

(No Model.)

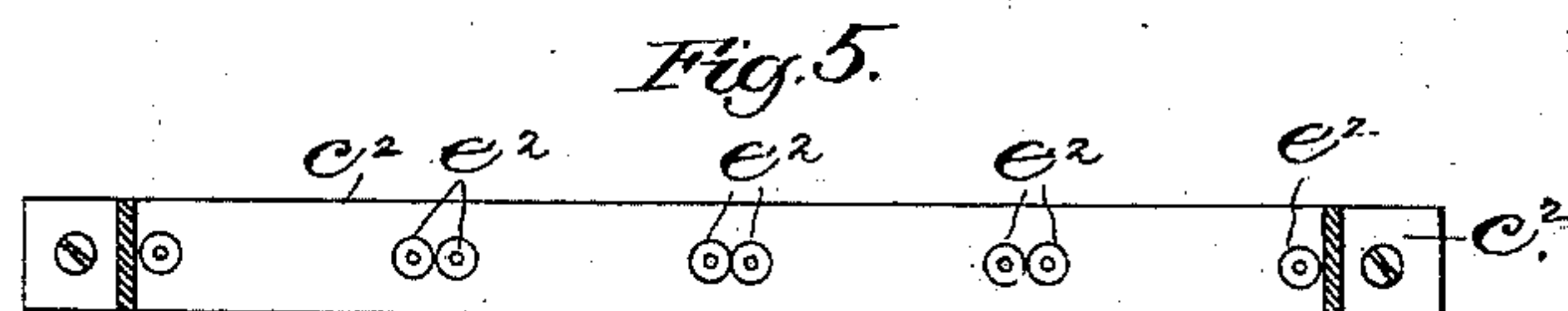
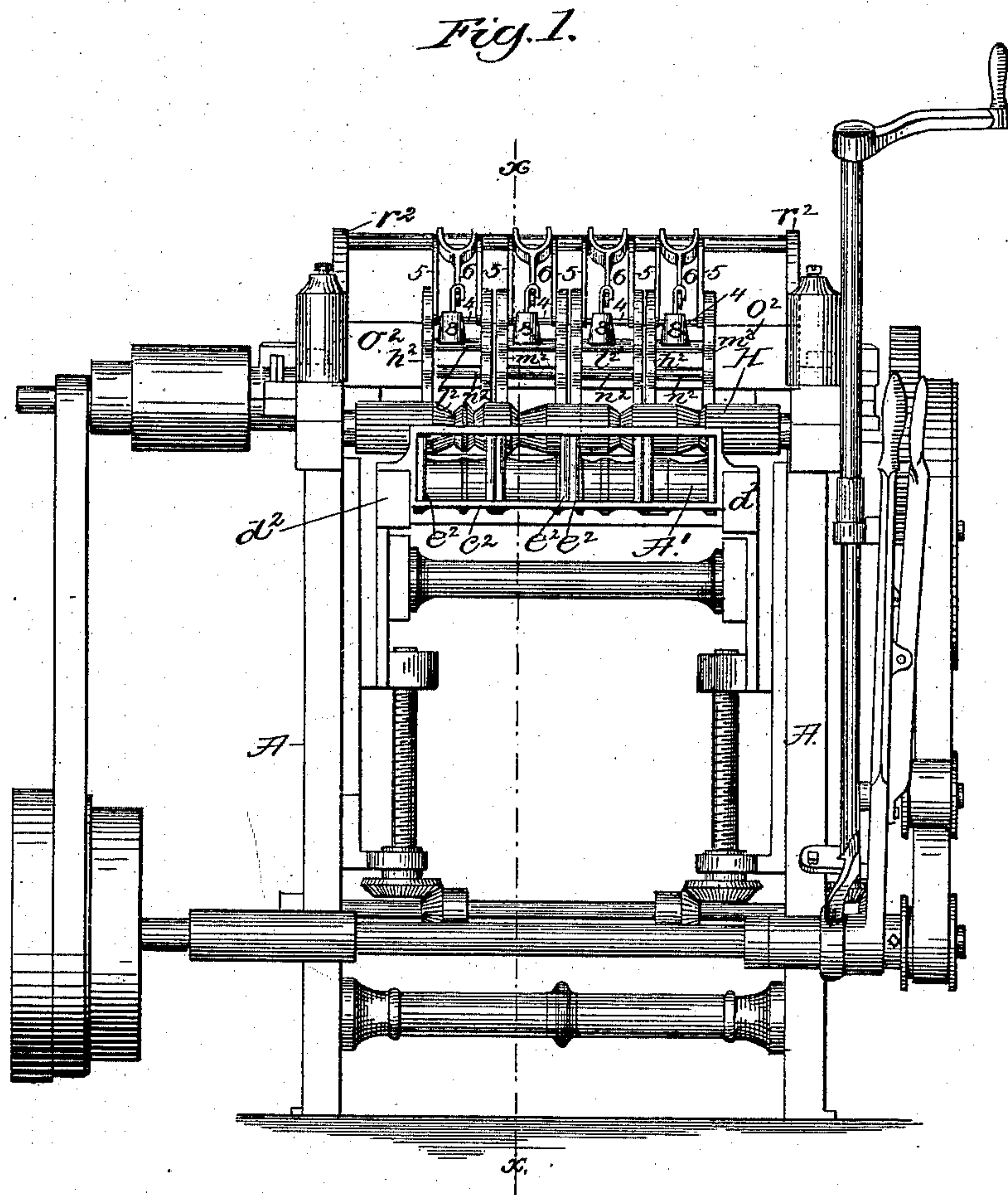
2 Sheets—Sheet 1.

