

No. 854,620.

PATENTED MAY 21, 1907.

W. C. AYLOR.
TURBINE ATTACHMENT.
APPLICATION FILED FEB. 13, 1906.

Fig. 1.

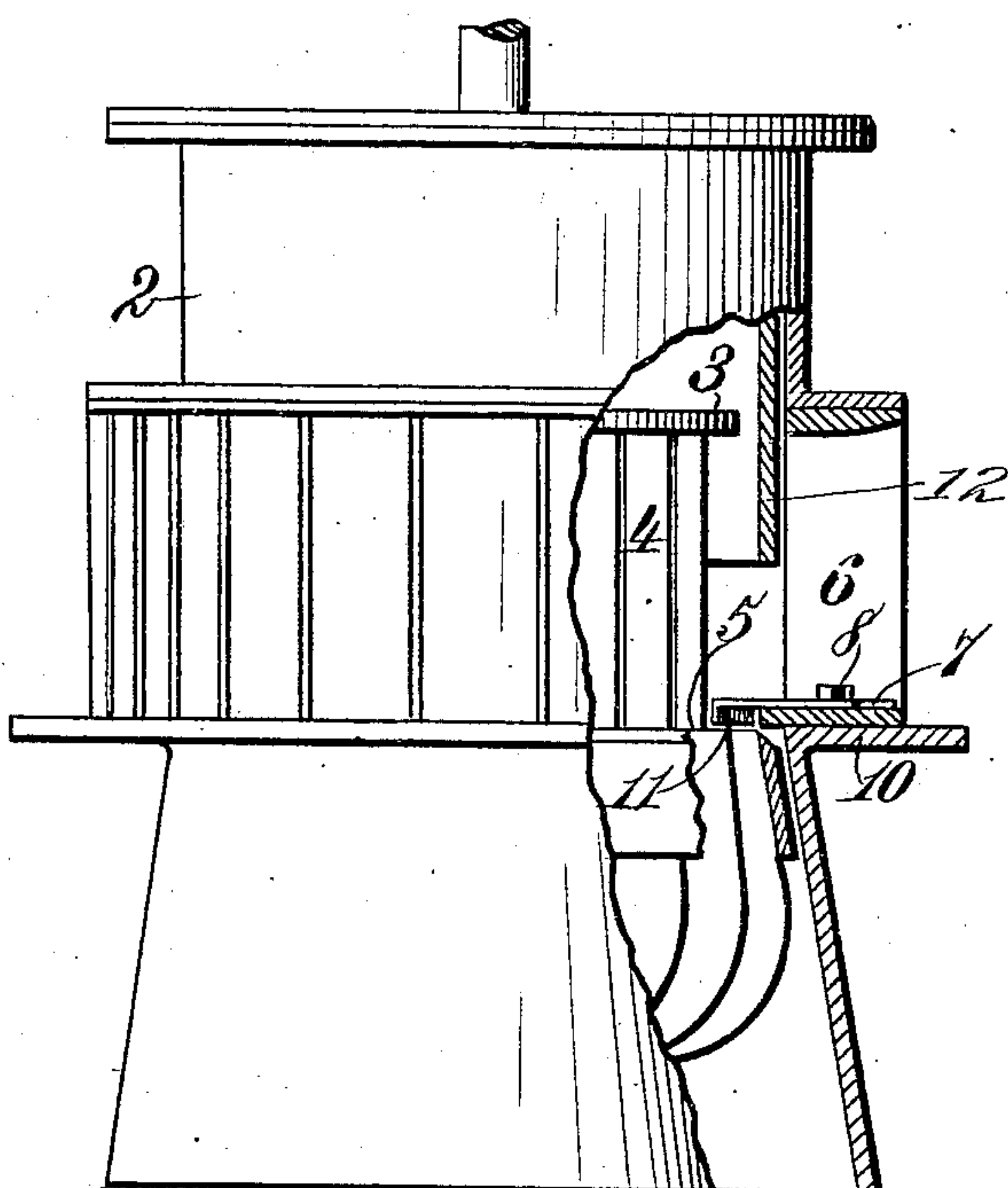


Fig. 2.

