C. W. CHISHOLM & E. KIBELE.

METER WHEEL.

APPLICATION FILED SEPT. 26, 1912.

1,069,854.

Patented Aug. 12, 1913.

2 SHEETS—SHEET 1.

Fig. 2.

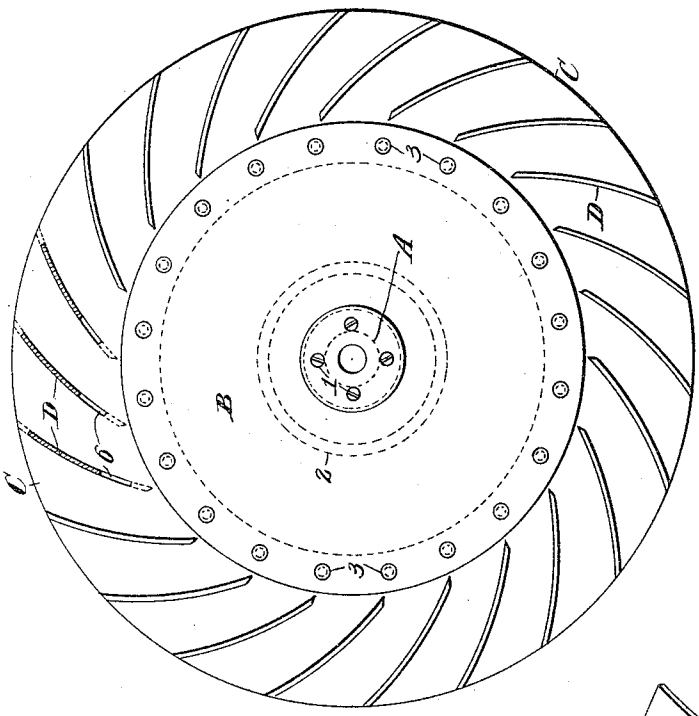


Fig. 3.

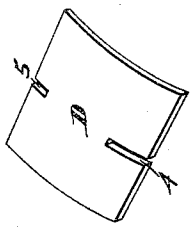
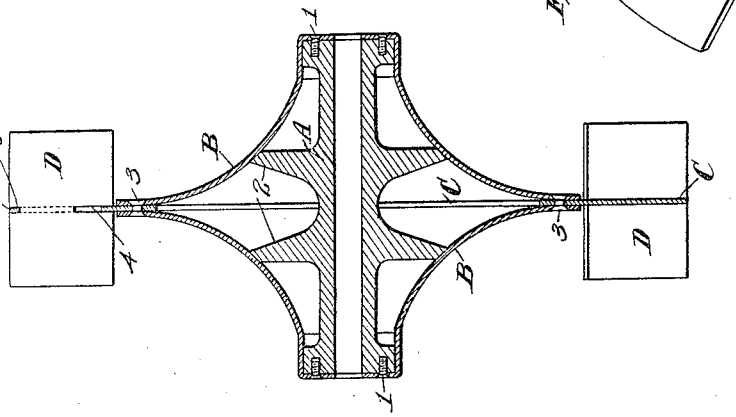


Fig. 1.



Witnesses:
S. E. Brown.
P. W. Tilden.

Inventors
Charles W. Chisholm and
by their Attys: Eugene Kibele
Philip J. Lanza & Kennedy

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

C. W. CHISHOLM & E. KIBELE.

METER WHEEL.

APPLICATION FILED SEPT. 26, 1912.

1,069,854.

Patented Aug. 12, 1913.

2 SHEETS—SHEET 2.

Fig. 5.

