June 9, 1925.

1,541,749.

J. M. HOMMEL

METHOD OF MAKING BARRELS

Filed Feb. 12, 1923

2 Sheets-Sheet 1

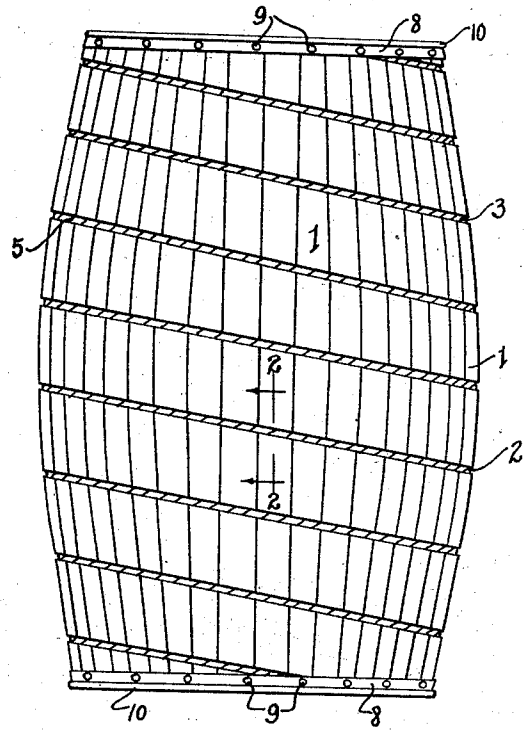

Fig. 1

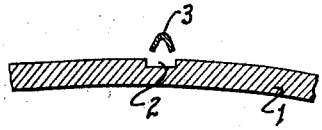

Fig. 3.

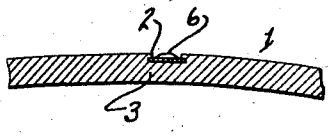

Fig. 2.

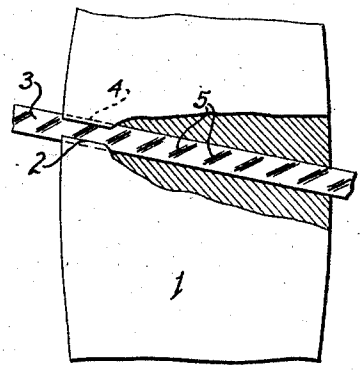

Fig. 4.

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Fig. 5.

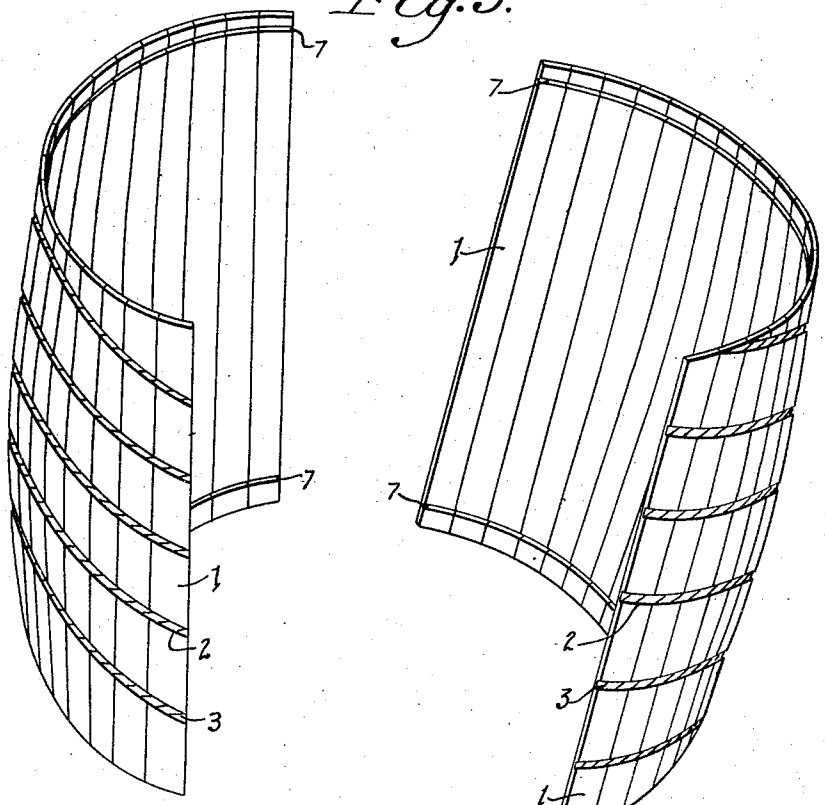
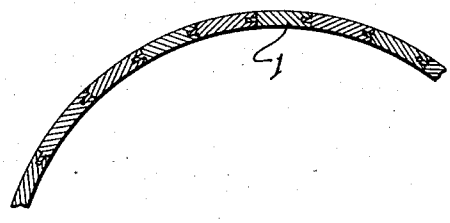


