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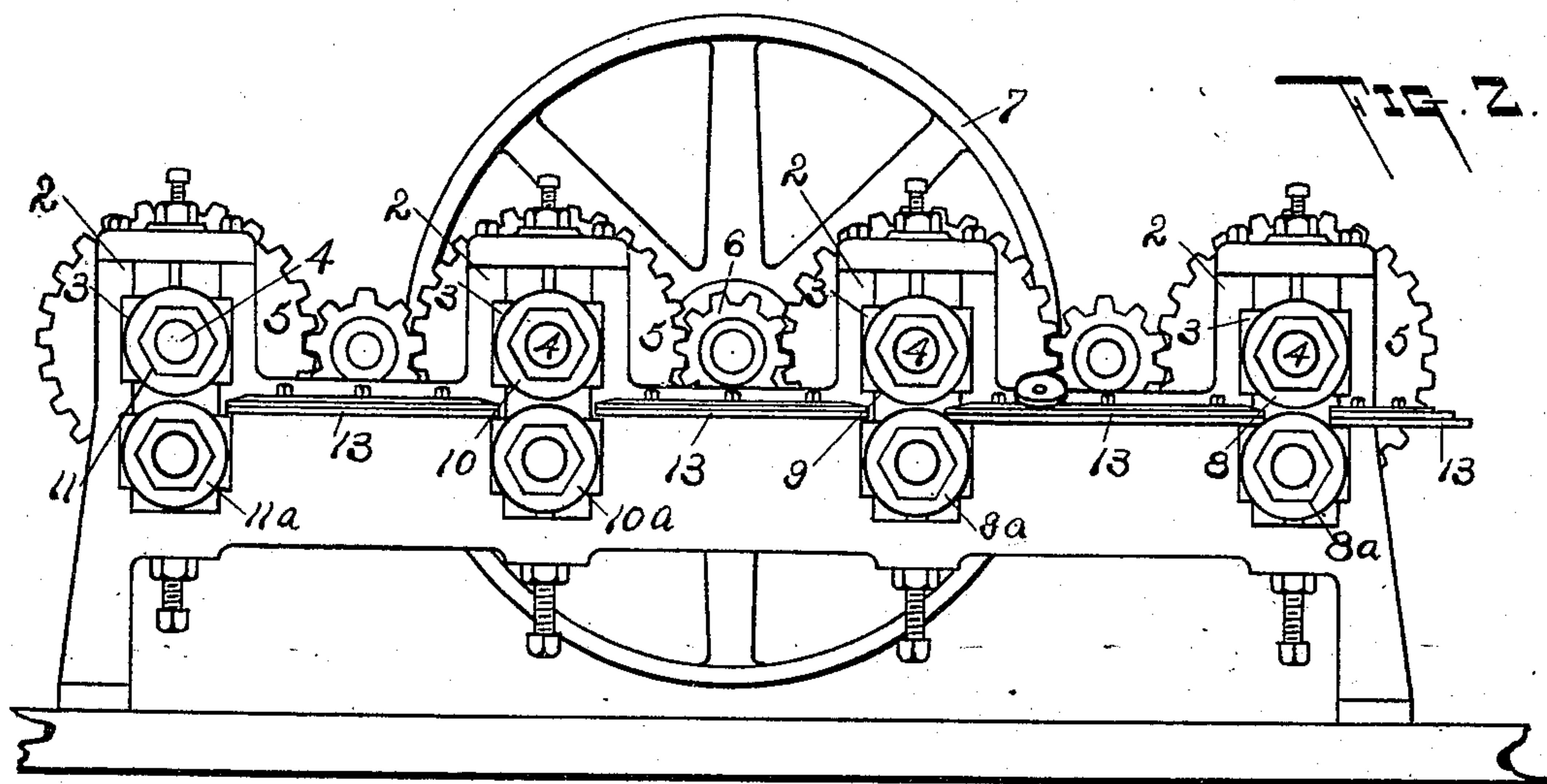