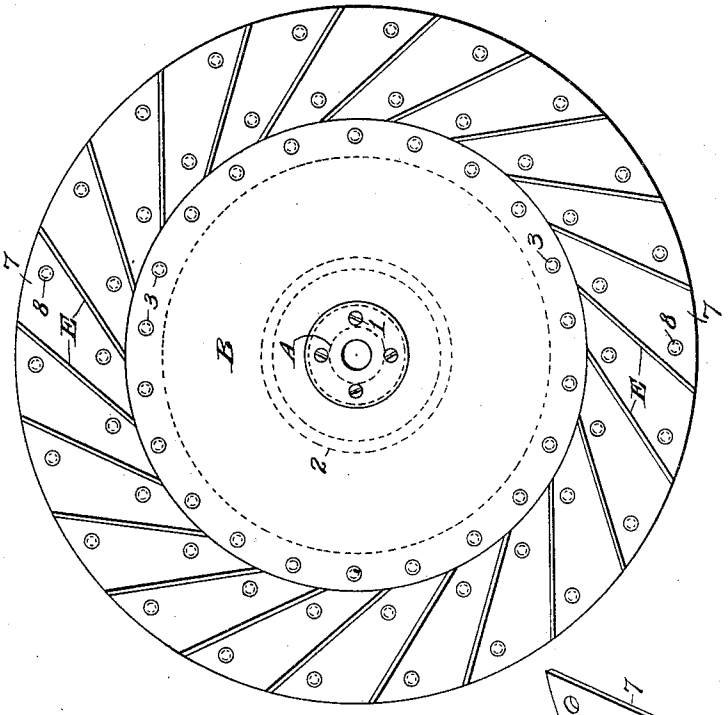


Fig. 6.

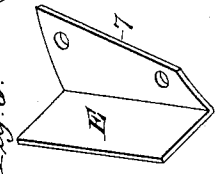
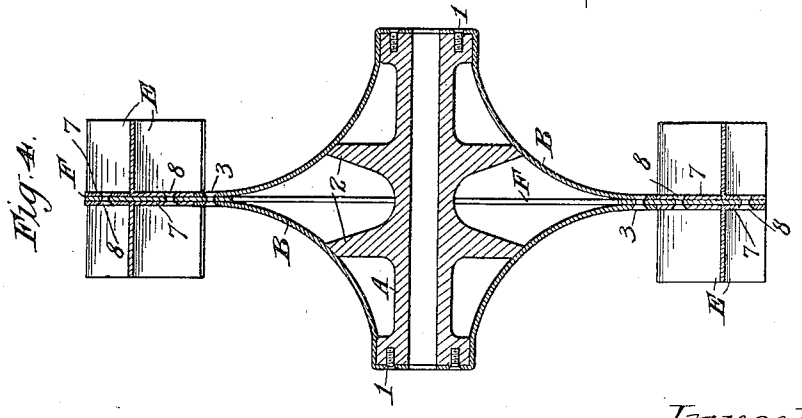


Fig. 4.



Witnesses:
S. E. Brown
P. W. Tilden.

Inventor:
Charles W. Chisholm
by their Att'ys. and Eugene Kibele
Philipp Sauzyn Reed Hamdy

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES W. CHISHOLM AND EUGENE KIBELE, OF EAST ORANGE, NEW JERSEY, ASSIGNORS TO HENRY R. WORTHINGTON, A CORPORATION OF NEW JERSEY.

METER-WHEEL.

1,069,854. Specification of Letters Patent. Patented Aug. 12, 1913.

Application filed September 26, 1912. Serial No. 722,385.

To all whom it may concern:

Be it known that we, CHARLES W. CHISHOLM and EUGENE KIBELE, citizens of the United States, residing at East Orange, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Meter-Wheels, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to wheels of that class used in turbine water meters and the like, in which it is necessary to provide a very light wheel of metal, the especial object being to provide such a wheel of simple and cheap construction that shall be efficient and durable in use.

In meter wheels great difficulty has been found in providing a satisfactory metal wheel that will be sufficiently sensitive for small water flows, on account of the specific gravity of any cast metal, except aluminum. Such wheels are frequently made of hard rubber, but these will not stand hot water, and for many uses it is desirable to make such wheels of the lightest possible gage copper to reduce their weight sufficiently and avoid corrosion of the metal.

The present invention provides a wheel construction enabling a strong and efficient copper wheel to be made very light while cheap of manufacture and durable.

For a full understanding of the invention, a detailed description of constructions of preferred forms embodying the invention will now be given in connection with the accompanying drawings forming a part of this specification and the features forming the invention then specifically pointed out in the claims.

