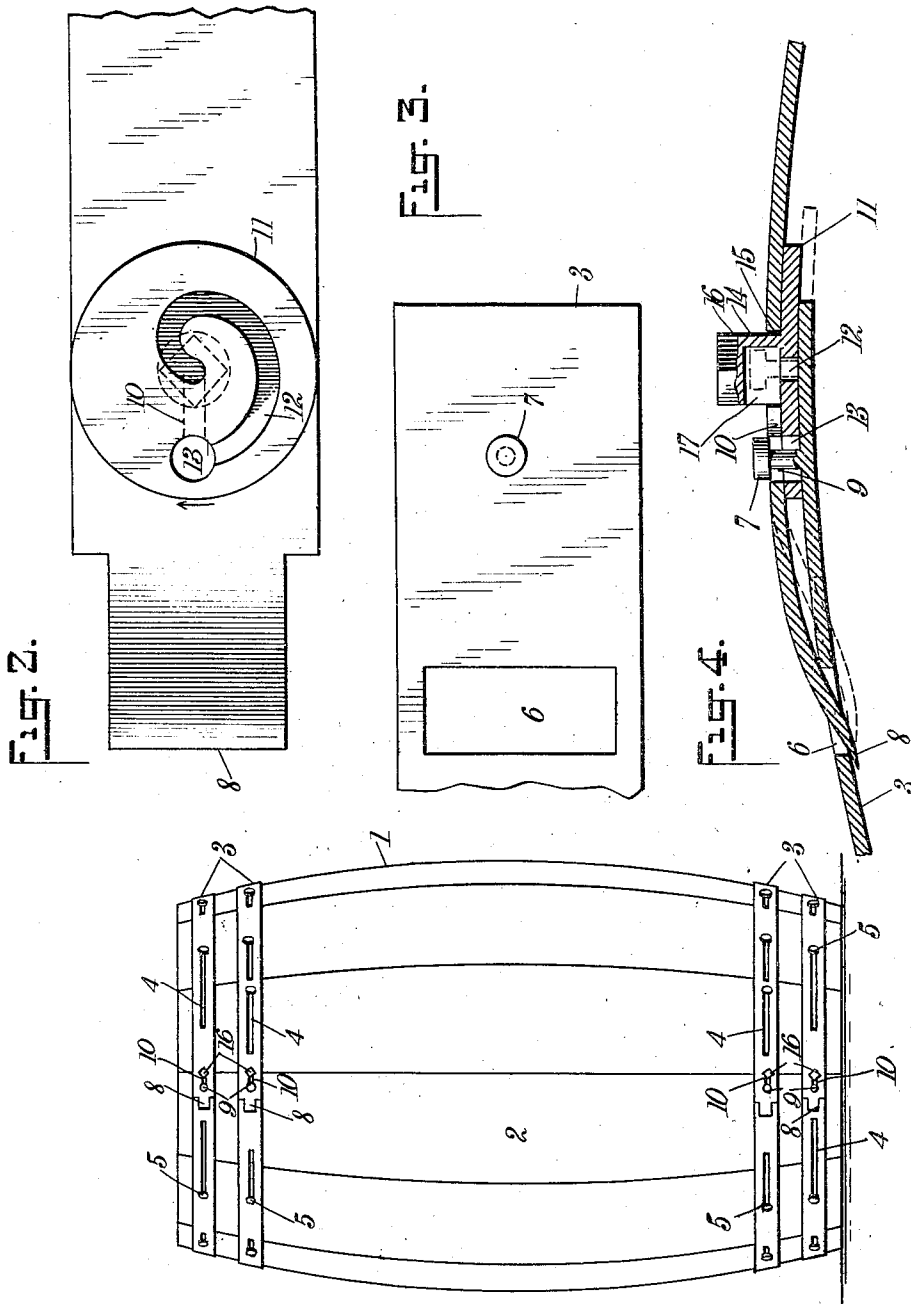


J. W. SUTHERLAND.
COLLAPSIBLE BARREL.
APPLICATION FILED DEC. 8, 1911.

1,037,684.

Patented Sept. 3, 1912.

