(No Model.) 2 Sheets—Sheet 1.

C. N. SMITH.

HOOP SHAVING MACHINE.

No. 553,570. Patented Jan. 28, 1896.

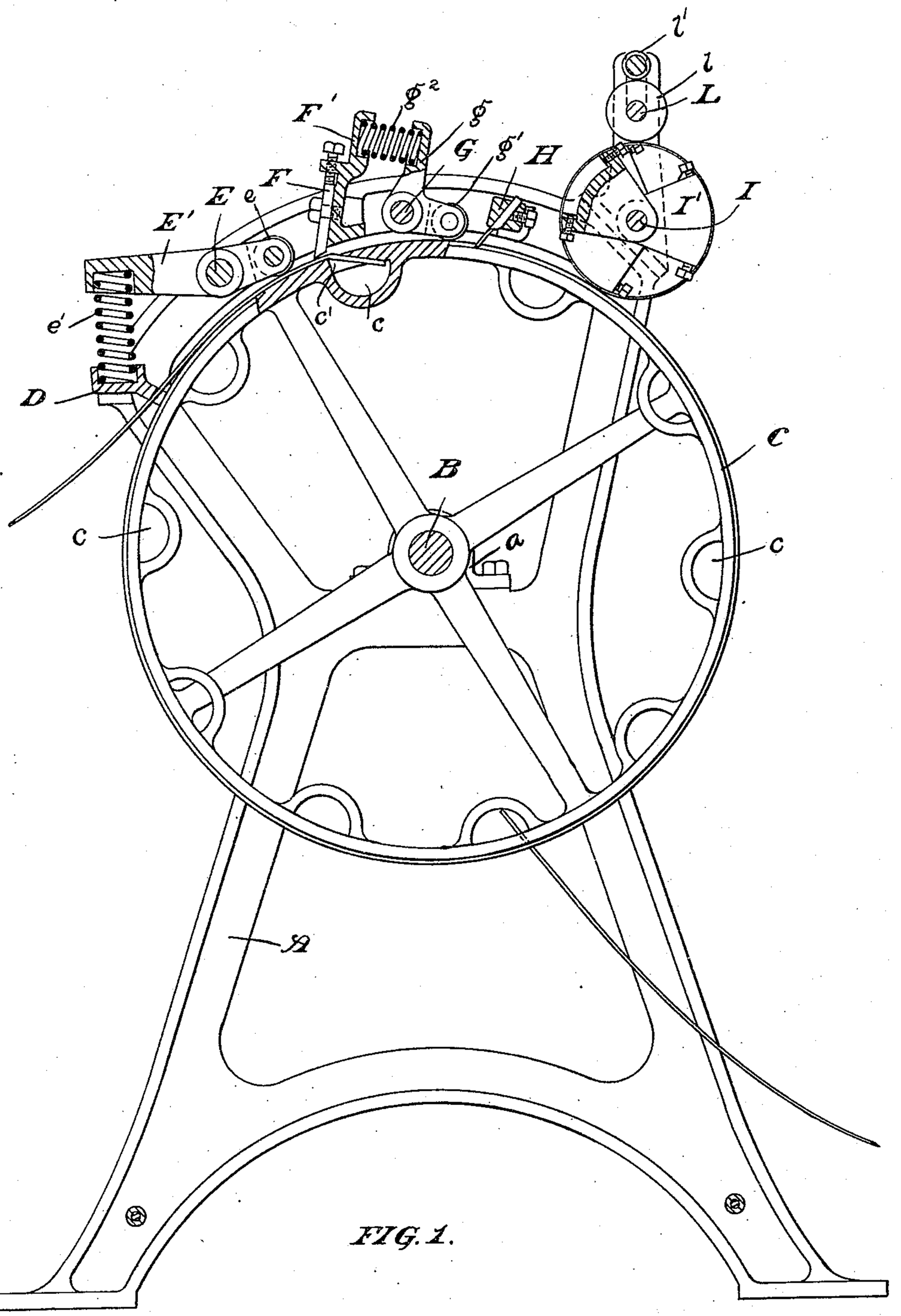

FIG. 1.

WITNESSES
Lois E. Gridley
Estella Akin.

INVENTOR
Chris N. Smith.
BY
Henry F. Hayes
ATT.

