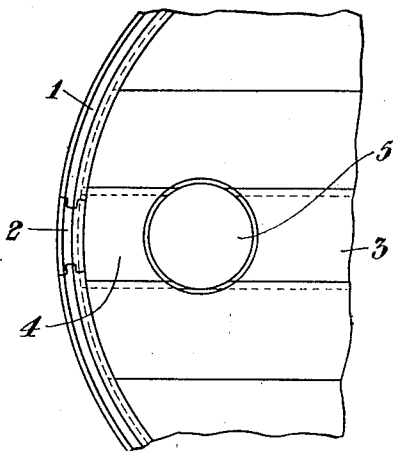


E. A. BOLINDER.  
METHOD OF MAKING BARRELS AND CASKS.  
APPLICATION FILED JUNE 8, 1918.

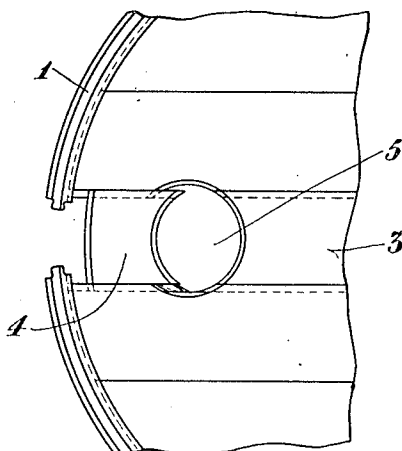
1,286,214.

Patented Dec. 3, 1918.  
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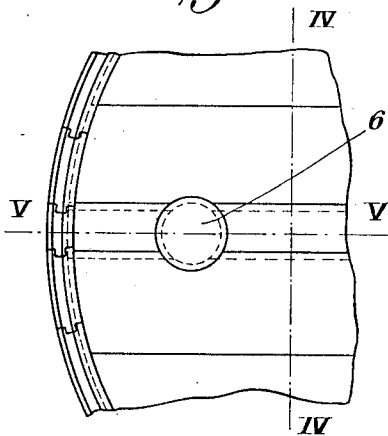
*Fig. 2.*



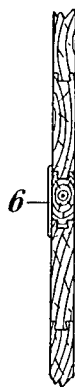
*Fig. 1.*



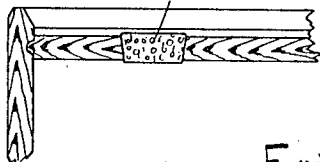
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



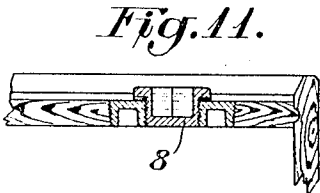
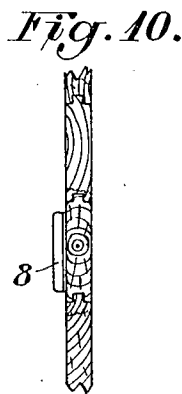
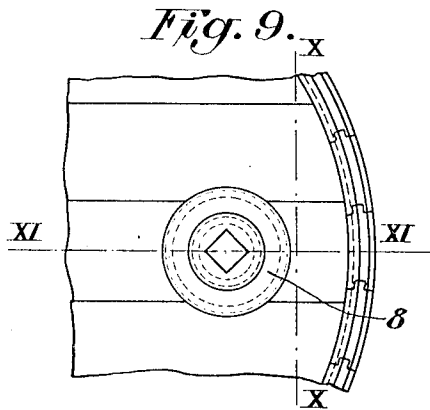
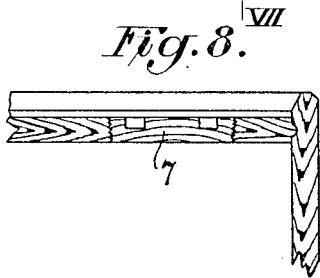
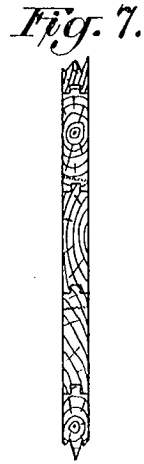
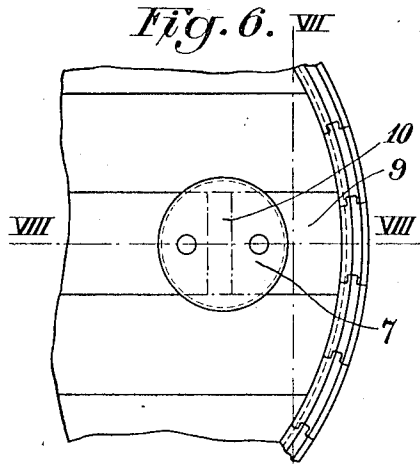
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2 SHEETS—SHEET 2.



