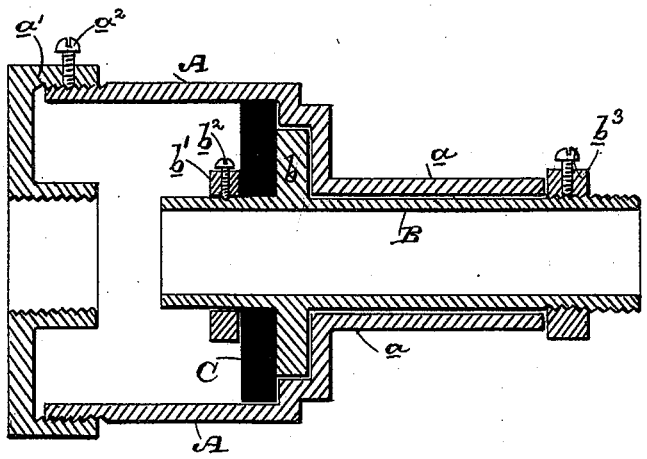
(No Model.)

W. F. BOWERS.

ROTARY JOINT.

No. 421,657. Patented Feb. 18, 1890.



Witnesses,
H. C. Lee.

Inventor,
William F. Bowers
By Dewey & Co.
Attys

UNITED STATES PATENT OFFICE.

WILLIAM F. BOWERS, OF SAN FRANCISCO, CALIFORNIA.

ROTARY JOINT.

SPECIFICATION forming part of Letters Patent No. 421,657, dated February 18, 1890.

Application filed November 27, 1889. Serial No. 331,785. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. BOWERS, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Rotary Joints; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of rotary joints; and it consists in the novel construction and arrangement hereinafter fully described, and specifically pointed out in the claim.

The object of my invention is to make a tight rotary joint which may be applied to any mechanism wherein such joint is required. In order to demonstrate its utility for particular purposes, I will state that it is especially applicable to forming the necessary steam-tight joint between the steam-supply pipe and the rolls of a calendering-machine. It is also applicable to those hose-reels wherein water is admitted to the rotary shaft of the reel on which the hose is wound, and with which it communicates, this joint forming the necessary water-tight connection between the supply-pipe and the reel-shaft.

Referring to the accompanying drawing for a more complete explanation of my invention, the figure is a longitudinal section of my rotary joint.

A is a shell or casing, having extending from one end a tubular bearing *a*, and at the other end receiving a head or cap-plate *a'*, screwed upon it and held in position by a set-screw a^2.

B is the inlet-pipe, which may be supposed to be suitably connected at its outer end with a steam-pipe. Upon the inner end of this pipe is formed or secured a flange *b*, and against this flange is seated a flexible washer C, which is larger in diameter than the flange, and is held to its place by means of a collar *b'* on the pipe, held in place by a set-screw b^2. In fitting these parts together the cap or head *a'* of the shell or casing A is first removed. Then the pipe B is passed into the casing and through the tubular bearing *a* thereof, whereby it forms the journal on which the casing turns. Its projecting rear end receives a screw-collar b^3 for holding it in place. The flange *b* of the pipe seats itself in a corresponding recess in the base of the shell or casing, and the flexible washer C, which has a diameter just allowing it to enter and fit snugly in the shell or casing, also seats itself directly in its base. The pipe B is of course stationary, as it is connected with the steam-supply pipe; but the shell or casing A rotates, finding a journal or bearing on said pipe. This shell or casing is intended to be secured to the rotating part of the machine to which this joint is applicable. It may therefore be secured to the end of a calender-roll which is supposed to screw into the center of the cap or head A', thereby communicating directly with the steam-inlet pipe; or the device may be secured to the end of a hose-reel shaft in the same manner. In either case the washer forms an absolutely tight joint in the base of the rotating shell or casing. The steam, coming in through the pipe and entering the casing and passing into the calender-roll, creates such a back-pressure within the casing as will confine the flexible washer closely to its seat, thus forming a perfectly tight joint, so that there is no leakage. Likewise, in the case of a hose-reel, the pressure of water within the reel-shaft forces the flexible washer against its seat and forms a tight joint.

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

An improved rotary joint consisting of the combination of a rotary shell or casing having at one end a tubular extension *a* and at the other a removable cap-plate or head provided with means for securing the shell of the rotary part of a machine to which it is applied, the stationary inlet-pipe adapted to be passed through the cap end of the shell into the tubular extension, said pipe having the flange *b* seated against a shoulder in the head of the shell, a washer of greater diameter than the flange and seated against the latter, and the collars and set-screws at the inner and outer end of the pipe, substantially as described.

In witness whereof I have hereunto set my hand.

WILLIAM F. BOWERS.

Witnesses:
S. H. NOURSE,
H. C. LEE.