

(No Model.)

J. B. BENNETTE.

BARREL.

No. 284,267.

Patented Sept. 4, 1883.

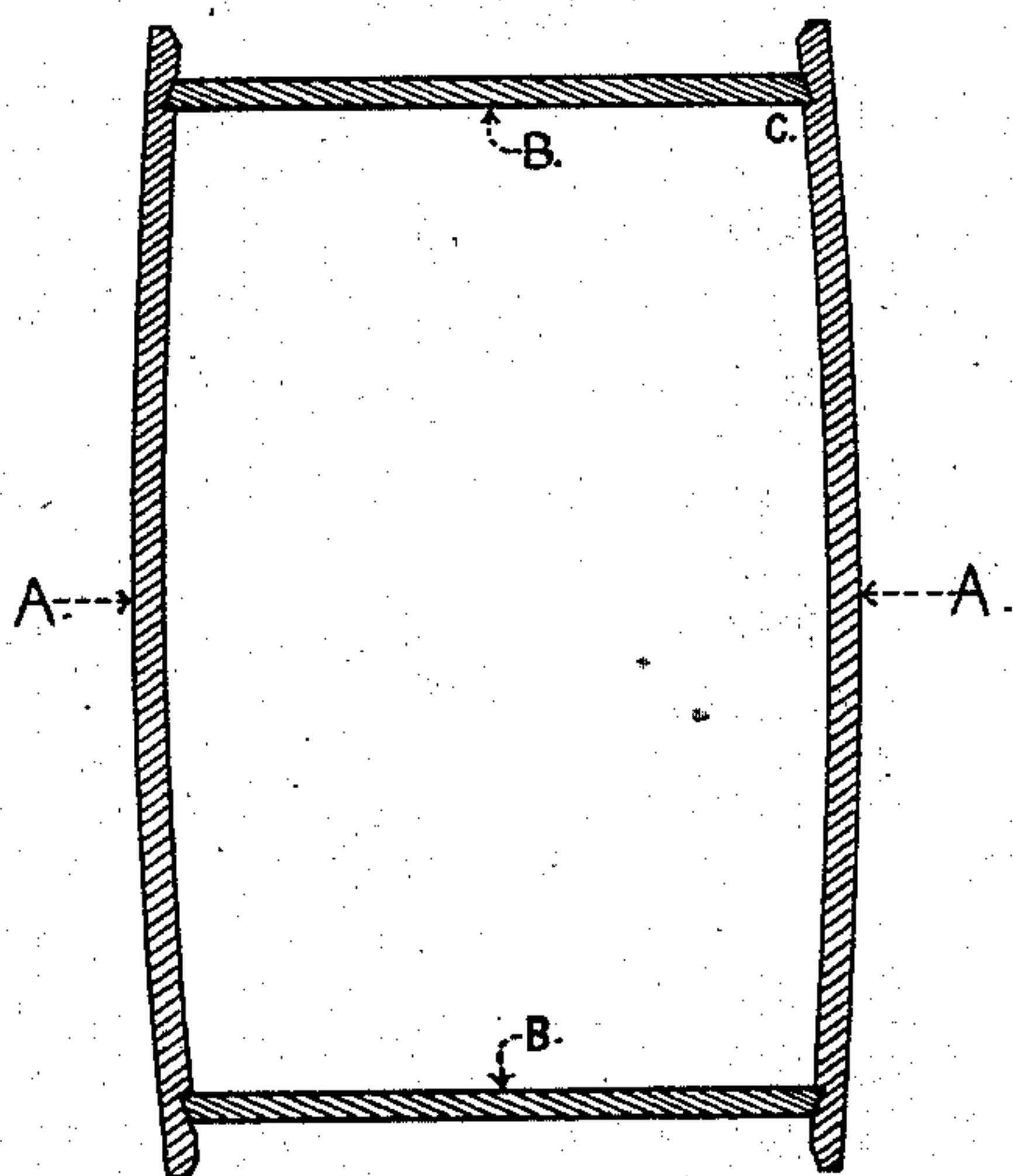


FIG. 1,
