(No Model.) 2 Sheets—Sheet 1.

H. U. PALMER.

HOOP MAKING MACHINE.

No. 546,053. Patented Sept. 10, 1895.

Fig. 2.

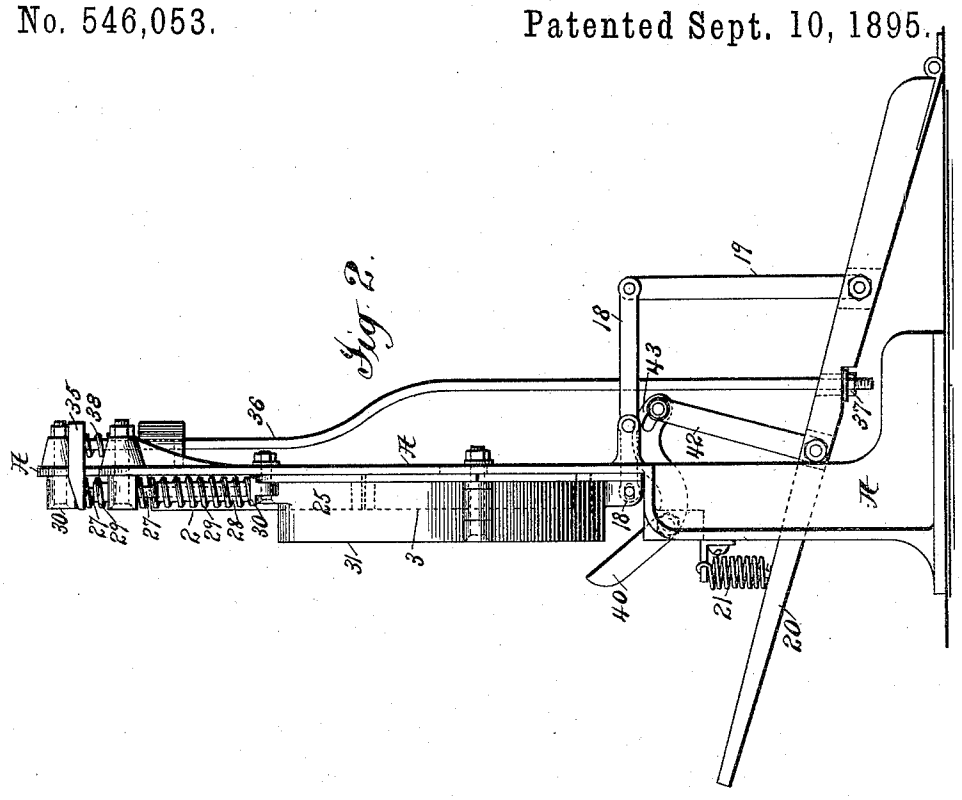
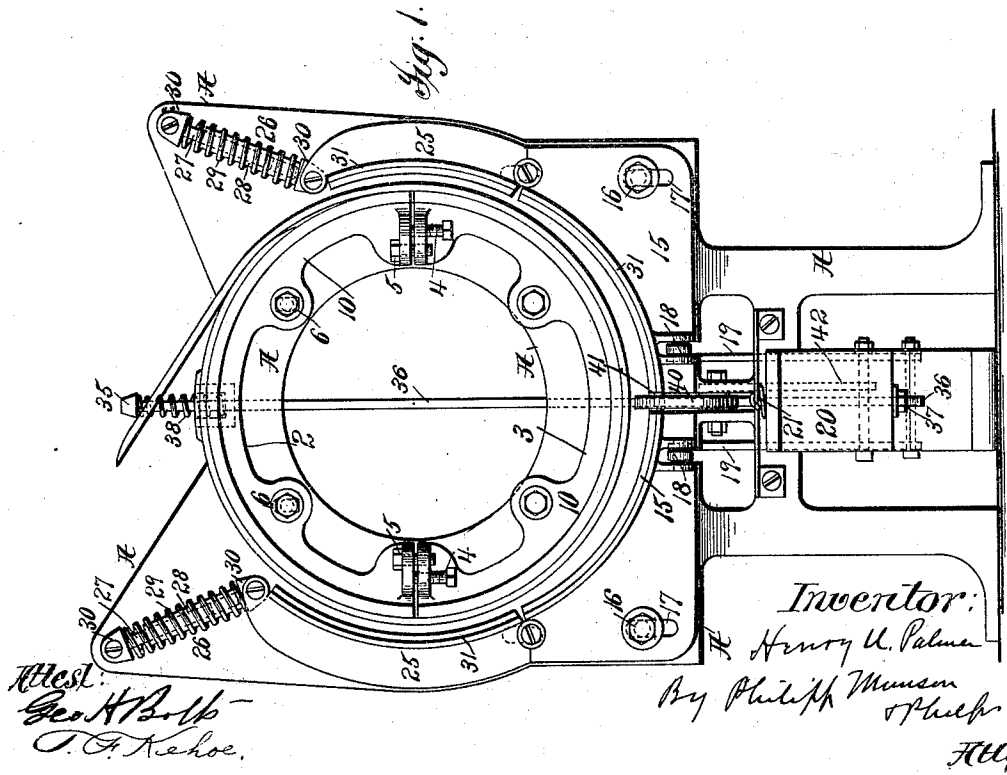


Fig. 1.



