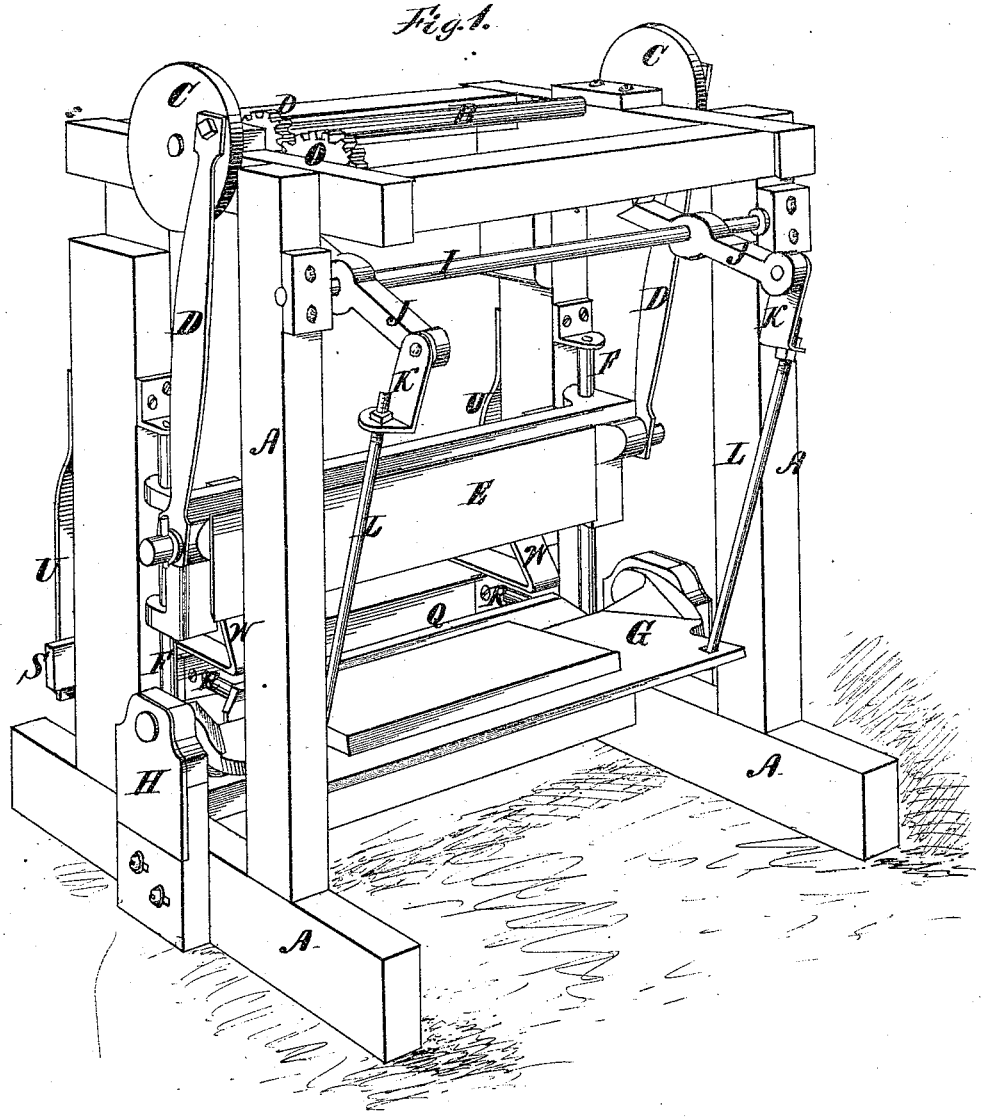
2 Sheets--Sheet 1.

G. V. GRIFFITH.

Machine for Cutting Hoops.

No. 164,294. Patented June 8, 1875.

Fig. 1.



WITNESSES

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THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

2 Sheets--Sheet 2.

G. V. GRIFFITH.

Machine for Cutting Hoops.

No. 164,294. Fig. 2. Patented June 8, 1875.

