(No Model.)

H. WILDE.

APPARATUS FOR GAGING HOOPS.

No. 260,438. Patented July 4, 1882.

Fig. 1.

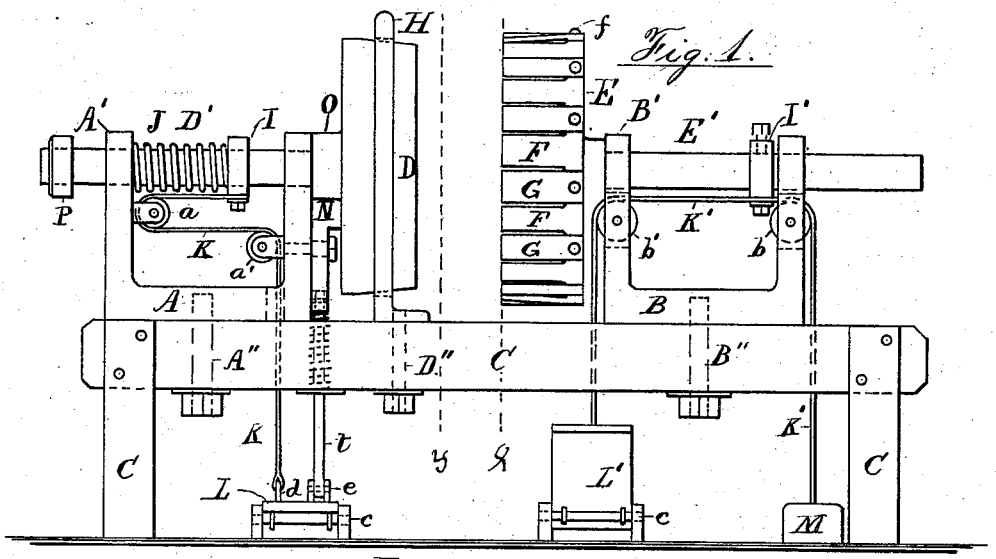


Fig. 2.

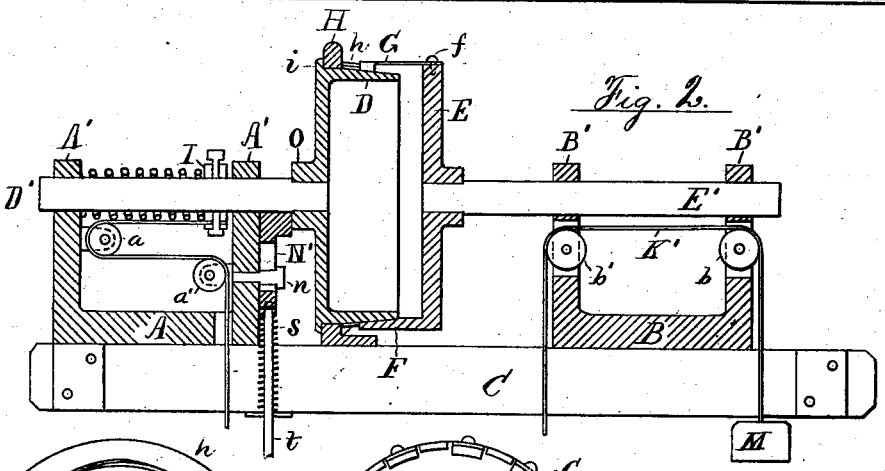


Fig. 3.

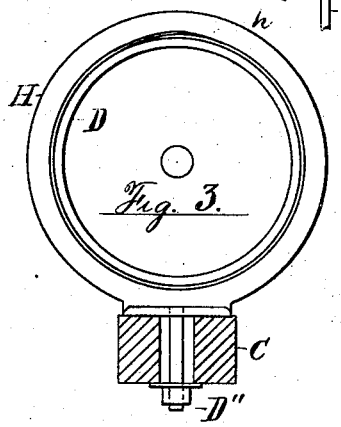


Fig. 4.