(No Model.)

2 Sheets—Sheet 2.

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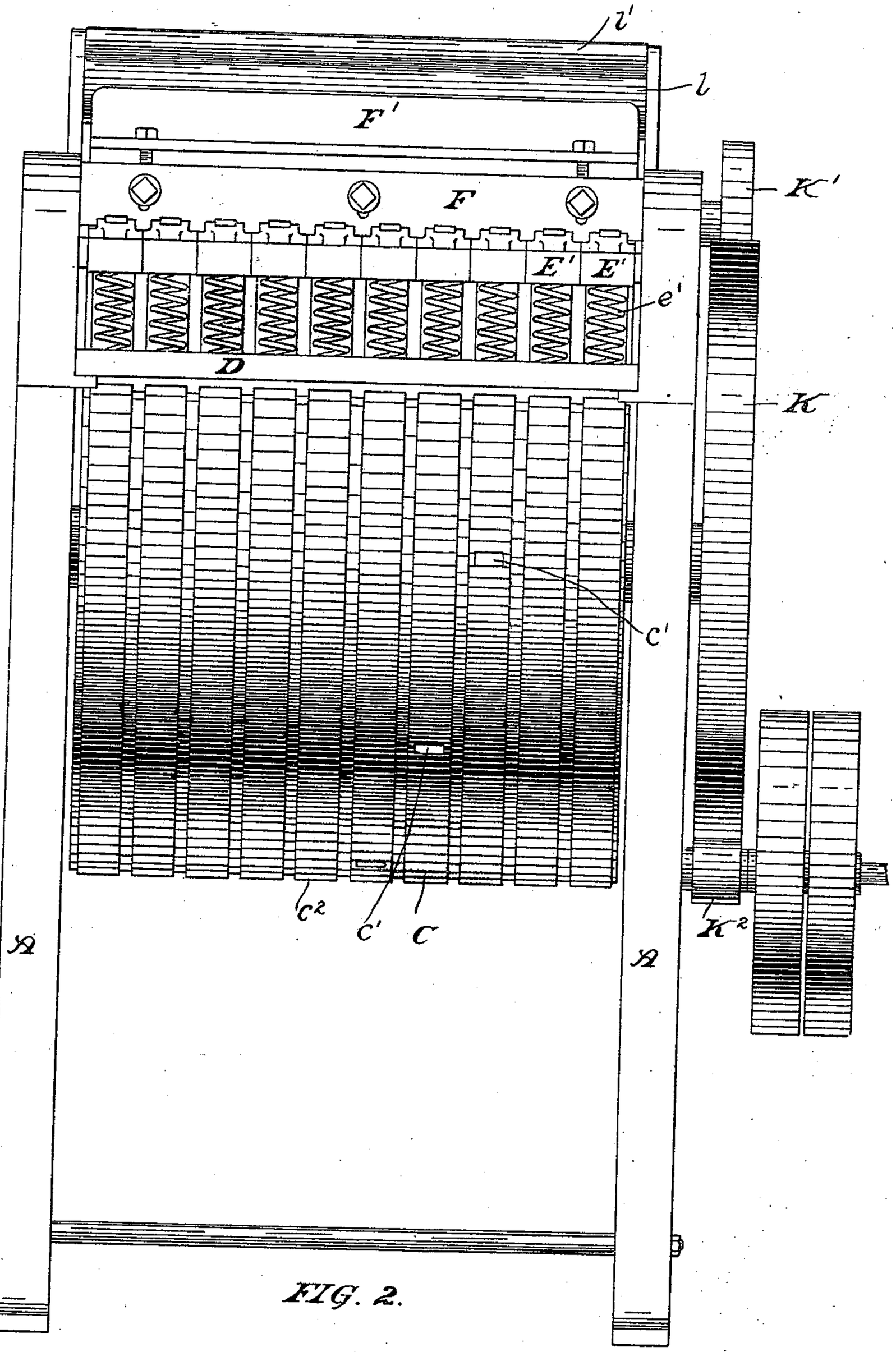

FIG. 2.

WITNESSES
Lois E. Gridley
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INVENTOR
Chris N. Smith
BY
Henry F. Noyes, ATT.

UNITED STATES PATENT OFFICE.