Witnesses:
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(No Model.) 2 Sheets—Sheet 2.

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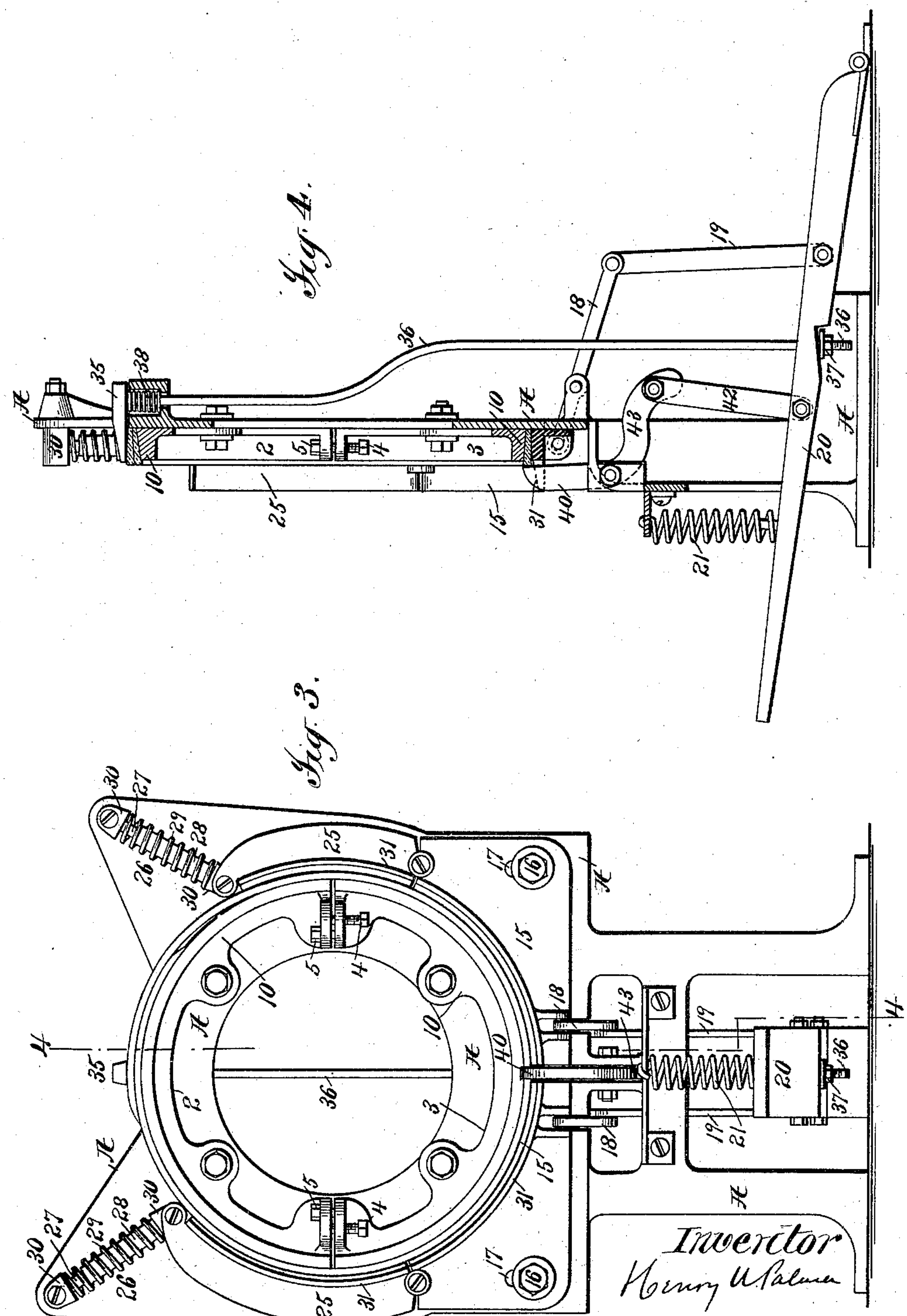

Fig. 4.

Fig. 3.

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UNITED STATES PATENT OFFICE.

HENRY U. PALMER, OF BROOKLYN, NEW YORK.

HOOP-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 546,053, dated September 10, 1895.

Application filed July 20, 1894. Serial No. 518,097. (No model.)

