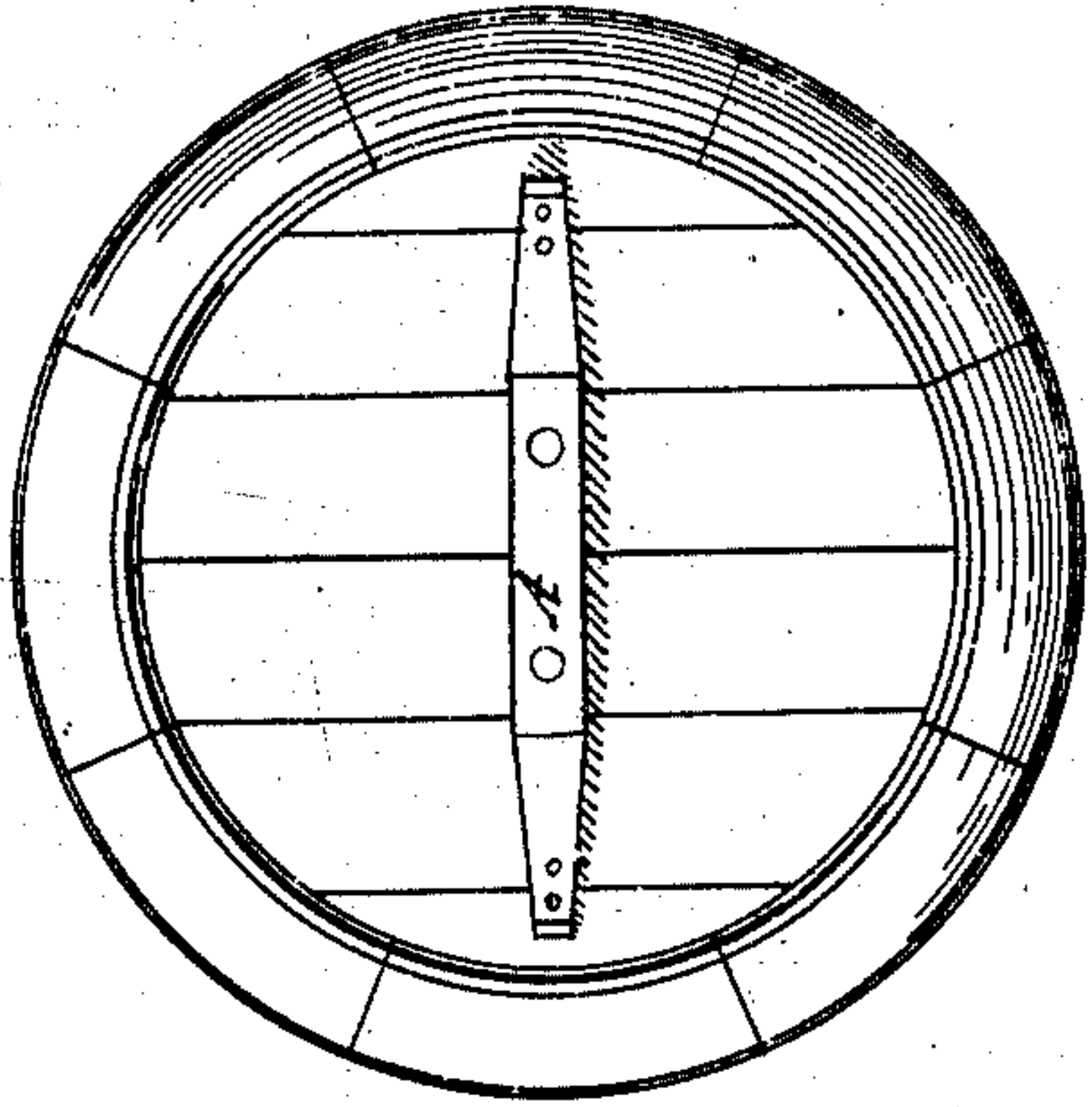
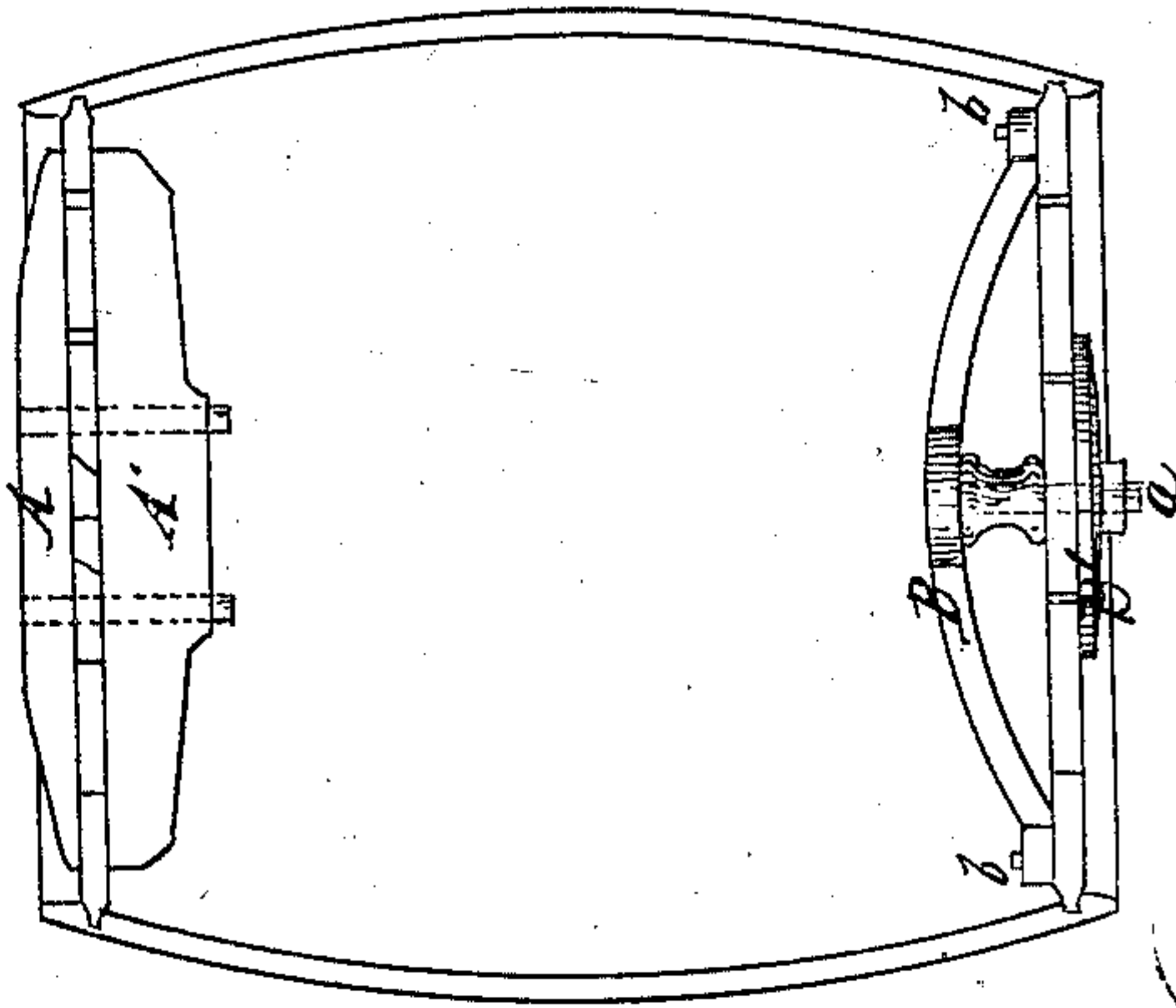
