No. 652,811. Patented July 3, 1900.

W. M. SCHOOLFIELD.

BARREL FORMER.

(Application filed Apr. 28, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

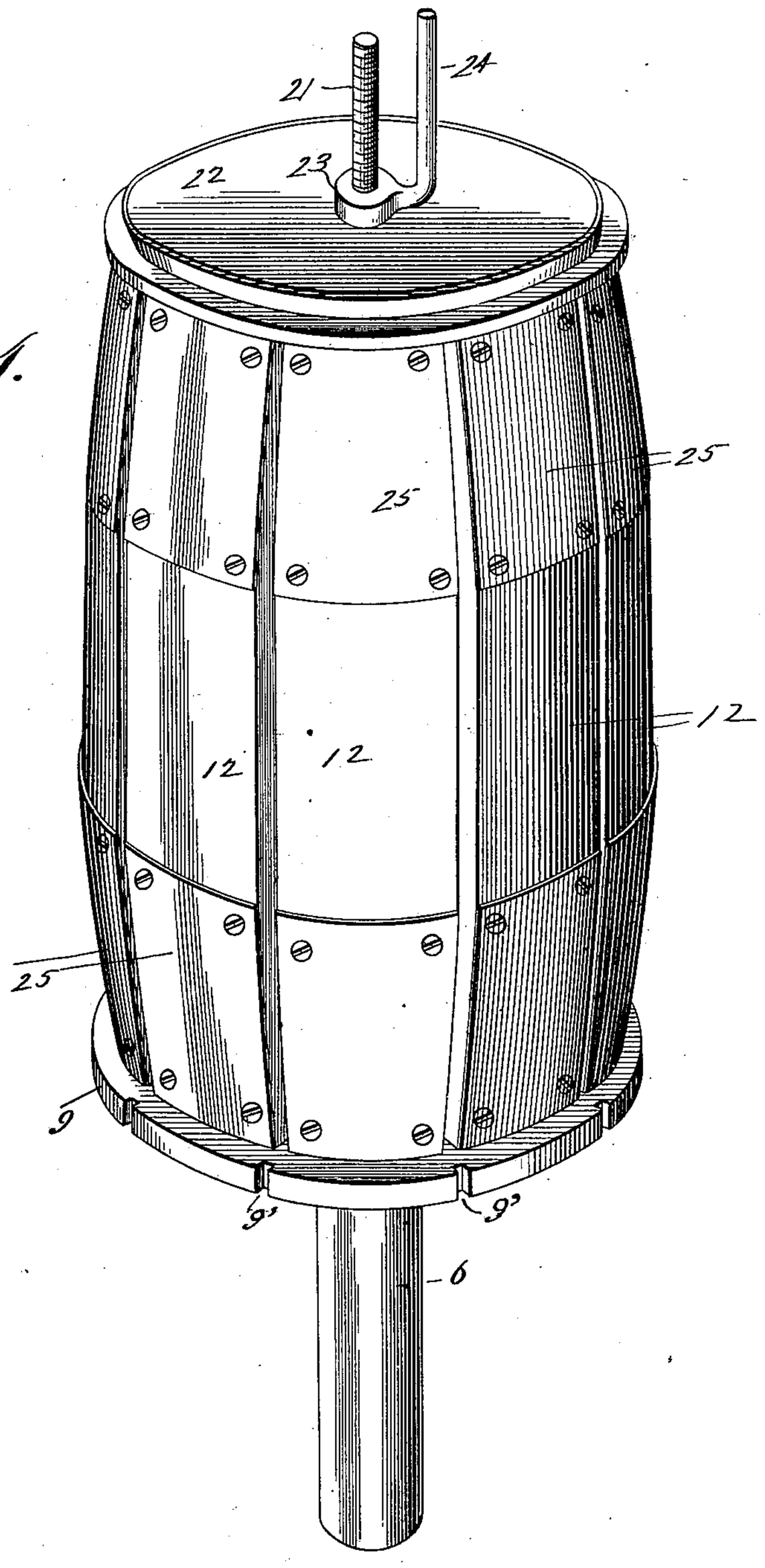

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Fig. 2.