H. F. CAMPBELL.

BARREL HOOP PLANING MACHINE.

No. 272,029.

Patented Feb. 13, 1883.



Witnesses,

John F. C. Prentiss
Bernice J. Noyes.

Inventor:

Henry F. Campbell.

Crosby & Gregory
By. *Attys*

(No Model.)

2 Sheets—Sheet 2.

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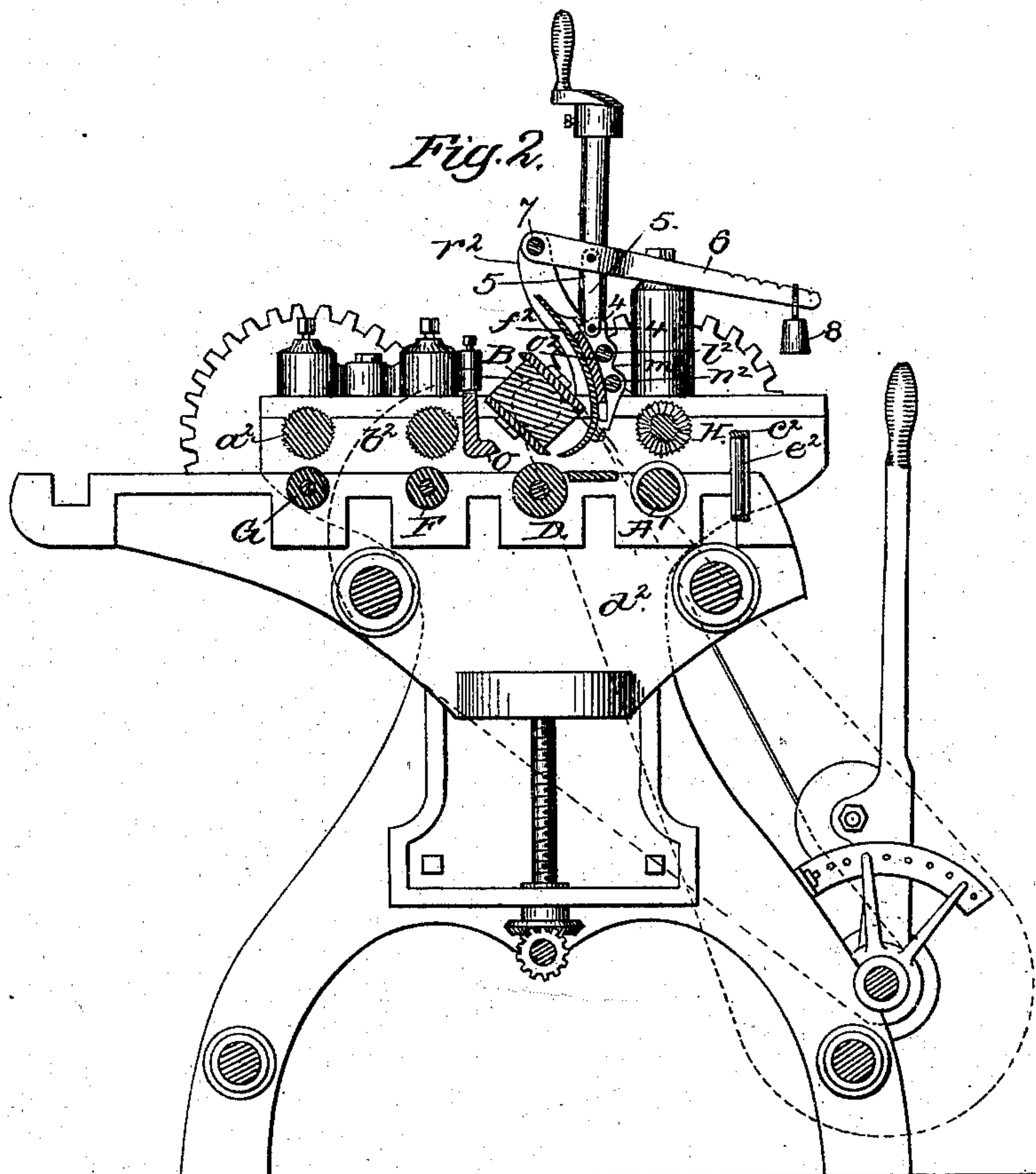