SHOWING VERTICAL SECTION OF BARREL

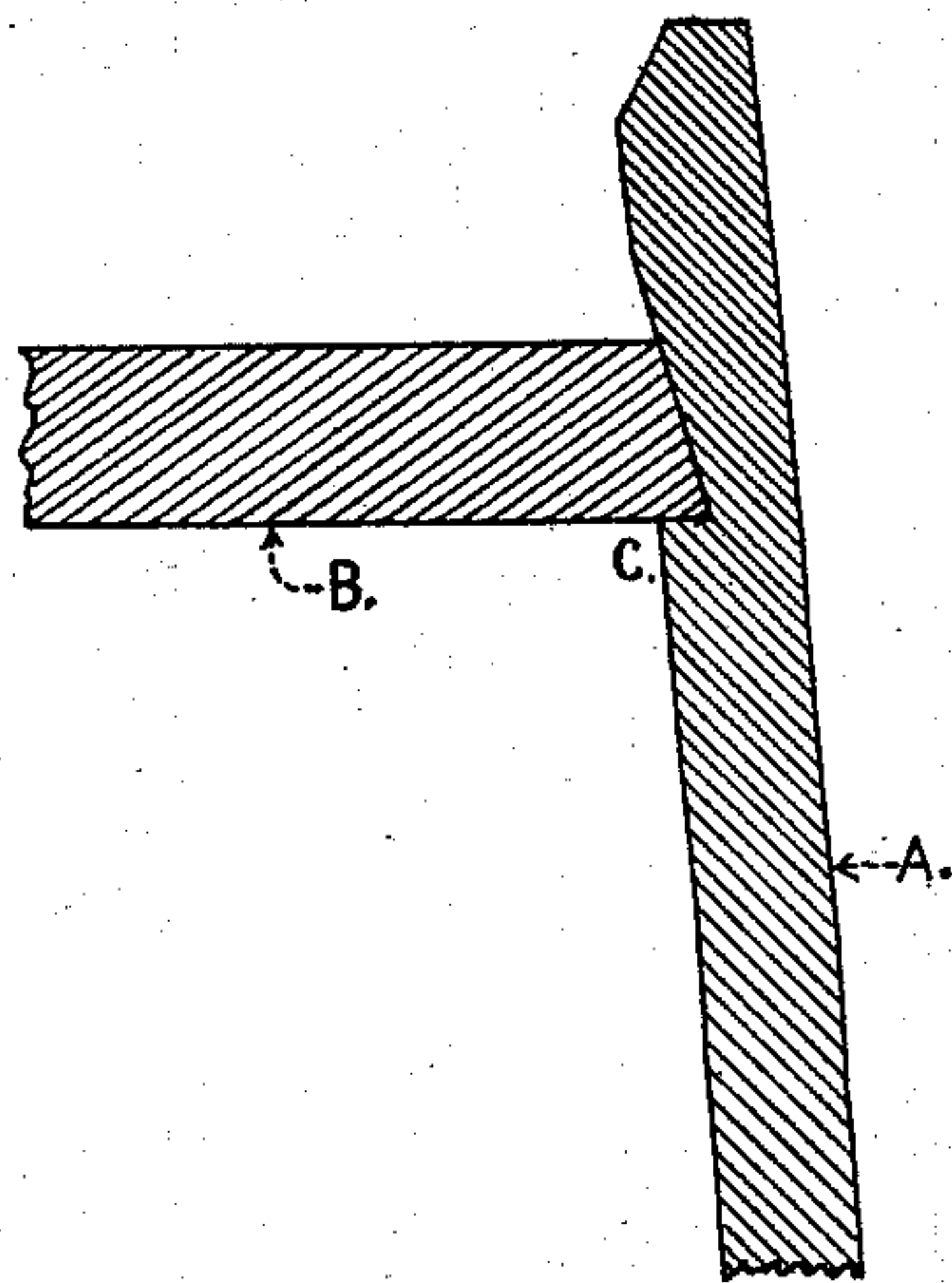


FIG. 2,
FULL SIZE, SHOWING CONNECTION AT C.
BETWEEN HEAD B. AND STAVE A.

