

(No Model.)

W. F. WELLMAN.  
BUSHING FOR SHEAVES.

No. 303,770.

Patented Aug. 19, 1884.

Fig. 2.

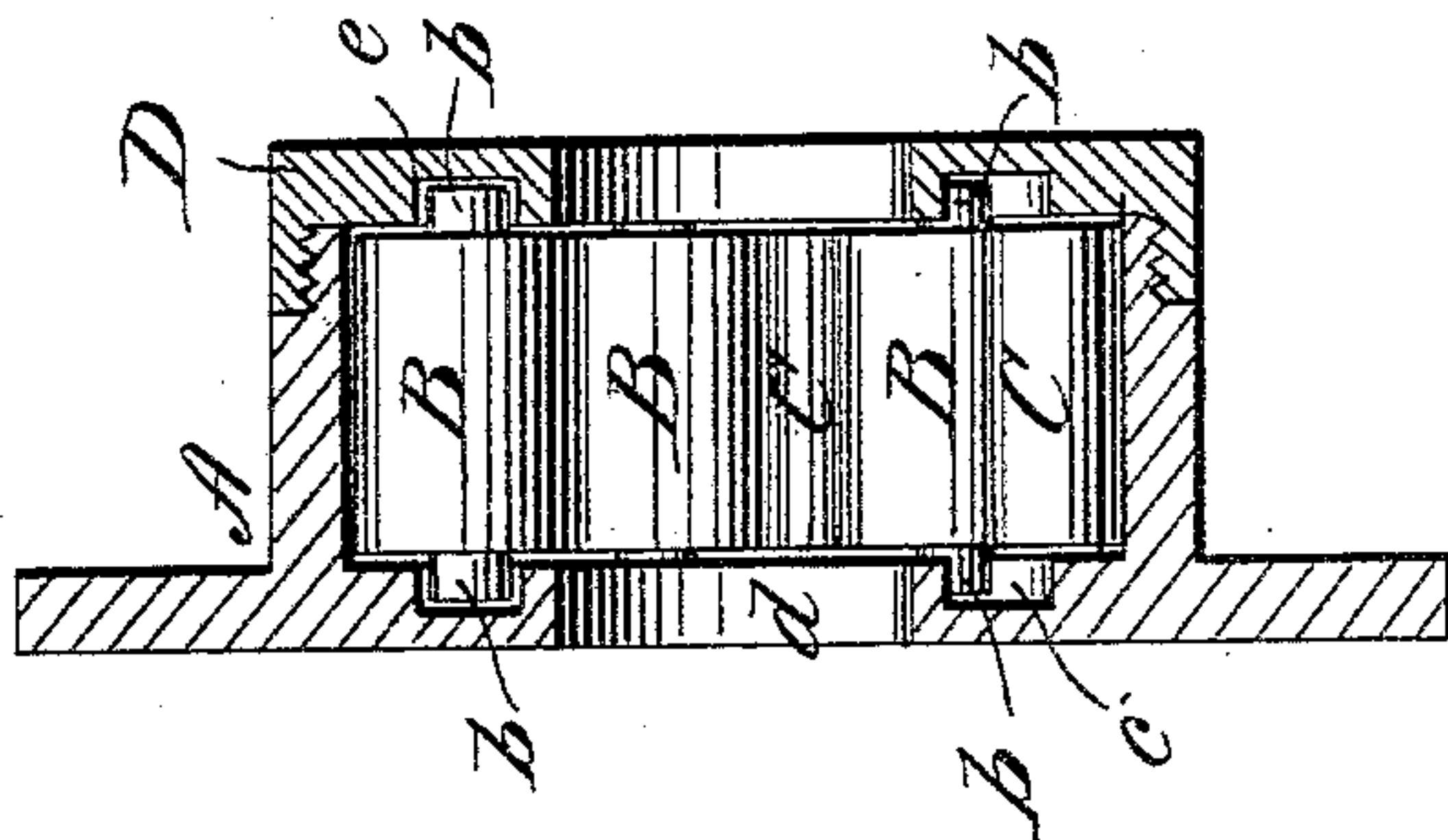
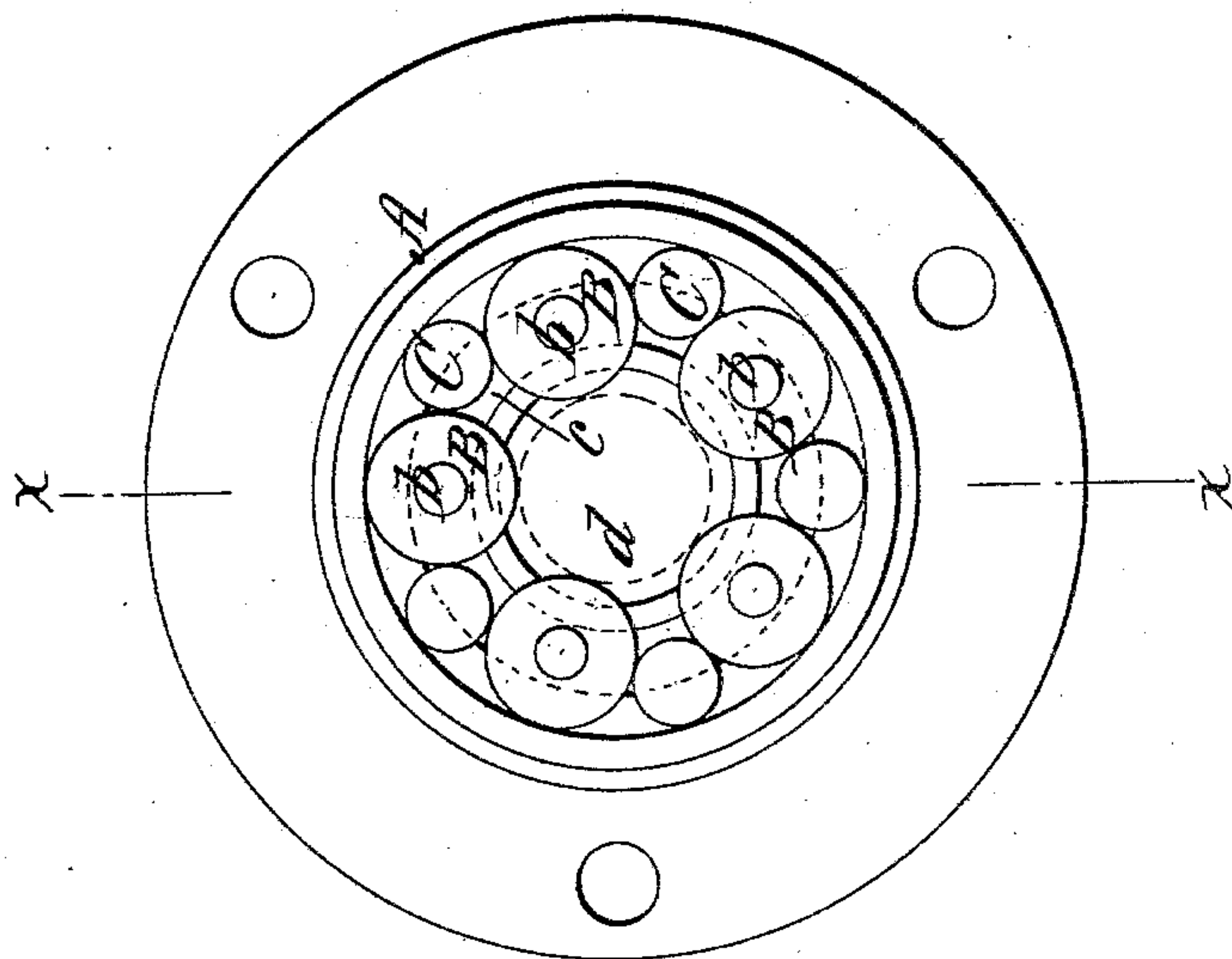