Fig. 3.

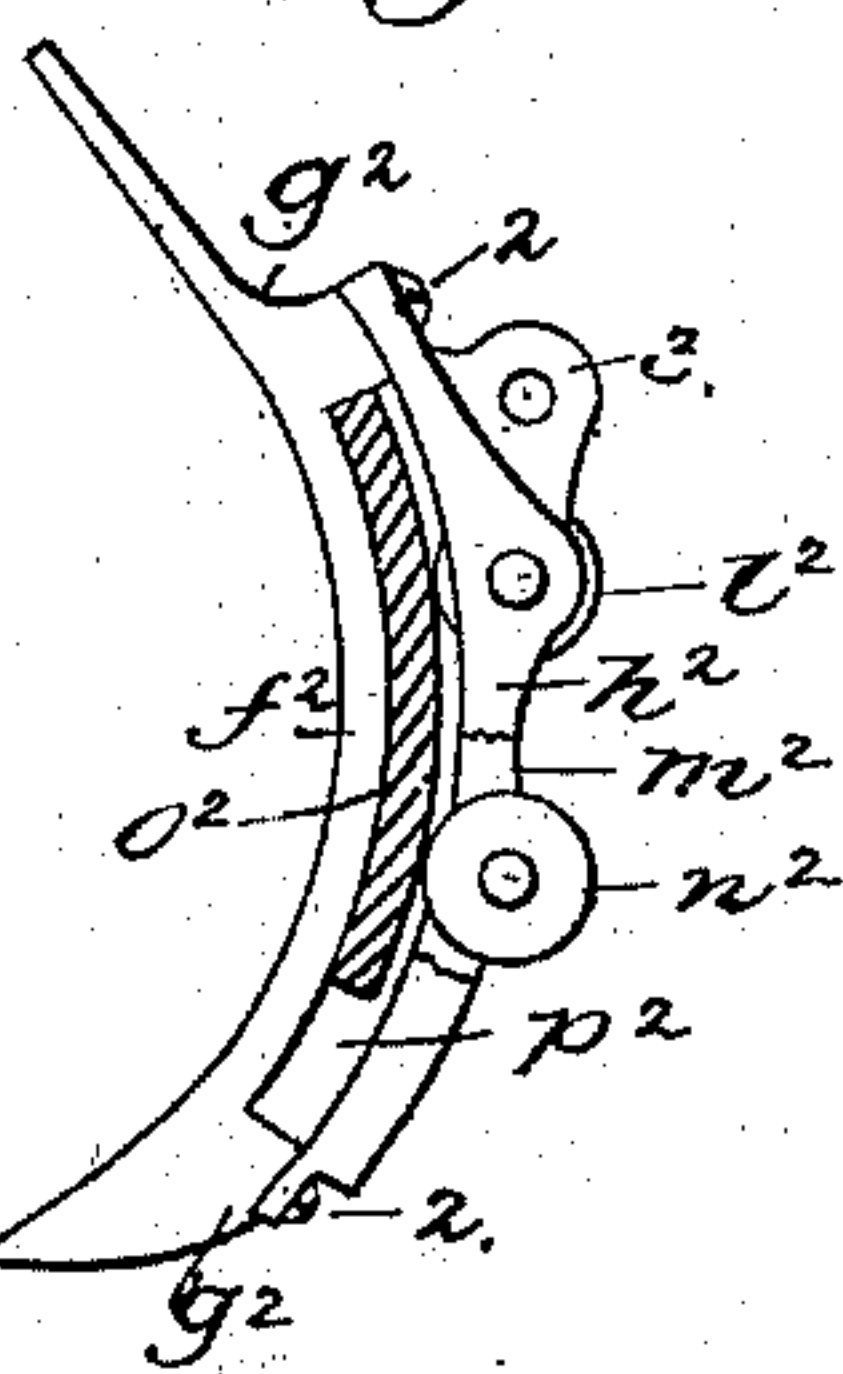
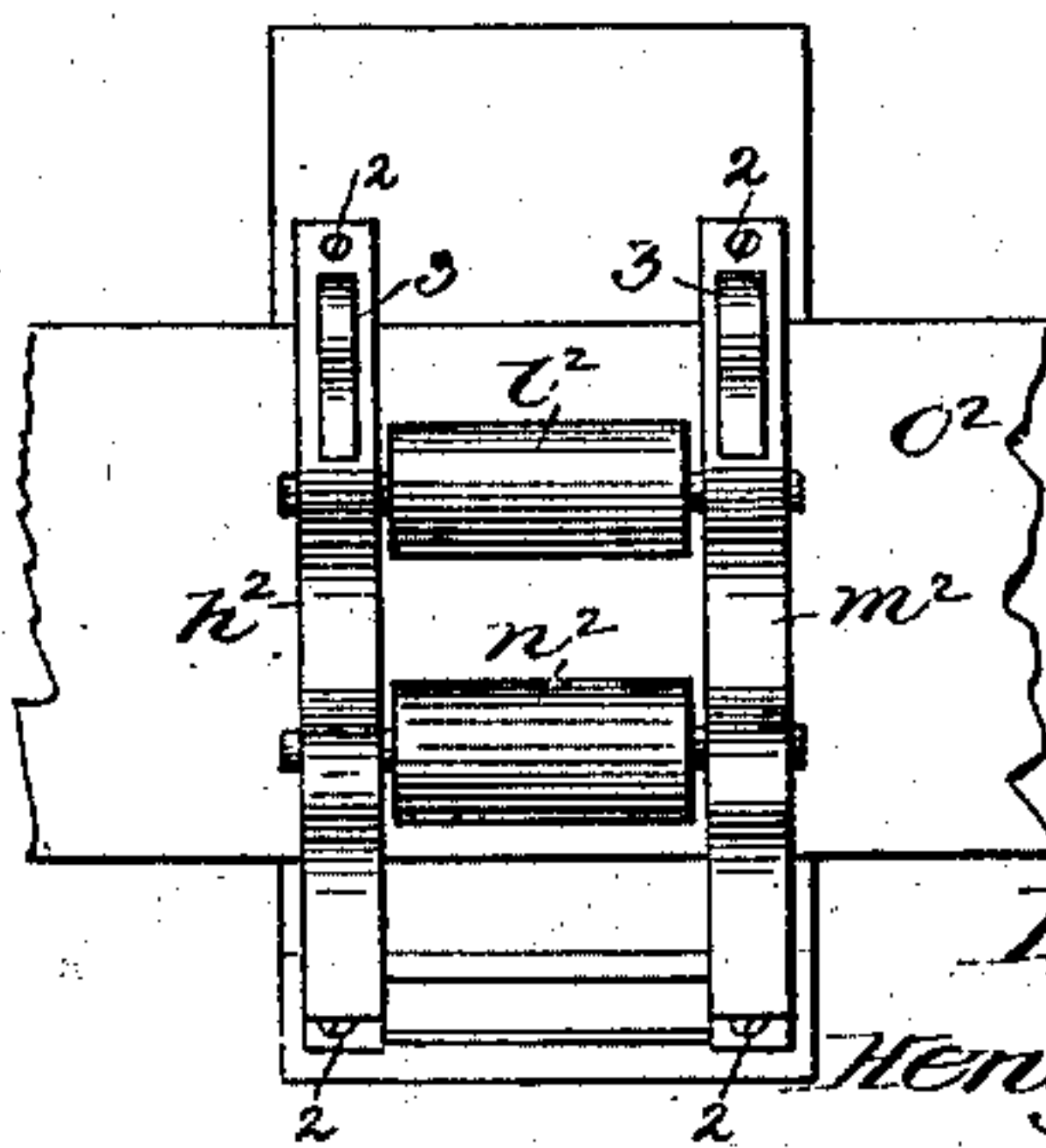


Fig. 4



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UNITED STATES PATENT OFFICE.

HENRY F. CAMPBELL, OF CONCORD, NEW HAMPSHIRE.