2 SHEETS—SHEET 1.



WITNESSES
Sidney Brooks
Wm. F. Nickel

INVENTOR
John W. Sutherland
BY *M. M. Co.*
ATTORNEYS

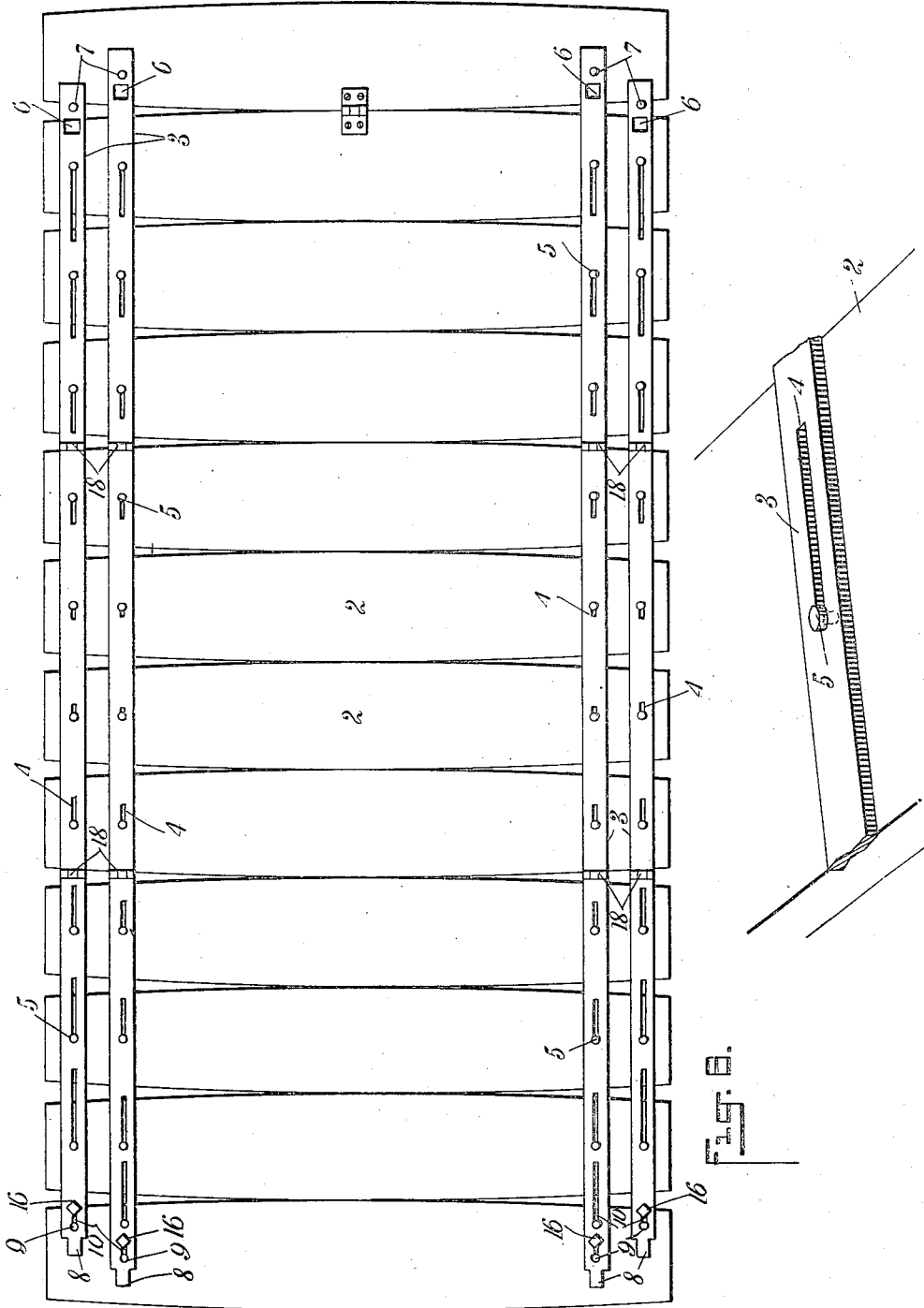
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UNITED STATES PATENT OFFICE.

JOHN W. SUTHERLAND, OF SYDNEY, NOVA SCOTIA, CANADA.

COLLAPSIBLE BARREL.

1,037,684.

Specification of Letters Patent.

Patented Sept. 3, 1912.

Application filed December 8, 1911. Serial No. 664,552.

To all whom it may concern:

Be it known that I, JOHN W. SUTHERLAND, a citizen of the United States, and a resident of Sydney, in the Province of Nova Scotia and Dominion of Canada, have invented a new and Improved Collapsible Barrel, of which the following is a full, clear, and exact description.

My invention relates to an improvement in collapsible barrels, and it comprises certain novel features of construction whereby a number of barrel staves can be adjustably secured together, side by side, by means of flexible hoops, together with an arrangement for uniting the ends of said hoops and fastening the said ends to hold the barrel staves with their longitudinal edges in contact, so as to form the body of the barrel, and hold firmly in place the heads of the barrel at the opposite ends of said staves, when the barrel is to be made ready for use.