CHRIS N. SMITH, OF ELGIN, ILLINOIS, ASSIGNOR OF ONE-HALF TO FRANK OSCER JOHNSON, OF SAME PLACE.

HOOP-SHAVING MACHINE.

SPECIFICATION forming part of Letters Patent No. 553,570, dated January 28, 1896.

Application filed April 18, 1895. Serial No. 546,225. (No model.)

To all whom it may concern:

Be it known that I, CHRIS N. SMITH, of Elgin, Kane county, Illinois, have invented certain new and useful Improvements in Hoop-Shaving Machines, of which the following is a specification.

The object of my invention is to provide an efficient and economical device for shaving wooden hoops for tubs or barrels. In the economical manufacture of these hoops it is necessary that they should be handled and the operations completed with great rapidity. In machines of this nature previously constructed each hoop had to be fed into the machine in turn, and the only way of increasing the output was by increasing the number of machines.

My invention consists of a machine adapted to shave several hoops at once, and yet so arranged that while it is operating on a number of hoops all the time the hoops can be fed in successively, and that the knife is not cutting at the same place on any two hoops, so that the extra strain of starting the cut comes on the knife as each successive hoop comes around to it, and it does not have to stand the strain of starting a cut in all the hoops at once. I have also invented and shown a means of shaving the sides of the hoops at the same time, and a device for printing the name of the dealer upon each hoop as it runs through the machine.

The mechanism which I have invented to accomplish these operations is fully shown in the accompanying drawings.

Figure 1 is a side elevation of the machine with one side of the frame removed, and Fig. 2 a front elevation.

I provide a main frame composed of two side pieces A, firmly bolted together and carrying the shaft B in the bearings *a*. The shaft carries a drum C. This drum is provided with loop-shaped pockets *c*, and opposite each pocket in the face of the drum is an opening *c'* for the insertion of the hoops. One side of this opening is beveled off, as shown in Fig. 1, to prevent bending the hoops too much. These pockets and openings are spaced diagonally across the face of the drum, so that if, for example, there were ten pockets, each would be a tenth of the distance across the face and a tenth of the distance around the drum from the preceding pocket. A certain number of channels or grooves is turned upon the face of the drum, leaving a raised portion c^2, in the center of each of which is one of the above pocket openings. This raised portion serves as a track for each hoop to ride upon. Extending across the face of the drum is the plate D firmly fastened to the side frames, and provided with a channel or slot to correspond with each raised track and to guide the hoops upon it.

Just above the plate D is a shaft E carrying a certain number of arms E', each provided at one end with a roller *e* adapted to ride on its corresponding track and to hold the hoop firmly down as it comes around under the roller. The other end of these arms is provided with a stiff spring *e'*, which is carried by the plate D and serves to hold each roller down to its hoop. Just beyond these rollers is the knife F carried by the plate F', and extending right across the face of the drum. Back of the knife-plate is another shaft G carrying a certain number of arms *g*, provided at one end with rollers *g'* and at the other with springs g^2, each held between the plate F' and its arm *g* and acting to press its roller down against its corresponding hoop. Just beyond these rollers is a set of knives *h* carried by the cross-bar H and adapted to shave the edge of the hoop.

The printing device consists of a shaft I carrying a certain number of quadrants I', one for each track. Each quadrant is adapted to receive in its circular part the type necessary for printing the name desired, and they are so arranged on the shaft, which is driven by gears K and K' from the main shaft B, that they will print the name upon about the same respective place upon each hoop, which is done by making the length of the circular arc between the beginning of one name and the beginning of the next name the same length as the circular distance between two successive pocket openings. The shaft L carries the ink-roller *l*, which rests upon the faces of the type, and above it is the distributing-roller *l'*. The gear K, which is keyed

on the main shaft B, is driven by the pinion K^2, and this is driven by pulleys, or any convenient means.

In the operation of the machine the workman, with a bundle of hoops near by, stands in front and slips one end of a hoop into the nearest opening or pocket. The hoops, as in the process of manufacture they are ready for this operation, have one end slightly enlarged in thickness, which forms a slight shoulder. As this end is pushed into the opening and carried around with the drum, it is bent around one edge of the opening and presses against the other edge hard enough to hold it until it runs under the rollers, which pressing it firmly down to the track causes it to be pinched harder in the opening, so that it is carried around with the drum until the knives have taken their cuts and it runs out from under the inking device, when the elasticity of the hoop throws it away from the periphery of the drum and it falls down from the under side thereof.