To all whom it may concern:

Be it known that I, HENRY U. PALMER, a citizen of the United States, residing at Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Hoop-Making Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to machines for making hoops by bending the strip into form and securing the ends together, the object of the invention being to provide an improved machine of this class which shall facilitate the bending of the hoops, form them very exactly to the required size, and hold them when so bent while the overlapping ends are being fastened together; and to this end the invention consists in various constructions, arrangements, and combinations of parts, as will be hereinafter fully described, and specifically pointed out in the claims.

Reference is to be had to the accompanying drawings, which show a machine embodying the various features of the invention in preferred forms, in which—

Figure 1 is a front elevation of such a machine. Fig. 2 is a side elevation. Fig. 3 is a front elevation showing the parts in position after the treadle has been depressed, and Fig. 4 is a section on the line 4 of Fig. 3.

Referring to the drawings, secured to the main frame A is a form or barrel 10, which is preferably made adjustable to enable the machine to be used in forming hoops of different sizes, as by being formed of two sections or halves 2 and 3, which are secured together by adjusting-screws 4 and 5, and one of the halves 3 being bolted to the frame A and the other being secured to the frame by bolts passing through slot 6. When the machine is to be used for forming "patent hoops"—that is, hoops which are formed from a strip which is thicker in cross-section at one edge than at the other, so that one face of the hoop is beveled—the periphery of the form is preferably beveled, as shown, to conform to the beveled face of the hoops. Extending part way around the form 10 is a clamping-block 15, having a clamping-face curved so that when the clamping-block is moved into its clamping position, as hereinafter explained, the clamping-face shall be concentric with the periphery of the form 10. The clamping-block 15 is mounted to slide on the frame A, being preferably secured by bolts 16, passing through slots 17, and is moved toward the form 10, preferably by means of levers 18, pivoted to the clamp and to the frame A and operated through connecting-rods 19, preferably by a foot-treadle 20. The clamping-block may be of sufficient weight to be returned to its normal position by gravity, or a suitable spring may be provided, as that shown at 21. The clamping-block preferably extends less than half-way around the form 10 and is provided with pivoted arms 25, extending upward on each side of the form 10 and having clamping-faces curved to form a continuation of the curve of the clamping-face of the clamping-block. Suitable means are provided to force the clamping-arms 25 inward toward the form 10 as they are carried upward by the clamping-block, and for this purpose I prefer to employ spring-rods 26, pivoted to the upper ends of the arms 25 and to the frame A. Each of these spring-rods, as shown, consists of a rod 27, pivoted to the frame A, and free to slide in a sleeve 28, which is pivoted to the arm 25, a spring 29 being coiled around the sleeve and rod and bearing against collars 30 on said sleeve and rod. By this construction as the treadle is depressed the clamping-block will be moved upward toward the form, and the arms 25, as they are moved upward, will be swung inwardly toward the form by the spring-rods 26. The clamping-face of the clamping-block 15 and of the arms 25 is preferably extended forward of the form 10 to form a guide flange or flanges 31 to aid in placing the hoops about the form 10, the face of this guide-flange being also preferably beveled or flared outwardly away from the center of the form.

To provide for clamping the overlapped ends of the hoops against the top of the form 10, I provide a clamp 35, carried by a rod 36, the lower end of which passes through the treadle 20 and is screw-threaded to receive an adjusting-nut 37, a suitable spring, as the spiral spring 38, being provided to press the rod and clamp upward away from the form. By this construction as the treadle is depressed the clamp 35 will be drawn down against the

overlapping ends of the hoop, securely clamping them together against the form, and when the treadle is released the clamp will be carried upward again to its normal position by the spring 38. The downward movement of the clamp 35 may be adjusted by means of the nut 37.

To aid in placing the hoops properly about the form 10—that is, so that they shall rest squarely back against the frame A in the construction shown and that the hoops shall be formed exactly to the required size—I provide a lever 40, pivoted to the frame and adapted to engage the edge of the hoop after it has been placed about the form and force it into proper position against the frame A, the guide-flange 31 being cut away to form a slot 41 for the lever. The lever is operated by means of a connecting-rod 42, connecting the rearwardly-extending arm 43 of the lever with the treadle 20.