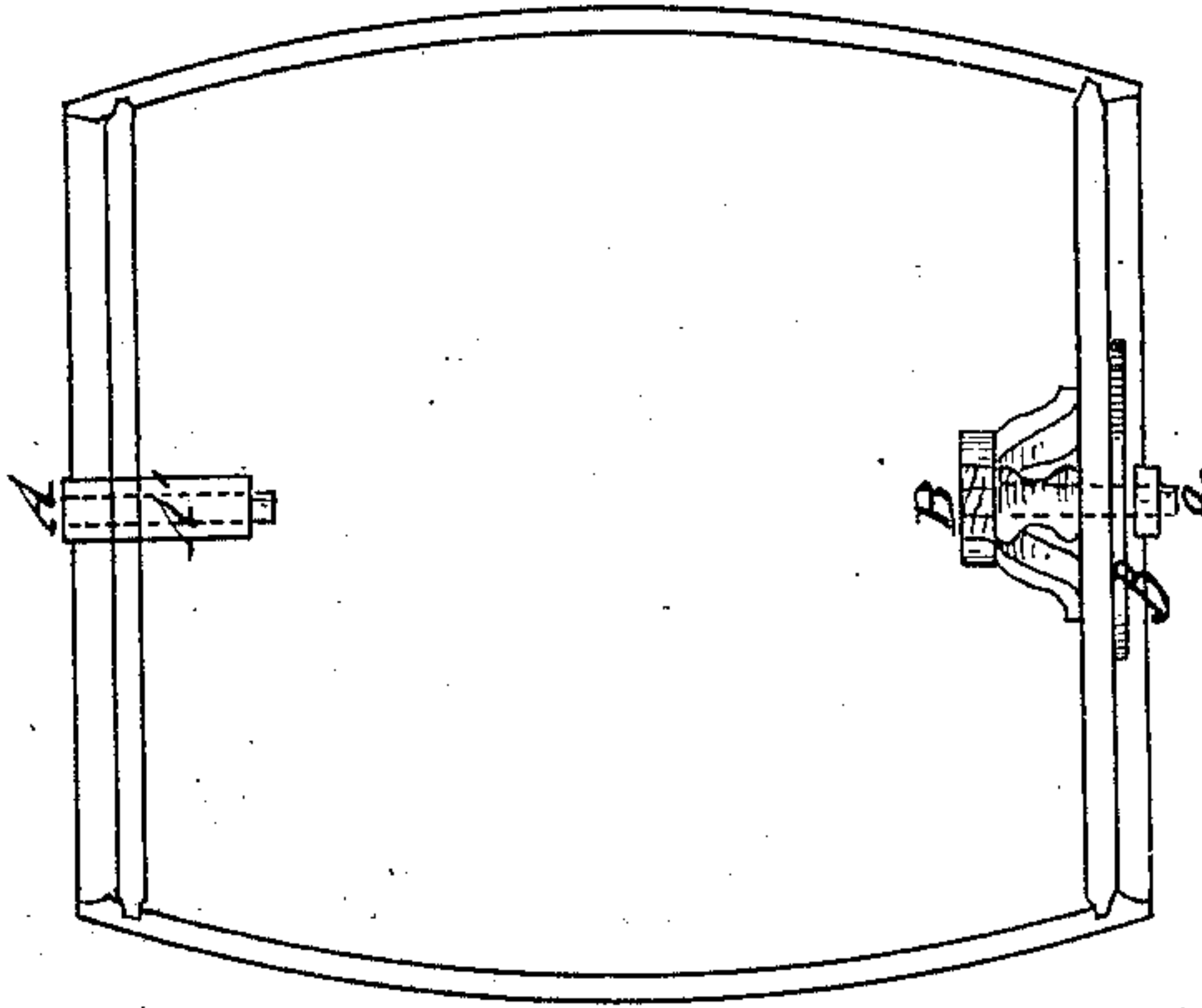