Reference is to be had to the accompanying drawings forming a part of this specification, in which the same characters of reference indicate the same parts in all the views.

Figure 1 represents a side elevation of my improved barrel, with the parts thereof in position; Fig. 2 represents a detail view of the end of one of the hoops and the locking means carried thereby; Fig. 3 represents a detail view of the other end of the hoops, showing the means engaged by the locking means to secure the two ends together; Fig. 4 is a longitudinal sectional view taken through one of the hoops used on my improved barrel, showing the two ends of the same secured to each other; Fig. 5 is a top plan, showing the barrel staves adjustably secured side by side by means of the hoops which fasten them together before they are set up in position to form the body of the barrel; and Fig. 6 is a detail, perspective view showing the self-adjusting form of fastening between the barrel hoops and the barrel staves.

On the drawings, the numeral 1 represents the body of a complete barrel made according to my invention. This barrel comprises a number of barrel staves 2, which may be used in any convenient number. On the drawings, however, I show a barrel consisting of a dozen of such staves arranged in two groups or sections of six, and these

barrel staves are secured together by laying them flat on a table or floor with their opposite ends in alinement, and attaching to their opposite ends the bands forming the hoops 3. These bands 3 have slots therein shown at 4, these slots gradually increasing in length from the middle of the strips toward the ends thereof; and these bands or strips are secured to the ends of the barrel staves by means of bolts or other suitable fastening devices 5.

It will be observed by inspecting Fig. 5, that the two hoops which are nearest to the ends of the staves 2, are somewhat shorter than the hoops or bands 3 which are located near the centers of the staves 2. The two shorter hoops are connected to all of the staves by means of slots 4 and pins 5, except the staves at each end; and the two longer hoops are connected to all the staves by means of slots 4 and pins 5, except the stave on the extreme right, this last-named stave being connected to the adjacent stave by means of a hinge 2'. The lengths of all the bands or hoops 3 are less than the distance from the outer edge of the stave at one end of the row to the outer edge of the stave at the other end of the row, so as to cause the ends of the staves to be drawn together when the barrel is set up and the opposite ends of the bands secured to each other. The bands 3 which are nearest the ends of the staves are made shorter than the inner bands 3, for the reason that the extreme ends of the staves will be drawn closer toward the central axis of the barrel when the barrel is set up, than the portions of the staves which are attached to the inner bands or hoops 3.

When the barrel staves are laid out flat side by side with their ends in alinement, as shown in Fig. 6, and the strips forming the hoops 3 are attached thereto, the fastening devices 5 must be passed through the slots 4 into the barrel staves 2, in such a way that these fastening devices will lie in opposite ends of the slots 4 on each side of the center line dividing one section or group of six staves from the other section or group of six staves. As shown in Fig. 6, the fastening devices 5 will lie in the right-hand ends of the slots 4 for the right-hand group of six staves, and the fastening devices attaching the hoops 3 to the staves 2 of the left-hand group of six staves

will lie in the left-hand ends of the slots 4. This position of the fastening devices 5 with respect to the slots 4 will permit the ends of the barrel staves to have some relative movement with respect to the hoops or bands 3, when they are set up to form the body of the barrel, so as to permit the hoops to be tightened by drawing their opposite ends together. When the staves are set up in this way and the opposite ends of the hoops joined together and tightened, these hoops will embrace the top of the barrel and draw the upper and lower ends of the staves in toward the center of the barrel, the opposite ends of the barrel staves being narrowed or tapered, as shown, and when the ends of the hoops are finally secured in permanent position, the staves will lie in contact with one another over the entire length of their longitudinal edges, making the barrel perfectly tight; and the staves will be sprung outward at the middle to form a barrel which is thickest between the ends, as shown in Fig. 1, in the well-known way.

The adjacent ends of the hoops or bands 3 have apertures 6 therethrough, and between the apertures 6 and said ends are secured projections 7, these projections being in the form of buttons or heads secured by a shank to the body of the strip 3, and being rigidly fastened thereto, one of these projections 7 being used in connection with each strip or hoop 3, as shown. The opposite ends of the hoops 3 have projections 8, which are of such a size as to permit them to be inserted into the openings 6, when the ends of the barrel hoops are joined together. Each of the hoops 3 adjacent the terminal projection 8 has an aperture 9, which communicates with a longitudinal slot 10, this longitudinal slot 10 extending away from the projection 8, for a purpose which will appear later.

