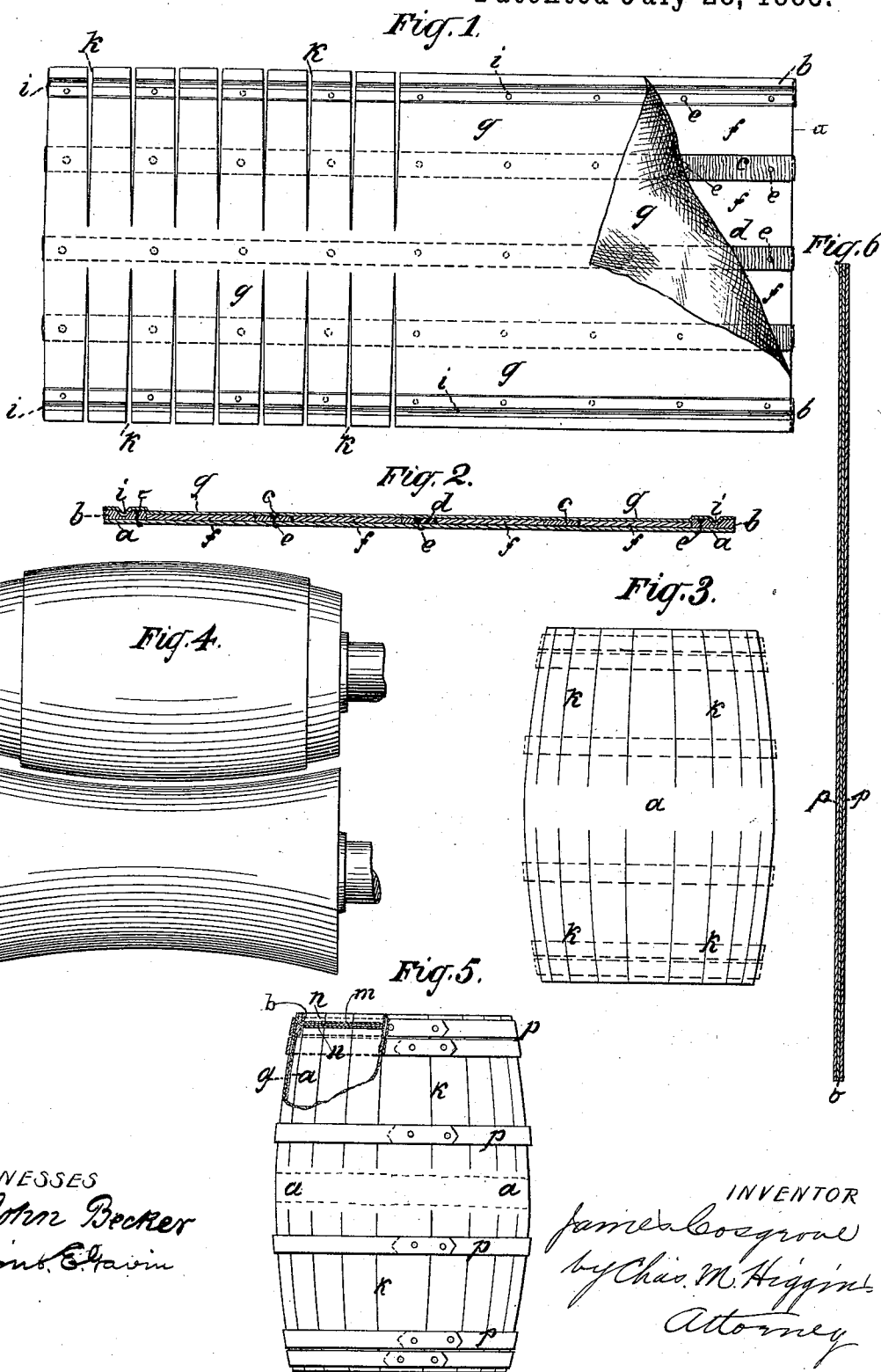


(No Model.)

J. COSGROVE.
PAPER KEG OR BARREL.

No. 322,911.

Patented July 28, 1885.



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PAPER KEG OR BARREL.

SPECIFICATION forming part of Letters Patent No. 322,911, dated July 28, 1885.

Application filed December 30, 1884. (No model.)

To all whom it may concern:

Be it known that I, JAMES COSGROVE, of Flatbush, Kings county, New York, have invented certain new and useful Improvements in Paper Kegs and Barrels, of which the following is a specification.

My invention aims to provide a light, strong, and inexpensive package to be made of a combination of paper and wood, and which shall be able to displace the wooden kegs and packages now used.

I intend my improved package to be adapted more particularly for holding dry stuffs, and to be made in small or medium sizes—that is, in half-barrels and kegs; but I do not of course limit myself to this.

My present invention is an improvement on a former application, filed September 22, 1884, No. 143,694, in which I show a keg or barrel formed from a sheet-blank composed of two or more successive layers of paper with intervening strengthening-bands, this layered sheet being slit at the edges to form stave-like divisions, after which the slit sheet is rolled up to form a barrel-like cylinder, which is subsequently provided with heads and hoops.

