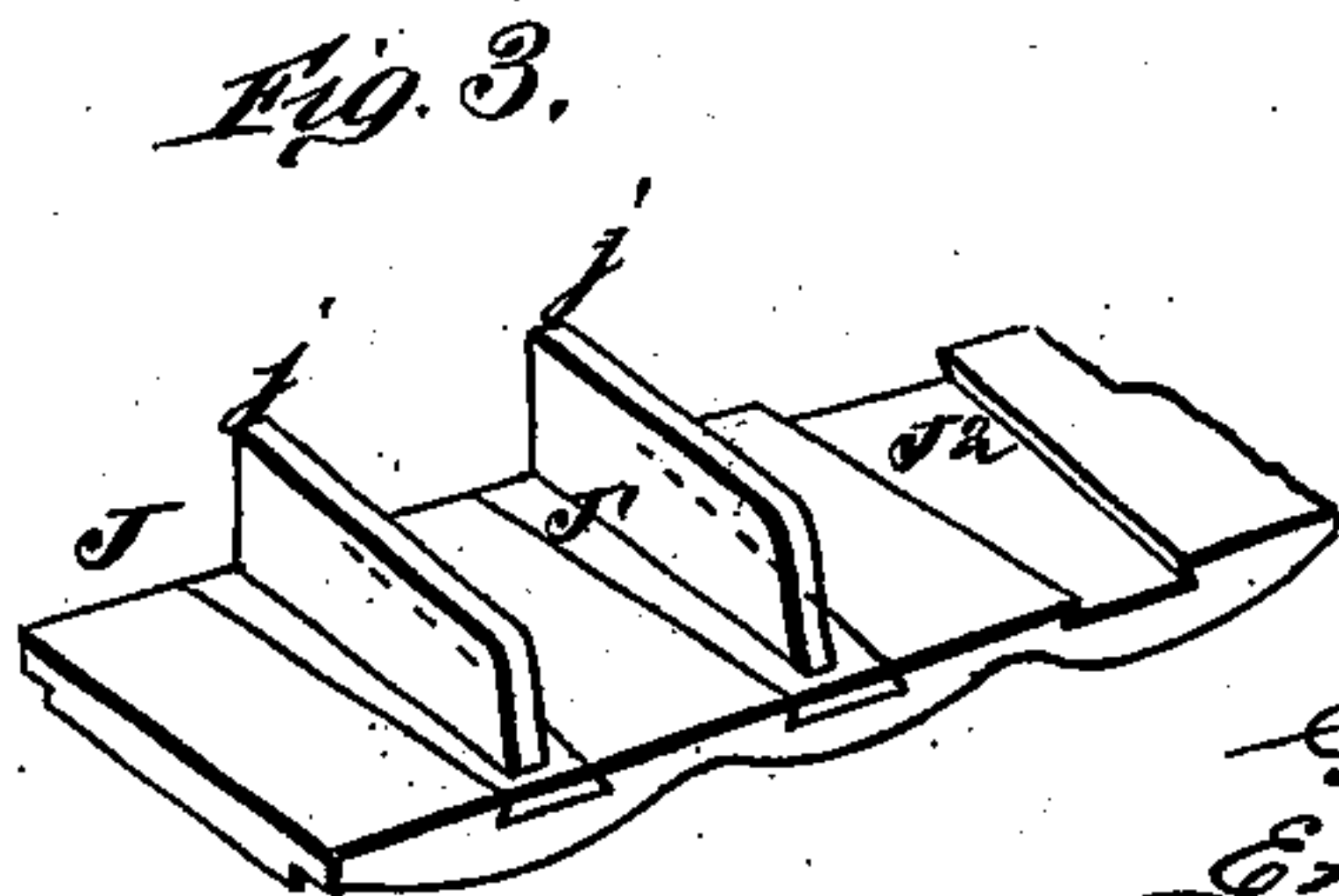
