

(No Model.)

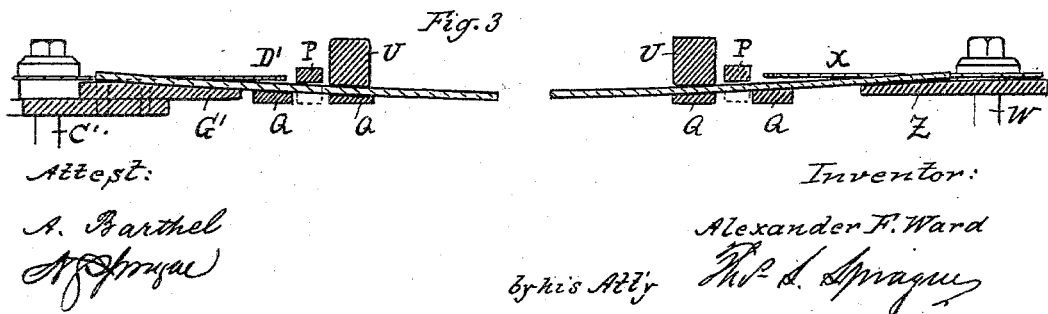
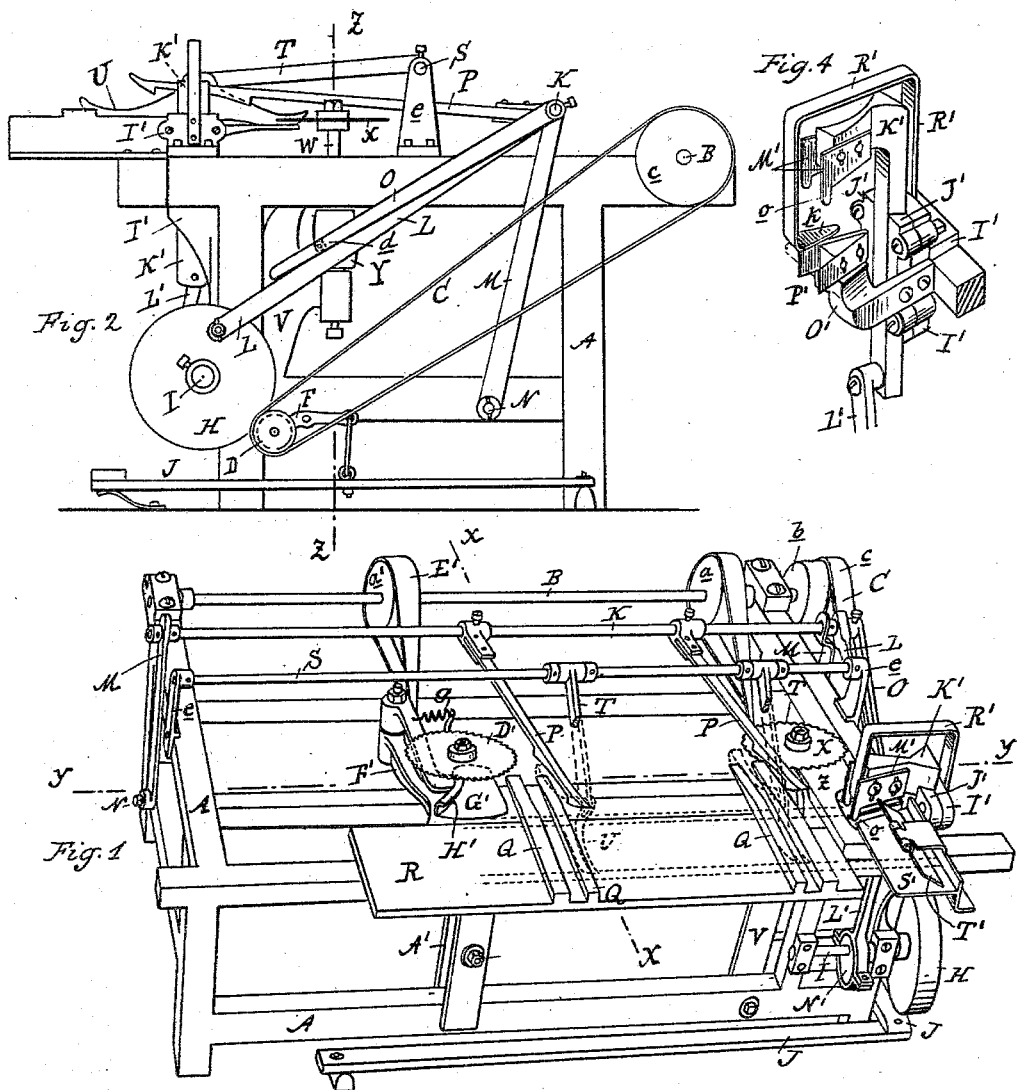
2 Sheets—Sheet 1.