Thus it will be seen that the advantages of my machine are great rapidity of operation, as one of the pockets is always in readiness to receive a hoop and always near the operator, compactness, and economy and little liability of getting out of order, owing to the few working parts.

While I have described my invention with considerable minuteness as regards the details thereof and as being embodied in more or less precise form, I do not desire to be limited thereto unduly, as I contemplate all proper changes of material, omission of parts and the substitution of equivalents, as circumstances may suggest or necessity render expedient.

I claim—

1. In a hoop shaving machine, the combination of a drum provided with a number of slots adapted to receive and grip the hoops, independent spring pressed rollers adapted to hold the hoops against the surface of the drum, a slotted bar adapted to guide the hoops and to form a base for said springs, and a knife adapted to shave the face of the hoops, substantially as described.

2. In a hoop shaving machine, the combination of a drum provided with a number of slots adapted to receive and grip the hoops, independent spring pressed rollers adapted to hold the hoops against the surface of the drum, a slotted bar adapted to guide the hoops and to form a base for said springs, and a knife adapted to shave the face of the hoops, and independent knives adapted to shave the edges of said hoops, substantially as described.

3. In a hoop shaving machine, the combination of a rotating drum provided on its surface with slots adapted to receive and to grip the hoops, a shaft extending longitudinally across the face of the drum and provided with independent arms each arm having at one end a roller adapted to hold its hoop against the face of the drum and at the other end adapted to receive a spring, a bar extending longitudinally across the face of the drum and provided with slots adapted to guide the hoops as the drum rotates, such bar adapted to form a base for and to receive said springs, a knife extending longitudinally across the face of the drum and adapted to shave the hoops, and fastened to a plate provided with means of adjusting said knife, and a means of rotating said drum substantially as described.

4. In a hoop shaving machine, the combination of a rotating drum provided on its surface with slots adapted to receive and to grip the hoops, a bar extending longitudinally across the face of the drum and provided with slots adapted to guide the hoops as the drum rotates, independent yielding rollers adapted to hold the hoops against the face of the drum, a knife extending longitudinally across the face of the drum and adapted to shave the faces of the hoops as the drum rotates, independent knives carried by a transverse bar or plate and adapted to shave the edge of the hoops as the drum rotates, a second set of independent yielding rollers adapted to hold the hoops against the face of the drum, and means of rotating said drum, a transverse shaft provided with quadrants adapted to receive suitable type, each quadrant adapted to bring its type into contact with its corresponding hoop, an ink roller adapted to contact said type, and means of rotating such quadrant shaft from said drum or from its shaft, substantially as described.

5. In a hoop shaving machine, the combination of a rotating drum provided on its surface with a number of slots adapted to receive and to hold the hoops, a shaft extending longitudinally across the face of the drum and provided with independent spring pressed rollers adapted to hold the hoops against the face of the drum, a bar extending longitudinally across the face of the drum and provided with slots adapted to guide the hoops as the drum revolves, such bar adapted to form a base for the support of the said roller springs, a knife extending longitudinally across the face of the drum and adapted to shave the face of the hoops, independent knives carried by a transverse bar and adapted to shave the edges of the hoops, and a means of rotating the drum, substantially as described.

6. In a hoop shaving machine, the combination of a rotating drum provided on its surface with a number of slots adapted to receive and to hold the hoops, a shaft extending longitudinally across the face of the drum and provided with independent spring pressed rollers adapted to hold the hoops against the face of the drum, a bar extending longitudinally across the face of the drum and provided with slots adapted to guide the hoops as the drum revolves, such bar adapted to

form a base for the support of the said roller springs, a knife extending longitudinally across the face of the drum and adapted to shave the face of the hoops, independent knives carried by a transverse bar and adapted to shave the edges of the hoops, and a second set of independent yielding rollers adapted to hold the hoops against the face of the drum, substantially as described.

CHRIS N. SMITH.

Witnesses:
DELLA BALCH,
HENRY F. NOYES.