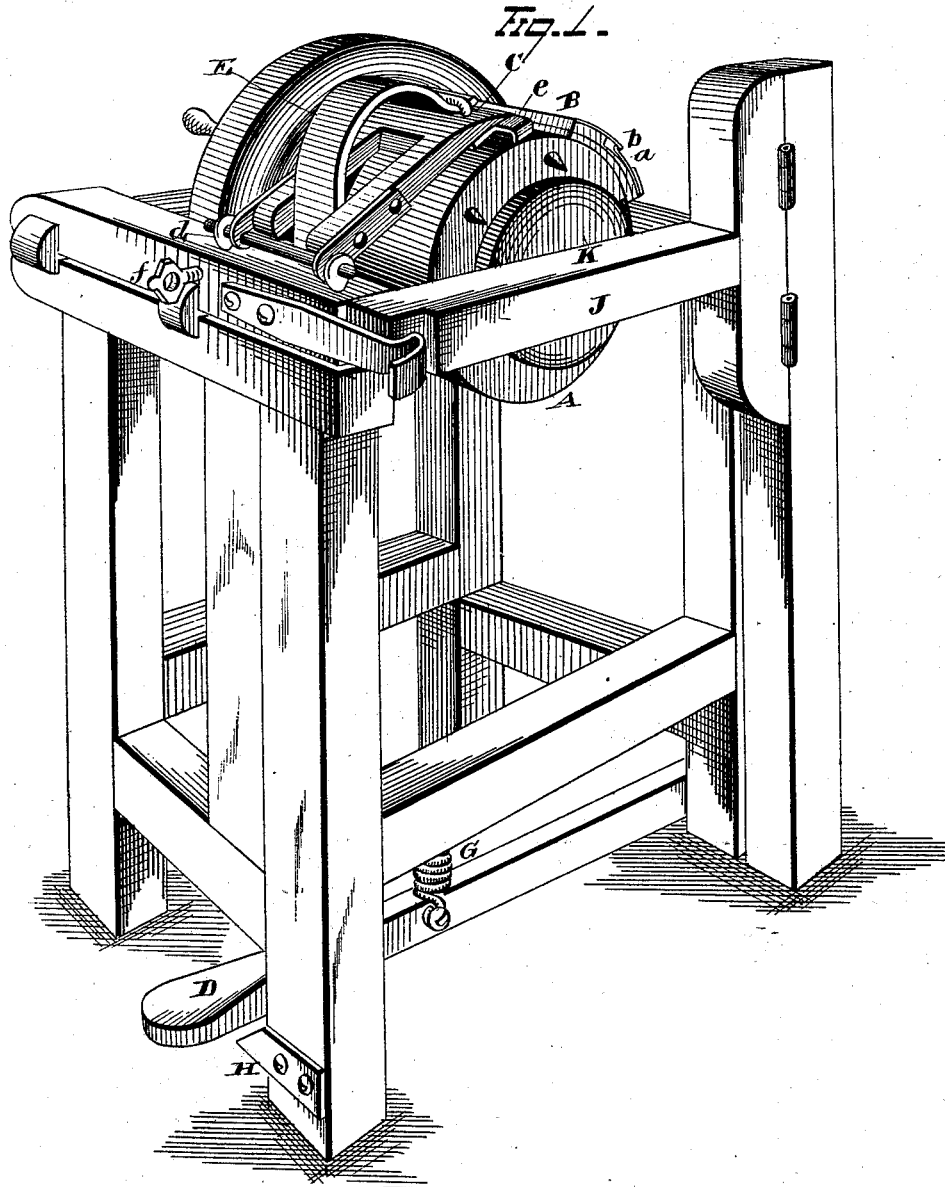


E. BENSON.  
Wooden-Box Machine.

No. 216,644.

Patented June 17, 1879.



WITNESSES  
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Fig. 2.

