

(No Model.)

H. KLEMAN.  
SHAFT COOLING BOX.

No. 408,663.

Patented Aug. 6, 1889.

FIG. 1.

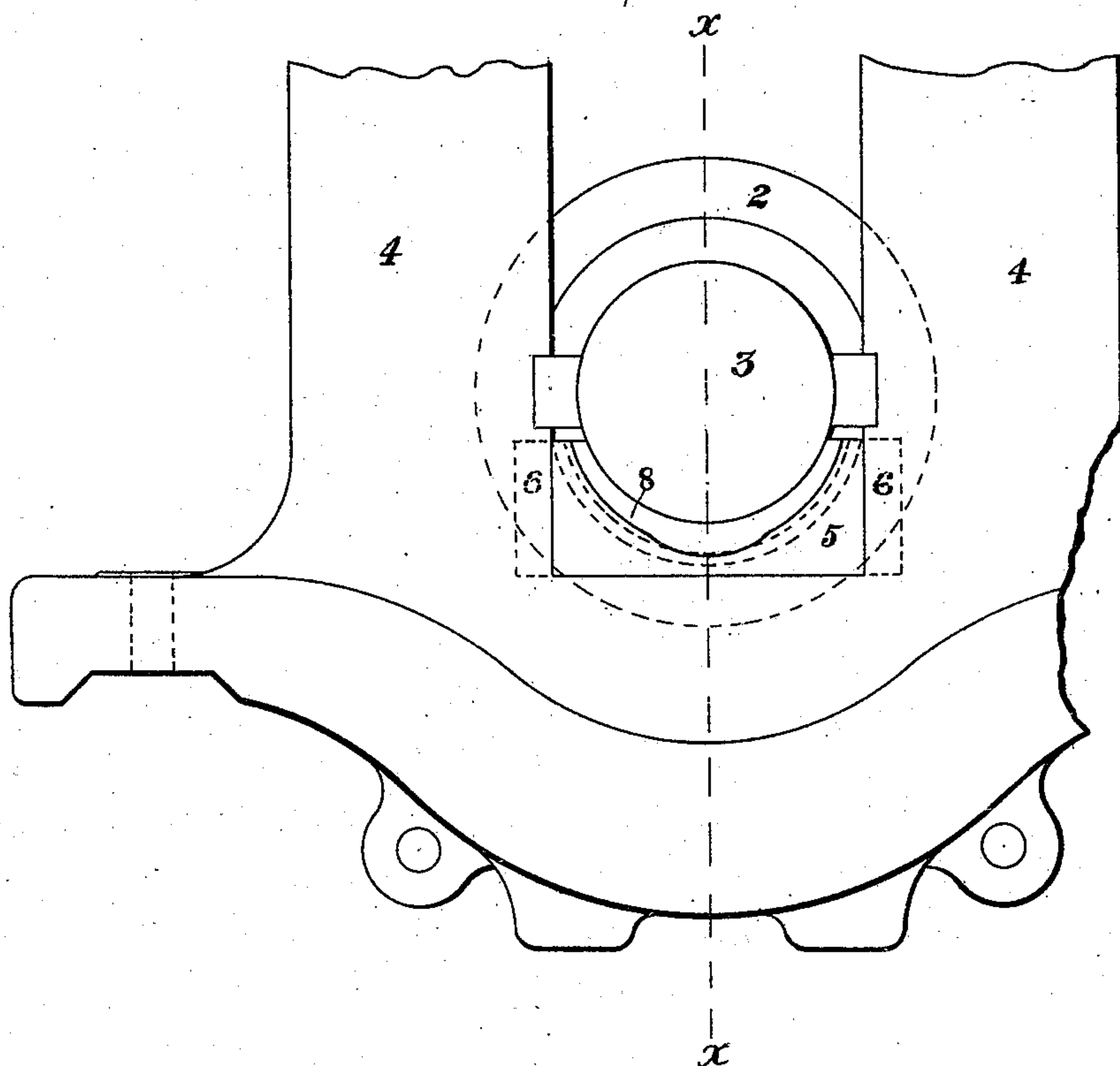


FIG. 2.

