(No Model.)

R. PENTLARGE.

BUSHING FOR BUNGS.

No. 384,387. Patented June 12, 1888.

Fig. 1.

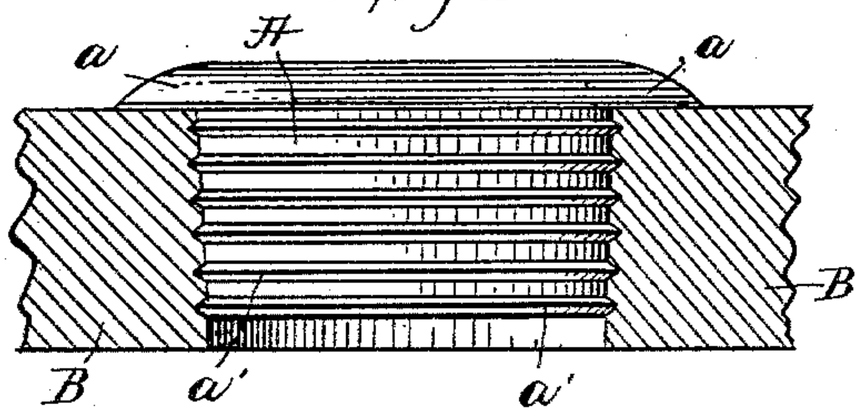


Fig. 2.

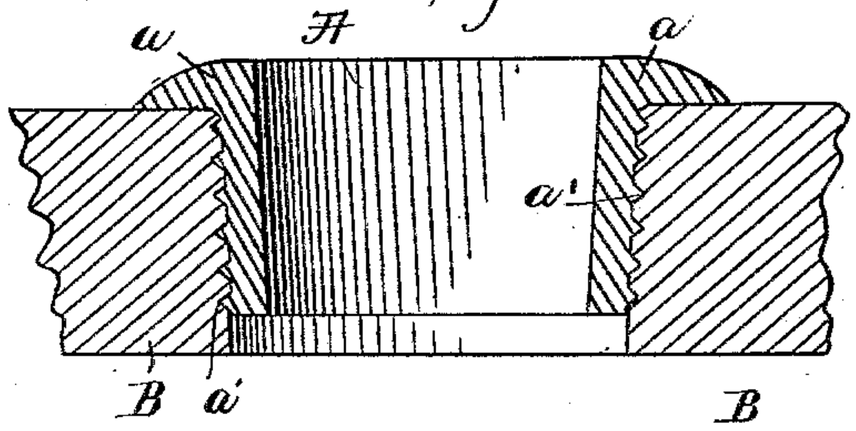


Fig. 3.

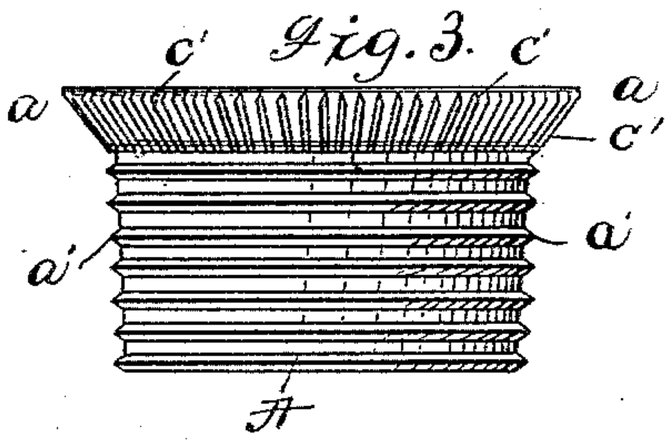


Fig. 4.

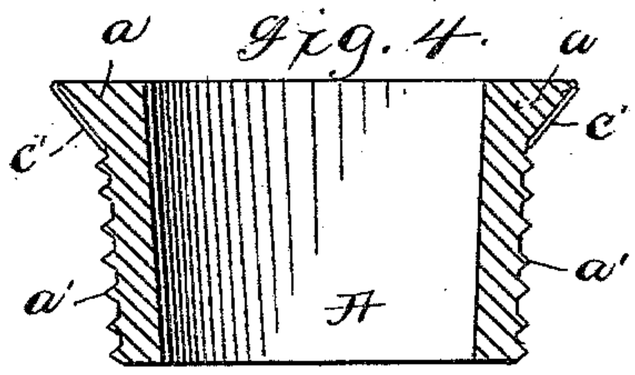


Fig. 5.