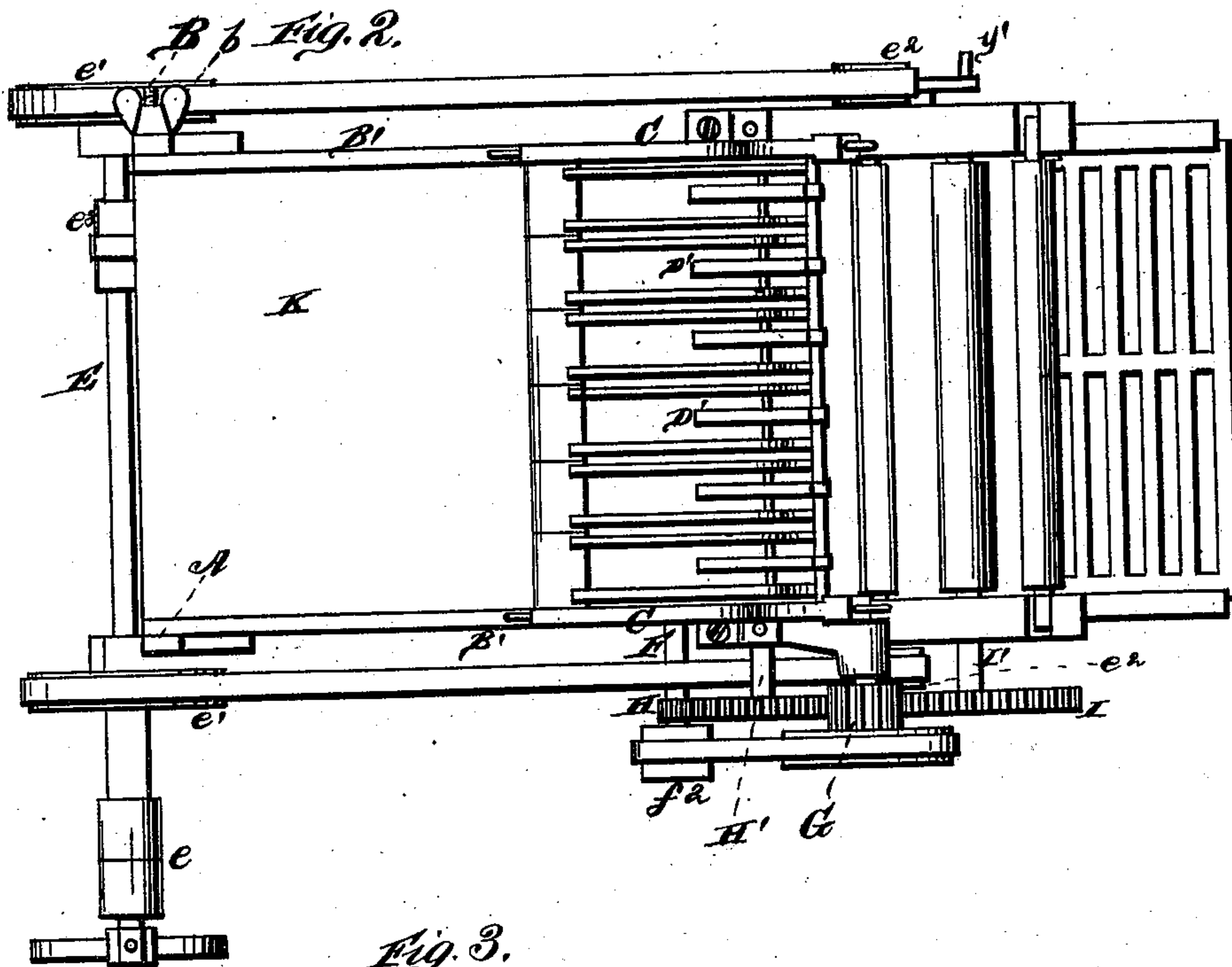