Pivotaly carried by each of the hoops 3 adjacent the end on which is formed the terminal projection 8, is a disk 11. This disk is located on the inner face of the strip or hoop 3, and has a spiral slot 12 formed therein, beginning at the center and curving outward toward the circumference. This spiral slot terminates in an opening 13 equal in size to the opening 9, and large enough to permit the head or button 7 to pass freely therethrough. The disk 11 also has a central projection 14, which passes through an opening 15 in the strip 3, and terminates in a polygonal portion 16, to enable it to be engaged by a wrench or spanner, to be turned. This projection 14 is hollow, having a recess 17 formed therein, with which the inner or central end of the spiral slot 12 communicates. By referring to Fig. 4, it will be seen that the longitudinal slot 10 communicates with the opening 9 at one

end, and with the opening 15 at the other, and it also communicates with the recess 17 in the projection 14 when the disk 12 and projection 14 are in proper position.

The hoops or bands 3 if not sufficiently flexible may be made in sections instead of in one piece, these sections to be hinged together, as shown at 18. I prefer, however, to make them in one piece, using suitable material for this purpose.

To set up a barrel after the staves are secured together by attaching the bands to form the hoops 3, thereto, the staves are arranged in a circle, and the projecting end 8 of each of the hoops or bands 3 is drawn over in proximity to the apertures 6 in the opposite end of each of the hoops 3. The head 7 adjacent the apertures 6 in each hoop is slipped through the opening 13 in the disk 11, and the opening 9 at the inner end of the projection 8, and the wrench or spanner by means of which the polygonal section of the projection 14 is turned, is applied thereto, and the disk 11 rotated. This causes the sides of the spiral or cam slot 12 to engage the shank of the projection 7; and as the disk 11 is turned, the projection 7 is drawn toward the center of the disk 11, moving in the longitudinal slot 10 in the hoop which communicates at one end with the aperture 9, and with the aperture 15, through which the central projection or hub of the disk 11 passes. Before the disk 11 is turned, the end of the projection 8 is slipped through the aperture 6 under the opposite end of the hoop, so that, as the two ends are drawn together, the projection 8 will be forced between the outside of the barrel staves and the inner surface of the hoop 3. The projection 8 and the distance between the center of the aperture 9 and the center of the disk 11, will be designed to have such dimensions as to draw the barrel staves tightly together at their upper and lower ends when the hoops are fastened about them. The heads of the barrel are supported in proper position to have their circumferential edges received in grooves on the inner faces of the barrel staves adjacent their opposite ends when the barrel is being set up; and when all the hoops are finally locked, the barrel will be closed. The hoops at the bottom of the barrel can be tightened first, so as to secure the head at the bottoms of the barrel in place; and the hoops at the top only partly tightened, to permit the barrel to be filled through the open top; and after the same has been filled, the head at the top of the barrel can be put in and the hoops at the top tightened also, to securely inclose the contents. If desired, only one end of the barrel may be closed up by having a head secured therein, and the other end may be left open, causing the hoops or bands 3 at

the open end to be tightened and locked in the same way, and this end can then be covered with cloth, if the shipper prefers.

It will be understood that when the disk 11 has been turned far enough to force the head 7 by means of its cam engagement with the slot 12, to the extreme right-hand end of the slot 10, the recess 17 will be in position to receive this head, and before the rotation of the disk 11 is finished, the vertical portions of the projection 14 which form the inner end of the recess, will be interposed between the head 7 and the slot 10, to prevent the return of the head 7 and the loosening of the hoops.

From the above description it will be seen that I have provided a barrel construction which is exceedingly simple and comprises only a small number of parts which can be readily put together in proper operative position. The barrel can be set up in a couple of minutes, filled and closed and after being shipped, the person to whom the same has been assigned can unpack the same merely by turning the disks 11 to bring the heads 7 back into position to be withdrawn through the apertures 9 and 13, and thus release the ends of the hoops from each other. In this way one or both ends of the barrel can be instantly opened and the contents removed.

I wish to have it understood that I may reserve to myself the right to make such small changes in the shape, size and arrangement of the parts as fairly fall within the scope and spirit of my invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A collapsible barrel comprising a plurality of staves arranged side by side, said staves being wider at the middle than at the ends, a plurality of hoops or bands arranged transversely of said staves adjacent the ends thereof, said hoops or bands having longitudinal slots therein, said slots being of increasing length from the center of the row of staves toward the ends thereof, fastening devices passing through said slots and into said staves to secure the hoops or bands adjustably thereto, said fastening devices being located adjacent the opposite ends of said slots on opposite sides of the center of the row of staves, and means for fastening the ends of said hoops to draw the ends of the staves toward a common center to form the body of the barrel.

