

(No Model.)

J. RITCHIE.
MANUFACTURE OF PULLEY WHEELS.

No. 476,489.

Patented June 7, 1892.

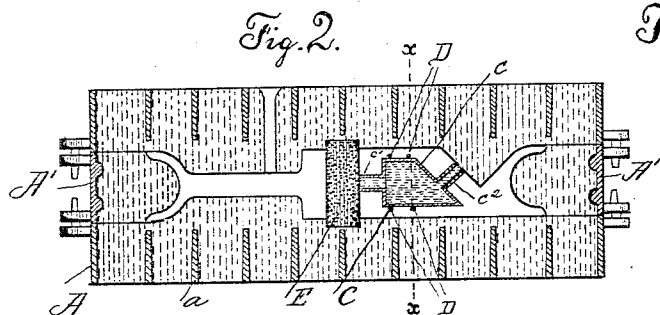
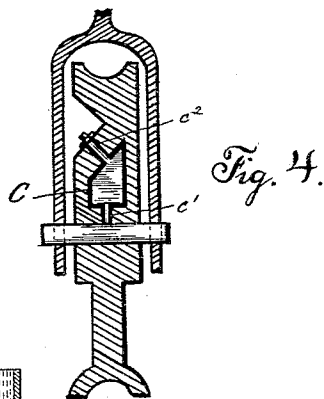
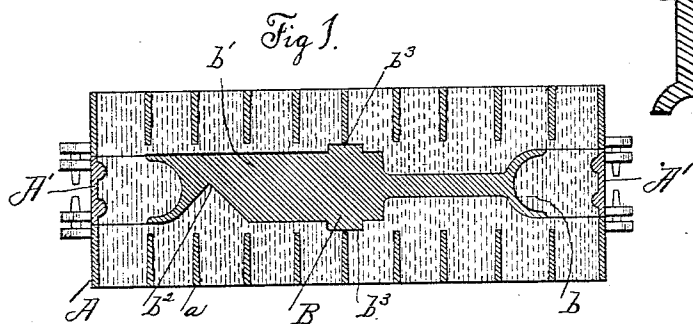


Fig. 5.

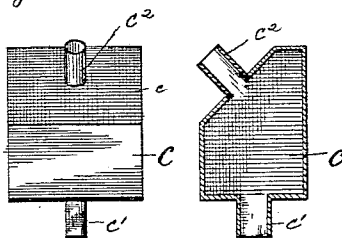
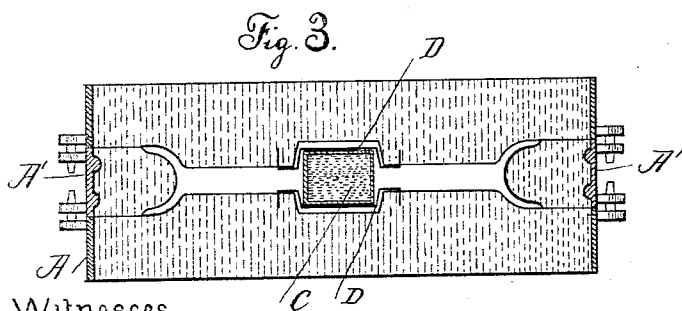


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN RITCHIE, OF BEAMSVILLE, CANADA.

MANUFACTURE OF PULLEY-WHEELS.

SPECIFICATION forming part of Letters Patent No. 476,489, dated June 7, 1892.

Application filed December 29, 1890. Serial No. 376,051. (No model.)

To all whom it may concern:

Be it known that I, JOHN RITCHIE, of the village of Beamsville, in the county of Lincoln, in the Province of Ontario, Canada, have invented certain new and useful Improvements in the Manufacture of Pulley-Wheels; and I hereby declare the following to be a full, clear, and exact description of my invention.

My invention relates to improvements in the manufacture or casting of self-lubricating pulleys.

It is a well-known fact that in casting with the core the liquid metal burns out the flour or other glutinous substance used in the manufacture of said core and leaves the cavity rough and uneven, thus running the risk of making the wheel heavier on one side than on the other, while it is, as is well known, absolutely necessary to have the wheel properly balanced.

It is the object of my invention to overcome the above pointed-out disadvantage, so that the completed or cast pulley will be smooth and of uniform thickness.