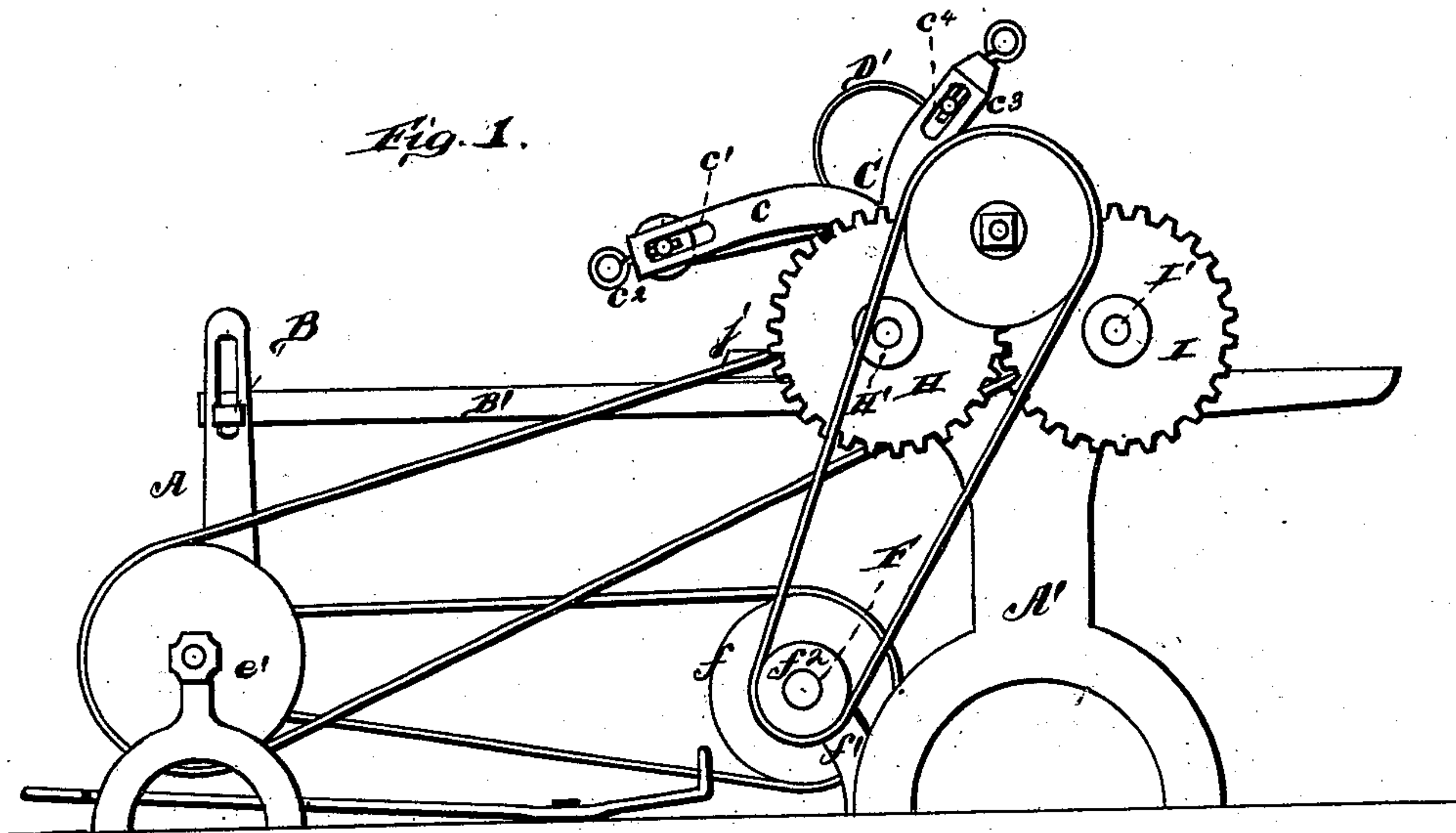