Inventor:  
Erik August Bolinder  
By *[Signature]*  
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# UNITED STATES PATENT OFFICE.

ERIK AUGUST BOLINDER, OF STOCKHOLM, SWEDEN.

METHOD OF MAKING BARRELS AND CASKS.

1,286,214.

Specification of Letters Patent.

Patented Dec. 3, 1918.

Application filed June 8, 1918. Serial No. 238,891.

*To all whom it may concern:*

Be it known that I, ERIK AUGUST BOLINDER, a subject of the King of Sweden, residing at Stockholm, in the Kingdom of Sweden, have invented a new and useful Improvement in Methods of Making Barrels and Casks, of which the following is a specification.

When making barrels and casks, especially cylindrical ones, it is in many cases very advantageous to join the staves by pushing the same together in their longitudinal direction, that is to say in the axial direction of the barrel or the cask. This manner of assembling facilitates the manufacture and it is, in fact, necessary when the stave is grooved-and-tongued or rabbeted and the profile of the rabbet does not allow the staves to be assembled in their transverse direction. Heretofore, however, the said manner of assembling has not been employed to any considerable extent, in any case it has been connected with very great disadvantages on account of the difficulty of pushing the last stave into place in the barrel-wall. For providing tightness between the barrel-wall, that is to say the staves, and the heads of the barrel, these latter are usually beveled at their peripheries so as to form an edge or a rim of narrow width, as compared to the thickness of the head, which rim projects into a groove on the inside of the staves, the so-called croze. It is of course possible to push the staves together in their longitudinal direction without interfering with this tightening device by first performing this assembling and then placing the wall thus produced around the head or the heads, but in a barrel made in this manner the last stave can not be pushed in longitudinally, if the said tightening rims of the heads are to protrude into the said crozes in the last stave. By the present invention, however, the longitudinal pushing-in of the last stave is rendered possible.

The invention is broadly characterized by this that one or several of the boards of the head or heads of the barrel is or are shortened in such manner that the board does not reach out to the periphery of the head and does thus not project into the croze of the staves, hence it does not obstruct the pushing in of the last stave or staves through the opening at the edge of the head produced by the said shortening of the board.

The shortening of the board of the head

may be made in such manner that the board is divided into two or several portions of such length that one of the portions may be moved so far inward toward the other portions that the outer end of the first-named portion will be retracted within the periphery of the head and thus inside the croze of the staves. Both or all portions of the board may also be moved or slid inward in the said manner so that both ends of the board will come within the periphery of the head, thus making it possible to push in two staves located diametrically opposite one another. The board may also be shortened by cutting-off a portion of the same at one end or at both ends. The opening or openings in the head produced by the shortening of the board may be filled in or closed, but it is preferred to utilize the opening as a bung-hole, the board being cut directly in such manner that the edges of the cut will be shaped to form the borders of the bung-hole, or the opening may be reamed to round shape after the portion or the portions of the board having been moved or slid outward into the croze when the last stave or staves have been pushed into place.

In the accompanying drawings four different embodiments of the invention are illustrated in which the said opening in the barrel-head is utilized as opening for the bung.

Figure 1 shows a portion of a barrel according to the first embodiment before being completely assembled, and Fig. 2 shows the same when assembled. Fig. 3 shows a plan view of a second embodiment assembled. Fig. 4 shows a section on the line IV—IV, and Fig. 5 a section on the line V—V in Fig. 3. Fig. 6 shows a plan view of a portion of the third embodiment, of which Fig. 7 shows a section on the line VII—VII, and Fig. 8 a section on the line VIII—VIII in Fig. 6. Fig. 9 shows a plan view of a portion of the fourth embodiment, of which Fig. 10 shows a section on the line X—X, and Fig. 11 a section on the line XI—XI in Fig. 9.