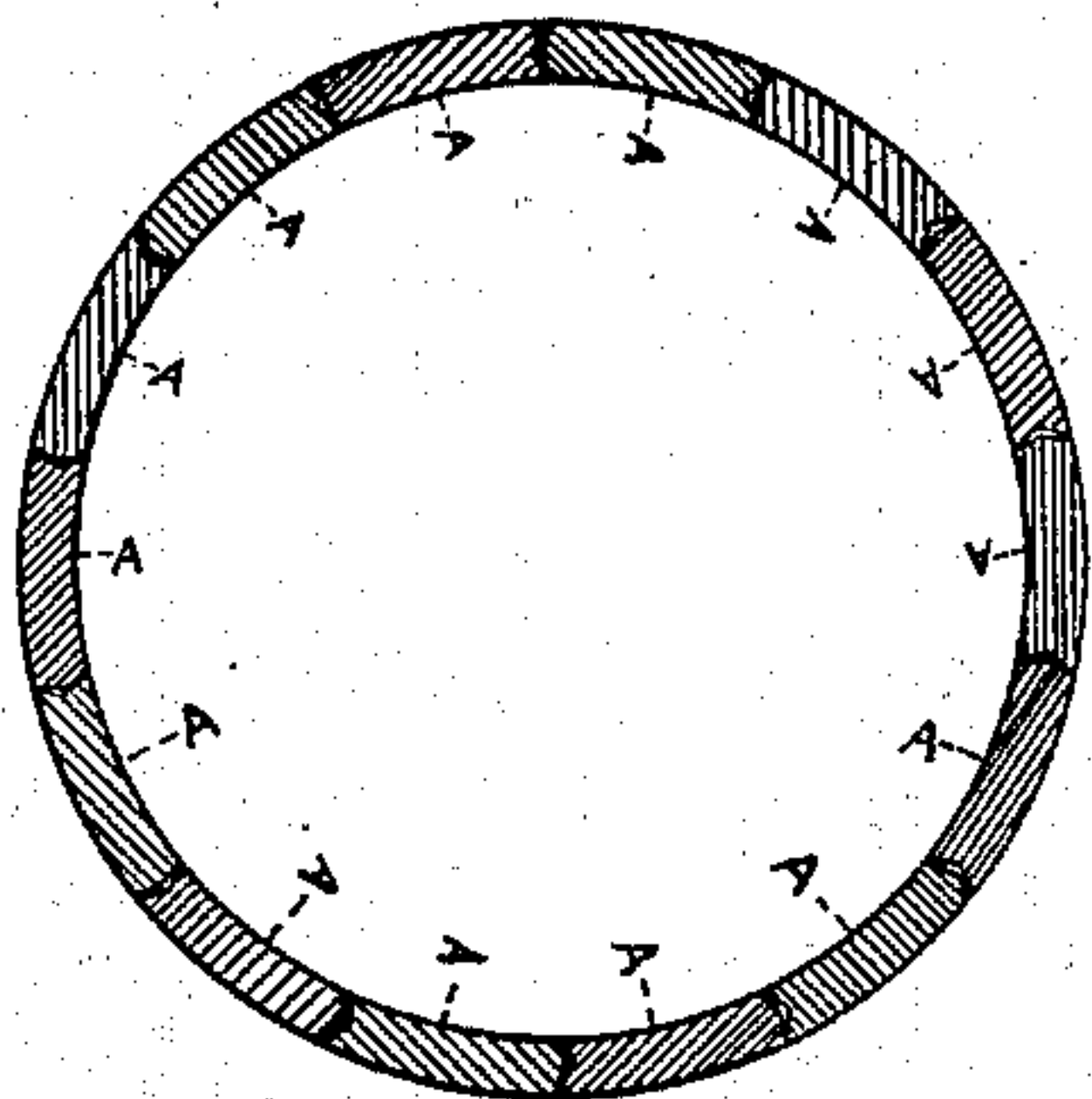


FIG. 3,
SHOWING CROSS SECTION OF BARREL AT MIDDLE

