastic-faced roller, *h*, and a fixed rest, *g*, acting conjointly as and for the purposes set forth.

3. The planing cutter-head *E*, in combination with the fixed gage-roller *k*, and the two pairs of rollers 3 4 and 5 6, when they are hung in gates or slides that are forced toward the roller *k* by springs *r* and *p*, and the two rollers of each pair are afforded a lateral movement toward or from each other by springs *o* within the gate, as and for the purposes set forth.

4. In combination with the cutter-head *E*, gage-roller *k*, and guides 3 4 and 5 6, the knot-cutter *C* and its guards *g h*, and spring-roller *D*, arranged to operate substantially in the manner shown and described, for the purpose of trimming the knots and dressing the heart side of round hoops at one continuous operation, as set forth.

5. The V-shaped grooved feed-rollers 2 and 4, in combination with the plain-faced 1 and 3, when the former are splined upon their shafts, so as to be allowed a vertical movement thereon, either with or without the spring *s*, as and for the purposes set forth.

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Witnesses:

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