

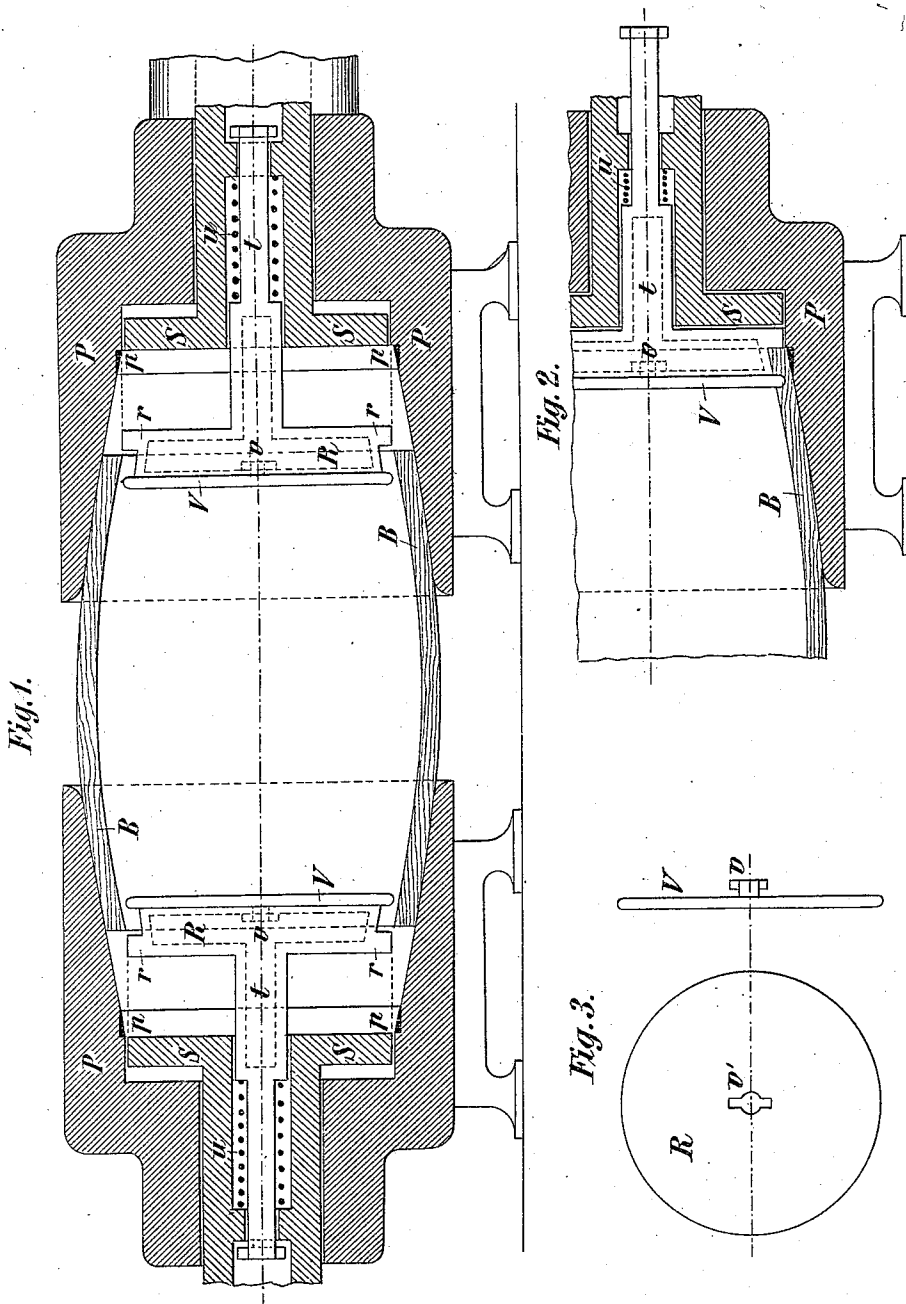
(No Model.)

R. KLINGER.

METHOD OF AND APPARATUS FOR MAKING BARRELS.

No. 553,809.

Patented Jan. 28, 1896.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

RICHARD KLINGER, OF GUMPOLDSKIRCHEN, ASSIGNOR TO JOSEF POLKE, OF VIENNA, AUSTRIA-HUNGARY.

## METHOD OF AND APPARATUS FOR MAKING BARRELS.

SPECIFICATION forming part of Letters Patent No. 553,809, dated January 28, 1896.

Application filed January 2, 1895. Serial No. 533,670. (No model.)

*To all whom it may concern:*

Be it known that I, RICHARD KLINGER, a subject of the Emperor of Austria-Hungary, and a resident of the town of Gumpoldskirchen, in the Empire of Austria-Hungary, have invented certain new and useful Improvements in Methods of and Apparatus for Making Barrels, of which the following is a specification.

My invention relates to the manufacture of wooden bulging barrels, and has for its object a method and apparatus for producing such barrels by compression from cylindrical blanks and simultaneously forming the chine or groove for the reception of the barrel-heads.

In the annexed drawings the apparatus for carrying my improved process into practice is shown, of which—

Figure 1 is a longitudinal vertical section showing a barrel-body in the position just before the pressing of the chine begins. Fig. 2 shows one head of the apparatus, also in section, with a barrel-body in the position when the pressing has been completed. Fig. 3 shows the chine-disk in side view and its carrying-plate in front view.

In all figures similar letters of reference indicate like parts.