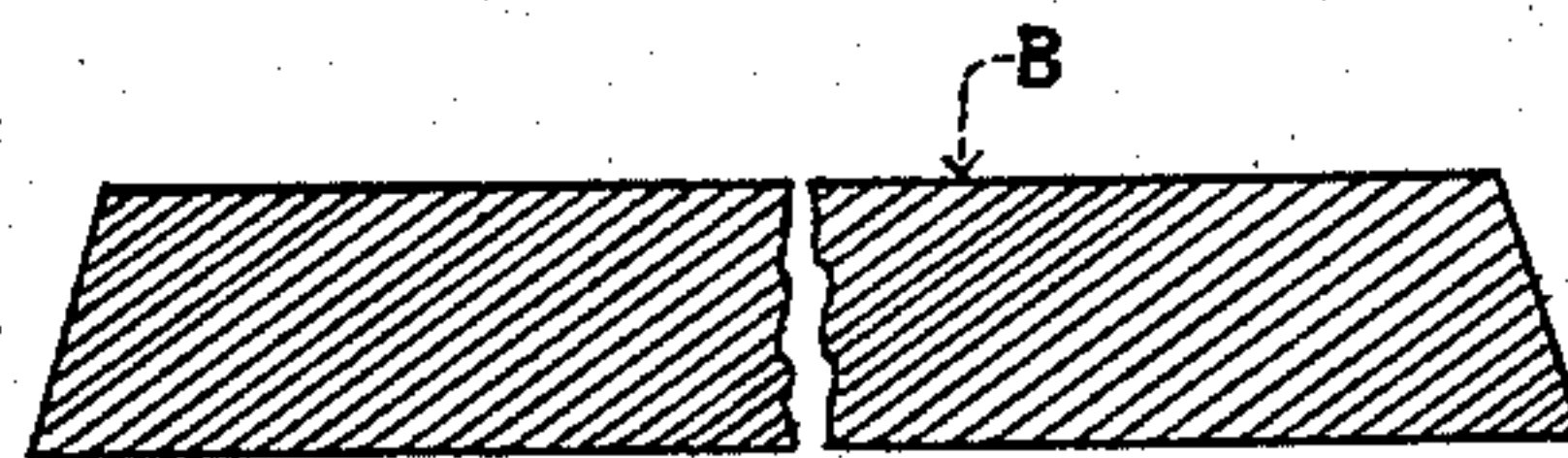


FIG. 4,
FULL SIZE SHOWING CROSS SECTION OF HEAD B.

