

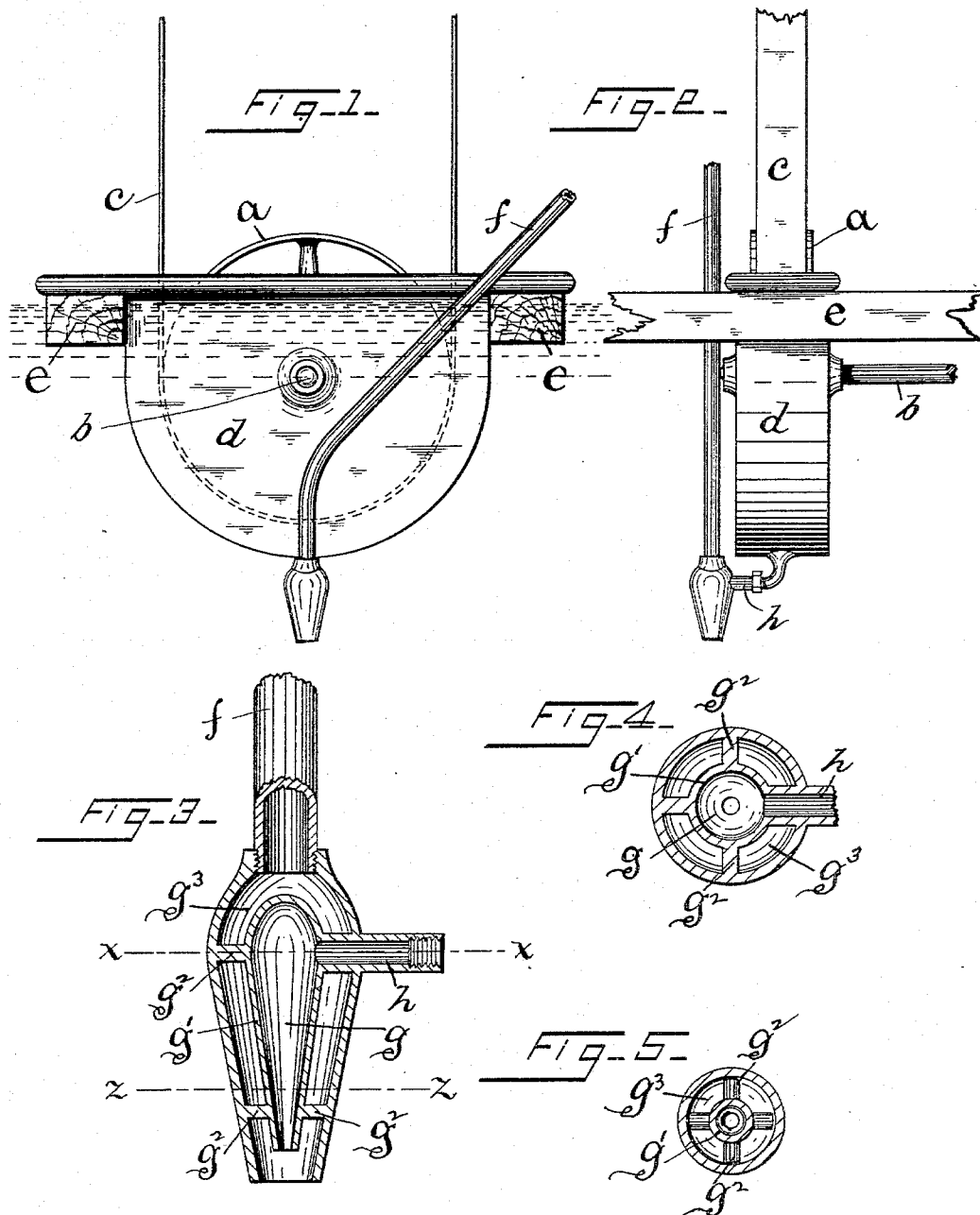
(No Model.)

J. P. COLLINS.

APPARATUS FOR DRAINING SUBMERGED PULLEY SHIELDS.

No. 532,028.

Patented Jan. 8, 1895.



Witnesses

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JAMES P. COLLINS, OF NORWICH, CONNECTICUT.

APPARATUS FOR DRAINING SUBMERGED-PULLEY SHIELDS.