2. A hoop for a collapsible barrel, comprising an elongated band having a head or button projecting from the side thereof adjacent one end, the opposite end having an opening therethrough to permit the passage of said button and a longitudinal slot communicating with said opening, and means carried by said other end engaging

the said head to cause the same to move through said longitudinal slot to draw the ends of said barrel hoop together and tighten the same when the barrel hoop is in position.

3. A hoop for a collapsible barrel, comprising an elongated band having a head projecting from one end, the other end having an opening therethrough to give passage to said head and a longitudinal slot communicating with said opening, and means carried by said other end to engage said head when the ends of said barrel hoop are brought together, to cause said head to move along said slot, to tighten said hoop, said means also serving to lock the said head against return movement when it has reached the limit of its movement in said slot.

4. A hoop for a collapsible barrel, comprising an elongated band having a head projecting from its lateral surface adjacent one end, the other end having an opening to give passage to said head, a second opening spaced longitudinally from the first opening and connected by a longitudinal slot therewith, and a disk arranged on the inner surface of said barrel hoop and having a projection passing through said second-named opening, said projection being shaped to permit it to be engaged by a tool and turn said disk, said disk also having an opening therethrough to give passage to said head, and having a spiral slot therein communicating at one end with said opening and terminating at its other end at the center of said disk, said projection also having a recess communicating with the inner end of said spiral slot, whereby, when the head projecting from the lateral surface of said hoop adjacent one end is passed through the opening in the disk and the first-named opening in the other end of the barrel hoop, and the projection turned, the head will move along said longitudinal slot to tighten said hoop, and into the recess in the projection, and be locked against return movement by the portion of the projection forming the inner wall of said recess coming between said head and the end of the longitudinal slot, when the head is at the limit of its movement.

5. A hoop for a collapsible barrel, comprising a band having a lateral projection at one end, the other end having a longitudinal slot receiving said projection, and a disk pivotally connected to the other end of the hoop and having a projection shaped to be engaged by a tool to turn the disk, said disk having a spiral slot therein receiving said lateral projection, one end of said spiral slot terminating at the center of the disk, said projection on said disk also having a recess communicating with said spiral slot, whereby when the disk is turned the ends of

the hoop will be drawn together through the engagement of the projection on one end of the hoop and the spiral slot, the projection carried by the end of the hoop entering the
5 recess in the projection carried by the disk, to be locked against return movement by the portion of the projection on the disk forming the inner wall of the recess coming between the projection on the end of the hoop
10 and the opposite end of the longitudinal slot.

6. A hoop for a collapsible barrel, comprising a band having a lateral projection from one end, and a disk pivotally connected
15 to the other end of said band and having a spiral slot which engages the projection, said disk also having a projection which has a recess therein, said last projection being shaped to be engaged by a tool to turn the
20 disk, said recess being so located that when the disk is turned to draw the ends of the hoop together, the lateral projection carried by the end of the band will pass into the recess in the projection on the disk and be
25 locked against return movement by the portion of the projection on the disk forming the inner wall of said recess.

7. A hoop for a collapsible barrel, comprising a band having a lateral projection adjacent one end, and a disk pivotally connected to the other end of the hoop and having a spiral slot therein engaging the projection, said disk having a projection to en-

able the same to be turned to draw the ends of the hoop together through the engagement of the slot with the lateral projection, the spiral slot in the disk moving the lateral projection on one end of the hoop and the projection carried by the disk into such relative positions that the projection carried by the disk will be interposed behind the lateral projection on the end of the hoop when the operation of tightening is finished, to lock the ends of the hoop together. 35 40

8. A barrel hoop comprising a band having a lateral projection at one end and having a disk pivotally connected to the other end of the hoop, said disk having a spiral slot therein to receive said lateral projection, said spiral slot having its inner end located at the axial center of said disk. 45 50

9. A hoop for a barrel, comprising a band having a lateral projection at one end and a longitudinal slot to receive said projection at its other end, and a disk pivotally connected to the other end of the hoop and having a spiral slot to receive said projection, said spiral slot having its inner end located at the axial center of said disk. 55

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 60

JOHN W. SUTHERLAND.

Witnesses:

FRANK BRATTUS,
MICHAEL A. MUSTAL.