BARREL-HOOP-PLANING MACHINE.

SPECIFICATION forming part of Letters Patent No. 272,029, dated February 13, 1883.

Application filed March 31, 1882. (No model.)

To all whom it may concern:

Be it known that I, HENRY F. CAMPBELL, of Concord, county of Merrimack, State of New Hampshire, have invented an Improvement in Planing-Machines, of which the following description, in connection with the accompanying drawings, is a specification.

This invention is an improvement on United States Patent No. 248,021, granted to me October 11, 1881, and is more especially adapted, as herein embodied, to the class of planing-machine for dressing barrel-hoops; but some of my improvements, to be hereinafter described—as, for instance, the presser-bar—may be generally applied to wood-planing machines with good results. In my patented machine referred to all the hoops being dressed were acted upon by one long presser-bar, which made it difficult, when running more than two hoops simultaneously, to properly act upon a third thinner one, which thinner one was apt to be notched, and in case of a crook or knot to be injured or broken, because its knot or crook was not properly embedded into the elastic roller below the cutter. In this, my present invention, I have divided the presser-bar to form a series of presser-feet, and have provided a foot for each individual hoop, so that its knots or crooks will be properly embedded into the surface of the elastic bed-roller D, no matter what may be the thickness or shape of the hoop next to it, or of any other hoop being dressed simultaneously by the said revolving cutter-head. These presser-feet are so shaped and mounted with relation to the center of rotation of the revolving cutter-head that the presser-feet rise independently in the arc of a circle eccentric to the axis of the cutter-head; but the lower extremity of each foot, or where it bears upon the hoop, will, as it rises, be maintained at the same uniform distance from the cutting-edges of the knives of the cutter-head, thus better insuring a smooth, even surface, especially in cross-grained gnarly wood. In practice, I have found such movement of the presser-feet to be of great value, not only with the class of wood mentioned, but also aiding materially in straightening crooked hoops, such as sawed by a machine described in my application No. 47,697, filed December 12, 1881, to which reference may be had. On the occur-

rence of a sharp crook in any one hoop the presser-foot (it bearing thereon immediately in front of the cutter-head) rises as the abrupt part of the crook arrives in front of the cutter-head, which enables the cutter-head to dress the hoop evenly at the crook, while the fluted drawing-rollers at the rear of the cutter-head draw and straighten the hoop over the elastic bed-roll as soon as the hoop is rendered sufficiently thin and flexible by the action of the knives of the cutter-head, so that the upper side of the hoop as it passes under the cutter-head and between it and the elastic bed-roller presents a plane surface, and renders it almost impossible to injure the hoop, as would be the case on the occurrence of a crook which was not thus straightened. Each presser-foot is held down upon the hoop by a suitable lever, the power of which may be changed at will, according to the work being done. In my present machine I have provided a series of guides having independent rollers to act upon the edges of each hoop as it passes into the machine to be dressed, thus dispensing with the necessity of guiding the hoops by hand in their passage through the machine, thus making the machine practically automatic after the hoops are entered between the feed-rollers.

Figure 1 represents in front elevation a planing-machine embodying my present invention. Fig. 2 is a longitudinal vertical section thereof on the line $x x$, Fig. 1; Fig. 3, a side elevation on a larger scale of one of my improved presser-feet, the curved guide for it being shown in section; Fig. 4, a rear side elevation of a presser-foot. Fig. 5 is an enlarged detail of part of the hoop-guide detached from the machine.

In the drawings like letters denote like parts.

The frame-work A, the elastic bed-roller D, the feed-rollers H and A', the drawing-rollers G F, the rear presser-bar, O, the revolving cutter-head B, the bed which holds the bearings for the rollers A' D F G, and the means for elevating and depressing the said bed are substantially as in my patent referred to, where like parts are designated by like letters and need not be herein described. Instead of the upper smooth drawing-rollers shown in the said patent, I have herein employed two rollers, a^2 b^2 , which are corrugated longitudinally to en-

able them to take firm hold of and draw the crooked hoops so as to straighten them while passing over the bed-roller D, after, however, they have been reduced in thickness by the action of the usual knives of the cutter-head B.

In front of the feed-rollers A' H, I have placed a hoop-guide, it being composed of a rectangular frame, C², properly secured to the adjustable bed, which I have marked d², and of a series of vertically-placed rollers, e², the said rollers, by their location in the frame c², forming as many spaces or passages as there are hoops to be dressed when the machine is performing its maximum work. These rollers will form the sides of each of these guide-passages, and will turn independently upon their axes, thereby forcing the hoops from side to side and guiding them in the proper channel to the feed-rollers and between the cutter-head and bed-roller.