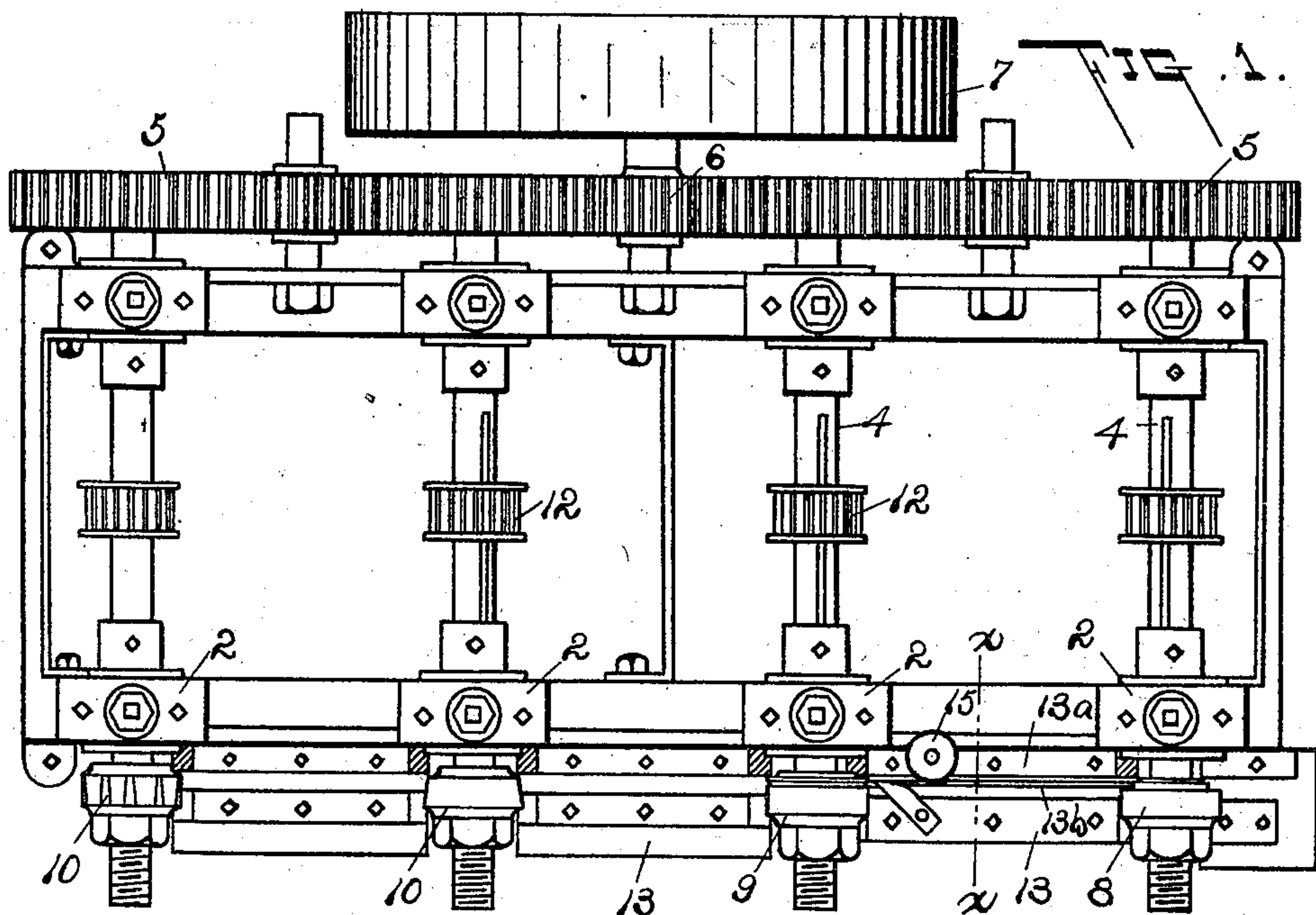
PATENTED APR. 14, 1903.