The operation of the machine is as follows: The parts being in the position shown in Fig. 1, a hoop is placed about the form 10, the ends being overlapped beneath the clamp 35, as shown in said figure. The foot-treadle then being depressed the lever 40 will be thrown to press the hoop at the lower portion of the form into position against the frame A, the clamping-block 15 will be moved upward, forcing the hoop between it and the form tightly against the form, and the clamping-arms 25, being carried upward by the clamping-block, will be swung in toward the form by the spring-rods 26, thereby clamping the portion of the hoop between them and the form tightly against the form, the various parts taking the positions shown in Fig. 3. It will be seen that the pivoted arms 25 and pivoted rods 26, arranged as shown, act as a toggle-joint in clamping the hoop upon the form, which is desirable, as it secures a strong pressure upon the hoop. The overlapping ends of the hoop may then be secured together, and the treadle being then released the parts will return to their normal positions and the finished hoop may be drawn off the form. It is evident that instead of the spring-rods 26 rigid rods might be employed to rock the arms 25 toward the form 10; but it is preferable to provide for a yielding pressure on the arms, as by the construction shown, as otherwise in case of any irregularity or difference in thickness between the parts of the hoop engaged by the clamping block and arms one or the other of these members might not bear fully against the hoop. In the construction shown the clamping-block may be forced up to proper position even though the hoops be irregular or of excessive thickness opposite the arms, as the springs 29 will yield. This feature also is of importance where the form is made adjustable, as shown, as the arms will then adjust themselves to the different-sized forms, and in cases in which hoops of different thickness are to be made. It is preferable to provide the block 15 and the arms 25 with clamping-faces curved so as to bear as evenly as possible at all points on the hoop; but it will be understood that they might be formed so as to engage and press the hoop against the form only at intervals with approximately the same result.

It will be understood that various modifications in the construction herein shown and described may be made by those skilled in the art without departing from the invention.

By the term "clamp," as used in the claims, is meant a member adapted to press the overlapping ends of the hoop together against the form between the ends of the strap and to hold them in position while they are being secured together by means other than said member.

What is claimed is—

1. The combination with a form, of a clamping block, clamping arms pivoted to the clamping block, connections between the clamping arms and frame arranged to rock the arms toward the form as the clamping block moves toward the latter, and means for actuating the clamping block, substantially as described.

2. The combination with a form, of a clamping block having a clamping face extending partially about the form, clamping arms at the ends of the block and pivoted thereto, connections between the clamping arms and frame arranged to rock the arms toward the form as the clamping block moves toward the latter, and means for actuating the clamping block, substantially as described.

3. The combination with a form, of a clamping block having a clamping face extending partially about the form, clamping arms at the ends of the block and pivoted thereto, yielding connections between the arms and frame arranged to rock the arms toward the form as the clamping block moves toward the latter, and means for actuating the clamping block, substantially as described.

4. The combination with a form, of a clamping block having a clamping face extending partially about the form, clamping arms at the ends of the block and pivoted thereto, spring rods pivoted to the clamping arms and to the frame and arranged to rock the arms toward the form as the clamping block moves toward the latter, and means for actuating the clamping block, substantially as described.

5. The combination with a form, of a clamping block having a clamping face extending partially about the form, clamping arms at the ends of the block and pivoted thereto, rods pivoted to the clamping arms and to the frame and arranged to rock the arms toward the form as the clamping block moves toward the latter, a clamp adapted to act in connection with the form between the ends of the clamping arms, an operating lever, and connections between said operating lever and said clamping block and clamp, substantially as described.

6. The combination with a form, of a clamping block having a clamping face extending

partially about the form, clamping arms at the ends of the clamping block and pivoted thereto, yielding connections between the clamping arms and frame arranged to rock the arms toward the form as the clamping block moves toward the latter, a clamp adapted to act in connection with the form between the clamping arms, a lever for forcing the hoops into proper position, an operating lever, and connections between the operating lever and said clamping block, clamp, and lever, substantially as described.

7. The combination with an adjustable form, of a clamping block having a clamping face extending partially about the form, clamping arms at the ends of the clamping block and pivoted thereto, and yielding connections between said clamping arms and frame arranged to rock the arms toward the form as the clamping block moves toward the form, substantially as described.

8. The combination with a form, of a clamping block having a clamping face extending partially about the form and having a guide flange extending forward of the form, substantially as described.

9. The combination with frame A, of a form mounted on said frame, a clamping block mounted to slide in said frame, clamping arms 25 pivoted to the ends of said clamping block, spring rods 26 pivoted to said arms and the frame, and means for moving said clamping block on the frame, substantially as described.

10. The combination with a form, of a clamping block, clamping arms 25 pivoted to the ends of the block, spring rods 26 pivoted to said arms and to the frame, and means for actuating said block, substantially as described.

11. The combination with a form, of a clamping block, clamping arms 25 pivoted to the ends of the block, spring rods 26 pivoted to said arms and to the frame, clamp 35 acting between the ends of the arms, an actuating lever, as 20, and connections between said lever and clamping block and clamp, substantially as described.

12. The combination with a form, of a clamping block, clamping arms 25 pivoted to the ends of the block, spring rods 26 pivoted to said arms and to the frame, clamp 35 acting between the ends of the arms, lever 40 for forcing the hoop into proper position, an operating lever, as 20, and connections between said operating lever and said clamping block, clamp, and lever 40, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HENRY U. PALMER.

Witnesses:
T. F. KEHOE,
C. J. SAWYER.