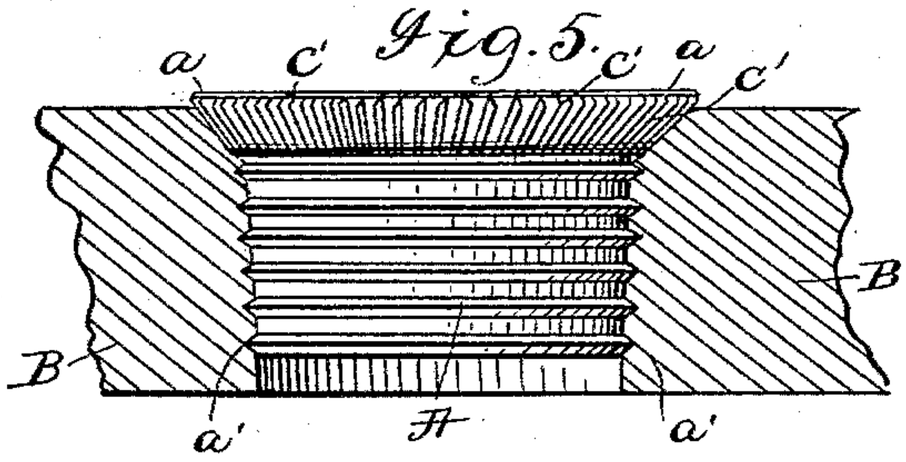
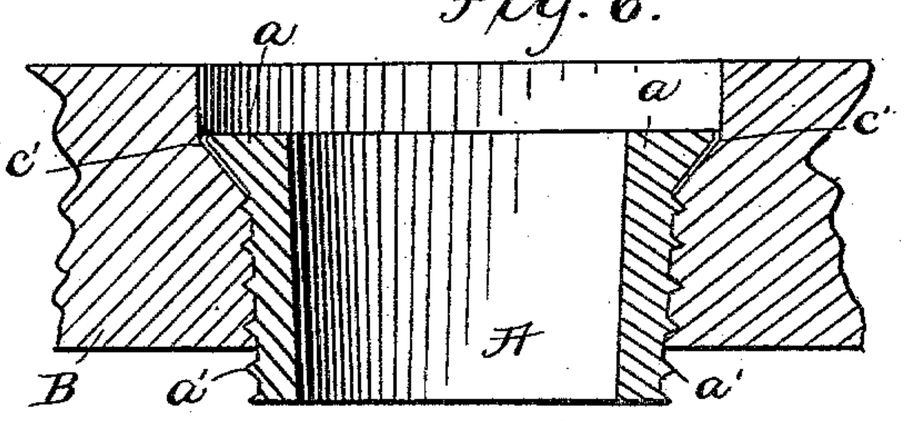


Fig. 6.



Witnesses:

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UNITED STATES PATENT OFFICE.

RAFAEL PENTLARGE, OF BROOKLYN, NEW YORK.

BUSHING FOR BUNGS.

SPECIFICATION forming part of Letters Patent No. 384,387, dated June 12, 1888.

Application filed February 23, 1888. Serial No. 264,977. (No model.)

To all whom it may concern:

Be it known that I, RAFAEL PENTLARGE, a citizen of the United States, residing in the city of Brooklyn, county of Kings, and State of New York, have made a new and useful Improvement in Bushings for Bungs; and I do hereby declare that the following is a full, clear, and accurate description thereof, which will enable others to practice my invention when taken in connection with the accompanying drawings.

My invention relates to the structure of the metal bushings which are screwed into the stave of the keg, and into which bushings the wooden bung is driven to close the barrel.

At Figure 1 is shown an ordinary bushing in its place in the barrel-stave, the stave being in section; Fig. 2, the same parts are shown in section lettered with the same letters. Fig. 3 shows a side view of one of my improved bushings. Fig. 4 shows a cross-section thereof. Fig. 5 shows my improved bushing screwed into a stave, and Fig. 6 illustrates a case where the bushing has worked loose and has been tightened a number of times, as will be described further on. Fig. 5 shows the stave in section, and Fig. 6 shows the bushing in section also; but both figures represent the same bushing under different conditions.

In the drawings, A is the old form of bushing now commonly used, having the flange *a* and the screw-thread *a'*. The stave of the keg is shown at B. It will be seen that the threads *a'* screw into the wood of the stave B and that the lower part of the flange *a* rests flat upon the outside of the stave B. It will be evident that when this bushing is screwed home and the bottom of the flange *a* is upon the stave that the bushing cannot be farther screwed down. The trouble with this old form of bushing is that it works loose and cannot be tightened. The heating of the keg in "pitching" the barrel heats the bushing, which then expands, and while expanding enlarges the hole in the stave, and in cooling contracts, and finally, from this and many other causes equally important, the bushing works loose in the stave. The general remedy is to take out the bushing, enlarge the hole in the stave, if necessary, and screw in a bushing of larger diameter, or use the old bushing and some packing. This difficulty with the ordinary bushing is of constant occurrence.