A. F. WARD.

MACHINE FOR POINTING AND LAPPING HOOPS.

No. 305,868.

Patented Sept. 30, 1884.



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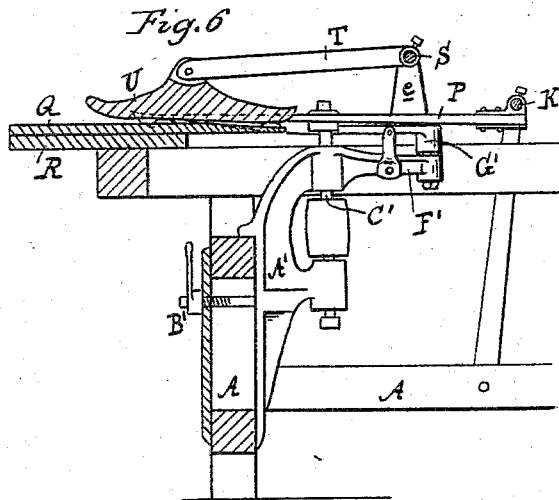
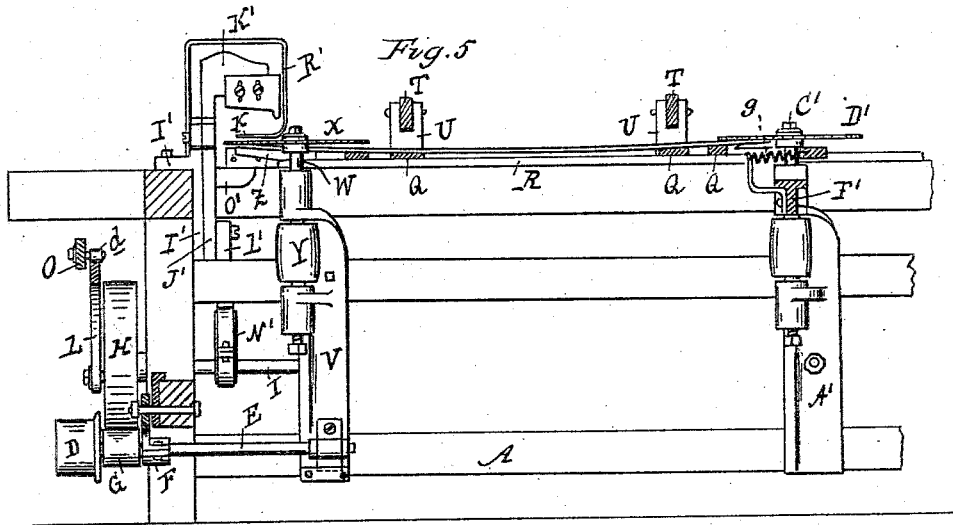
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Attest:

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A. Sprague

Inventor:

Alexander F. Ward
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UNITED STATES PATENT OFFICE.

ALEXANDER F. WARD, OF DETROIT, MICHIGAN.

MACHINE FOR POINTING AND LAPPING HOOPS.

SPECIFICATION forming part of Letters Patent No. 305,868, dated September 30, 1884.

Application filed July 14, 1883. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER F. WARD, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Machines for Pointing and Lapping Hoops; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in the construction of machines designed for pointing and "lapping" hoops.

The invention consists, first, in the peculiar construction and operation of the means and devices employed for pointing one end of the hoop; second, in the peculiar construction and arrangement of circular saws for lapping; third, in the peculiar devices, and their operation, employed for automatically feeding the hoops to the machine from the table; and, fourth, in the peculiar construction, arrangement, and combinations of the various parts, all as more fully hereinafter set forth.