In the drawings: Figure 1 is a central section of a wheel of a preferred form with curved vanes, the section being taken longitudinally of the axis. Fig. 2 is a side view of the same with some of the vanes shown in section for purpose of illustration. Fig. 3 is a detail perspective of one of the vanes shown in Figs. 1 and 2. Fig. 4 is a view similar to Fig. 1 showing a modified form of wheel. Fig. 5 is a side view of Fig. 4. Fig. 6 is a perspective view of one of the vane plates shown in Figs. 4 and 5.

Referring now particularly to Figs. 1 to 3, A is the wheel hub, preferably of aluminum for lightness. This hub carries the copper plates B forming the side walls of the wheel, which plates in turn support the ring C carrying the wheel vanes D at the periphery of the wheel, all these parts preferably being of copper. The side plates B are thin sheets brazed over the opposite ends of the hub A and may also be secured to the hub ends by screws 1, if desired. These plates are inclined or curved inward and secured together at their peripheries to form a hollow wheel and preferably supported between the hub ends and their outer edges by supports 2 formed on the hub, so as to stiffen the plates and enable thinner copper to be used. The hub is preferably increased in diameter only where it is necessary to provide these supports 2, thus reducing the weight of metal, but it will be understood that the hub may be formed so as to support the plates B over any desired portion of their inner surface. The outer edges of the plates B are secured together and to the vane carrying ring C between them by brazing, or by rivets 3, as shown, or both. The vanes D are shown as curved turbine vanes, but may be straight, and preferably are secured to the vane ring C as shown, the vane ring being slotted to allow the vane plates D to pass through the ring and be secured therein to form vanes on each side of the ring. For this purpose, the vane plates preferably are provided with long slots 4 on one side and short slots 5 on the other, so that they may thus be slipped into place by passing them through the slots 6 in ring C and then secured by brazing the vanes and ring together.

The construction shown in Figs. 4 to 6 is the same and made in the same way as the wheel shown in Figs. 1 to 3 and above described, except as to the construction of the vane ring and vanes. In the wheel shown in Figs. 4 to 6 in which straight vanes E are used, these vanes are formed with flanges 7 extending at right angles to the vanes by which two vanes on opposite sides of the vane ring F are riveted together and to the vane ring by rivets 8, these parts preferably being brazed together also.

It will be understood that the invention is not limited to the exact form or construction of either of the wheels shown, but many modifications may be made by those skilled in the art while retaining the invention defined by the claims. It will be understood,

also, that the invention, although intended especially for liquid meters, may be applied to other uses in which a similar light wheel is desired.

What we claim is:—

1. A wheel for meters and the like, having a hub, thin metal plates extending inward from the ends of the hub and secured together at their inner edges to form a wheel, a vane ring carried by said metal plates at their periphery, and vanes secured to the vane ring.

2. A wheel for meters and the like, having a hub, thin metal plates extending inward from the ends of the hub and secured together at their inner edges to form a wheel, supports on the hub for the metal plates between the hub ends and plate edges, a vane ring carried by said metal plates at their periphery, and vanes secured to the vane ring.

3. A wheel for meters and the like, having hub A, thin metal disks B secured to the ends of the hub and inclined inward to form a hollow wheel, a vane ring carried by the disks, the disks and vane ring being secured together, and vanes carried by the vane ring and extending on opposite sides of the ring.

4. A wheel for meters and the like, having hub A, thin metal disks B secured to the ends of the hub and inclined inward to form a hollow wheel, a vane ring carried by the disks, the disks and vane ring being secured together, said vane ring being slotted to receive the vanes, and vanes D extending through and secured to the vane ring.

5. A wheel for meters and the like, having a hub A, thin metal disks B secured to the ends of the hub and inclined inward to form a hollow wheel, a vane ring carried by the disks, the disks and vane ring being secured together, said vane ring being slotted to receive the vanes, and vanes D extending through and secured to the vane ring, said vanes D having slots 4, 5 on opposite sides for insertion of the vanes in the vane ring.

In testimony whereof, we have hereunto set our hands in the presence of two subscribing witnesses.

CHARLES W. CHISHOLM.
EUGENE KIBELE.

Witnesses:
H. T. HUDDEN,
S. F. STACKHOUSE, JR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."