In the drawings, Figure 1 is a sectional view of a flask or frame, showing the pattern in position therein and the sand surrounding the same. Fig. 2 is a similar view with the pattern removed and the central core and tin case in position ready for the introduction of the liquid metal. Fig. 3 is a transverse section of the line $x x$, Fig. 2, clearly illustrating the supporting-wires. Fig. 4 is a sectional view taken through a wheel cast in accordance with this specification. Fig. 5 is an elevation of the tin case, and Fig. 6 is a sectional view of the same.

Like letters of reference refer to like parts throughout the several views.

Referring to the drawings, the letter A indicates the flask or framing provided with a series of inwardly-extending pins or projections a for assisting in maintaining the contained sand in the position it assumes after the removal of the pattern. I also provide separate end pieces $A' A'$, which occupy such positions relative to the framing as to shape or give the proper concave configuration to the periphery of the wheel.

The pattern is indicated by the letter B, and is clearly illustrated in the sectional view, Fig. 1. From this figure it will be seen that

said pattern is formed with a concave periphery b , so as to make the proper impression in the sand for the rim of the wheel, and is, furthermore, provided with a thickened portion b' , having upon one side a V-shaped depression b^2 , and also provided with lugs $b^3 b^3$, projecting laterally from opposite sides of the pattern and occupying a central position with relation thereto.

The letter C indicates the tin case of the peculiar shape shown, having a portion of one of its sides arranged at an obliquity, as indicated at c , to correspond with the innermost oblique portion of the V-shaped depression of the pattern or of the innermost obliquity left in the molded sand. This case is also provided with inner and outer integral projections, designated, respectively, by the letters $c' c^2$.

The letters D D indicate the supporting-wires, and E the core for the central hole of the wheel.

The above being a description of the construction of the device, the method of carrying my invention into effect will now be described. The flask or framing is first filled with sand and the pattern placed in proper position therein to give the required impression, after which the flask is separated in the usual way to permit of the insertion of the core and tin plate. The core of course rests in the depression in the sand left by the lugs $b^3 b^3$, while the tin case C is suspended in the widened space, the inner projection c' bearing against the central core and the outer projection c^2 extending transversely across the inclined space. The wires E for supporting the tin case, of which two are shown in the drawings, extend transversely across opposite sides of said case and have their ends bent angularly, with the extremities thereof passing into the sand. It will be understood that the case or form is made of tin or other composition to the size and shape required for the recess or oil-chamber. The case is designed to be filled with sand, and in placing the same within the opening left for it great care should be taken to arrange the same so that it will be equidistant from each of the sides of the wheel when cast. As stated at the outset, by providing this tin case the danger of having the cavity rough and un-

even and having the wheel heavier on one side than the other is avoided and a properly-balanced wheel is thereby produced. Furthermore, by using a case of tin or other composition filled with sand the metal which is poured into the space left by the pattern flows around all sides of the said case without causing it to change its form or location, and when the wheel is cast the thickness of the metal of the sides cannot help but be smooth and of a uniform thickness, something which would be utterly impossible to accomplish with any other form of core. The sand placed within the case prevents the liquid metal from melting said case as it flows around it.

From Fig. 4 of the drawings it will be seen that a pulley-wheel is produced in which the body of said wheel has formed integral therewith a tin-lined chamber or cavity for holding or storing the oil or other lubricating liquid. In practice, the oil is fed to the tin-lined chamber through the passage c^2 , which is then closed by means of a suitable plug, and the oil is conducted to the axle through the passage c' .

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. As an improvement in apparatus for the

manufacture of pulley-wheels and the like, the combination, with a flask or framing, of a pattern, a hollow metal case formed with integral oppositely-extending tubular projections for the entrance of the oil and for conveying the same to the axle, and means for suspending the case in the mold-cavity, substantially as set forth.

2. As an improvement in apparatus for the manufacture of pulley-wheels and the like, the combination of a flask or framing, a pattern having its periphery concaved and a portion of its body thickened, said thickened portion provided upon one side with a V-shaped depression and also having lugs projecting laterally therefrom, said lugs occupying a central position, a core to fit the depressions left in the sand by said lateral lugs, and a hollow metal case provided with an inclined face corresponding to the innermost inclination formed by the V-shaped depression of the pattern and with inner and outer tubular projections, the latter extending normally from said inclined face, substantially as set forth.

Beamsville, December 10, 1890.

JOHN RITCHIE.

In presence of—

CHARLES B. BRINE,

JOHN GIBSON.