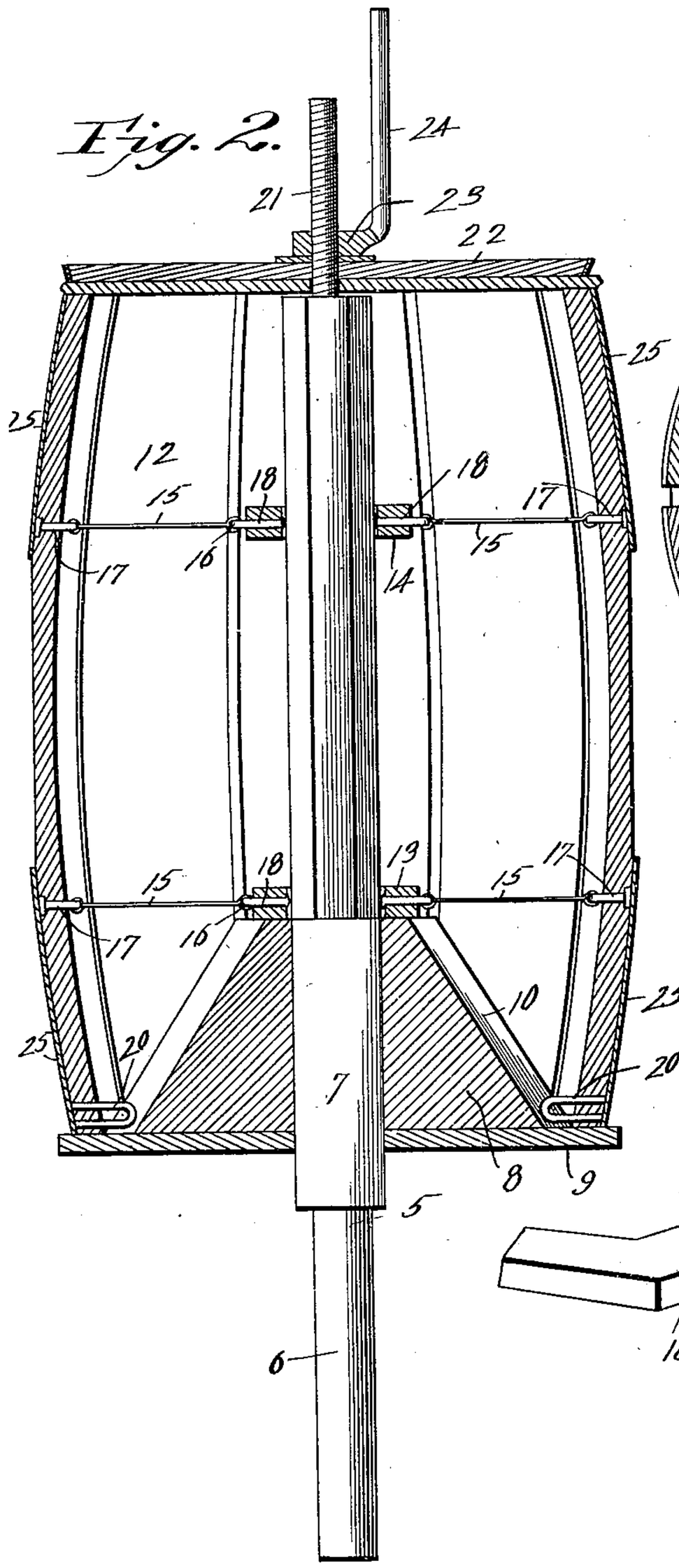


Fig. 3.