J. E. WRIGHT.
MACHINE FOR MAKING METAL HOOPS.

APPLICATION FILED SEPT. 2, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



WITNESSES:

James C. Hanson.

Frank Martindale

James E. Wright INVENTOR

BY

Geo. B. Wilcox ATTORNEY

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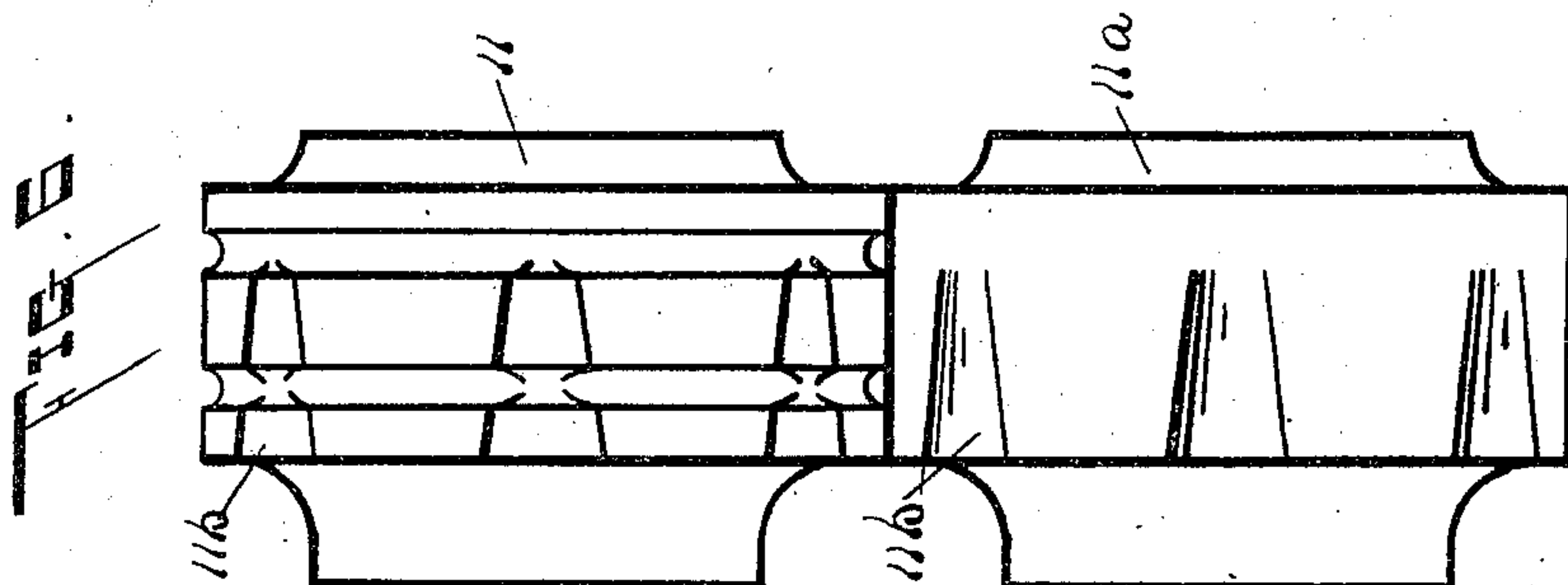
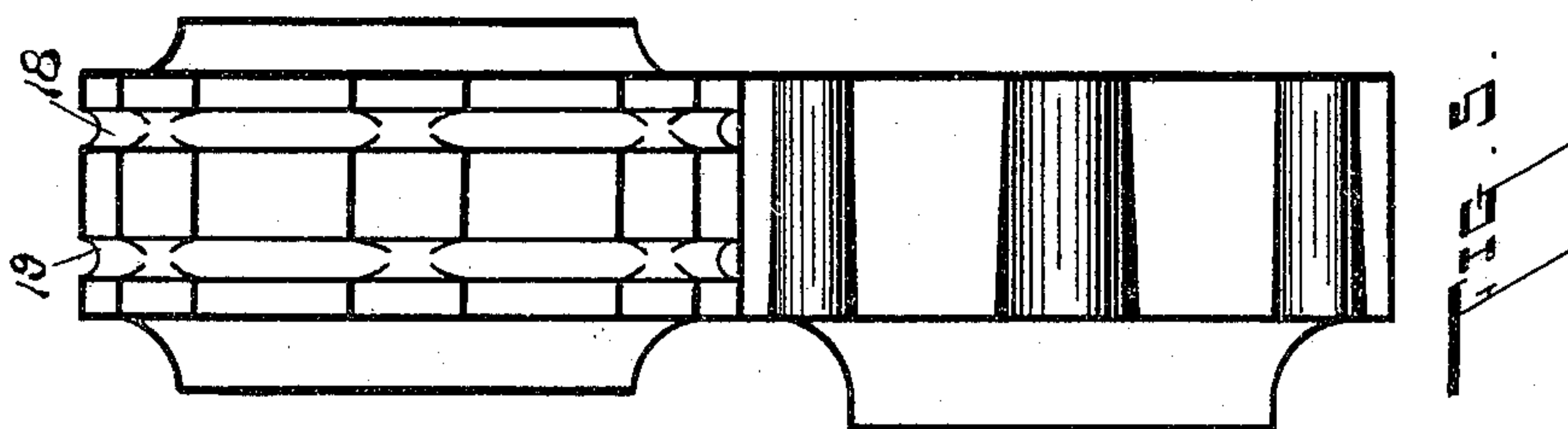
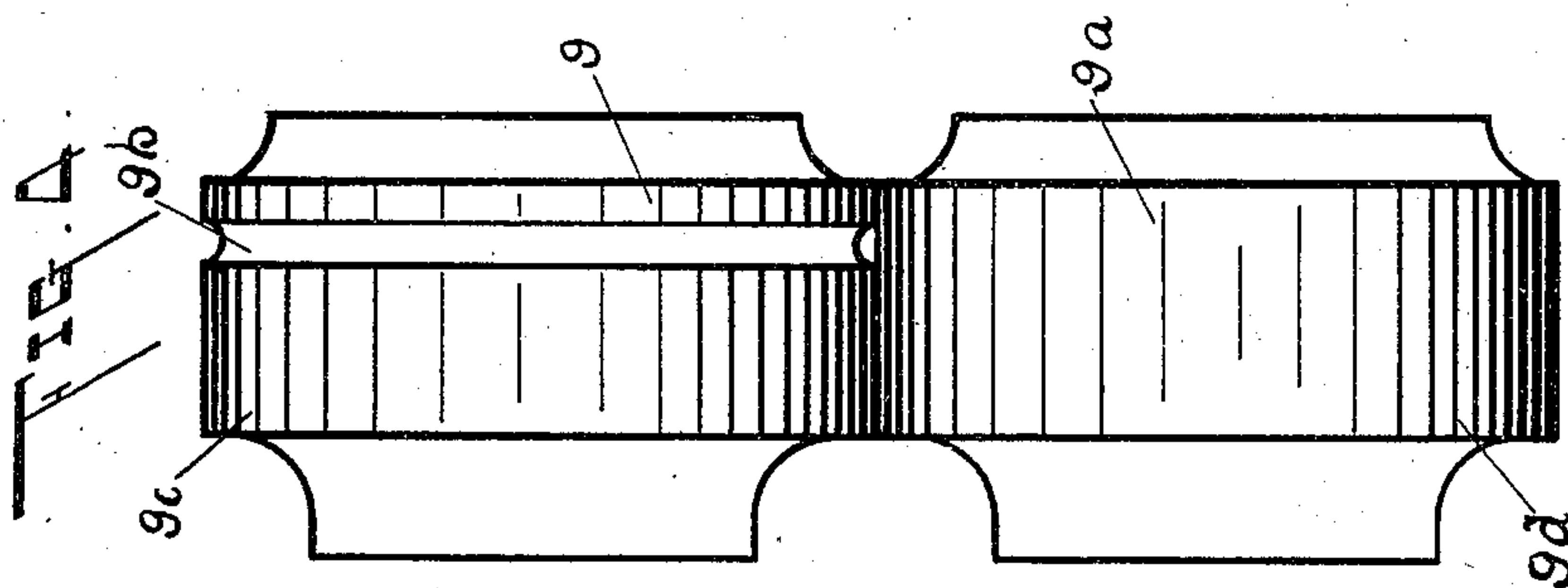
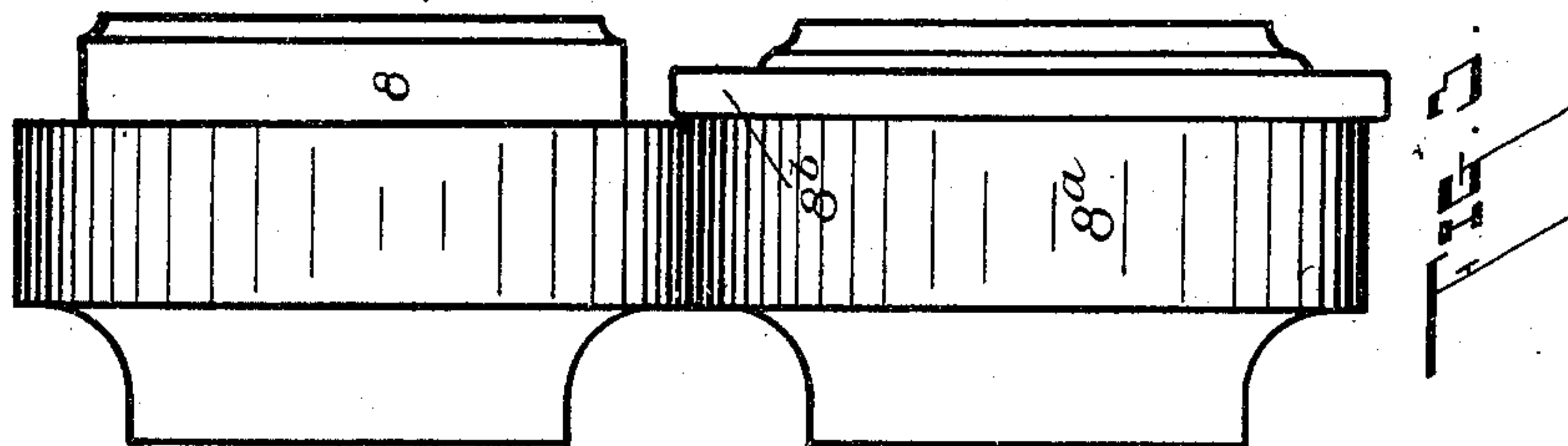
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3 SHEETS—SHEET 2.