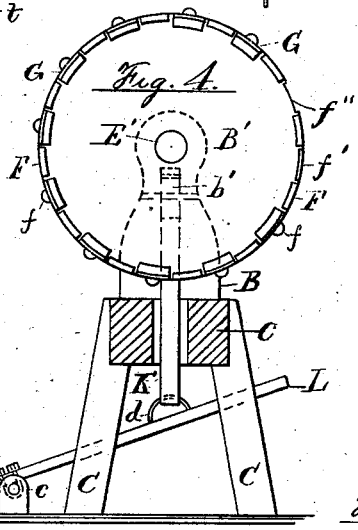
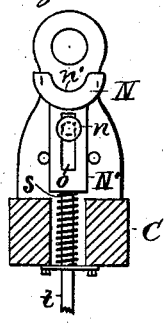


Fig. 5.



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UNITED STATES PATENT OFFICE.

HENRY WILDE, OF NEWARK, NEW JERSEY.

APPARATUS FOR GAGING HOOPS.

SPECIFICATION forming part of Letters Patent No. 260,438, dated July 4, 1882.

Application filed March 30, 1882. (No model.)

To all whom it may concern:

Be it known that I, HENRY WILDE, a citizen of the United States, residing in the city of Newark, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Apparatus for Gaging Hoops, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

My invention relates to an improved apparatus for use in making barrel-hoops of uniform size, and is intended to be used in combination with other machines devised by me for setting up and finishing barrels to a uniform gage. By such system alone could hoops of uniform diameter be employed, as any material variation in the size of the barrels would prevent such hoops from fitting to their proper place at the chine or bilge. By the ordinary methods hoops are fitted separately, by measure, to each part of the barrel they are to fit, and much time is thus consumed in securing a coincidence between the two. My system secures the production of barrels having a uniform diameter; and the object of my present invention is to furnish the means for gaging any number of hoops to one size, whether the same be adapted to the bilge or quarter or intended for use at the chine of the barrel.

The device consists essentially of a cone having the diameter of the inside of the hoop, of a pressing-ring for straining the hoop upon the cone, and a stop for checking the hoop when forced to the desired point by the ring.

The apparatus is especially useful for nailing and sizing the hoops now used for sugar and other barrels, which are found in the market ready for nailing, coiled up to a smaller diameter than the barrels; but it is also adapted for nailing up locked hoops if made by uniform methods, similar to those devised by me.

A machine embodying my improvements is shown in the annexed drawings, in which Figure 1 is a side elevation of the same; Fig. 2, a longitudinal central section of the heads; Fig. 3, a section at *x x* in Fig. 1, to show the stop-ring H; Fig. 4, an end elevation of the press-ring and the parts behind it, shown by a section at *y y* in Fig. 1; and Fig. 5, an elevation at the end of the head A, to show the construction of the locking-slide N.

C is the frame of the machine, shown as a parallel shears mounted on legs. A is a head provided with bearings A′ for carrying the gage-cone D by means of a sliding spindle, D′.

B is a similar head, formed with bearings B′, for carrying the press-ring E upon a sliding spindle, E′. The ring E is formed by projections from the face of a disk, one-half of them, F, being rigid and alternated with an equal number of spring-tongues, to form a cylindrical presser having its interior fitted to the outside of the cone D when pressed upon the latter, as shown in Fig. 2. In the latter figure the parts are all shown in position to clamp or press a hoop, *h*, while the latter is nailed upon the cone, while in Fig. 1 the press-ring E is shown retracted for the removal of the hoop, and the cone is shown as partly withdrawn from the gage-ring H to push the hoop off of that part of the cone where it is nailed, and thus facilitate its entire removal by hand. In Fig. 2 the operation of the tongues F and G is plainly shown, the latter being exhibited at the bottom of the disk E and the former at the top, where it is shown secured by a screw, *f*.

The construction of the disk where the spring-tongues are attached is also shown in Fig. 4, where all but two of the tongues are shown bent toward the center. One is shown cut off near the disk at *f′*, and one is removed from the disk to show a notch, *f″*, into which the rear end of the spring is fitted. The object of the spring-tongues is to secure a pressure against the hoop before it is forced from the point or end of the cone up to the largest part, at which latter point it would be effectually held by the solid tongues F alone. The springs are therefore adjusted with their outer ends fitted to embrace the end of the cone, and are gradually expanded as they are pushed upon it, thus pressing its surface closely and forcing the hoop before it up to the stop-ring H. The latter is formed to embrace the cone snugly at its largest part, and is secured in a proper position upon the frame C by a bolt, D″, as the heads A and B are held by bolts A″ and B″.