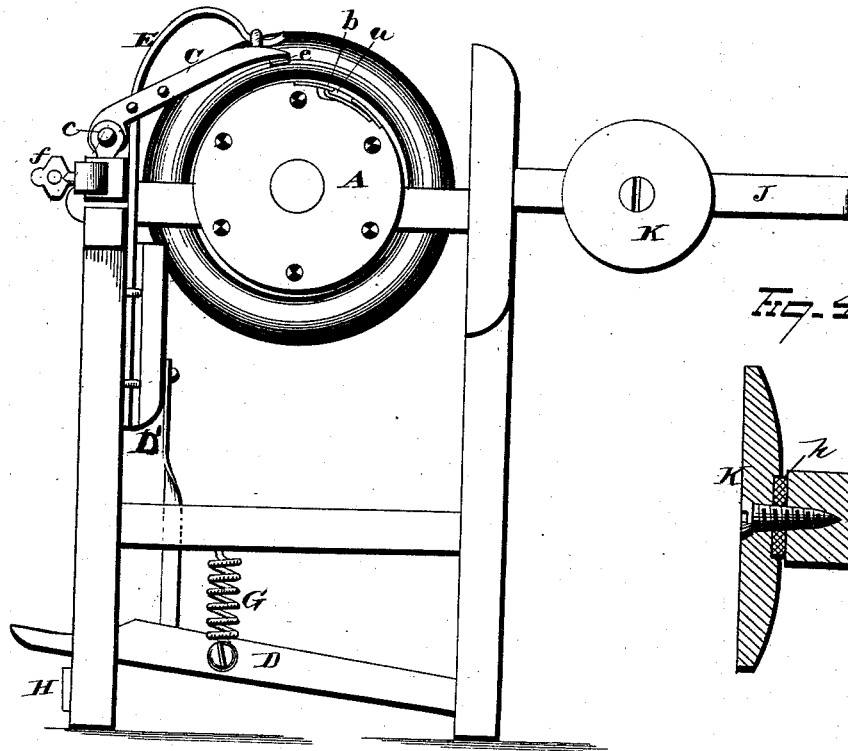


Fig. 4.

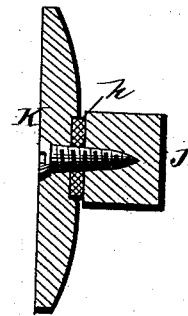


Fig. 3.

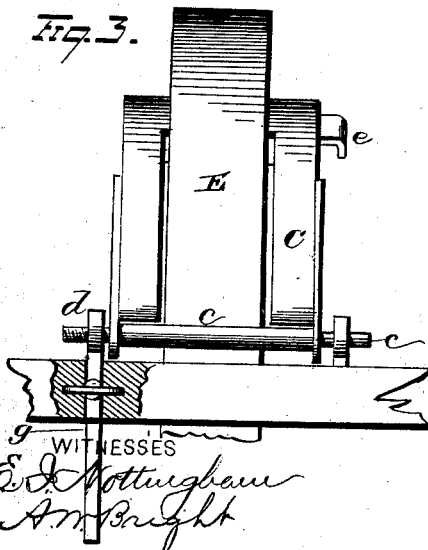
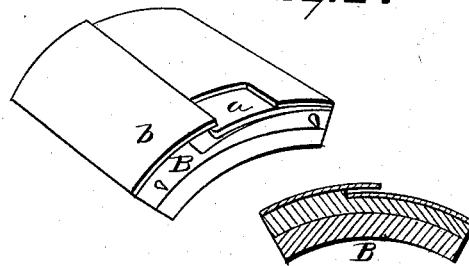


Fig. 5.



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# UNITED STATES PATENT OFFICE.

EDWARD BENSON, OF NEWPORT, ASSIGNOR TO HIMSELF, STUART PERRY,  
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## IMPROVEMENT IN WOODEN-BOX MACHINES.

Specification forming part of Letters Patent No. **216,644**, dated June 17, 1879; application filed  
March 25, 1879.

*To all whom it may concern:*

Be it known that I, EDWARD BENSON, of Newport, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Machines for Making Wooden Boxes; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to a machine which is adapted for use in making hoop boxes or covers of any desired character, and is especially intended for cheese-box manufacture.

The invention consists of the parts and combination of parts hereinafter described and claimed.

Referring to the drawings, Figure 1 is a view in perspective of a machine illustrating the principles of the invention as embodied in my preferred form of construction. Fig. 2 is a side elevation of the same with the gate thrown open. Fig. 3 is a detail view, partly in section, showing the means for inclining the presser in transverse angular inclination to the drum-periphery, and also the means for moving the presser relative to the vertical plane of the working drum-head. Fig. 4 is a detail sectional view representing the attachment of the face-plate to the gate. Fig. 5 represents the block attachment removed from the drum in perspective, and also in sectional view.

