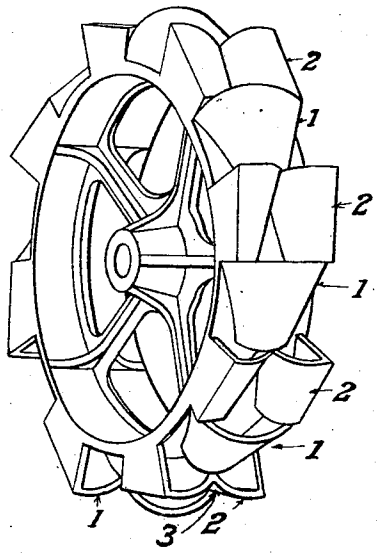
No. 870,567. PATENTED NOV. 12, 1907.

W. LÖH.

TURBINE.

APPLICATION FILED NOV. 2, 1905.



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WILHELM LÖH, OF HÖCHST-ON-THE-MAIN, GERMANY.

TURBINE.

No. 870,567. Specification of Letters Patent. Patented Nov. 12, 1907.

Application filed November 2, 1905. Serial No. 285,596.

To all whom it may concern:

Be it known that I, WILHELM LÖH, a subject of the German Emperor, and a resident of 3b Hauptstrasse, Höchst-on-the-Main, Germany, have invented certain new and useful Improvements Relating to Turbines, of which the following is a specification.

The subject of the present invention relates to a turbine in which the jet of water is deflected both in radial and axial direction in such a manner as to act simultaneously on more than one of the buckets of the turbine even if issuing from one nozzle only, for the purpose of diminishing as much as possible the loss of hydraulic power due to the impact of the jet.

The attached drawing is a perspective view of the wheel of such a turbine.

The buckets 1 are of the shape of half a truncated cone or funnel, the cone being bisected along its longitudinal axis, while the buckets 2 are of the shape of halves of the buckets 1, that is, a quarter of a cone, the openings at each end of both buckets being in the radial plane of the wheel. These buckets are so arranged on the periphery of the wheel that one of the half cones 1 alternates with a pair of the quarter cones 2, the latter being disposed side by side as shown in the figure, so that their bases meet to form a wall 3 in the middle of the narrow end of the bucket 1. This wall is made as thin as possible to facilitate the division of a jet of water flowing against it out of the bucket 1. As will be seen in the figure, the two sides of the buckets 2 forming the wall, open out owing to the narrowing of the buckets which are so disposed that their flat sides coincide with the edge of the wheel. If now the water flows in a flat jet in a tangential direction into one of the buckets 1, it is diverted radially and transformed into a jet of a semicircular section by the narrowing of the bucket, and further diversion in an axial direction takes place in consequence of the lateral pressure exerted by the narrowing sides of the bucket. The jet of water then flows into the double buckets 2, being divided into two parts by the wall 3, and each half of the jet undergoes the same radial and axial diversions as in the bucket 1.

When the water jet has passed through for example one of the buckets 1 if its velocity still exceeds that of the circumference of the wheel it is divided into two jets as has been explained. These two jets after passing through the double buckets 2 come together again in the next bucket 1 and are made into one jet by the pressure of the narrowing sides of the bucket 1. This is repeated until the velocity of the jet equals that of the circumference of the wheel, whereupon the water leaves the turbine in a tangential direction.

The power of the turbine can be increased (1) by increasing the number of nozzles, having regard however to the fact that as several buckets are traversed by the same jet there must be a certain distance between the nozzles, (2) by enlarging the periphery of the wheel and providing several buckets side by side so that the whole arrangement can be divided into a number of the simple turbines described, each one being provided with a nozzle, which nozzles can be placed in a row.

What I claim as my invention and desire to secure by Letters Patent is.

A turbine wheel comprising a rim, half cone buckets (1), and quarter cone buckets (2) mounted on the rim and arranged so that a half cone bucket follows a pair of quarter cone buckets.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILHELM LÖH.

Witnesses:

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