G. W. BOWEN & E. NICHOLS.

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No. 210,085.

Patented Nov. 19, 1878.



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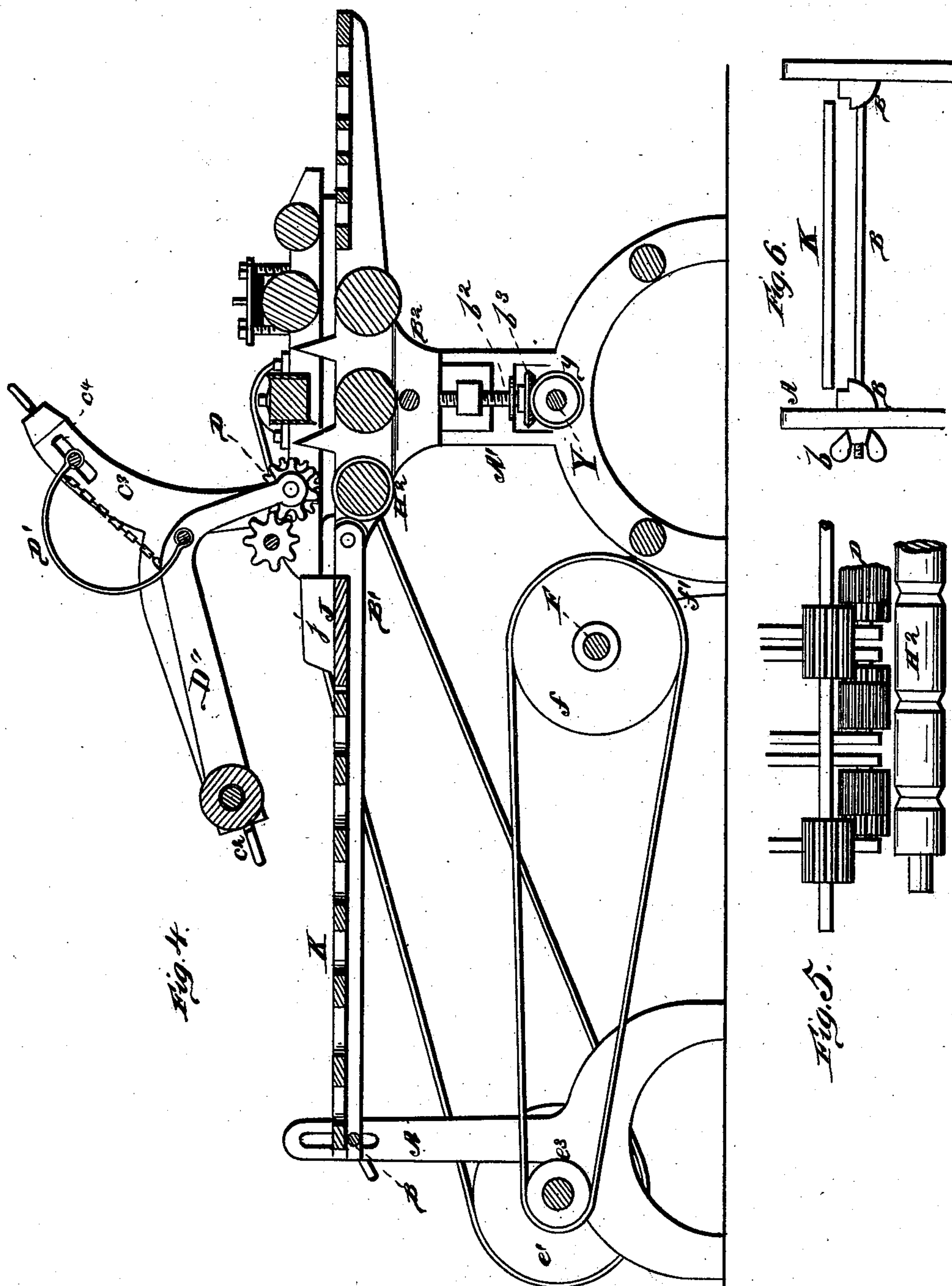
INVENTORS.  
*George W. Bowen.*  
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 ATTORNEYS.

G. W. BOWEN & E. NICHOLS.

# Machine for Making Wooden Barrel-Hoops.

**No. 210,085.**

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WITNESSES

Robert Everett,

James J. Shuchy

INVENTORS,

George W. Bower.

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*Gilmore, Swiss 16.*  
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# UNITED STATES PATENT OFFICE.

GEORGE W. BOWEN AND EMANUEL NICHOLS, OF GRASS LAKE, MICHIGAN.

## IMPROVEMENT IN MACHINES FOR MAKING WOODEN BARREL-HOOPS.

Specification forming part of Letters Patent No. **210,085**, dated November 19, 1878; application filed June 29, 1878.

*To all whom it may concern:*

Be it known that we, GEORGE W. BOWEN and EMANUEL NICHOLS, of Grass Lake, in the county of Jackson and State of Michigan, have invented a new and valuable Improvement in Hoop Shaving and Bending Machines; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side view of our hoop shaving and bending machine. Fig. 2 is a plan view. Fig. 3 is a perspective detail. Fig. 4 is a longitudinal vertical central section. Fig. 5 is a detail view of the feed-rollers, and Fig. 6 an end view.

My invention relates to that class of machines for manufacturing barrel-hoops and the like in which the hoops are shaved and bent or crimped by passing once through the machine.