The rotating drum A is journaled on a suitable shaft, which latter may be actuated by hand-wheel, as shown, or by other means, whether the latter be human or mechanical power. This drum may be of any desired material; and if of wood, I make the lip device and catch of metal. Said drum is adapted for making boxes or covers of different diameters by block attachment B, which may be secured to its periphery by screw or other fastening device, which will admit of the ready connection or disconnection of said attachment therewith. This block has its base made in sections extending parallel therewith and adapted to be taken therefrom or added thereto in any suitable

number, thus causing its thickness to be adjusted so that when in place on the drum the box or cover of desired diameter may be formed.

Fig. 2 represents the drum without said attachment, and made in the ordinary form; but in this instance, as well as in the case of the attachment, an automatic catch, *a*, is employed for fastening the end of the hoop beneath the lip *b*, as the latter extends transversely across the periphery of the drum. This catch is formed as a spring, and is adapted to operate independently of any actuating mechanism. It clamps the hoop end so that the latter cannot be withdrawn in a direction the reverse of its entry, and can only be disengaged by a transverse movement, and one which is at right angles to the surface of the drum-head.

It is evident that the block attachment may be connected with a drum whose periphery is naked, and not provided with any other means for fastening the hoop end thereto; but I prefer to make the drum with its periphery furnished with mechanism as shown in Fig. 2, and then connect the attachment thereto just in front of and against the drum-lip. In this latter instance I also prefer to place the attachment just in front of and against the lip of the drum, as shown in the latter figure.

The presser C is hinged to the supporting-frame, and has pivotal movement to and from the drum in the same vertical plane in which the latter rotates. The rod *c*, which connects it to the frame, is screw-threaded at one extremity, so that the latter may engage with the corresponding eye, *d*, which secures it in place. Said rod is thereby adapted to have longitudinal movement, and thus change the position of the lip *e*, which projects laterally from the free end of the presser, so as to correspond with the varying thickness of different box or cover heads. In place of this rigid lip, a roller may be vertically journaled at this point of the presser, and the same may be in some respects preferable, by reason of reducing friction of the rotating head against the inner vertical side of said roller.

Instead of making the entire presser thus transversely adjustable, the lip or roller alone

might be made to accomplish this same purpose. In such case suitable mechanism could be employed for moving the lip or the roller in adjustment to and from the vertical face of the drum-head.

In order to make the open end of a box or cover with a different diameter from that of its closed end, the presser may be adapted, by any suitable mechanism, to be adjusted in angular inclination to the drum-periphery in a plane transverse to the latter.

The specific means here shown consist of a set-screw, *f*, having end bearing against the vertical stem *g* of the eye or hook, which latter connects with one extremity of the rod, to which latter the presser is pivoted. By vertically adjusting this hook or eye as desired, and clamping the screw against its stem, the presser may be set in any transverse angular inclination, thus throwing one of its longitudinal sides in horizontal plane above or below the other longitudinal side. The result is, that boxes may be made with their mouths of any desired uniform diameter, greater or less than that of its bottom, and notwithstanding variance in the formation of the hoops.

Instead of this special means, a straight bar pivoted to the box-head side of the free end of the presser may be used, said bar having its opposite extremity controlled by a screw, or otherwise rendered adjustable. Other mechanical ways of accomplishing the same result are apparent.

The presser is adjustably adapted to its work by means of a treadle, *D*. A pitman, *D'*, connects the latter with the upwardly-curved spring-bar *E*. A retractive spring, *G*, tends to move said free end of the presser away from the drum-periphery. Suitable catch, *H*, may be employed to hold the treadle in position, so as to maintain the presser in operative position; and *I* would be understood in that the machine may be worked without operating the foot-treadle or constantly adjusting the presser by means of the treadle or otherwise.

If desired, the presser itself may be a spring-bar, or may be directly connected with the treadle without being hinged or otherwise connected with the supporting-frame. The gate *J* is adapted to be swung to and from the drum-head in horizontal plane, and is provided with a face-plate, *K*, centrally pivoted thereto, so as to have rotating movement corresponding to the movement of the box or cover-head as the latter is clamped between said face-plate and the drum-head. Suitable studs are formed horizontally on the latter; and in order to prevent their passage so far into thick heads as to render difficult the removal of the latter *I* provide a spring device, *h*, interposed between said gate and its face-plate. Instead of this special form of spring-construction an elastic substance might be placed on the working-face of the plate. Spiral springs or other form from that here shown might be used.