Figure 1 is a perspective of my improved machine. Fig. 2 is an end elevation. Fig. 3 is a vertical longitudinal section on the line Y Y in Fig. 1. Fig. 4 is a perspective view of the pointing devices. Fig. 5 is a vertical cross-section on the line Z Z in Fig. 2. Fig. 6 is a vertical sectional elevation on the line X X in Fig. 1.

In the accompanying drawings, which form a part of this specification, A represents a suitable frame, longitudinally across which, and at the rear side thereof, is journaled the shaft B in suitable boxes. This shaft B has properly keyed upon it the two pulleys *a* and *a'*, drive-pulley *b*, and pulley *c*, the latter being upon the end of the shaft outside the frame. Motion from this shaft is communicated by means of the belt C to the pulley D, which is mounted upon the short counter-shaft E, one end of such shaft being journaled in a swinging box, F. Upon this shaft E is secured a friction-pulley, G, which, when the machine is in use, is brought in contact with the face of the large pulley H, keyed upon the counter-shaft I by means of the treadle-lever J,

which is connected to one arm of such swinging box, as shown. The pulley H is connected by means of a connecting-bar, L, to the outer end of a rock-shaft, K, which is properly journaled in the upper ends of vibrating arms M, the lower ends of such arms being pivotally secured at N to the frame.

O represents a rocker-arm, which is secured upon the outer end of the shaft K, and at or near its lower end is provided with a pin, *d*, which rests upon the upper edge of the pitman L.

P represents feed-arms, the rear ends of which are rigidly secured to the shaft K, while their forward ends are hooked upon their under side, as shown, and these arms are for the purpose of feeding the hoop to the machine upon the guides Q, which are secured upon the table R at the front of the machine.

In advance of the shaft K is secured a rod, S, in standards *e*, and upon this rod are sleeved the rear ends of the presser-arms T, the forward ends of which have pivotally secured to them the presser-feet U, for the purpose hereinafter described.

V represents an iron bracket, rigidly secured to the frame, in the arms of which is journaled a vertical shaft or saw-arbor, W, upon the upper end of which is secured the horizontally-running saw X, this saw and its arbor being driven by means of a belt running from the pulley Y back to one of the pulleys *a* upon a shaft, B.

Z is an inclined table or bed, rigidly secured to the frame, and such bed extends beneath the saw X.

A' is another bracket, which is adjustably secured upon the frame and held to its adjusted position by means of the screw and nut B', Fig. 6, or in any other convenient manner that will admit of the adjustability of such bracket longitudinally with the frame. This bracket also carries a saw-arbor, C', and a saw, D', motion to such saw and arbor being communicated through the medium of a belt, E', from the pulley *a'*, which is likewise secured upon the shaft B. This bracket is provided with a rearwardly-projecting arm, F', in which is pivotally secured the swinging guide-table G', which is inclined, as shown, and upon one

side of this swinging table G' there is formed the curved flange H'. A spring, g, serves with a constant force to hold the swinging table G' in its normal position.