The object of my invention is to furnish an efficient machine for this purpose, and to modify the construction, so that portions of the same may be used for other purposes.

To this end my invention consists in having the front table removable, working in suitable guides in the frame, which will readily admit of the removal of the hoop-plate having the guides, which work in the same grooves. The working-table may then be moved up close to the feed-rolls. The feed-rolls are pivoted adjustably to a framing, each one made independent of the others, and they are held in or out of connection by springs, which are curved in such a manner as to hold them down into contact with the hoops when desired, and also to hold them up out of the way when we desire to run anything else through the machine. The complete frame, which holds the table before and behind the knife or knives, and also holds the rolls, is made in two parts, pivoted together near the center, and each portion is provided with means for vertical adjustment, as will be explained hereinafter.

Referring to the drawings, A A represent two posts, of cast metal, provided with slots

near their upper ends, through which works a long bolt, B, which passes through the ends of the horizontal sides B<sup>1</sup>, and it is provided with a crank-nut, b, by which the end of the table-frame may be adjusted vertically at will.

A<sup>1</sup> A<sup>1</sup> represent the body-posts, also of cast metal, and on their inner surfaces they are provided with recesses, which receive T-shaped frames B<sup>2</sup> B<sup>2</sup>, the long portions of which are pivoted to the sides B<sup>1</sup>. These frames B<sup>2</sup> B<sup>2</sup> furnish journal-bearings for the usual rollers, and they are vertically adjustable by means of a screw-rod, b<sup>2</sup>, and bevel-gear b<sup>3</sup>, which mesh into bevel-gears y on a rod, Y, journaled near the bottoms of the posts A' A', governed by a crank, y'.

The posts A' A' provide journal-bearings for the shafts of the feed-rolls and the cutting-knives, one of the former being on each side of the latter, and provided with gear-wheels upon one side outside of the frame A. A crotched arm, C, extends upward, one portion of which, c, running nearly horizontally backward, is provided with a slot, c<sup>1</sup>, to receive a bar, which acts as a pivot for the series of independent feed-rolls D, and is adjustable by means of a screw-bolt, c<sup>2</sup>, leading into the slot. The other branch, c<sup>3</sup>, of the arm C extends forward, and is also provided with a similar slot, c<sup>4</sup>, receiving rod-holding springs D', which are also secured to a cross-piece in the bent frames D'' of the independent rolls D.

Journaled in the posts A A is a shaft, E, having fast and loose pulleys e, to which the power is applied. Rigid with the shaft on each side of the frame are pulleys e<sup>1</sup> e<sup>1</sup>, which are belted to and communicate power to two pulleys, e<sup>2</sup> e<sup>2</sup>, on each end of the knife-shaft. On the shaft E, beneath and inside the frame, is another pulley, e<sup>3</sup>, which is belted to a pulley, f, on a shaft, F, journaled in an arm, f<sup>1</sup>, from the base of the posts A'. Another pulley, f<sup>2</sup>, on the end of the shaft F, communicates power to a pinion, G, meshing into a gear-wheel, H, on the end of the shaft H<sup>1</sup> of the feed-roll H<sup>2</sup>. The wheel H meshes into the gear I on the shaft I'.

The shafts H<sup>1</sup> I' and the knife-shaft are secured in their journal-bearings by removable caps secured in place by screws, so as to be readily displaced, as desired.

J represents the hoop-guide table, having vertical guides *j* fitted therein by inclined dovetailed bases  $J^1$ , which operate in inclined dovetailed grooves  $J^2$  in the table. The table J works in grooves or guides in the sides B, and is removable at will.

K represents the table proper, working in the grooves in the sides, removable, as shown.

What we claim as new, and desire to secure by Letters Patent, is—

1. The sides  $B^1 B^1$ , pivoted near their center and vertically adjustable at both ends, in combination with removable tables working in grooves therein, as herein specified.

2. The independent feed-rolls, hung in separate frames, which are pivoted adjustably at

one end and operated by springs  $D'$ , adapted to be held either in contact with the table or out of contact by said springs, as and for the purpose specified.

3. The removable hoop-guide table J, having removable dovetailed guides *j*, combined with the sides  $B^1 B^1$ , as specified.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

GEORGE W. BOWEN.  
EMANUEL NICHOLS.

Witnesses:

H. S. SMITH,  
H. T. DU BOIS.