If desired, a second or auxiliary narrow hoop

may be secured about the primary or main hoop, in order to increase the strength of the bottom of the box, and also cause the latter to roll in a straight line when laid on its side. No further adjustment of the machine parts would be required in this process, except such as the body of the box would require.

The general operation of the machine is readily apparent from the foregoing, but will be briefly described for greater clearness.

The gate having been opened, the round head intended for the bottom or cover of box is pressed on the spurs of the drum, care being taken to have its circular edge even with or slightly above the periphery of the drum at the place where the lip of the metallic plate is. The gate is then closed and a hoop, while hot and flexible, is taken. One of its ends, which have been previously chamfered, is inserted beneath the lip of the drum, with the outer edge of the hoop even with the outer surface of the head. The drum is now rotated slightly toward the operator, and when in position to admit the end of the hoop to be subjected to the presser the latter is brought down in operative pressure upon said hoop. As the drum rotates the hoop is drawn between the presser and the edge of the head until the latter is embraced or clasped tightly by the hoop about its entire edge. When the outward end of the hoop has lapped the inward end, and before removing the presser, said two ends are firmly tacked together, the tacks being riveted by driving them against the metallic plate on the drum. The gate is now opened, and the hoop with its head firmly secured in place is withdrawn from the drum, the spring-catch which prevented the hoop from drawing out from beneath the lip during the process of bending offering no resistance to the transverse withdrawal of the hoop. The hoop can be nailed to the head while being bent, or after it is bent, and before removal from the drum; but it is found that it is a quicker and better method to nail it after removal from the drum.

The hoop of a cover is put on in the same manner as the hoop for the body of the box.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a hoop-box machine, the combination, with a non-expanding drum, of the lip attachment, located transversely on its periphery, and means for readily connecting or disconnecting the same therewith, said attachment being adapted, substantially as described, to have its working-face adjustable to and from the drum-periphery, whereby boxes or covers of different diameters may be made on the same non-expanding drum, substantially as set forth.

2. In a hoop-box machine, the combination, with a rotary drum, of the lip attachment provided with the spring-catch, and located in transverse line on its periphery, said attachment being readily connected or disconnected

with the drum, and having a sectional base adapted to adjust the working-face of the attachment to and from the drum-periphery, substantially as set forth.

3. In a hoop-box machine, the combination, with a rotary drum, of the lip attachment, located transversely on its periphery, and devices for readily connecting or disconnecting the same therewith, said attachment having its base made of free curved sections formed concentric with the drum-periphery, and adapted by removal or addition of the same to adjust the working-face of said attachment to or from the drum-periphery, substantially as set forth.

4. In a hoop-box machine, the combination, with a drum, of an attachment having a sectional base for adjusting it in any desired thickness, said attachment being provided with a lip and a catch adapted to automatically fasten the hoop thereto, so as to permit of the removal of the latter only in a line transverse to its length, substantially as set forth.

5. In a hoop-box machine, the combination, with the presser, of the upwardly-curved spring-bar connecting with its free extremity the treadle, and the pitman connecting the latter with the lower end of said spring-bar, substantially as set forth.

6. In a hoop-box machine, the combination, with the vertical bolt which pivots one side of the presser to the main frame, of the set-screw which works horizontally in the latter

and has end bearing against said bolt, as the same is vertically adjusted in a bearing formed in the frame, substantially as set forth.

7. In a hoop-box machine, the combination, with the presser provided with the lateral lip or roller on its free outer extremity, of the horizontal rod which pivots the presser to the frame and the bearings secured to the latter, in which said rod has longitudinal adjustment and is secured at any desired position, substantially as set forth.

8. In a hoop-box machine, the combination, with a drum having a transverse lip, of the spring-catch between which and said lip the hoop is clamped, the same being adapted so that the hoop can be withdrawn from the drum only in a line transverse to its own length, substantially as set forth.

9. In a hoop-box machine, the combination, with a drum having a transverse lip, beneath which the hoop is placed, of the spring-catch secured to the drum-periphery, and whose free end bears against the under side of said lip, said catch being adapted to automatically clamp a hoop between it and the lip, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 17th day of March, 1879.

EDWARD BENSON. [L. S.]

Witnesses:

C. A. MOORE,

GILES G. REYNOLDS.