*John Harris' Imp<sup>t</sup> in Casks &c.*  
*No 44864, Patented Nov. 1. 1864.*



*Fig. 1*

*Fig. 2*



*Inventor:*  
*John Harris*  
*per Messrs*  
*Attorneys*

*Witnesses.*  
*W. C. McNamee*  
*J. P. Hall*

# UNITED STATES PATENT OFFICE.

JOHN HARRIS, OF KILBURN, LONDON, ENGLAND.

## IMPROVEMENT IN BARRELS.

Specification forming part of Letters Patent No. 44,864, dated November 1, 1864.

*To all whom it may concern :*

Be it known that I, JOHN HARRIS, of Kilburn, in the city of London, England, have invented a new and useful Improvement in Casks; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan or top view of a cask constructed according to my invention. Fig. 2 is a vertical central section of the same. Fig. 3 is a similar section of the same, taken in a plane at right angles to the plane of section of the previous figure.

Similar letters of reference indicate corresponding parts.

The object of this invention is to truss or strengthen the heads of beer and other casks so that said heads are able to withstand the heaviest pressure from the inside and outside to which they may be exposed, without leakage.

The invention consists in the application to a cask-head of an arched truss in such a manner that the heads (which generally are the weakest parts of a cask) are effectually strengthened against inward and outward pressure, and the loss of any portion of the contents of the cask occasioned by the heads giving way is obviated.

Casks or barrels intended to contain beer or other similar effervescent liquids are exposed from the inside to the pressure of the gas which is evolved from the liquid, and this pressure frequently becomes very great on the interior of the cask, and the weakest part of the cask—which is the center of the flat staves forming the heads of the casks—gives way, occasioning loss. To obviate this difficulty I

apply two trusses, B B', one on the inside and one on the outside of each head C C' of the cask D. These trusses may be made in the shape of an arched bar, B, applied on the inside, and a flat plate, B', to the outside, and fastened together by a central screw-bolt, *a*. The ends of the arched truss B bear against pins *b*. Where the cask is of a large size or very great strength is required two such trusses may be used to each head, placed across the staves a short distance on each side of the center, or in many cases only one of the double trusses B with one bolt through the center will be sufficient.

By using two trusses—one on the inside and one on the outside—bolted together through the head of the cask, the staves of the latter cannot bend without at the same time bending both trusses, but besides the thickness and consequent stiffness conferred by the combination of these three pieces, the inside truss cannot from its form bend without its length being increased, but this increase in length will be resisted and prevented by the bolts and also by the pins or screws at the extremity of the truss, so that the direction of the force will be entirely changed. The giving way of the head and consequent loss of the contents of the cask is thus prevented, without materially increasing the weight or decreasing the capacity of said cask.

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

The arched truss B, applied in combination with the head of a cask or barrel, in the manner and for the purpose substantially as set forth.

JOHN HARRIS.

Witnesses :

JAMES INGLES,  
CHARLES LEGGE.