The movement of the cone and its spindle D′ in the head A is controlled by a spring, J, which serves to press it forward into the ring

H, and a treadle, L, operating to withdraw it from the ring when a hoop is to be discharged. The treadle is connected by a belt or cord, K, passed over pulleys *a* and *a'* in the head A, to a screw-collar, I, secured to the spindle in contact with the spring J.

An adjustable collar, P, is fitted to the end of the spindle in Fig. 1, which may be used, if desired, to regulate the penetration of the cone in the stop-ring H, and thus alter at pleasure the diameter of the cone adjacent to the ring at the point where the hoop is nailed. By this means a variation within small limits can be made in the sizes of the hoops nailed upon the same cone; but for the most uniform work it is desirable to use a permanent check for the cone, operating against the rear side of the ring H, as shown at *i* in Fig. 2. This check may consist of an annular projection or pins inserted at points in the cone, and is forced by the spring J firmly against the ring H when the pressure is removed from the treadle.

In connection with a fixed check, as described, I employ a locking-slide, N, secured by a bolt, *n*, to the front of head A, just beneath the hub O formed on the rear of the cone. This slide is formed with a slot, *o*, to permit a vertical movement on the bolt, and has a notch, *n'*, at its upper end fitted to the shaft D' when it is projected from the bearing A', as in Fig. 2.

The slide is connected with the treadle L, and is provided with a spring, *s*, wound around the connection *t*, for pressing it against the shaft D'. The connection *t* is made tight when the strap K is slack, and the slide is thus operated before the retracting force acts upon the spindle D'. The slide is shown in Fig. 2, as forced between the bearing A' and the hub O, and the treadle is then presumed to be elevated by the force of the springs J and *s*, although the treadle is not shown in that figure. In Fig. 1 the treadle is shown depressed and the slide pulled down to permit the withdrawal of the cone from the stop-ring H.

The press-ring and its spindle E' are provided with a similar treadle, L', connected to a screw-collar, I', by a belt or cord, K', carried over pulleys *b* and *b'* in the head B, and extended to receive a weight, M. This weight operates to retract the ring E when the pressure is removed from the treadle, and is used in place of a spring, as the movement of the spindle is so great to secure abundant clearance for removing the finished hoops.

The operation of the machine shown is as follows: A hoop is placed upon the small part or end of the cone, when the latter is projected from the stop-ring H and the treadle L' moved to force the ring E against it. When clamped between rings E and H the hoop is distended to the desired size, and is then nailed in the usual manner. The press-ring E is then withdrawn and the foot applied to the treadle L, by which the cone is retracted sufficiently to loosen the hoop upon its tapering surface, and the hoop is thrown from the machine and the cone forced forward again by the spring J to receive another one.

If the hoops are provided with locks cut uniformly, the operation of the machine strains them to a given size, and a little nailing suffices to retain them of the desired diameter, as but little strain is thrown upon the nails; but when secured by nails alone as with the lap-joint shown at *h* in Fig. 3, a single nail is put in the lap before forcing the press-ring against the hoop, that the latter may be drawn tight as it expands and take the desired size from the cone with accuracy.

From the above description it will be seen that the devices used to carry out my invention may be varied materially without departing from its main principle, which is to strain the hoops upon a gage when nailing, that they may be formed of uniform diameter.

The cone might also be made stationary and the stop-ring be made to slide, or separate stops arranged about the cone and operated simultaneously to push off the finished hoop, as required. I do not therefore limit myself to the precise construction described, but claim the same as follows:

1. The combination of the cone D and stop-ring H, movably arranged in relation to one another, for throwing off the hoop, and the press-ring, arranged and operated by suitable means to force a closed barrel-hoop upon the cone, substantially as herein set forth.

2. The combination, with the cone and gage-ring of a hoop-gaging machine, of a press-ring provided with the rigid tongues F and the spring-tongues G, arranged alternately, substantially as and for the purpose set forth.

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

HENRY WILDE.

Witnesses:
THOS. S. CRANE,
WALTER M. CONGER, Jr.