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOSEPH M. HOMMEL, OF DETROIT, MICHIGAN.

METHOD OF MAKING BARRELS.

Application filed February 12, 1923. Serial No. 618,717.

To all whom it may concern:

Be it known that I, JOSEPH M. HOMMEL, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Methods of Making Barrels, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to packages for storing and shipping, more particularly to a package having the character of a bilge barrel. A primary object of this invention is to provide a package formed of staves bound together by a spirally wound metal strip frictionally seated in a groove provided therefor to hold the staves in assembled relation and permitting the package to be cut in halves for the purpose of saving space in shipping and to be readily reassembled by heading and hooping the ends. A further object of the invention is to provide a method of inserting the strip in the groove in a manner to prevent said strip from becoming released from the groove at the severed ends. These general objects and the several features of the invention are hereinafter more fully described and claimed and shown in the accompanying drawings in which—

Fig. 1 is an elevation of a shipping and storing package involving my invention.

Fig. 2 is a section through a stave and inserted metal strip taken on line 2—2 of Fig. 1.

Fig. 3 is a similar section showing the form of the strip in cross section previous to its introduction into the groove.

Fig. 4 is a view on an enlarged scale showing a stave and strip after insertion in the groove.

Fig. 5 is a detail in perspective of a barrel when cut in half previous to its being headed and hooped.

Fig. 6 is a cross section showing the preferred form of stave.

The package or barrel is formed of a series of staves 1 extending longitudinally of the package which may be formed in any approved manner and assembled on a form either by hand or automatic machinery designed for the purpose. By the means of any approved instrumentality as a saw, a spiral groove 2 is formed about the assembled staves while held on the form in assembled relation. Preferably the form and the staves are rotated and moved longitudinally while the saw is held in fixed position. So far as this invention is concerned the groove may be formed in any approved manner and while the staves are held in their relative position a strip 3 is fed into the groove. This strip, as shown in cross section in Fig. 3, is practically of V shaped form being crowned as shown so that the strip may readily be seated in the groove. After the strip feeds into the groove, a roller passes thereover flattening the strip which then assumes the position shown in Figs. 2 and 4. The flattened strip is wider than the groove causing the edges of the strip to undercut the edges of the groove 2 as indicated by dotted lines 4 in Fig. 4 and thus to frictionally engage the side walls of the groove throughout the entire length of the strip and groove. Preferably the roller used to flatten the strip has spiral teeth formed thereon causing the strip to be formed with the diagonal spaced recesses 5 at which point the strip is practically flat and between the recesses is slightly crowned as is indicated by the line 6 in Fig. 2. The roller is preferably provided with the spiral teeth to actually form a depression or recess as shown which prevents the strip from any tendency to spring back to its original shape shown in Fig. 3 after it leaves the roller whereby the flattened shape of the strip is made permanent. Furthermore by forming the roller with the spiral teeth, the strip is more readily flattened due to the tooth of the roller starting on one edge of the strip and rolling across and forward on the strip and gradually flattening the V shaped or crowned strip.