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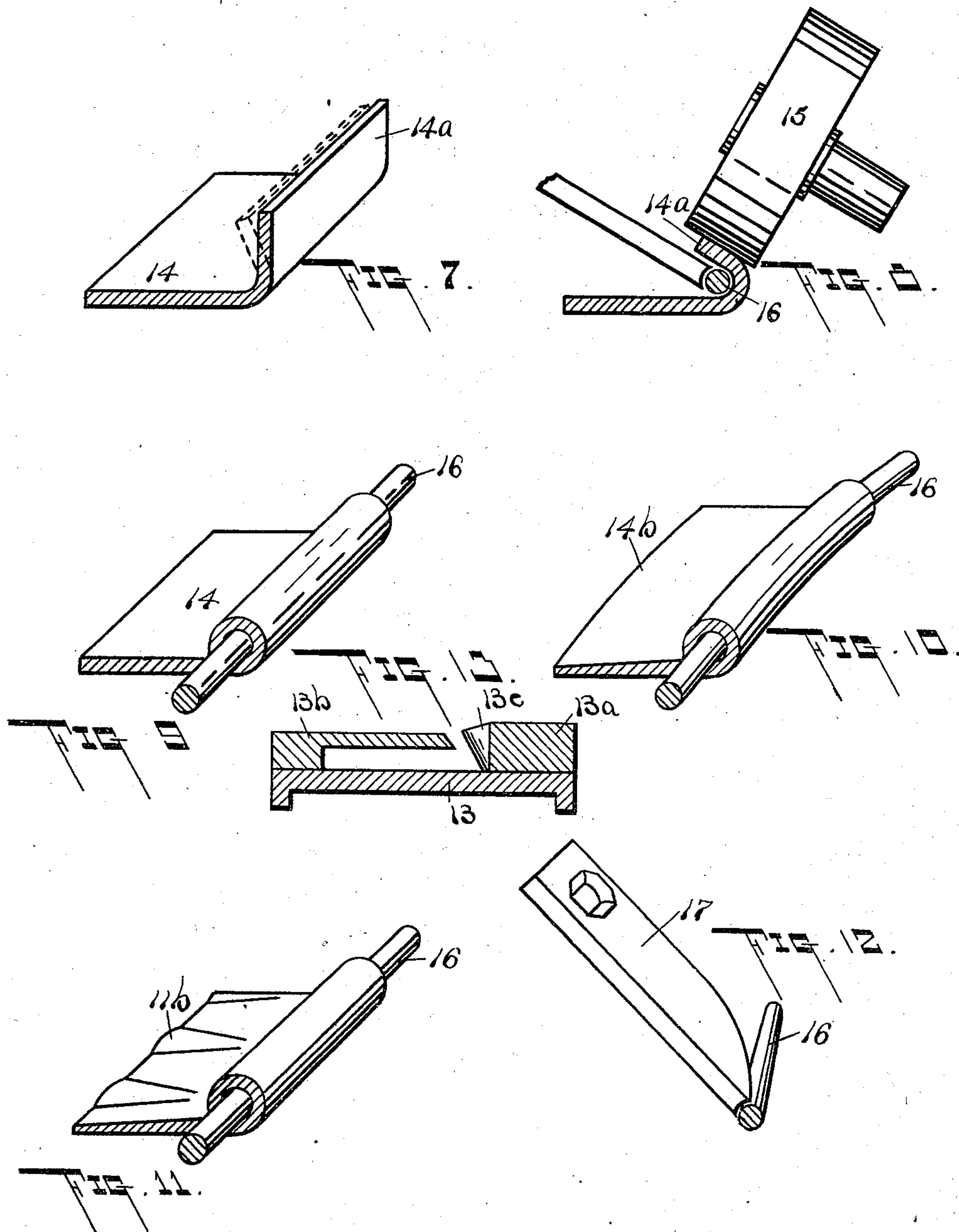
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3 SHEETS—SHEET 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JAMES E. WRIGHT, OF WEST BAY CITY, MICHIGAN, ASSIGNOR OF ONE-HALF
TO JOHN M. KELTON, OF WEST BAY CITY, MICHIGAN.