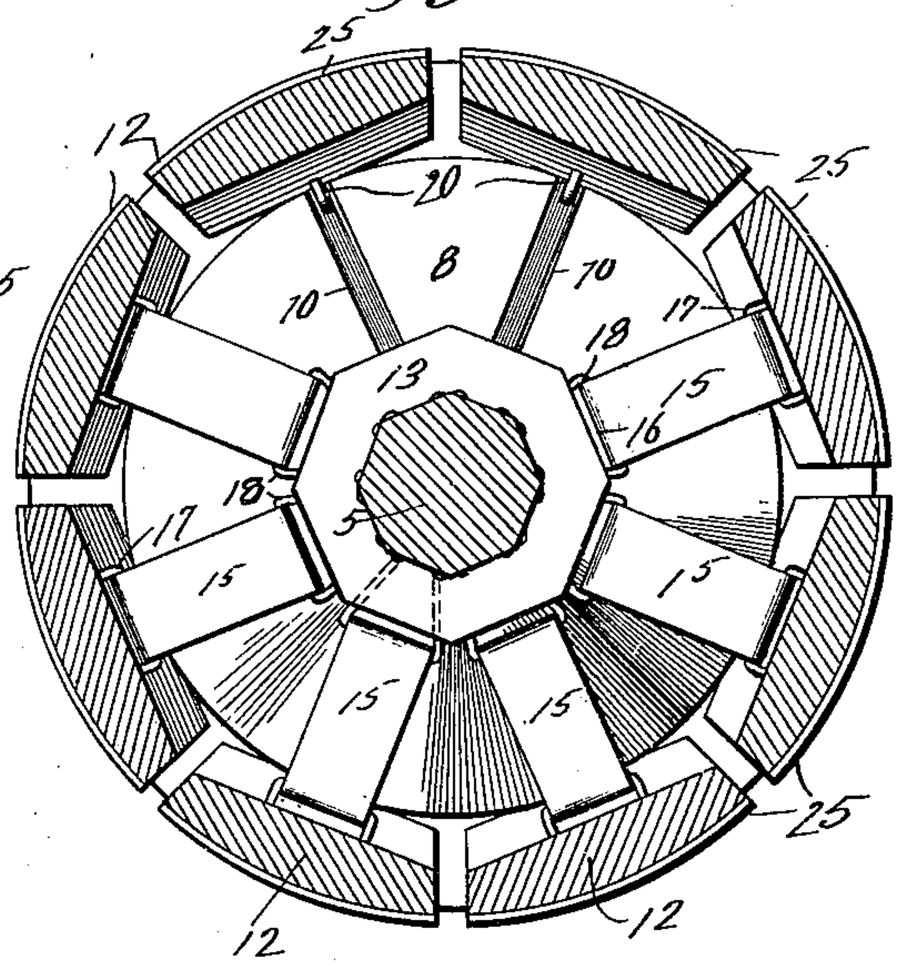
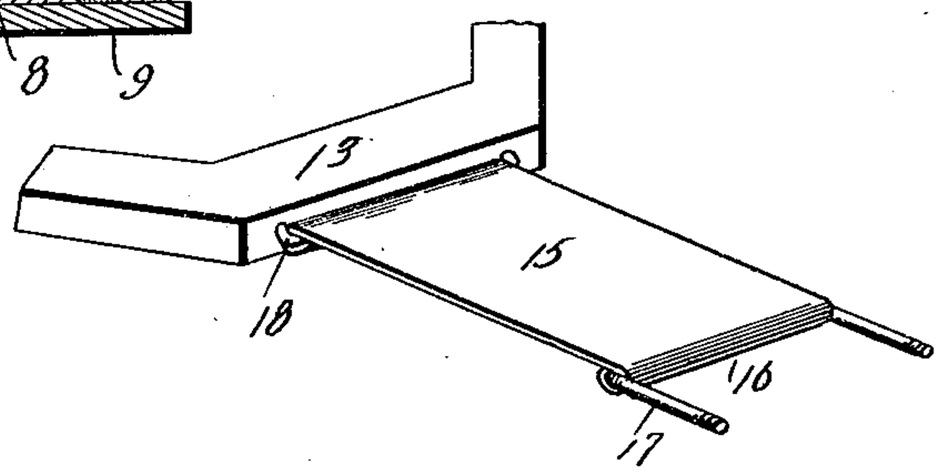


Fig. 4.