It will be noted that, by forming a spiral groove on the package, the groove runs off from each end of the assembled staves on a diagonal line and the strip is there cut but the fact that the strip undercuts the groove prevents any tendency of the said strip to accidentally pull out of the groove at the

end. Subsequent to the arrangement of the staves in their relative position, a croze groove 7 is formed at each end to receive the head ordinarily used in packages of this type and in barrels and subsequent to the formation of the groove and insertion of the strip therein, the barrel is cut in a manner to form two halves as shown in Fig. 5. For this purpose the strip 3 is severed along a median line on each side and the frictional engagement of the strip in the groove holds the staves in each half in their assembled relation as will be understod from Fig. 5 permitting the same to be nested to save space in shipping. The saving effected is very great, it being possible to ship two hundred barrels in the nested form where but forty barrels could be shipped in the assembled form as shown in Fig. 1.

To form the complete barrel the two halves are assembled in respective position, the heads are placed in each end in the croze grooves therefor and a metal hoop 8 is placed over each end and secured thereon by means of screws or nails 9 as indicated in Fig. 1. This hoop may be of any approved form preferably with the upper edge thereof rolled over to form a bead 10 and this hoop, it will be noted, covers the end of the strip terminating in the end of the barrel so that by no possible chance will these ends be forcibly displaced in the handling of the finished package.

The barrel thus formed is of far greater strength than an ordinary barrel hooped in the usual manner as the metal strip wound thereabout, although cut in the formation of the two halves, still holds each of the staves of each half in close engagement without any possibility of accidental displacement in handling the halves and when assembled with the end hoops and heads as stated, a very strong and serviceable barrel is provided. Preferably the staves are of the tongue and groove type, one form of which is shown in Fig. 6 in which each stave is grooved on one edge and tongued on the other fitting the groove or tongue on the edge of the adjacent stave. Thus, with the tongue and groove of the type here shown or of any type the staves are held in close relation by the spirally wound strip in which an absolutely tight barrel is secured.

The package may be made with straight staves if desired, but preferably are curved as shown in order to form a barrel of the bilge type in which the center diameter is greater than the diameter of either head. In either form, however, the spiral groove is the same and the band or strip is introduced in the same manner and flattened in the groove to frictionally engage the walls and securely hold the staves in assembled relation permitting the severing of the barrel in half without danger of disarranging the staves of either half in the subsequent handling thereof.

Having thus fully described my invention, what I claim and desire to secure by Letters Patent of the United States is—

1. In a package, staves extending longitudinally to the axis thereof, there being a spiral groove formed in the outer surface of the staves, and a metal band or strip of substantially V shaped form in cross section seated in the groove and flattened to force the edges of the strip into the walls of the groove.

2. A package of substantially circular form comprising a series of staves in edge contact, said staves being tongued and grooved at the meeting edges, there being spiral grooves of a plurality of turns formed in the outer surface thereof, a continuous metal binding member of greater width than the groove set thereinto to frictionally engage the side walls thereof and being practically flush with the outer surface of the staves, a croze groove in each end of the structure, a metal hoop at each end for securing the head in place and each engaging over the respective end of the binding member, and a head seated in the croze groove at each end retained by the metal hoop.

3. In a package, a series of staves circularly arranged in edge contact extending longitudinally to the axis thereof, there being a spiral groove of a plurality of turns formed in the outer surface of the staves and continuous metal band of a width greater than the width of the groove seated in the groove to extend into the side walls thereof.

4. In a package, a series of staves circularly arranged in edge contact and extending longitudinally to the axis of the package, there being a spiral groove of a plurality of turns formed in the outer surface thereof, and a continuous metal band of a substantially V shape form in cross section set into the groove and flattened therein to undercut the side walls, the flattened strip being greater in width than the width of the groove.

5. A bilge barrel comprising a series of staves circularly arranged in edge contact extending longitudinally to the axis of the barrel, the diameter across the center of the assembled staves being greater than the diameter of either end, there being a spiral groove of a plurality of turns formed in the outer surface of the staves, a continuous metal band or strip of a width greater than the width of the groove seated therein to frictionally engage the side walls thereof, the staves having a continuous croze groove formed at each end, heads seated in the said groove, and a hoop at each end extend-

ing about the outer surface of the staves covering the respective ends of the strip.