MACHINE FOR MAKING METAL HOOPS.

SPECIFICATION forming part of Letters Patent No. 725,390, dated April 14, 1903.

Application filed September 2, 1902. Serial No. 121,887. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. WRIGHT, a citizen of the United States, residing at West Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Machines for Making Metal Hoops; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention is a machine for making metal hoops for barrels, tubs, and similar articles.

The improvements consist in certain devices and combinations of parts whereby I produce a machine that is capable of rolling one or both edges of a metal band, then stretching the other edge of the band, and finally crimping the stretched edge, all at a single passage of the material through the machine.

The hoop produced by this machine is described at length and claimed in Letters Patent No. 651,914 for a metal hoop, issued to me June 19, 1901.

The hoop is formed by passing it through a series of guides and pairs of rollers that in combination form the important features of this invention.

The machine is illustrated in the accompanying drawings, forming part of this specification, throughout the various views of which similar characters of reference designate similar parts.

Figure 1 is a top plan view of the machine. Fig. 2 is a front elevation. Figs. 3, 4, and 6 are details in elevation, showing the successive pairs of rollers through which the hoop passes in its process of manufacture. Figs. 7, 8, 9, 10, and 11 show enlarged sectional details of the hoop in various stages of completion as it passes through the machine. Fig. 12 is a detail in perspective, showing the guiding-finger for holding the wire against the angle of the hoop as the hoop enters the second set of rollers. Fig. 13 is an enlarged detail of the guides, taken on the line *xx* of Fig. 1. Fig. 5 is a detail in elevation of a pair of rollers for corrugating a hoop having a wire in each of its edges.

As is clearly shown in the drawings, the

machine consists in a base 1, upon which is mounted a series of vertical guides 2, carrying vertically-adjustable bearings 3. Shafts 4, carrying pinions 5, are mounted in these bearings and are rotated by the driving-pinion 6 and belt-wheel 7. A series of rollers 8, 9, 10, and 11 are mounted, respectively, upon the shafts 4. Below these upper rollers is a second set of rollers 8^a, 9^a, 10^a, and 11^a, which are revolved with the upper rollers by means of the central driving-pinions 12. As above stated, the hoop is formed by passing successively through the pairs of rollers. In the horizontal plane of the meeting surfaces of the upper and lower rollers is a guide or table 13, upon which the hoop rests as it passes through the machine.

The operation of the machine is as follows: A metal band is fed endwise between the rollers 8 and 8^a, comprising the first pair. These rollers are shaped as shown in Fig. 3, the lower roller having an upwardly-projecting flange 8^b, which flanges up one edge 14^a of the hoop 14, as shown in Fig. 7. The hoop then passes toward the second pair of rollers 9 and 9^a, being guided on its way by the guides 13^a and 13^b, secured to the table 13. These guides are constructed as shown in Fig. 13, where 13^a is a block of rectangular section secured to the table 13 and having its inner face 13^a gradually warped over from the end nearest the roller 8 toward the second pair of rollers, so as to force the flange 14^a into the position shown by dotted lines in Fig. 7 while the hoop travels from the first pair to the second pair of rollers. The idler-roller 15, set at a suitable angle, presses the flange 14^a down into the position shown in Fig. 8. At this point the stiffening-wire 16 is run into the angle formed by the flange and the hoop and passes with the hoop through the second pair of rollers 9 and 9^a, by which it is pressed into position. The guide or finger 17 holds the wire against the hoop and guides the wire and flange into the second pair of rollers. The second pair consists in a plain cylindrical lower roller 9^a and a similar upper roller 9, having a semicircular groove 9^b to receive the wire and force or mold the flange 14^a around it. The hoop after passing the rollers 9 and 9^a is in the form