For the production of wooden bulging barrels I employ cylindrical blanks which have by preference been subjected to a previous cylindrical compression in order to prevent their subsequent shrinking. I form these cylindrical blanks into bulging barrel-bodies by pressing over their ends conical dies or forms which will compress and thereby reduce these ends in diameter, but will leave the middle part of the blank materially unchanged. Simultaneously with and by this conical compression of the ends of the barrel-blanks I form the chine or groove for the reception of the barrel-head by placing into the blank before its conical compression, at the place where the chine or groove is to be formed, a disk having the circumferential form of a barrel-head and made of any suitable material harder than the wood of the barrel-blank. This disk, which is held in its proper position by suitable means, rests at the beginning of the compression loosely in

the barrel-blank. As, however, the compression proceeds and the diameter of the barrel-blank becomes reduced, the interior surface of the latter closes around the edge of said disk, and as the conical compression of the barrel-body is completed the edge of the disk is pressed into the wood of the barrel-body sufficiently deep to form the chine or groove for the barrel-head. This method of forming the chine or grooves for barrels by compression simultaneously with their conical compression offers a considerable advantage over the method heretofore employed of cutting the chines or grooves, as in the former case the fibers of the wood are not severed by a cut, but are only bent and compressed to form the groove, whereby a chipping or splitting of the ends of the barrel is prevented. The pressed chines or grooves offer a further advantage by their tendency to swell out again when the wood becomes wet, which causes them to close tightly around the barrel-head.

The machine for carrying into practice my improved process, as shown in the annexed drawings, consists of a conical press form or die P, in the bottom or end of which is inserted a piston or follower S for pushing out the barrel-body after it has been pressed into the die P. In a central opening or follower S is guided a rod or shaft *t*, which carries at its forward end a head or plate R, to which the disk V for pressing the chine or groove is attached. A spring *u* keeps plate R sufficiently far advanced in the die P that a barrel-blank B as it is pressed into die P will strike a flange *r* of plate R before blank B has been so far reduced in diameter as to close upon the circumference of disk V. The end of the barrel-blank B having struck flange *r* of the plate R, the latter is carried along by blank B as it advances into the die P until it has reached the end or bottom thereof. The distance between the outer face of flange *r*, against which rests the end of the barrel-blank, and the edge of disk V being fixed, it follows that the chine or groove must be formed at exactly the right place in the barrel, as the end of the latter contracts by its continued compression in die P, spring *u* serving to hold flange *r* tightly against the end of the blank.

The pressing having been completed, follower S, which may be operated by hand or by any other suitable power, starts barrel-body B in the die, so that it can be removed from the press, with disk V by preference remaining in the groove it has formed. Disk V may of course be fixed permanently to plate R, in which case the barrel-body will have to be sprung open sufficiently at its seam to clear and remove it from disk V, which remains in the die. As it is preferable, however, to leave disk V in the barrel-body for a while, I connect disk V to plate R by means of a clutch or in any other suitable manner that will permit an easy separation of the two parts. By way of example I have shown a connection of this kind in Fig. 3 of the drawings. Here disk V is provided with a central clutch-pin *v* and plate R with a corresponding central opening, which will permit connecting or disconnecting disk V and plate R by giving the former a quarter of a turn, the latter being prevented from turning by a key or groove upon its shaft *t* or in any other suitable manner.

When the disks V are to be left in the barrel-bodies, a temporary hoop must be provided upon the ends of the latter. For this purpose I employ hoops of triangular cross-section *p*, as shown in the drawings. Die P is turned out at its end to receive these hoops *p* in such manner that the inner surface of the hoop will form a continuation of the conical interior surface of the die P. Thus when a barrel-body is pressed to the bottom of die P it will receive and retain this hoop upon its end, so that it can be removed from the die together with the barrel-body. As shown in the drawings, two opposite dies may be employed for simultaneously producing the conical compression of the barrel-body and the chines or grooves at both ends. In this case one of the dies may be stationary and the other operated by hydraulic or other motive power, or also both dies may be movable. There may, however, but one die be employed and one end of a barrel be pressed at a time. The disks V

may also be made so that they can remain in the barrel and serve as permanent heads.

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

1. In the manufacture of wooden bulging barrels, the method for producing such barrels from cylindrical blanks by compression, with the simultaneous forming of the chines or grooves for the heads, consisting in pressing the cylindrical blanks, containing a disk or disks the circumferential form of which corresponds to the form of the barrel-head, into a conical die or form and thereby pressing the edge of the disk contained in the blank into the wood of the latter for forming the chine or groove for the head; substantially as set forth.

2. In apparatus for carrying into practice the herein-described method of making wooden bulging barrels from cylindrical blanks, the combination with a conical die P of a disk V adapted to be pressed into the wood of the barrel-body while being compressed in die P; substantially as and for the purpose set forth.

3. In apparatus for carrying into practice the herein-described method of making wooden bulging barrels from cylindrical blanks, the combination with a conical die P of a disk V, a spring-actuated plate R for holding disk V in position and provided with flange *r*, and a follower S; substantially as set forth.

4. In apparatus for carrying into practice the herein-described method of making wooden bulging barrels from cylindrical blanks, the combination with a conical die P of a disk V and of a hoop *p* adapted to be placed in die P and to remain upon the end of the barrel-body when the pressing is completed; substantially as set forth.

In testimony whereof I have affixed my signature in presence of two witnesses.

RICH. KLINGER.

Witnesses:

HARRY BELMONT,  
JOSEF ZEPETON.