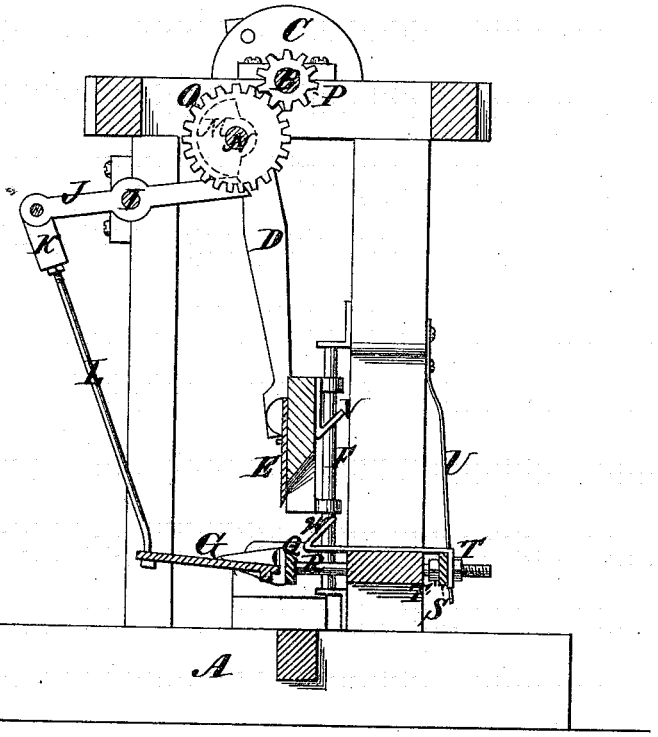
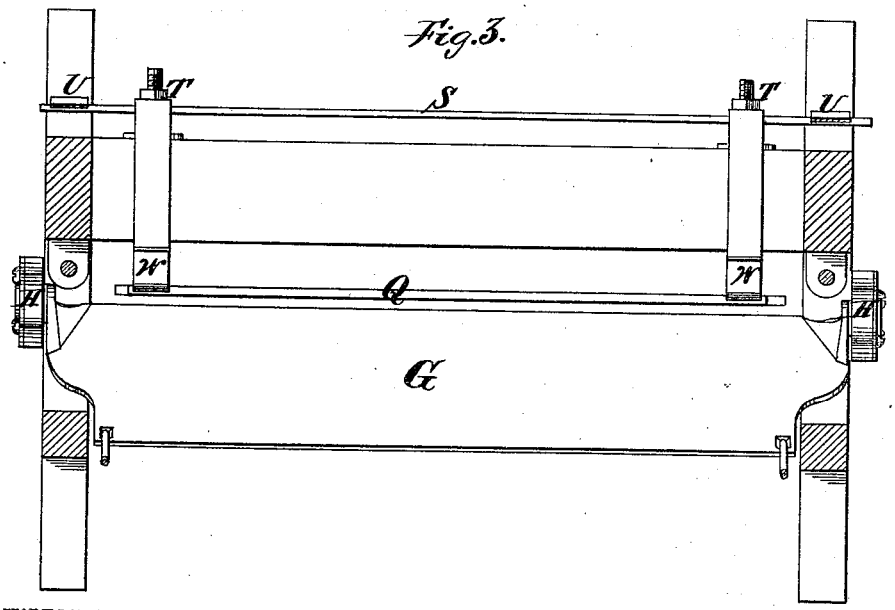


Fig. 3.



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UNITED STATES PATENT OFFICE.

GEORGE V. GRIFFITH, OF HUNTINGTON, INDIANA.

IMPROVEMENT IN MACHINES FOR CUTTING HOOPS.

Specification forming part of Letters Patent No. **164,294**, dated June 8, 1875; application filed January 23, 1875.

To all whom it may concern:

Be it known that I, GEORGE V. GRIFFITH, of Huntington, in the county of Huntington and State of Indiana, have invented certain new and useful Improvements in Machines for Cutting Hoops; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of my improved machine. Fig. 2 is a transverse vertical section of the same, and Fig. 3 is a horizontal section.

Similar letters of reference in the accompanying drawings denote the same parts.

My invention relates to that class of hoop-cutting machines in which an oscillating table is employed to so present the hoop-planks to the cutting-knife as to impart an edgewise taper or bevel to the hoops when they are cut; and it has for its object to improve the construction of such machines for the purpose of rendering them more complete and efficient in their operation.

To this end the invention consists, first, in the combination of a reciprocating knife with a table whose inner edge forms the axis of oscillation to support the hoop-plank close to the cutting-edge of the knife, in order to insure a smooth cut and prevent the edges of the hoop from breaking away; secondly, in adjusting the inner edge of the table with respect to the edge of the knife; thirdly, in the means by which the table is oscillated; fourthly, in the employment of a yielding stop to gage the distance the plank is to be thrust under the knife, and to yield when the knife descends, so that the severed hoop may drop out of the machine; and, lastly, in adapting the yielding guide for adjustment to regulate the thickness of the hoops.