The presser-feet are composed of curved metal plates f², dressed smoothly upon their concaved faces and shaped as shown in the drawings, Fig. 3. Each presser-foot has attached to the lugs g², at its rear side, by suitable screws 2, two curved arms h² m², which receive between them two rollers, l² n², and each curved arm has an ear, 3.

Attached to and extended across the frame-work A, from side to side, is a strong curved metal bar or presser-foot carrier, o², upon which each presser-foot is placed, the said bar being extended through the curved slots p² of the presser-feet, the said slots being longer than the said bar is wide, so that the said presser-feet are free to rise and fall, independently guided, however, in a curved path corresponding with the curve of the carrier or bar o², the latter being so shaped or curved, substantially as shown, with relation to the arc described by the edges of the knives of the revolving cutter-head that the lower end of each presser-foot, whatever may be its degree of elevation, by reason of the thickness or crookedness of the hoop beneath it, will always leave the same or a like space between the edges of the said knives and the lower extremity of the presser-foot.

The rolls l² n² of each presser-foot are of such diameter with relation to the thickness of the curved arms h² m² that the said rollers and not the arms come in contact with the convexed side of the carrier or bar o², thus permitting the easy rise and fall of each presser-foot with the minimum of friction. The ears 3 of the arms h² m² have connected with them by a pin, 4, a link, 5, which, at its upper end, is joined with a lever, 6, pivoted at 7 to a suitable standard, r², rising from the side of the frame-work A, there being one such standard at each end of the carrier-bar. The fulcrum 7, a rod, is common to all the levers 6, there being one lever for each presser-foot.

The levers 6 have on them adjustable weights 8 of suitable capacity to maintain proper press-

ure of the feet upon the hoop beneath them, the thicker the hoop and the larger its knots, warts, and crooks the greater pressure necessary to be applied, and vice versa.

The operator, on the occurrence of a large knot or bad crook in a hoop, may press upon the lever of the presser-foot holding that hoop while the said large knot or crook is passing between the cutter-head and bed-roller.

This my present machine will have the carrier-bar o², on which the presser-feet are hung and guided, supported on india-rubber blocks, such as shown in Fig. 5 of my patent referred to, and marked by the letter i, to thus enable me to carefully adjust the lower extremities of the presser-feet when at rest, to thus place them in their proper position with relation to the arc described by the edges of the revolving knives; but thereafter in operation the pressers act independently, as stated, and adapt themselves to any variation in the hoops under them.

Instead of employing several independent presser-feet side by side on one common carrier-bar, o², as described, I might, for use in an ordinary wood-planing machine, employ the said carrier-bar and place on it but one presser-foot to bear upon and hold down the work to pass under it. So I do not limit my invention to the width of my presser-foot.

The rollers F G, by their rubber surfaces, prevent marring the bark on the hoops.

I claim—

1. The cutter-head and elastic bed-roller, combined with the india-rubber-covered drawing-rollers F G and the corrugated drawing-rollers b² a² above said rollers F G, respectively, substantially as and for the purpose described.

2. The cutter-head, bed-roller, and feed-rollers, combined with the guide having a series of passages and provided with guide-rollers to bear against opposite sides of and direct each hoop independently, substantially as described.

3. The presser-foot provided with the curved plate f², the friction-rollers l² n², and arranged upon the curved supporting-bar o² to rise and fall under the guidance of said rollers, combined with the cutter-head, and means to support the material while being planed, substantially as and for the purpose described.

4. The combination of a presser-foot having a curved plate, f², curved arms h² m², secured thereto, rollers l² n², curved supporting-bar o², upon which the presser-foot rises and falls under the guidance of said rollers, and the cutter-head and an elastic bed-roller, substantially as shown and described.

5. In a planing-machine, the presser-foot, its carrier-bar, and ears 3 on said presser-foot, combined with the lever 6, fulcrumed at 7 to the standard r², and connected by link 5 to the ears 3, and carrying an adjustable weight to vary the pressure of said presser-foot, the

construction and arrangement being and operating substantially as shown and described.

6. The cutter-head, elastic bed-roller, the series of presser-feet, the curved carrier-bar, and
5 means to vary the pressure of the said feet on the material being planed, combined with the guide having a series of passages and rollers, to operate substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY F. CAMPBELL.

Witnesses:

G. W. GREGORY,
W. H. SIGSTON.