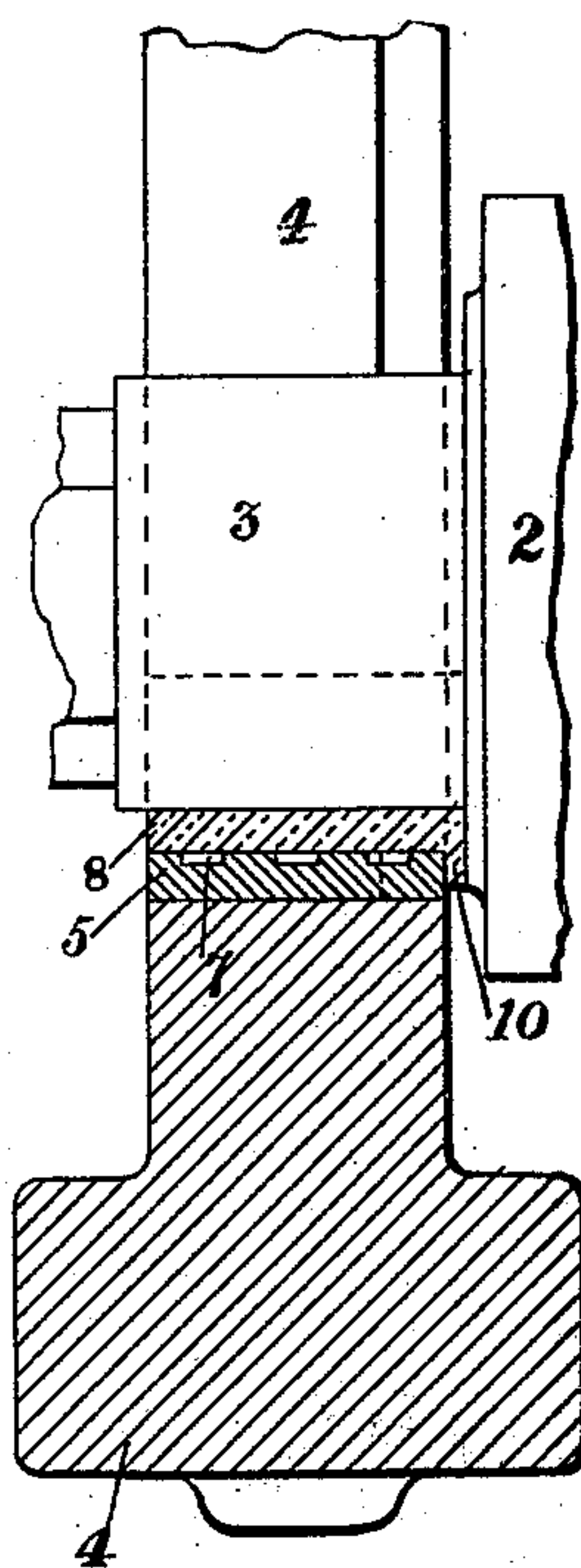


FIG. 3.