In my present improvement I employ five or more bands of wood between the paper layers—one at each chine and one in the middle of the barrel, and one on each side of the bilge. The grain in these bands runs crosswise of the band or lengthwise of the barrel. The bands at the chines are cut with a continuous groove, and the inner paper layer is rolled into this groove to form the croze of the barrel. The compound sheet thus formed is slit with V cuts at each edge, the said cuts passing through the wooden bands at the chine and through the bilge-bands. The heads are made of continuous layers of paper and wood, and the hoops are made of an inner layer of paper and an outer layer of wood.

My present invention, therefore, consists, mainly, in the novel points above outlined, as hereinafter fully set forth.

In the drawings annexed, Figure 1 shows a view flatwise of one of the blanks or layered sheets from which my improved kegs or barrels are produced, said sheet being slit into stave-like divisions on one half, and the other half left uncut, and with the corner of the in-

ner layer of paper stripped off to show the wooden bands interlaid between the layers. Fig. 2 is a cross-section of Fig. 1 on a larger scale. Fig. 3 is an elevation of the sheet after it has been fully slit into the stave-like divisions and thence crimped and rolled up into the barrel-like cylinder preparatory to receiving the heads and hoops. Fig. 4 is a front elevation of the crimping or curving rollers for curving the slit sheet. Fig. 5 is an elevation of the complete barrel, with one corner in section to show the croze and head. Fig. 6 is a longitudinal section of one of the hoops.

Referring to Figs. 1 and 2, it will be seen that the sheet or blank from which the cylinder or body of the barrel is made consists, preferably, of three layers, although more may be used, if preferred. The under or outer layer, *a*, consists of a continuous sheet of any suitable kind of paper, preferably straw-board. Onto this layer *a* is placed five wooden bands, *b c d c b*, extending longitudinally, as shown best by full and dotted lines in Fig. 1, said bands being securely fastened to the paper by glue or other cement, and also by tacks, as indicated at *e*. The two outer bands, *b b*, are placed at the extreme longitudinal edges of the layer *a*, and correspond to the chine of the barrel, and are cut with a V groove to correspond to the croze of the barrel, as will be understood. The band *d* is placed along the center of the sheet, and the bands *c c* on each side thereof midway between the central and marginal bands, or on the bilge of the barrel, as well shown in Figs. 1 and 2. The bands *c d c* are about equal in thickness to the paper layer *a*, while the grooved chine-bands *b b* are about one-third thicker, as shown; but these proportions may of course be varied. The bands being thus placed on the layer *a*, as described, strips of paper, *f*, are then glued or otherwise cemented to the under layer *a*, between the bands, so as to be flush with the bands, as best seen in Fig. 2. After this the surface of paper and bands is brushed over with glue or other cement, and a second paper sheet, *g*, of similar size to the first, and preferably of similar or of less thickness, is laid over the same, as shown, and the whole is then pressed firmly together. This pressure may be applied by dies; but it is preferably

mplished by passing the compound or layered sheet between rollers having a profile corresponding to the section in Fig. 2, which will press or roll the paper of the upper or inner layer into the grooves in the chine-bands *b*, and thus form the croze *i i* at each edge of the sheet, to receive the heads of the barrel, as illustrated in Figs. 1 and 2. The action of the rollers will also compress all the layers firmly together, causing them to adhere perfectly and imparting a smoothness and compactness to the sheet, and also increasing the strength and solidity thereof, as will be readily comprehended.

The rollers employed in the above-named operation should preferably be heated, which will greatly improve their action, as the heat will render the paper and the cement-films more plastic, which heat, combined with the pressure of the rolls, will cause the layered sheet to issue in a smooth polished condition and with greater finish and firmness than if the rolls were used cold.

Instead of having one set of rollers for pressing the sheets together and forming the chine and the croze at the same time, as above described, separate rollers may be used for each operation, the first rollers being simple, broad, plain rollers to take in the whole sheet and press the different layers together, after which the edges of the sheet may be passed through a smaller set of rollers for shaping the chine and croze, as will be readily understood.

After the several layers of the sheet have been compressed or rolled together, as described, it is next slit by knives, saws, or other tools along each longitudinal edge with narrow V-shaped slits *k*, extending transversely inward, so as to form the sheet into stave-like divisions, as shown in Fig. 1, so that the slit sheet can thus be afterward easily crimped or curved and rolled up into a cylinder of barrel form, as shown in Fig. 3. The slits *k*, as shown best in Fig. 1, (where, however, only half the sheet is shown slit,) not only extend through the chine-bands *b*, but also through the bilge-bands *c c*, and end in the middle of the sheet near the central band, *d*. Now, the grain of the wood in the several bands runs, preferably, across the band, as indicated in Fig. 1, which has the advantage that the bands are thus more easily bent into the circular form, and will better hold their shape afterward; hence as the slits *k* extend through all the bands except the central one, and as the grain is transverse in the bands, the sheet can thus be easily crimped and rolled up into the barrel or cylinder form, as shown in Fig. 3, in which case the edges of the slits come firmly together, as will be understood.