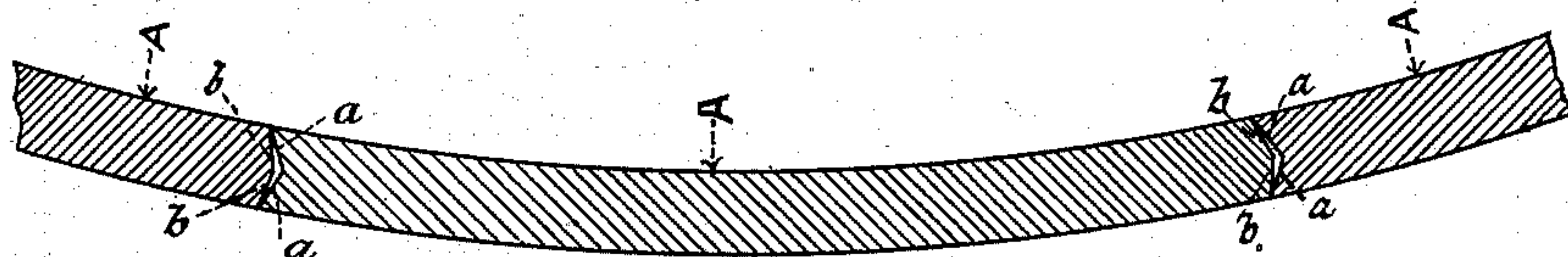


FIG. 5,
FULL SIZE, SHOWING CROSS SECTION OF STAVES A.

WITNESSES

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JACOB B. BENNETTE, OF LANSING, MICH., ASSIGNOR OF ONE-HALF TO S. F. SEAGER, OF SAME PLACE, AND HORACE S. WADE, OF BOSTON, MASS.

BARREL.

SPECIFICATION forming part of Letters Patent No. 284,267, dated September 4, 1883.

Application filed May 28, 1883. (No model.)

To all whom it may concern:

Be it known that I, JACOB B. BENNETTE, of Lansing, in the county of Ingham and State of Michigan, have invented new and useful Improvements in Barrels, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 represents diagrammatically a longitudinal central section of my improved barrel, being designed more particularly to represent the manner of combining the heads of the barrel with the staves. Fig. 2 is a similar section, on an enlarged scale, of a portion of one end of the barrel. Fig. 3 is a transverse central section of the barrel. Fig. 4 is a central cross-section, on an enlarged scale, of one of the barrel-heads. Fig. 5 is a cross-section on enlarged scale with a view to illustrate more clearly the joint at the meeting edges of the staves.

My improvements are directed to barrels designed more particularly for containing flour, lime, and other dry substances. They have reference to the joint at the meeting edges of the staves, and may be stated to consist in making the meeting edges of the staves the one of a projecting V shape in cross-section, the other of a corresponding or approximately corresponding recessed V shape in cross-section, the angle in each being obtuse, with the projecting V preferably more obtuse than the recessed V, the staves thus made being in a manner interlocked when put together.

I remark at the outset I am aware that the staves of barrels have heretofore in some cases been interlocked by means of a tongue-and-groove joint, the tongue and groove extending centrally on and lengthwise of the edges, so as to leave on each side square-shouldered portions of the meeting edges. In my case, however, the two plane surfaces which make the V projection or recess, as the case may be, cover the whole edge of the stave, so that in each case the edge is formed wholly of two inclined plane faces, which, starting from the inner and outer faces of the stave, meet and intersect one another. This construction is of material advantage in several respects, as will be hereinafter pointed out.

In order to join and interlock the staves A

in the manner above indicated, I make the whole meeting edge of one a recess of V form in cross-section, the two sides *a a* of said recess being plain surfaces, which, starting from the inner and outer faces, respectively, of the stave, converge and meet at or near the center of the thickness of the stave, forming with one another an obtuse angle; and the abutting edge of the adjoining stave has a corresponding wedge shape, being composed of two plane faces, *b b*, which, starting from the inner and outer faces, respectively, of the stave, converge and meet at or near the center of the thickness of the stave, forming with one another an angle which in practice I make more obtuse than that of the V-recess in the other stave. When the staves are put together, the wedge-like projecting edge *b b* of the one stave enters the V-recessed edge of the next adjoining stave, as indicated in Fig. 3, and more plainly in Fig. 5, the staves thus being in a manner interlocked, thus obtaining a barrel possessing great strength and stability, combined with elasticity, and at the same time forming, as to dry contents or solids, with which the barrel may be filled, a tight joint.