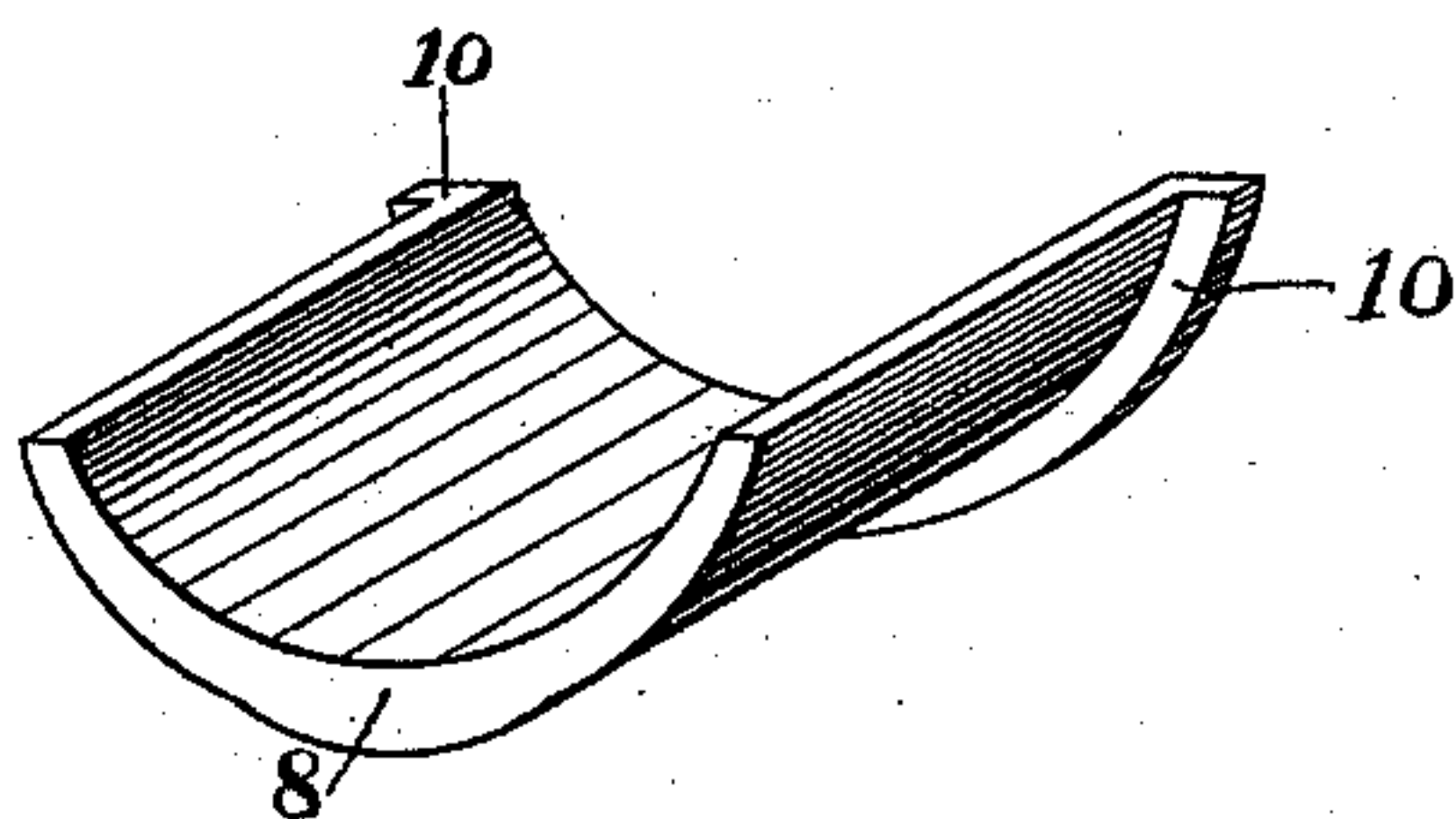
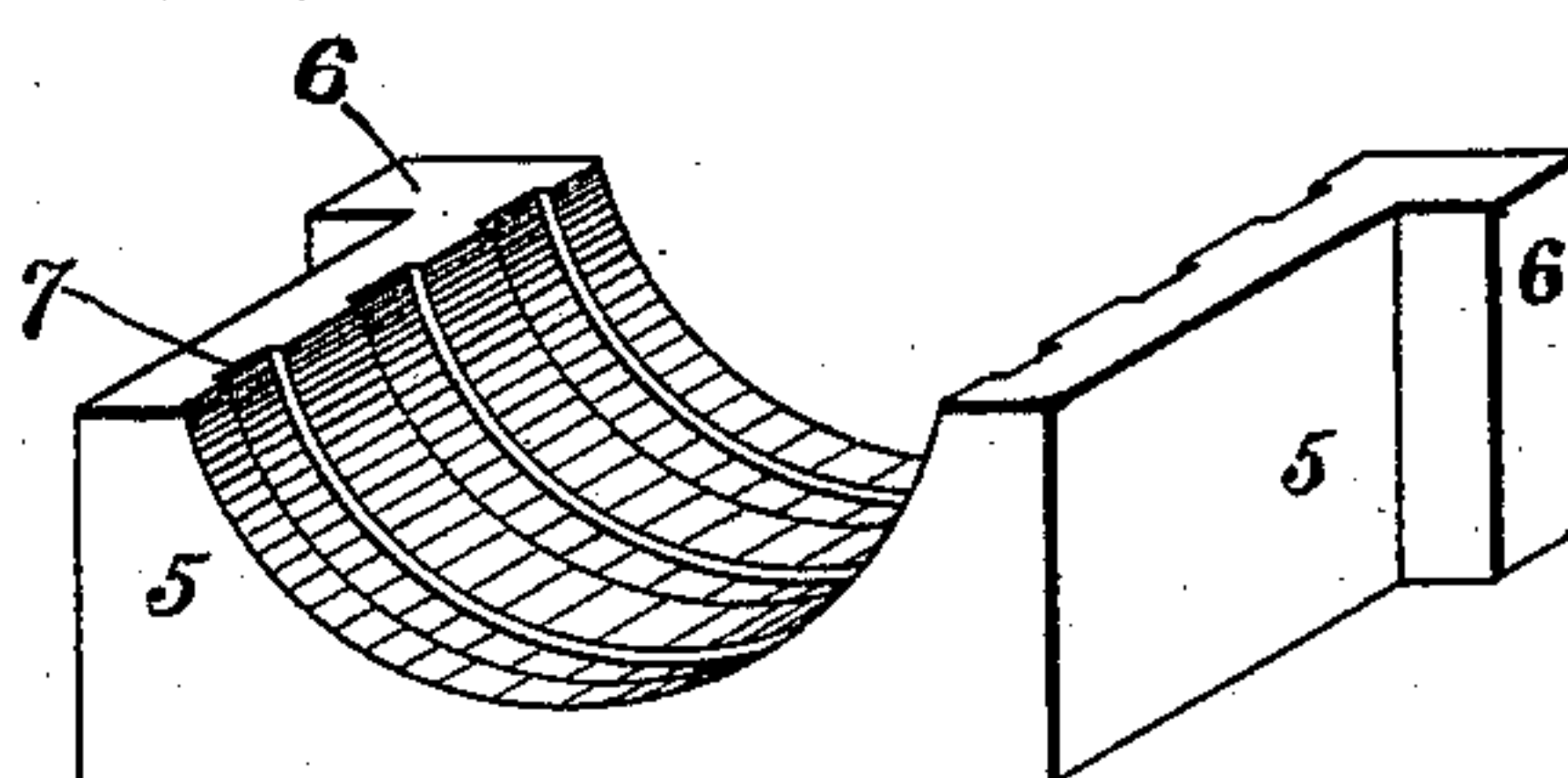