My invention relates to a bushing equally simple and cheap, which can be kept tight in the stave for a much longer time. It consists of a bushing of metal having the usual thread on the outside of the cylindrical portion and the ordinary hole for the bung; but instead of having a flange with a horizontal face where it meets the outside of the stave it is provided with a flange formed at an angle of about forty-five degrees or thereabout with the body. This angular face is provided with teeth like a rasp or file which will cut into the wood of the stave as the bushing is turned.

In all the figures, A is the bushing; *a'*, the screw-threads on the body of the bushing.

B is the barrel-stave.

a is the flange of the bushing, and *c'* is the cutting-face of the flange.

I have not shown a top view of the bushings, but it will be understood that they are always circular at all parts.

The cutting-face *c'* of my new bushing has teeth or cutting-edges, as shown, Figs. 3 and 5. These may be teeth as in a milling-tool, or teeth such as a rasp is provided with. They must cut when the bushing is turned in the direction in which it is rotated when being screwed into the stave. These teeth are preferably cut by an appropriate cutter when the plain bushing is held upon a mandrel.

The bushing is rotated slowly under the cutter, which at each downstroke strikes up a cutting-edge across the face of the flange *c'*. Any other method of forming cutting-edges may be resorted to, and any form of cutting-surfaces may be formed in the face *c'* of the bushing, but the teeth must cut in the proper direction.

The bushing is screwed into a stave until, say, the threads are all in the wood. In this condition the bushing can be used till it works loose, which it will do by reason of the same causes which tend to work the old form of bushings loose.

We will suppose the bushing has worked itself loose: All that it is now necessary to do is to turn the bushing with the usual tool made for that purpose, screwing it farther into the stave. Such operation is not prevented, as in the old form of bushing, by the flat flange, but

with my bushing can be readily accomplished, for the cutting-face *c'* cuts and abrades the wood of the stave and permits of the bushing being screwed into the stave to a point farther than it had at first occupied. This screwing in of a loose bushing will tighten it in place, and the result will be reached by a very little screwing in of the bushing. When it again works loose a further screwing up will tighten it again, and so on till the bushing has got so far through the stave as to render further screwing up hazardous.

Figure 6 shows a bushing which has been a number of times screwed up, and which has sent its flange into the wood of the stave. Further screwing up and consequent tightening could still be resorted to. Screwing up my bushing tightens it by reason of two causes: One is the entry of the thread into new wood, so long as the bushing has not penetrated through the stave, and the other is that at each screwing-up operation the cutting-flange *c'* cuts or abrades the wood, but not as rapidly as the thread carries the bushing into the stave. Thus a very little tightening or screwing up of the bushing causes the strain on the flange *c'* to act to force the bushing out, while the thread tends to hold it in place. Thus under the double strain the bushing is held fast and each screwing up tends to renew the strain and consequently tighten the bushing.

In the old bushings shown in Figs. 1 and 2, when the threads worked loose in the stave further renewal of the strain which held the bushing in place was impossible, as the flat flange prevented any farther penetration of the bushing.

In the case of my improved bushing should no cutting-teeth be formed on the face *c'*, then this portion of the article soon makes a seat for itself and the bushing gets into the condition of those shown in Figs. 1 and 2. The action of the cutters *c'* is rather a grinding or abrading action, breaking up the seat that would otherwise be formed for the flange and preventing the farther screwing in of the bushing to tighten it. By breaking up the wood, abrading, grinding, or cutting it, the flange is permitted to enter the wood of the stave a small distance at each tightening operation.

Having described my invention what I claim, and desire to secure by Letters Patent, is—

1. The combination, in a metallic bushing for a bung, of a screw-threaded body, and a flange having a face formed at an oblique angle to the body, and cutting-teeth formed in the angular face of said flange, as and for the purposes set forth.

2. The combination, in a metallic bushing for a bung, of a screw-threaded body, and a flange having a face formed at an angle to the body, and transverse cutting-teeth in the said angular face of the flange, substantially as described.

Signed at the city of Brooklyn, county of Kings, and State of New York this 17th day of February, 1888.

RAFAEL PENTLARGE.

Witnesses:

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EMIL SCHOFIELD.