In an ordinary barrel the staves have plain flat edges, which are liable to slip by each other and destroy the arch of the barrel, thus rendering the package "crazy." By my improvement the staves are so interlocked as to obtain very much greater strength and stability. At the same time the barrel has a certain elasticity, which permits it to spring and yield to blows to a certain extent when being handled, for the faces *b b* and *a a* can move on one another out and in, while by reason of their form and arrangement they tend constantly to return the staves to their normal position relatively to one another. It is with a view to enhance this elasticity or springiness that I make the projecting wedge-edge more obtuse than the V-recessed edge. When the parts are thus constructed, it will be noticed that the contact between the wedge-edges and the V-recessed edges is mainly near the outer and inner faces of the staves, or, in other words, at or near the base of the wedge, the edges fitting closely together at these points, while the apex of the wedge does not touch the bottom of the recess.

In this way the elasticity and springiness of the barrel is increased, and it has imparted to it a capacity to yield, which will, to a great extent, relieve the hoops of the severe strain which ordinarily comes upon them when the barrel is subjected to blows or jars. I remark, further, that this kind of joint possesses the great advantage, in a manufacturing way, of not requiring for its production any special tools or machinery. Staves with edges of the form represented can be produced by ordinary tools or machinery, such as used now in barrel-making. This, indeed, is an advantage attaching also to the joint between the heads of the barrel and the body, which will presently be described. The faces and edges of both the staves and the heads, presenting only planes and straight lines, enable the manufacturer to do the entire work with ordinary tools, or even buzz-saws, instead of necessitating the employment of special machinery or of tools ground to curves and angles.

The staves should be crimped with rollers or otherwise to take a permanent set with suitable shape for a bilged barrel, so that in setting up the barrel the projecting edge of one stave will readily enter the V-recessed edge of the other stave, and the staves of the whole circle of the barrel will readily come together, and will not need heating and trussing.

With a view to remove, as far as practicable, the tendency of the head to work out of place and press the staves apart, to enhance its capacity to resist the jars and blows which occur during the handling of the filled barrel, and at the same time to so secure the head as to absolutely prevent it from being forced inward by outside blows or pressure, I use a head, B, representing the frustum of a right cone, the planes of which are parallel, the base of the frustum being upon the inside of barrel when the head is in place. The niche or groove C for the reception and support of the head is formed by making an incision on the inside of the stave to a depth of about one-third the thickness of the stave at a right angle to the axis of the barrel, and then from a point toward

the end of the stave distant from this incision about one and one-half times the thickness of the head, cutting away the material of the stave to the deepest point of the incision first made, thus forming an acute angular niche, the base of which presents a square shoulder, upon which the larger diameter or inner side of the head is to rest. Thus the conical head heretofore described, when in place, is in a manner dovetailed into the barrel. As it rests with a flat face upon a square shoulder, it cannot be pressed farther into the barrel by any externally-applied force, nor will it have any tendency to strain on the hoops or to press the staves apart, as it would were its periphery beveled or wedge shaped.

Having now described my improvements and the manner in which the same are or may be carried into effect, what I claim, and desire to secure by Letters Patent, is—

1. A barrel the staves of which are formed with longitudinal edges, each composed of two inclined-plane surfaces, which start, respectively, from the inner and outer faces of the stave, the one edge having a projecting V shape and the other a corresponding recessed V shape in cross-section, with the angle in each greater than a right angle, said staves being fitted together, so that the projecting edge of one stave will enter the recessed edge of the next adjoining stave, substantially as and for the purposes set forth.

2. The combination, in a barrel or barrel-staves whose abutting longitudinal edges have the shape in cross-section the one of an obtuse-angled V the other of a more obtuse-angled projecting wedge, adapted to enter the V-recessed edge of the adjoining stave, substantially as and for the purposes hereinbefore set forth.

In testimony whereof I have hereunto set my hand this 25th day of May, 1883.

JACOB B. BENNETTE.

Witnesses:

FRANK E. ROBSON,
C. P. TEN EYCK.