6. A knock-down barrel or package comprising a series of staves circularly arranged in edge contact and extending longitudinally of the barrel, the staves having a spiral groove of a plurality of turns formed in the outer surface thereof, a continuous metal band seating in the groove frictionally holding the staves in contact and permitting the circular structure to be severed along a median line forming two half barrels, said band retaining the staves of each half in assembled position, a circular hoop for each end of the structure by which the two halves may be assembled to form a barrel, and a head for each end of the assembled halves.

7. A knock-down barrel or package comprising a series of staves arranged in circular form, the diameter at the center being greater than the diameter of either end and the staves extending longitudinally of the structure, there being a groove formed about the assembled staves, a metal strand forced into the groove to frictionally engage the side walls thereof permitting the assembled structure to be severed along a median line forming two half barrels or packages, the strand retaining the staves of each half in position, and means adapted to support the two halves in edge contact substantially as in the original structure.

8. A knock-down barrel comprising a series of staves circularly arranged in edge contact, said staves having a continuous spiral groove of several turns formed in the outer surface thereof, a metal binding member seated in the groove to be frictionally retained therein, said barrel being severed approximately on a median line cutting the binding strip and providing practically two half portions, a circular hoop or band for the ends of the two assembled halves holding same in assembled relation, and a head for each of said ends.

9. In a package or barrel for shipping, staves circularly arranged and extending longitudinally to the axis thereof in edgewise contact, there being a spiral groove of a plurality of turns formed in the outer surface thereof, and a strip of material of a width greater than the width of the groove forced thereinto to frictionally engage the side walls thereof.

10. In a package or barrel for shipping, staves of a tongue and groove type, circularly arranged and extending longitudinally to the axis thereof, there being a spiral groove of a plurality of turns formed in the outer surface, and a strip of substantially V shaped form in cross section set into the groove and flattened therein to frictional engagement with the side walls.

11. In a barrel or package, a series of staves circularly arranged and extending longitudinally to the axis thereof, there being a spiral groove of a plurality of turns formed in the outer surface, and a metal strip of substantially V shaped form in cross section set into the groove and flattened to under cut the side walls, said strip in the flattening process having transverse indentations formed therein preventing the strip returning to normal shape.

12. The method of forming a bilge barrel which consists in arranging a series of staves of circular form in edge contact, the form being of a character that, when the staves are secured in position thereon, the diameter at the center is greater than the diameter at either end then, while the staves are so held, forming a spiral groove of several turns on the outer surface thereof, inserting a metal band in the groove of a width slightly greater than the width of the groove, the seating of the band in the groove causing the edges of the band to undercut the side walls of the grooves, then severing the band on a median line longitudinally of the barrel, and finally assembling the halves in edge contact, and heading and hooping the ends.

13. The method of forming a barrel or package which consists in arranging a series of staves in circular form in edge contact and extending longitudinally to the axis of the finished package, then forming a spiral groove in the outer surface of the staves, inserting a continuous metal band or strip in the groove of a character to frictionally engage the side walls of the groove forming a croze groove at each end of the assembled staves, then severing the turns of the band in a manner to form two similar halves and finally assembling the halves in edge contact, positioning the heads in the croze grooves therefor and hooping the two ends.

14. The method of securing a series of staves in edge contact comprising a series of steps consisting in first positioning and holding the staves in the desired relationship then forming a series of grooves across the outer surface of the staves in continuous alignment extending diagonally to the said edges and then inserting a strip of metal bowed in cross section in the grooves and finally flattening the strip to spread the edges thereof to frictionally engage the side walls of the grooves.

15. The method of securing a series of staves together which consists of first positioning and holding the staves in edge contact in substantially cylindrical form, then forming a continuous spiral groove in the outer cylindrical surface of the staves thus assembled, inserting a substantially V shaped metal strip in the groove in inverted position and then rolling the strip to flatten

it and cause the edges thereof to bindingly engage the edges of the groove.

16. A method of securing a series of staves in edge contact which consists in first positioning and holding the staves in the desired relationship, forming a groove in the outer surface extending diagonally to the said edges, inserting into the groove a strip crowned in cross section, and then flattening the same in the groove causing the edges of the strip to frictionally engage the side walls.

In testimony whereof, I sign this specification.

JOSEPH M. HOMMEL.