In the accompanying drawings, A is the frame of the machine, composed of a suitable base and the necessary uprights and cross-pieces. B is the main driving-shaft, having its bearings in the top cross-pieces of the frame, and provided at its ends with the crank-wheels C C, which are connected by rods D with the ends of the horizontal cutting-knife E. The rotation of the shaft, therefore, imparts a vertical reciprocation to the knife, the latter being guided in its movements upon the vertical rods F F, affixed to the rear uprights of the frame. G is the table, formed with trunnions at its inner corners, which have their bearings in uprights, H H, at each end of the frame; and I is a shaft, having its bearings in the front uprights of the frame. J J are arms mounted upon the shaft I, and connected at their outer ends to the outer corners of the table by means of the pivoted links K and screw-rods L. The inner ends of the arms bear against the under surface of cams M M, which are mounted upon a shaft, N, arranged in the frames between the main shaft and the shaft I. The shaft N also carries two pinions, O, which engage with gear-wheels P on the main shaft, so that when the latter is rotated it shall drive the intermediate shaft, and cause its cams to oscillate the table through the medium of the arms and connecting-rods. The cams depress the inner ends of the arms to raise the outer edge of the table, which drops back by gravity when the shortest radiuses of the cams are in contact with the arms. The gear-wheels are formed with twice as many teeth as the pinions, for the purpose of imparting one complete vibration to the table at each revolution of the main shaft—that is to say, one-half a revolution of the main shaft causes the table to swing up, and the next half-revolution causes it to swing down. By this means the angle or inclination at which the hoop-plank on the table is presented to the knife is varied at each stroke of the latter, and imparts an edgewise bevel or taper to the hoops as they are cut. The inclination of the table is varied to regulate the bevel of the hoops by adjusting the screw-rods L within their pivoted links K.

In order to insure a smooth cut and prevent the knife from breaking away or splitting the edges of the hoop, the inner edge of the table must support the hoop-plank as near the line of cut as possible, when the table is tilted in both directions. This I accomplish by forming the inner edge of the table in line with the center of its trunnions, and arranging it close up to the path of the knife. Such edge, therefore, forms the axis about which the table oscillates, and occupies the same rela-

tion to the knife when the table swings in either direction. The distance of the table from the knife is regulated by adjusting the bearings of the table-trunnions back and forth upon the ends of the frame by any suitable means. Q is a flat bar or plate arranged upon the ends of rods R, immediately in rear of the table and beneath the knife, for the purpose of forming a stop to gage the distance the hoop-plank shall be thrust under the knife to make a hoop of the desired thickness. The rods R are formed with a screw-thread, and extend through the rear timber of the frame, to receive a steadying-bar, S, between the set-nuts T T. Springs U, secured to the rear uprights of the frame, bear against the bar S, and hold the stop-bar forward under the knife with a yielding pressure. The thickness of the hoops to be cut is determined by the distance between the stop-bar and inner edge of the table, and this distance is regulated by adjusting the steadying-bar on the rods R, as will be readily understood.

When the machine is in operation, and it is desired to cut a hoop, the hoop-plank is placed upon the table and pushed inward under the knife until it is arrested by the stop-bar. The knife then descends and cuts off a hoop with an edgewise bevel or taper, as above described. In order, however, to move the stop-bar out of the path of the knife when the latter descends, I have provided inclines, V, upon the back of the knife, which come in contact with corresponding inclines, W, on the stop-bar, and retract it so as to clear the edge of the knife. This movement also opens the space between the table and stop-bar, to allow the cut hoops to drop out of the machine.

I am aware that in mitering-machines for breaking printers' rules it is not new to hang a platform on trunnions whose axis of motion is in line with the front of the platform, and I do not, therefore, claim its application, broadly, to all kinds of machinery; but

Having thus described my invention, what I claim is—

1. In a hoop-cutting machine, the combination of a reciprocating knife, E, with an oscillating table, G, whose inner edge forms the axis of oscillation, for the purpose of supporting the hoop-planks close to the cutting-edge of the knife, substantially as described.

2. The oscillating table G, adapted for adjustment to and from the knife, substantially as described, for the purpose specified.

3. The oscillating table operated from the main shaft through the medium of the gearing, the cams M, the pivoted arms J, and the connecting-rods and links L K, substantially as described.

4. The oscillating table having the extent of its oscillations adjustable by means of the screw-rods L and pivoted links K, substantially as described, for the purpose specified.

5. The yielding stop or gage Q, combined with the reciprocating knife and oscillating table, substantially as described, for the purpose specified.

6. The yielding stop or gage Q, adapted for adjustment to regulate the thickness of the hoops, substantially as described.

GEORGE V. GRIFFITH.

Witnesses:
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H. B. SAYLER.