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UNITED STATES PATENT OFFICE

WILLIAM M. SCHOOLFIELD, OF POCOMOKE CITY, MARYLAND.

BARREL-FORMER.

SPECIFICATION forming part of Letters Patent No. 652,811, dated July 3, 1900.

Application filed April 28, 1900. Serial No. 14,755. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. SCHOOLFIELD, a citizen of the United States, residing at Pocomoke City, in the county of Worcester and State of Maryland, have invented a new and useful Barrel-Former, of which the following is a specification.

This invention relates to barrel-forming machines in general, and more particularly to that class wherein there is employed an expansible core about which the barrel is formed and from which the completed article may be removed by contracting the core.

The object of the invention is to provide a simple and efficient construction which will be cheap of manufacture and to which the parts of the barrel may be readily applied and from which the completed barrel may be readily removed, a further object being to provide a simple and efficient means for expanding the sections of the form.

Further objects and advantages of the invention will be evident from the following description.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a perspective view showing the complete barrel-form. Fig. 2 is a central longitudinal section of the form and showing parts thereof in elevation. Fig. 3 is a central transverse section of the barrel-form. Fig. 4 is a detail perspective view showing the hinge employed in connecting the movable sections of the form to the spindle thereof.

Referring now to the drawings, the present form comprises a spindle 5, one end of which is formed cylindrical to permit it to be rotatably mounted, while the opposite end is polygonal in cross-section and in the present instance is shown as octagonal. The cylindrical portion of the spindle comprises a terminal portion 6 of one diameter and an inner portion 7 of greater diameter, and upon this latter portion is mounted a frusto-conical wedge-block 8, having a disk 9 secured to its base and concentric therewith, the curvilinear face of the block 8 having longitudinal slots 10 therein, as shown. In connection with this spindle and the parts carried thereby, as described, there is employed a shell consisting of a plurality of staves 12, which are hinged to the spindle. These staves 12 are of such dimensions that when moved in the direction of the spindle they will mutually touch and form the shell of a barrel form having the same general outline as the barrel to be formed, but of lesser diameter, and when they are moved outwardly they will outline a shell having an exterior diameter equal to the internal diameter of the barrel to be formed, the staves being of the same form, generally, as the usual staves of a barrel.

To provide for hinging the staves to the spindle, two octagonal collars 13 and 14 are disposed upon the octagonal portion of the spindle and with their corresponding faces lying in like planes, and to each corresponding pair of faces of the two collars there is hinged a stave of the shell. The hinges preferably employed consist each of a metallic strap or plate 15, having its ends bent to form beads 16, within which are pivoted the webs of staples 17 and 18, the staples 17 being engaged with the collars on the spindle, while the staples 18 are engaged with the staves. The plates 15 are of equal lengths, so that the staves at whatever points of their hinged movement lie parallel with the spindle, and the barrels outlined by the staves at their different adjustments are similar.

As the staves 12 are expanded—that is, as they are moved away from the spindle—they likewise move longitudinally in the direction of the block 8, and the dimensions of said block are such that as the staves are moved outwardly their ends move in directions parallel with the adjacent portions of the face of the wedge-block, and to prevent lateral movement of the staves from their proper positions guides 20 are secured to the inner faces of the staves and are disposed to travel in the longitudinal slots of the block. Thus when a strain is applied that tends to displace the staves the guides engage the sides of the guide-slots and arrest such movement.