shown in Fig. 9, consisting in a flat strip 14, reinforced by the wire 16 in its upper edge. The rollers 10 and 10^a, comprising the third set, are slightly coned, being of larger diameter at their outer than their inner edges, so that the edge 14^b of the strip 14 is rolled thinner or stretched by them, as shown in Fig. 10. The stretching of the edge 14^b makes this edge longer than the reinforced edge of the hoop, causing the hoop to bow or bend. In the last set of rollers 11^a the thin edge 14^b is crimped or corrugated, as shown in Fig. 11, in which 11^b represents flutes or corrugations in the surface of the rollers, being deeper at their outer than at their inner edges, so that the extreme edge of the hoop is corrugated more than the reinforced edge, so that the hoop is delivered from the machine in a straight piece.

While I have shown and described the machine as being adapted to the manufacture of metal hoops having a reinforced upper edge and a stretched and corrugated lower edge, yet it is evident that the rollers and guides may be so formed so as to produce a corrugated hoop having a wire in both the upper and lower edge. In Figs. 5 and 6 I have shown the upper rollers as being adapted for manufacturing metal hoops with both edges reinforced, the grooves 18 and 19 in the upper roller being adapted to receive the respective reinforced edges. It is also evident that the shape of the roller-faces may be modified to suit various shapes of corrugations required in various styles and sizes of hoops.

In making some kinds of hoops, such as those of very light metal, I dispense with the coned stretching-rollers 10 and accomplish the stretching by the same pair of rollers that roll the wire into the reinforced edge. This result is obtained by tapering or coning the faces 9^c and 9^d of the rollers 9 and 9^a, which are illustrated in Fig. 4 as having cylindrical surfaces.

When making hoops of light metal, the roller 15 may be omitted, as the guide-face 13^c is then sufficient to turn the flange 14^a over the wire before it enters the second pair of rollers.

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

1. In a machine for making metal hoops, the combination of a pair of flanging-rollers; a warped guide located beyond said pair of

rollers; a pair of flange-compressing rollers having means for stretching one edge of the hoop; a pair of rollers adapted to crimp the stretched edge; and means for operating said rollers simultaneously, substantially as described.

2. In a hoop-machine, the combination of a pair of rollers adapted to flange up the edge of a metal band; a guide member having a gradually-warped face for bending said flange; a finger for guiding a wire into the groove so formed; a pair of rollers adapted to press said flange over said wire and to stretch the opposite edge of said band; and a pair of rollers having corrugations for crimping the stretched edge.

3. In a machine for making metal hoops; a pair of rollers, one of which has an annular flange; a guide member having its guiding-face gradually warped; a wire-guiding finger; a second pair of rollers one of which is provided with a semicircular annular groove; a pair of slightly-coned stretching-rollers of larger diameter at their outer than at their inner ends; and a pair of intermeshing fluted rollers, all arranged substantially as described.

4. In a machine for making metal hoops, a pair of rollers arranged one above the other, the lower roller having an upwardly-projecting flange; a guide member having its guiding-face gradually warped over from the end of the guide nearest said pair of rollers to the end nearest a second pair of rollers; an idler-roller above said guide member; a wire-guiding finger; a second pair of rollers comprising a plain cylindrical lower roller, and a cylindrical upper roller having a semicircular groove; a pair of slightly-coned rollers of larger diameter at their outer than at their inner ends; and a pair of rollers having intermeshing flutes or corrugations deeper at their outer than at their inner edges; said rollers and guides being so arranged relatively to each other that the hoop passes consecutively through them; and means for simultaneously rotating the sets of rollers, for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES E. WRIGHT.

Witnesses:

FRANK MARTINDALE,
BEATRICE HARTIGAN.