SPECIFICATION forming part of Letters Patent No. 532,028, dated January 8, 1895.

Application filed January 31, 1893. Serial No. 460,241. (No model.)

To all whom it may concern:

Be it known that I, JAMES P. COLLINS, a citizen of the United States, residing at Norwich, New London county, State of Connecticut, have invented a certain new and useful Improvement in Apparatus for Draining Submerged-Pulley Shields, which improvement is fully set forth and described in the following specification, reference being had to the accompanying sheet of drawings, in which—

Figures 1 and 2 are, respectively, side and edge views of a pulley and its shield having my improvement attached thereto. Fig. 3 is an enlarged view, in central, vertical, section, of a peculiar device which constitutes an important element of my said invention, and Figs. 4 and 5 are cross sections of the same on lines *x-x* and *z-z* respectively.

This invention seeks to provide simple apparatus for draining and discharging any water that may collect by leakage, condensation or from other cause, in a shield or jacket used to protect pulleys that are from necessity run submerged, or partially so.

It frequently is necessary in setting and connecting horizontal water-wheels, to locate the pulley shaft and pulley either below the normal water level of the tail race or at a level that will be covered by "back water" in times of freshets and, to protect the pulley and its belt, it has been a common practice to provide a shield in box form that incloses the pulley in manner substantially as I have shown in the annexed drawings.

When the axial shaft of the pulley is below the water level there is always a tendency on the part of the water to percolate through the joints of the journal bearing and at all times more or less water accumulates within the shield by reason of condensation. If such water, or moisture resulting therefrom, reaches the belt, the latter soon becomes slippery and stretched and fails to perform its work properly, and, as this belt is usually the prime driving member in a factory, much annoyance results.

My invention removes all water from the shield as fast as it accumulates and thus prevents wetting of the belt and resulting annoyance.

In the drawings "*a*" denotes a pulley; "*b*,"

its shaft; "*c*," its belt, and "*d*" a shield, which latter, as here shown, incloses nearly all of the pulley and locates the shaft "*c*" below the water line.

Shield "*d*" may be supported on and by cross timbers "*e*," as illustrated, or by any other convenient means.

"*f*" indicates a pipe whose upper end is arranged to draw from a reservoir of water located at a greater height than the dead water that surrounds the shield "*d*," or steam pressure may be utilized in said pipe but, in either case, the pressure should be sufficient to displace the dead water at the point of discharge which is below the bottom of the shield and is of the peculiar shape shown in Figs. 3, 4 and 5. I prefer to form the same of cast metal of elongated, oval, shape, the discharge of water being at the smaller end and the pipe "*f*" being tapped into the larger end. This device has a chamber "*g*" formed by an inner wall "*g'*" of substantially oval shape, which inner wall is supported by several radial arms "*g²*."

The pipe "*f*" connects with the chamber "*g³*" between the inner and outer walls and the water discharged by said pipe passes downward around wall "*g'*" and out through the open, lower end. The lower end of wall "*g'*" is also open but is preferably located above the level of the discharge opening of chamber "*g³*." Near the upper portion of chamber "*g*" is a pipe "*h*" leading outward and connecting with the lowest portion of the shield "*d*" in such manner that any water that may enter the shield will pass by gravity through pipe "*h*" into the chamber "*g*."

When my described apparatus is in use and a current of water is passed through pipe "*f*" and discharged with sufficient force to displace the dead water, any water from the shield, that may drain into chamber "*g*" will pass downward until it mingles with, and is carried outward by, the water from pipe "*f*." It will thus be seen that it is impossible for water to accumulate or remain in the shield.

My described apparatus is automatic and reliable in its action and is inexpensive to manufacture and apply.

Having described my invention, I claim—
In combination, with a shield for a sub-

merged pulley provided with a discharge opening at its lower point, of a pipe leading from a point above the shield, the lower end of which is provided with a double walled casing, having an opening in its lower end below the bottom of the shield, the lower end of opening of the inner wall of the casing being above the bottom of the outer wall, and a pipe connecting the opening in the bottom of the shield with the chamber within the inner wall

of the casing, whereby the water from the shield will flow through the casing by gravity as soon as the water surrounding the lower end of the casing has been removed by the passage of a stream of water or steam through the pipe and casing, substantially as set forth.

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