Fig. 1.



WITNESSES:

*Donn Twitchell.*  
*C. Sedgwick*

INVENTOR:

*W. F. Wellman*

BY

*Munn & Co.*

ATTORNEYS.



# UNITED STATES PATENT OFFICE.

WILLARD FRANK WELLMAN, OF BELFAST, MAINE, ASSIGNOR OF ONE-HALF  
TO OSCAR W. PITCHER, OF SAME PLACE.

## BUSHING FOR SHEAVES.

SPECIFICATION forming part of Letters Patent No. 303,770, dated August 19, 1884.

Application filed December 20, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, WILLARD F. WELLMAN, of Belfast, Waldo county, and State of Maine, have invented certain new and useful Improvements in Bushings for the Sheaves of Ships' Blocks and other Purposes, of which the following is a full, clear, and exact description.

This invention relates to roller-bushings for the sheaves of ships' blocks and for other purposes; and it consists of the detailed construction and combination of parts substantially as hereinafter described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 represents a face view of a sheave-bushing embodying my invention, with cap-plate removed; and Fig. 2, a transverse section of the same on the line  $x x$  in Fig. 1.

A indicates the shell of the bushing for the sheave of a ship's block, for instance. This shell is filled with rollers, certain of which are of different diameters as compared with the others. Thus the rollers B, which form the bearing-surfaces for the axle or pintle of the sheave, are of larger diameter than the other rollers, C, which are arranged intermediately of the rollers B, and serve to keep said rollers B at their proper distance apart and in place. There may be any number of these rollers B C, so that combined they fill the shell and form a continuous roller action or support, one upon the other, with the axis of the smaller roller outside of the circle in which the axes of the larger rollers are arranged, and so that the larger rollers leave a central opening,  $d$ , of suitable size to freely receive the axle or pintle of the sheave in bearing support within them and through the bushing. The rollers B are provided with journals  $b b$  on each end, arranged to project within annular or continuous grooves  $c$  in the shell and in the cap D, secured thereon so that when the whole bushing is put together the rollers cannot possibly escape from their proper position. The cap D may either be screwed on to its place, as shown in the drawings, or may

be fastened by screws, or in any other convenient manner, so that reverse turns in the block will not unfasten the cap.

In the bushing as thus constructed, while the shell is filled with rollers, a separate flange, as heretofore employed, and formed with teats entering into the ends of the rollers, is dispensed with, and the friction of the bearing-rollers upon each other and upon the pintle of the sheave is done away with. Thus, the bushing, constructed as described, essentially differs from bushings in which the rollers with which the bushing is filled are all of the same size, and roll independently of each other, being kept apart by teats in a separate flange, as above referred to, which teats and flange are liable to weaken and the bushing to fracture or get out of order by reason of the strain put upon the sheave axle or pintle—as, for instance, when hoisting sail or applying force or weight, causing said pintle to press between the rollers and to crowd them apart, thereby breaking the teats or warping the flange and making the rollers chafe each other and subjecting them to friction upon themselves and upon the sheave pintle or axle.

I am aware that is not new to provide a bushing or journal bearing for shafts with a series of larger and smaller rolls, the larger ones in one instance having central grooves to receive a rolling ring, and the smaller intermediate rolls resting at their ends in annular grooves of the box, while in the other instance the larger rolls rest at their ends between annular rings, the smaller rolls resting against the sides of the outer rings.

I am aware that it is not new to provide the smaller and larger rolls each with a journal or axis, and to so dispose them that the axes or journals at each end bear in a common groove, said axes being formed by beveling or tapering the ends of said rolls.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a roller-bushing, the combination, with the shell or box, of the larger rolls B, with their trunnions or journals  $b$  resting in annular grooves  $c$  in the end of the shell and its cap, and the smaller intermediate rolls, C, with their trunnionless ends resting against



the inner side of one end of the shell and the inner side of the cap of the shell, as shown and described, and for the purpose set forth.

2. In a roller-bushing, the shell A, cast separately from the journal or axle, and with its inner apertured end and sides made in one piece, in combination with the larger rolls B, having journals or trunnions *b* bearing in annular grooves *c* in the inner end of the shell

and its cap D, and the smaller intermediate rolls, C, with their trunnionless ends resting against the inner edge of one end of the shell and against the inner side of the cap, as shown and described, and for the purpose set forth.

WILLARD FRANK WELLMAN.

Witnesses:

ALPHEUS DYER,  
GEO. O. WHITE.