As above intimated, when the staves are moved longitudinally the hinges thereof cause

them to move also radially, and in order to give the staves this longitudinal movement a screw 21 is extended from the angular end of the spindle and in axial alinement therewith, and upon this screw is loosely disposed a clamping-disk 22, against which is adapted to impinge a nut 23, provided with a handle 24 for convenience of manipulation. Thus when the nut is turned in the proper direction the disk will be moved longitudinally of the spindle and when it engages the ends of the staves will tend to press them longitudinally and by this act will also move or swing them outwardly to the position shown in the drawings. During this movement of the staves the guides travel in the guide-grooves of the block 8, while the block in its relative movement into the inclosure of the staves acts to wedge them outwardly and assists in the operation.

In practice the head or bottom of the barrel has a central perforation which receives the screw extension of the spindle 5 and lies between the ends of the staves and the clamping-disk, the staves being placed upon the form in the usual manner. The clamping-disk is of lesser diameter than the hoops to be applied to the barrel undergoing manufacture, so that the hoops may be readily slid into place, the hoops being then nailed to the barrel-staves. To prevent the nails from going through the staves of the form or entering the material of the form, said staves 12 are shod at their end portions with metallic castings 25, as shown, these castings covering the stave ends and reaching beyond the line of the innermost hoops. The nails after passing through the hoops and through the barrel-staves engage the castings and are clenched by them, as will be understood. After the barrel has been formed the clamping-nut is retracted and the form-staves 12 are released to permit them to move inwardly and release the barrel which has been formed thereon, and to prevent the necessity of excessive movement of the form to permit withdrawal of the barrel the staves 12 between the castings or plates 25 thereon are cut flat. Before the barrel can be removed from the form it is of course also necessary to first remove the clamping-disk. With this construction it will be seen that the barrel may be readily removed from the form and that in the construction of the barrel the parts thereof may be readily applied to the form, the entire device being simple and efficient in its operation.

In practice various modifications of the invention may be made and any suitable materials and proportions may be used for the various parts without departing from the spirit of the invention. Furthermore, it will be noted that in the edge of the disk or plate 9 there are formed radial slots 9′, which act to indicate the interspaces between the staves 12, so that in driving the nails for holding the hoops they may be driven to strike against the clenching-plates.

What is claimed is—

1. A barrel-form comprising a spindle, staves connected with the spindle for bodily pivotal movement toward and away from the spindle, means for moving the staves upon their pivots, a block upon the spindle having guide-grooves, and projections upon the staves engaging the grooves for movement therethrough to prevent lateral displacement of the staves.

2. A barrel-form comprising a spindle having a wedge-block thereon, staves hinged to the spindle for bodily movement toward and away from the spindle, said staves lying against the block, and means for moving the staves longitudinally against the wedge-block to press them outwardly.

3. A barrel-form comprising a spindle having a wedge-block thereon and provided with guide-grooves, staves hinged to the spindle for movement toward and away from the spindle and resting with their ends against the block, projections on the staves engaging the guide-grooves, and means for moving the staves longitudinally against the wedge-block to force the staves outwardly.

4. A barrel-form comprising a spindle having a wedge-block thereon provided with longitudinal guide-grooves, staves, plates hinged at their ends to the staves and to the spindle, whereby the staves may be moved bodily and pivotally toward and away from the spindle, a screw extension of the spindle, a clamping-plate upon the screw for engagement with the staves to move them longitudinally against the wedge-block to expand the form, a nut engaged with the screw to operate the plate, and projections upon the staves engaging the guide-grooves to hold the staves from lateral displacement.

5. A barrel-form comprising a spindle, a plurality of staves hinged to the spindle for bodily and pivotal movement toward and away from the spindle, said staves having their outer faces flattened between their ends, and means for moving the staves pivotally and longitudinally to expand the form.

6. A barrel-form comprising a spindle, a plurality of staves pivotally connected with the spindle for movement toward and away from the spindle and provided with clenching-plates, a clamping-plate having means for moving it against the staves to move them pivotally and a second plate provided with indicating means to indicate the interspaces between the staves.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM M. SCHOOLFIELD.

Witnesses:
E. S. HARGIS,
JAMES P. BLAINE.