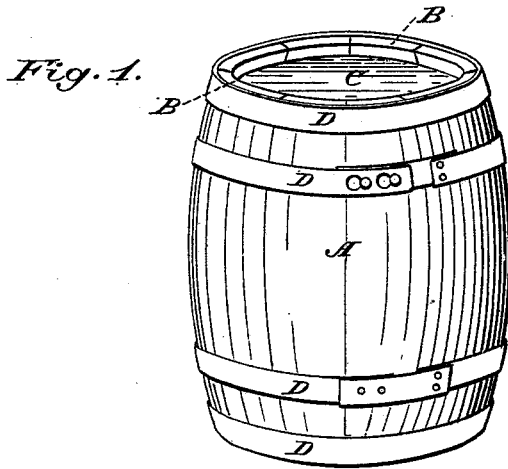


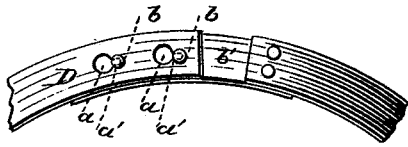
L. PASSOO.  
 Knock-Down Barrel.

No. 204,600.

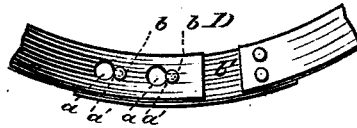
Patented June 4, 1878.



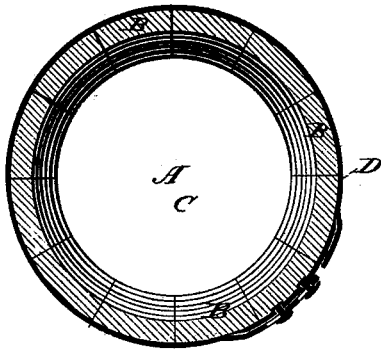
*Fig. 3.*



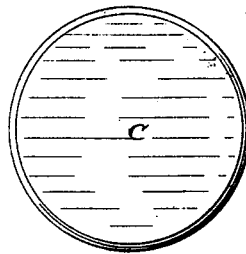
*Fig. 4.*



*Fig. 2.*



*Fig. 5.*



*Attest:*  
 L. H. Dyer  
 R. T. Dyer.

*Inventor:*  
 Lew Passoo  
 by Geo. W. Dyer  
 Attorney

# UNITED STATES PATENT OFFICE.

LEW PASSOO, OF DUBUQUE, IOWA, ASSIGNOR TO MONROE M. CADY, OF  
SAME PLACE.

## IMPROVEMENT IN KNOCK-DOWN BARRELS.

Specification forming part of Letters Patent No. 204,600, dated June 4, 1878; application filed  
July 21, 1877.

*To all whom it may concern:*

Be it known that I, LEW PASSOO, of Dubuque, in the county of Dubuque and State of Iowa, have invented a new and useful Improvement in Barrels; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Heretofore market vegetables and fruits and manufactured articles, such as sugar, flour, cement, &c., have been shipped or transported in ordinary bulge barrels, and it has been generally found impossible for the same party to use these barrels more than once, for the reason that it costs as much to return the barrels to the shipper in most cases as to buy or manufacture new ones, owing to the large amount of room they occupy; and the object, therefore, of my invention is to produce a knock-down bulge barrel of ordinary form, so that the same when empty can be knocked down for shipment and the staves and heads of an entire lot of the same size packed in large bundles or piled up indiscriminately in a heap, and the hoops removed from the staves and unlocked and straightened out so as to occupy but little space, and so that when it is desired to put the barrels together again for use the heads and the staves of the required number for each barrel can be taken indiscriminately and set up together and the hoops locked and driven on to hold the parts together by their tension in an easy and convenient manner and without requiring any particular skill.

My invention therein consists mainly in the method of constructing knock-down bulge barrels for the purposes already described, consisting in making the staves for each size of barrel of the same dimensions, curvatures, crozings, and bevels, making the heads also the same in size and construction, and the hoops of metal, adapted to be locked at their ends and driven onto the set-up barrel; and, further, in the barrel produced by this method, as fully hereinafter explained.