The crimping or curving of the slit sheet is best effected by passing the sheet between the barrel-shaped rollers shown in Fig. 4, which will readily impart the desired curvature to the sheet, so that as soon as it issues from the rolls it may be curled up into the barrel-cylinder, as shown in Fig. 3. The bands may

then be inserted in the croze and the hoops applied on the outside, which, being driven down, will hold the heads firmly in the croze, compress the stave-like divisions of the barrel firmly together, and thus complete the package, as shown in Fig. 5.

The heads of the barrel, as shown in Fig. 5, I also prefer to make of continuous layers of paper and wood, preferably an inner layer of wood, *m*, and outer layers of paper, *n n*, completely covering the wood, as indicated in Fig. 5, said layers being glued or cemented and pressed together in large sheets, from which the heads are subsequently cut or sawed out. The hoops *o p* are also made of layers of paper and wood, and I prefer in this case to have a central layer, *o*, of paper, as seen in Fig. 6, and an outer layer or layers, *p p*, of wood, said layers being likewise glued or cemented and pressed together in large sheets, from which strips are cut to form the hoops. The hoops thus made will be thin, light, flexible, and very strong and cheap, and well adapted for the described barrel.

By reference to Fig. 5 it will be seen that the chine-hoops are driven just over and below the chine-bands *b b*, while the bilge-hoops are driven over the bilge-bands, so that the said internal wooden bands impart especial strength to the barrel just where the hoops are driven and where strength is most required.

The bands *b c d* should be made of some tough flexible wood, and for this purpose I prefer elm; but any other suitable wood may be employed. The grain of the wood in the chine-bands *b b* may run lengthwise, while the grain of the bands *c d* run crosswise, as before described; but, if desired, the grain in all the bands may run lengthwise, instead of crosswise, as before described.

I greatly prefer to have each keg or barrel made of one section or sheet, as shown in Fig. 1, the length of the sheet being equal to the circumference of the finished barrel; but the barrel may be made of two or more sectional sheets, if desired, as will be readily understood; but I do not recommend it.

It may now be readily appreciated that the described mode of making barrels and kegs will be very simple, rapid, and cheap, as the straw-board or other paper may be readily obtained in sheets of just the correct size for the desired kegs or barrels, and of any required thickness, which sheets can be afterward easily cemented together in two or more layers with the intervening bands of wood, as described, which layers being rolled or pressed, as described, and thence slit and curved into the barrel-form, will produce the desired packages in a very easy and rapid manner, and require but simple or inexpensive help and facilities, which are great advantages. The paper may also be furnished in continuous rolls, and the layered sheets with their intervening bands of wood may be thus cemented and rolled together in continuous lengths, which may be slit and cut up into suc-

cessive sections to form the successive kegs, as will be readily understood; hence, by this system, not only is the method of manufacture simple in all respects, and therefore cheap, but the packages when complete will be light, tough, and strong, and can be sold at rates much less than wooden packages, and will be preferred to wood for many purposes, especially for light dry stuffs, and may also be used for all dry stuffs, whether light or heavy.

The paper used in the manufacture may be saturated or coated with any desired waterproofing material, or the package after it is formed may be coated on the exterior and interior with a water-proof substance or varnish.

In many cases I will prefer to leave the inside uncoated, but give the outside of the packages a water-proof coat, so as to protect it from the effects of rain or other moisture.

If it is desired to adapt the package for holding liquid or semi-liquid substances, the interior may of course be properly coated with any suitable substance impervious to the intended contents; but in general I prefer to make the package for dry stuffs, as its greatest advantage will lie in this direction.

The thickness of the layered sheet from which the packages are made, as seen in Figs. 1 and 2, may vary from one-eighth to one-half of an inch, (more or less), according to the size of the package and its adaptation; but in general it is thought that a thickness of one-fourth of an inch will provide sufficient strength for ordinary uses and be very light and strong.

I disclaim all matter here shown which is claimed in my former application.

What I claim is—

1. A paper keg or barrel made of two or

more layers of paper with five intervening bands of wood, one at each chine edge, one at the middle, and one at each side of the bilge, substantially as herein shown and described.

2. A paper keg or barrel made of two or more layers of paper with intervening bands of wood tacked and cemented between said layers, substantially as set forth.

3. A paper keg or barrel made with internal strengthening-bands of wood extending circumferentially with the grain running crosswise in the bands, substantially as set forth.

4. A paper keg or package made of two or more overlying sheets of paper cemented together with intervening bands of wood having the grain running crosswise and secured between the said sheets, substantially as set forth.

5. A keg or package made of layers or sheets of paper with the intervening strengthening-bands *c c* at the bilge, and stave-forming slits *k*, extending from the edge of the sheet through said bilge-bands, substantially as shown and described.

6. A keg or barrel made of a sheet or sheets of paper and provided with a grooved wooden band at each chine edge secured to the paper to form the croze of the barrel, substantially as set forth.

7. A keg or package made of two or more sheets or layers of paper with grooved bands *b b*, placed between said sheets at the chine edges, and having the margin of the inner sheet rolled into said grooved bands to form the croze of the barrel, substantially as shown and described.

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Witnesses:

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