FIG. 4.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

HENRY KLEMAN, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF  
TO RICHARD MORGAN AND JAMES EVANS, BOTH OF SAME PLACE.

## SHAFT COOLING-BOX.

SPECIFICATION forming part of Letters Patent No. 408,663, dated August 6, 1889.

Application filed August 30, 1888. Serial No. 284,187. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY KLEMAN, of the city of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Appliances for Rolls; and I do hereby declare the following to be a full, clear, and exact description thereof.

In the drawings, Figure 1 is an outside end view of one of my improved brass linings and blocks applied to the lower side of the neck of a roll. Fig. 2 is a vertical longitudinal section thereof on the line  $x x$  of Fig. 1. Figs. 3 and 4 are perspective views of the removable lining and its supporting-block.

Like symbols of reference indicate like parts in each.

In the drawings, 2 represents the body of the roll.

3 is the neck.

4 is the housing at the end of the roll, and 5 is the block for supporting the brass lining, which block is preferably made of soft steel or brass. The base of this block is flat and its sides preferably rectangular, and at its inner end it is provided with laterally-projecting flanges 6. The block is fitted in the window of the housing, and the flanges 6, which fit against the inside of the housing, lock the block in position and prevent its displacement.

In the drawings I show my improvement applied to the under side of the neck of the bottom roll of a set of rolls, and this is sufficient to illustrate the principle of my invention. When it is to be applied to the top roll, it is reversed, so that the flat side of the block shall be uppermost and shall be in contact with the end of the adjusting-screw. In either case the bearing or brass should be on that side of the neck which is opposite to the directions of strain—i. e., on the upper side of the top roll and on the lower side of the bottom roll. The inner surface of the block is made of curved form to conform in shape to the outer side of the brass lining 8, which is adapted to be fitted on the inner face of the block. This lining is made with a surface substantially semi-cylindrical in outline, and instead of being of the same thickness of side

throughout it is made thicker at the middle line and tapers thence in both directions to the edges. The reason for this construction is that in use most of the wear and stress falls on the middle of the lining, which should therefore be made of greater strength and thickness than the other parts, and by making it of this shape a degree of elasticity is imparted to the sides of the lining, allowing it to accommodate itself to the neck of the roll.

At the inner end of the lining it is provided with an outwardly-projecting vertical flange 10, which is adapted to fit and rest against the inner end of the block 5 and to bear against the shoulder on the roll which is at the junction of the neck and body of the latter. In Figs. 1 and 2 I show my improvement applied to use. The block 5 rests in the window of the housings above or below the neck of the roll, the lining 8 fits on the inner side of the block, and its flange 10 is neatly interposed between the inner end of the block and the shoulder of the roll and serves to prevent end movement of the latter. The enlargement of the lining at the middle serves to prevent its lateral displacement and serves to compensate for the greater wear at that part. The lining is not confined or restrained at the edges, and thus under the action of heat produced by friction it is permitted to expand laterally with freedom. In order to prevent as far as possible the lining from becoming hot from the friction of the roll, I provide the surface of the block 5 beneath the lining with one or more grooves or channels 7, communicating freely at both ends with the outside of the block, and when the lining 8 is placed on the block these grooves form air-vents, which, being directly beneath the lining, permit circulation of air, and thus aid in keeping the lining cool and preventing it from breaking.

If desired, water may be caused to flow through these vents instead of using air for the purposes; but in either case the vents will serve to facilitate and hasten the radiation of heat from the lining.

The advantages of my invention will from the foregoing description be apparent to those skilled in the art.

I claim—

The combination, with the roll and its neck  
or journal and the housing, of the concave-  
faced block set in the housing and a lining  
for said block removably arranged therein and  
5 constituting the bearing for the roll, the block  
being provided next to and beneath the lin-  
ing with grooves or channels 7 open from end  
to end, substantially as and for the purpose  
described.

In testimony whereof I have hereunto set in  
my hand this 23d day of August, A. D. 1888.

HENRY KLEMAN.

Witnesses:

W. B. CORWIN,

THOMAS W. BAKEWELL.