

No. 705,001.

Patented July 15, 1902.

R. WIDNER.
MOTOR.

(Application filed Aug. 22, 1901.)

(No Model.)

FIG. 1

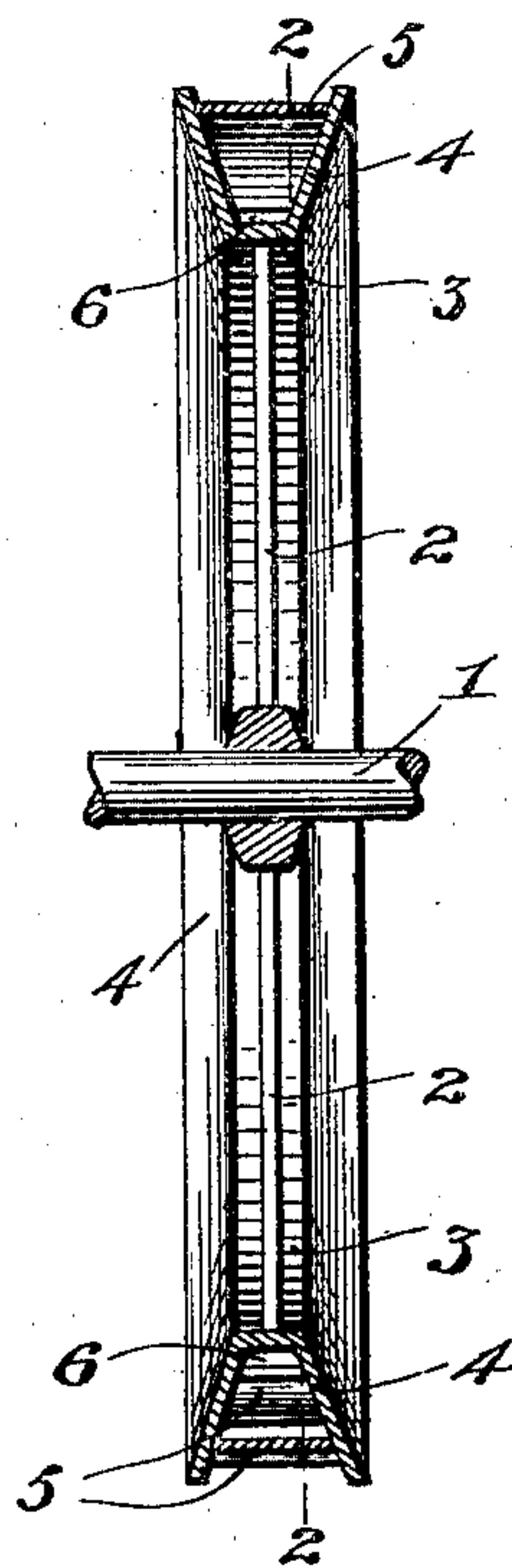
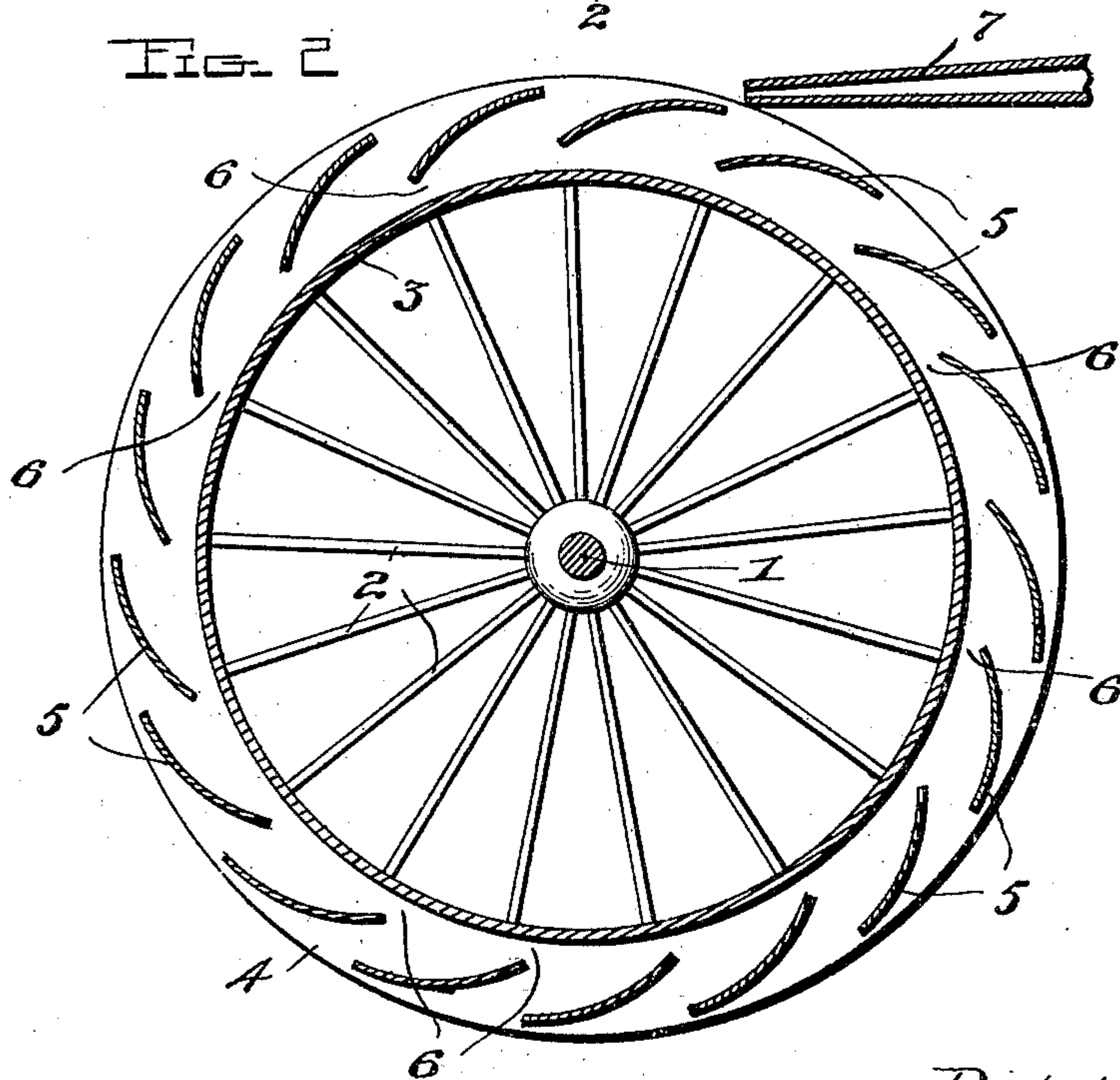