- 5 I' is a bracket rigidly secured to the frame, and to this bracket are secured the guide-cheeks J', in which the cutter-head K' has a vertical reciprocating motion, such motion being communicated through the medium of a
 - 10 pitman, L', the lower end of which embraces the eccentric N' upon the shaft I. This cutter-head is provided with a V-shaped knife, M', the lower corners of which are provided with the downwardly-projecting spurs o.
 - 15 O' is an arm which is rigidly secured to the bracket I', and this arm carries a V-shaped cutter, P', somewhat smaller than the knife M', and which is about flush with the face of the inclined table Z.
 - 20 R' is an overhanging bracket, projecting upward from the bracket I', and is provided with the arm k at its free end, such arm being somewhat pointed, as shown.
 - 25 S' is a table rigidly secured to the frame in front of the pointing device last described, and this table is provided with a hinged presser-plate, T'.
- Having described the construction and arrangement of the various parts of my improved
- 30 pointer and lapper, I will now proceed to describe its operation. The hoops are laid by the operator upon the guide-bars Q on the table R, the inner ends of such guide-bars being inclined. Motion being imparted to the device, the operator depresses the treadle J,
 - 35 which communicates motion from the shaft B to the various parts through the connections herein described. The ends of the hoops are placed so that they rest upon the table S' and
 - 40 beneath the presser-plate T', the gravity of which keeps the ends down upon such table. In the rotation of the pulley H and the movement of the connections named the rock-shaft K is partially rotated, which causes the arms P
 - 45 to rise, while at the same time such rock-shaft advances toward the front of the machine, this movement occurring while the wrist of the wheel H is making the half upward movement. In the further rotation of the pulley H the
 - 50 feed-arms P drop over the hoop and draw it back, so that one end rests upon the cutter P'. The cutter M' is now, in the further operation of the machine, brought down upon the top of the end of the hoop, which points that end,
 - 55 the knife receding, while the arm k of the overhanging bracket R prevents the hoop from following the cutter up, the weight of the presser-feet U also tending to keep the hoop upon the guides Q. The feed-arms now
 - 60 again advance and engage with another hoop, when it is drawn back into the machine and pointed in the same manner as the first hoop has been pointed, while the second hook upon the feed-arm has engaged with the first hoop
 - 65 which was fed into the machine and draws it upon the tables Z and G', the gravity of the

presser-feet depressing the hoop, as shown in Fig. 3, so that as the ends of the hoop come in contact with the saws X D' the upper portion of their ends is sawed off at the same operation upon an incline, thus forming the lap. The hoop, being advanced constantly against the saws by the action of the feed-arms, finally falls off the table onto the floor or into any proper conveyer which may be arranged for

70 carrying it off, but which forms no part of my invention.

It will be seen that should a hoop of greater length than those for which the machine is set get upon the table, were the table G' 80 stationary, it would necessarily cause a buckling or upward bend of the hoop and make a very abrupt cut, but that in its being adjustable it gives way before the end of the hoop, so that the lap is formed the same upon all 85 the hoops.

The adjustability of the bracket A' and pulleys a' with their connections is so that the device may be employed for pointing various grades of hoops from the longer to the shorter. 90

What I claim as my invention is—

1. In a machine for pointing and lapping hoops, two horizontally-running circular saws, each adjustable vertically, and one adjustable on the longitudinal plane of the machine toward or from the other saw, to accommodate different lengths of hoops, said 95 saws being adapted to cut the lap on opposite ends of the hoop simultaneously, and mechanism for operating the saws, as herein specified. 100

2. In a machine for pointing and lapping hoops, a rock-shaft, K, provided with hooked feed-arms, and mechanism, substantially as described, connected with the driving-power 105 for raising said arms, and carrying the hooked end thereof over and beyond the hoops, and then dropping the points of the hooked end beyond said hoops to feed the same, as set forth. 110

3. In a machine for pointing and lapping hoops, the combination of the vertically-adjustable saw X, mounted in stationary bearings, and the vertically-adjustable saw D', 115 mounted in bearings having adjustment to or from the other saw to accommodate hoops of varying lengths, and the main shaft B, provided with means for driving two bands, each of which passes directly to a different pulley on the saw-arbors, so as to be readily adjustable, as set forth. 120

4. In a hoop lapping and pointing machine, and in combination with a rock-shaft and feed-arms, substantially as described, the shaft S, having arms T, and presser-feet U, 125 pivoted to the ends of said arms, whereby the feet will securely hold two hoops of varying thicknesses, substantially as set forth.

5. In a hoop-lapping machine, and in combination with the horizontal circular saw X 130 and inclined table Z, the adjustable saw D' and its swinging table G', the guides Q, hav-

ing inclined surfaces adjacent to the saws, all for the purpose of presenting the ends of the hoops at an angle to the horizontal run of the saws, substantially as specified.

- 5 6. In a machine for pointing and lapping hoops, and in combination with two horizontally-running circular saws for cutting the lap upon the opposite ends of the hoops simultaneously, the inclined stationary bed Z near

one saw, swinging bed G' near the other saw, 10 spring g, acting upon the bed G', and the guide-bars Q between the saws, substantially as set forth.

ALEXANDER F. WARD.

Witnesses:

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C. J. HUNT.