Referring to Figs. 1 and 2, 1 is the wall of the barrel which has been assembled by pushing the staves into each other in their longitudinal direction. 2 denotes the last stave. 3 and 4 are the portions of the shortened board in the barrel-head. Before the last stave 2 is pushed into place, the barrel-wall is flexible and expansible so that

the head or the heads may easily be assembled with their rims into the croze. The portion 4 has previously been moved or slid into the opening 5 which, as stated above, is intended to form the bung-hole. The last stave 2 may now be pushed into the free space intended for the same without interfering with the head or the heads, and the stave 2 being in place the portion 4 is moved outward into the croze. The perfectly round bung-hole 5 thus produced may afterward be closed by means of an ordinary plug 6 as shown in Figs. 3-5, or by means of a screw plug 7 as shown in Figs. 6-8, which screw plug may also be made double as shown at 8 in Figs. 9-11. Instead of cutting the head board so as to make the edges of the cut ready to form the bung-opening, the board may be cut straight off as shown in dotted and dashed lines in Fig. 6. When the portion 9 according to this embodiment is moved outward a rectangular opening 10 is produced. This opening may afterward be filled or closed in suitable manner, or it may be bored to circular form in order to serve as a bung-hole. In the embodiments according to Figs. 1-2, 6-8 and 9-11 all staves in the barrel are supposed to be of equal width, that is to say also the last stave is supposed to be of the same width as the other staves. As shown in Figs. 3-5, however, the last stave may also be made considerably thinner than the others.

The manufacture of the barrel may also be performed in such manner that the barrel-wall is first made in two halves, one stave in each half being left out. These halves are then laid around the barrel heads, whereupon the two last staves are introduced in the same manner as described above with relation to one last stave. In such case it is of course necessary first to move or slide both portions of the shortened board inward, or else the board must be cut off at both ends.

I claim:

1. The method of making barrels and casks, consisting in shortening one of the boards of the head of the barrel in such manner that the end of the board may be brought within the periphery of the head so as to produce an opening at the said periphery, assembling the barrel-wall less one stave around the head so that the rim of the head fits into the croze of the barrel-wall, and introducing the last stave into place through the opening at the periphery of the head.

2. The method of making barrels and casks, consisting in shortening one of the boards of the head of the barrel in such manner that the end of the board may be brought within the periphery of the head so as to produce an opening at the said periph-

ery, assembling the barrel-wall less one stave around the head so that the rim of the head fits into the croze of the barrel-wall, introducing the last stave into place through the opening at the periphery of the head, and filling the opening in the head produced by the shortening of the board.

3. The method of making barrels and casks consisting in cutting one of the boards of the head of the barrel into pieces of such length that the pieces may be moved together with their outer ends within the periphery of the head, moving said pieces together so as to produce openings at the said periphery, assembling the barrel-wall less a number of staves around the head so that the rim of the head fits into the croze of the barrel-wall, introducing the last staves into place through the openings at the periphery of the head, moving the said pieces outward toward the periphery into engagement with the croze of the said staves, and closing the opening produced in the head by said moving of said pieces.

4. The method of making barrels and casks consisting in cutting one of the boards of the head of the barrel into pieces in such manner that the cut edges of the pieces form together with adjacent boards an opening in the head of desired shape, said pieces being of such length that they may be moved together with their outer ends within the periphery of the head, moving said pieces together so as to produce openings at the said periphery, assembling the barrel-wall less a number of staves around the head so that the rim of the head fits into the croze of the barrel-wall, introducing the last staves into place through the openings at the periphery of the head, moving the said pieces outward toward the periphery into engagement with the croze of the said staves, and closing the opening thus produced in the head between the cut edges of said pieces and the adjacent boards.

5. In a barrel or cask, the combination of a barrel-head provided with a board shortened in such manner as to produce an opening at the periphery of the head, and a barrel-wall provided with a croze for engaging the periphery of the head, a stave in said barrel-wall being arranged to be pushed into place through the said opening at the periphery of the head.

6. In a barrel or cask, the combination of a barrel-head provided with a board shortened in such manner as to produce an opening at the periphery of the head, a barrel-wall provided with a croze for engaging the periphery of the head, a stave in said barrel-wall being arranged to be pushed into place through the said opening at the periphery of the head, and means for closing said opening.

7. In a barrel or cask, the combination of

a barrel-head provided with a board cut into pieces movable in the head and of such length that placed together in the head they produce an opening at the periphery of the head, a barrel-wall provided with a croze for engaging the periphery of the head, a stave in said barrel-wall being arranged to be pushed into place through the said opening at the periphery of the head, and means for closing the opening produced between the said pieces when moved into engagement with the barrel-wall.

8. In a barrel or cask, the combination of a barrel-head provided with a board cut into pieces in such manner that the cut edges of the pieces form together with adjacent

boards of the head an opening of desired shape, said pieces being movable in the head and of such length that placed together in the head they produce an opening at the periphery of the head, a barrel-wall provided with a croze for engaging the periphery of the head, a stave in said barrel-wall being arranged to be pushed into place through the said opening at the periphery of the head, and means for closing the opening of desired shape produced between the cut edges of said pieces and the adjacent boards when said pieces are moved into engagement with the barrel-wall.

ERIK AUGUST BOLINDER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."