FIG. 2



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UNITED STATES PATENT OFFICE.

RALPH WIDNER, OF ENGLE, TERRITORY OF NEW MEXICO.

MOTOR.

SPECIFICATION forming part of Letters Patent No. 705,001, dated July 15, 1902.

Application filed August 22, 1901. Serial No. 72,917. (No model.)

To all whom it may concern:

Be it known that I, RALPH WIDNER, a citizen of the United States, residing at Engle, in the county of Sierra and Territory of New Mexico, have invented certain new and useful Improvements in Motors; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in motors.

The object of the invention is to provide a motor which is so constructed as to be adapted to be driven either by steam or other expansive fluid or water and to be propelled by the impact and the gravitative action of the water and by both the impact and a part of the expansive action of the steam.

With these and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be hereinafter more fully described, and particularly pointed out in the appended claim.

In the accompanying drawings, Figure 1 is a cross-section of a motor-wheel embodying my invention; and Fig. 2 is a section of the same, taken on line 2 2 of Fig. 1.

Referring now more particularly to the drawings, the numeral 1 designates the shaft of the motor-wheel or turbine which is connected to the hub thereof, from which hub radiate a series of spokes 2, to the outer ends of which is secured the rim 3. Attached to the rim are the flaring sides 4, which form, with said rim, a continuous circular channel extending entirely around the wheel. Arranged within the said annular channel at points equidistant from each other and connecting between the sides 4 are curved arc-shaped blades or vanes 5, which extend from a point adjacent to the outer edges of the sides 4 to near the rim 3, being, however, separated from said rim by spaces 6, which form ports or passages for the circulation of the steam, water, or other motive agent employed. The blades or vanes are thus tangentially disposed with their convex surfaces outward, thus forming a series of pockets around the circumference of the wheel, which

pockets are open at both top and bottom, the lower openings forming ports or passages for the circulation of the steam or motive agent from one pocket to the other.

The motive agent employed is supplied to the pockets at the upper portion of the wheel through a nozzle or conductor 7 of any approved construction.

In operation, if the motive agent employed be water under pressure the water will be supplied to the pocket in line with the spout 7 and will strike against the blade or vane in advance thereof and will be deflected by said vane downward toward the center of the wheel, thus giving an initial impulse. The water will then flow through the space or passage 6 into the next adjacent pocket on the descending side of the wheel and will continue to circulate from pocket to pocket in this manner and to act by impact as well as by gravitative force against the vanes until it reaches the lowest point in the path of revolution of the wheel, when it will discharge through the outer openings of the pocket into a waste pipe or receptacle provided for the purpose. If steam be employed as the motive power, the jets of steam issuing from the nozzle 7 will first impinge against one of the vanes or pockets and turn the wheel and be deflected downward toward the center of the wheel and pass from pocket to pocket in the manner hereinbefore described, the escape of steam from the several pockets being partially prevented by the peculiar arrangement of the vanes, so that the impact of the steam, as well as part of the expansive energy thereof, will be utilized to drive or propel the wheel. The steam will thus continue to act upon the wheel until entirely expended, so that a large proportion of the motive force is used.

From the foregoing description, taken in connection with the accompanying drawings, the construction, mode of operation, and advantages of the invention will be readily understood, and it will be seen that a wheel is provided which is simple of construction and is adapted to be driven by the impact and gravitative action of the water as well as the impact and a part of the expansive action of the steam or other elastic propelling medium.

Furthermore, a high efficiency is secured, as almost the entire power of the impulse and gravitative action or expansion of the driving agent is employed before exhausted, the power being gradually taken up or absorbed as the wheel revolves. The agent involved traverses the wheel. The construction of the wheel, with the vanes arranged as described, provides pockets which are open on both their outer and inner sides for the inlet of the motive agent and its circulation from one pocket to another, but prevents to a great extent the escape of the impelling agent upon the descending portion of the wheel by reason of the arrangement of the vanes, which tends to confine said agent and deflect it toward the center of the wheel in the manner described.

Various changes in the form, proportion, and minor details of construction may be made within the scope of the invention without departing from the spirit or sacrificing any of the advantages thereof.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent, is—

The combination with a supply-nozzle; of a motor-wheel having a rim and outwardly-inclined sides forming an annular flaring channel, and arc-shaped vanes having their convex surfaces outermost and extending between the sides and to near the outer edges of said sides and separated from the rim, forming ports or passages for the circulation of the impelling agent between the pockets or spaces formed between the vanes, the curvature of the vanes causing the impelling fluid to be directed toward the rim and from one pocket to another, substantially in the manner specified.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

RALPH WIDNER.

Witnesses:

I. V. BLOWS,
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