To enable others skilled in the art to manufacture my barrel, I will proceed to describe

the same, having reference to the drawings, in which—

Figure 1 is a perspective view of the barrel complete; Fig. 2, a horizontal section of the same through one of the hoops; Fig. 3, a view of the lock to the hoop; Fig. 4, a modification of Fig. 3; and Fig. 5, a separate view of one of the heads.

Like letters denote corresponding parts.

A represents the barrel of the ordinary bulge form; B, the staves; C, the heads, and D the hoops to the same.

The staves for one size of barrel are manufactured from any suitable wood, all of the same length and width, and preferably of the same thickness, and are formed with the same bevel and the same taper from the center to the ends. They also have the crozed grooves, which retain the heads cut at exactly the same distance from their ends.

The heads C are constructed of the usual circular form, all those for one size of barrel being of equal dimensions, and have beveled peripheries. Each head may be made in one piece, Fig. 5, which is the most convenient form for a knock-down barrel; but I do not wish to be limited to this construction, since heads made in two or more pieces may be used successfully with my barrel.

The hoops are made of metal and have locking ends, which adapt them to be straightened out when removed from the barrel. This is accomplished by forming in one end of each hoop two or more circular holes or eyes, *a*, having rectangular elongations *a'*. The other end of the hoop is provided with studs *b*, which engage with the holes *a a'*, and lock the hoop in a circular form. These studs are preferably secured to a plate, *b'*, which, in turn, is riveted to the body of the hoop; and the studs may project either outwardly from this plate, Fig. 3, or inwardly, Fig. 4.

It will be noticed that by this construction of the lock at the ends of the hoop, such hoop can, if desired, be changed in size by locking only the outer eye and stud; or, where more than two eyes and studs are used, a variety of changes in size can be effected, thereby adapting a single size of hoop for use upon

more than one size of the barrel, or for use as both the inner and outer hoops upon the same size of the barrel.

In constructing my barrel the required number of staves are taken and set up with the heads in the usual manner, and the staves bent into position, care being taken that the staves are given all the same curvatures. The hoops are then locked and driven on, so as to hold the parts of the barrel together by their tension. In this condition the barrel is allowed to dry thoroughly until the wood is well seasoned, and it is then in condition to be knocked down for shipment.

When transported, the staves of any number of barrels of one size can be thrown indiscriminately into a pile, as well as the heads, and the hoops can be straightened out and tied into bundles, either with the staves and heads, or separately, the whole taking up but little room, and costing much less for freight than the ordinary barrel. The staves being all of the same dimensions, curvature, bevels, and crozings, and the heads being of the same size, the barrels can again be put together by any person with little trouble, and without the employment of skilled labor.

I do not claim to have been the first to invent a barrel the staves of which are of uniform size, or a locking-hoop for barrels, or a knock-down barrel. Barrels with staves of uniform size are described in English Patents No. 1,316, of 1859, and No. 2,412, of 1873, and locking-hoops and a knock-down barrel are described in the United States Patent of L. E. Sunderland, No. 170,914, dated December 7, 1875; but neither of the barrels described in the English patents was designed for a knock-

down barrel for shipment, and the barrel described by Sunderland is a cylindrical barrel, where all the staves of the barrel are permanently secured together by fastening the hoops to each stave, and thus each barrel was packed for shipment in a flat shape, and is put together by bringing the two outer edges together and then fastening the hoops; but

What I claim as new, and desire to secure by Letters Patent, is—

1. The method of constructing knock-down bulge barrels for facilitating their transportation when knocked down, and their restoration to form when set up for reuse, which consists in making the staves for each size of barrel of the same dimensions, curvatures, crozing, and bevels, the heads also of the same size and construction, and the hoops of metal, and adapted to be locked at their ends and driven onto the set-up barrel, substantially as set forth.

2. A knock-down bulge barrel, composed of the following parts—to wit, staves of uniform size, bevel, curvature, and crozing, heads alike in size and construction, and locking detachable metallic hoops, whereby the barrel, when set up, will be held in form by the tension alone of the hoops, and when knocked down the individuals of the several parts may be used interchangeably, substantially as described.

This specification signed and witnessed this 3d day of July, 1877.

LEW PASSOO.

Witnesses:

WILLIAM GRAHAM,  
W. A. LEATHERS.