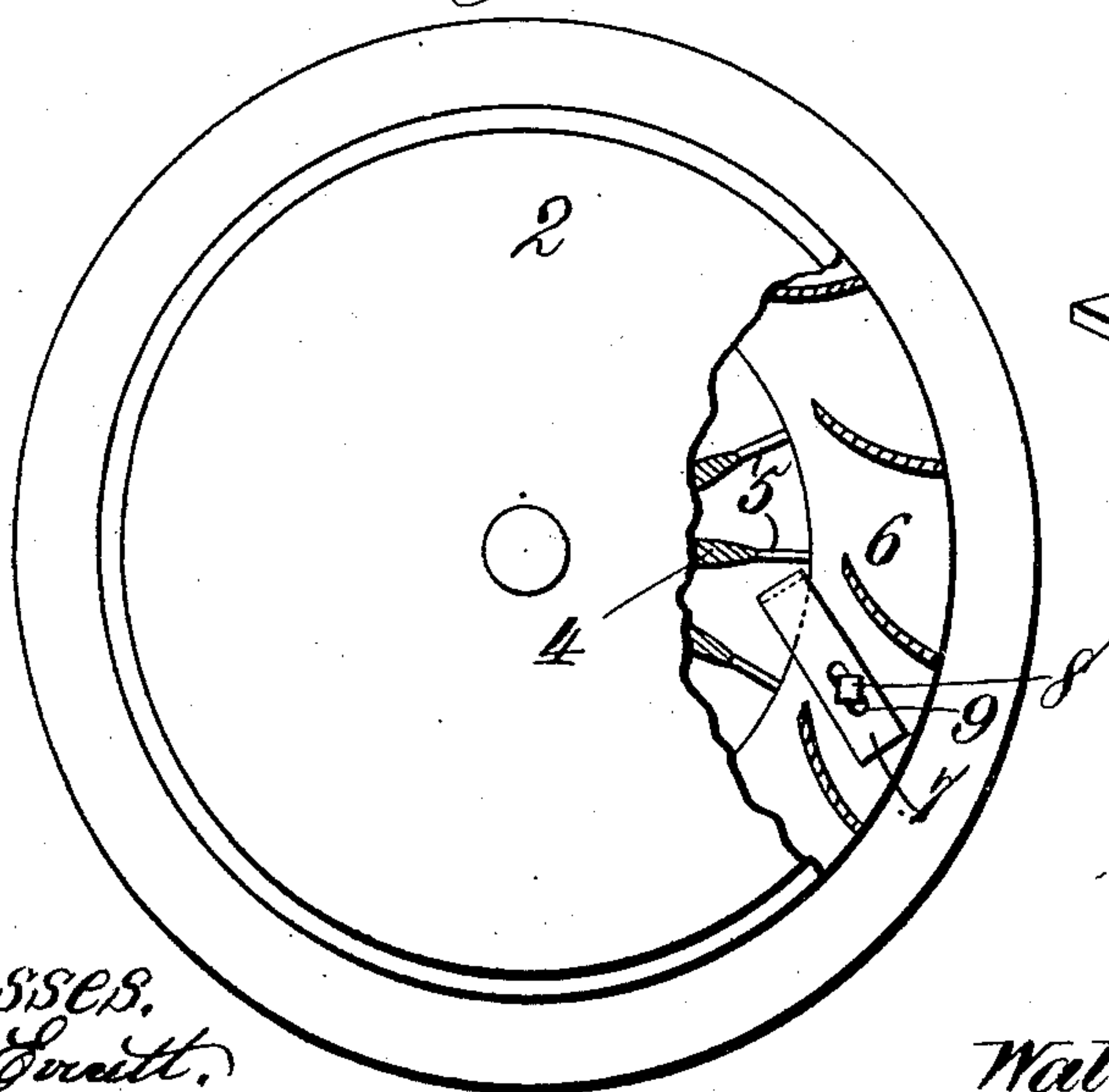
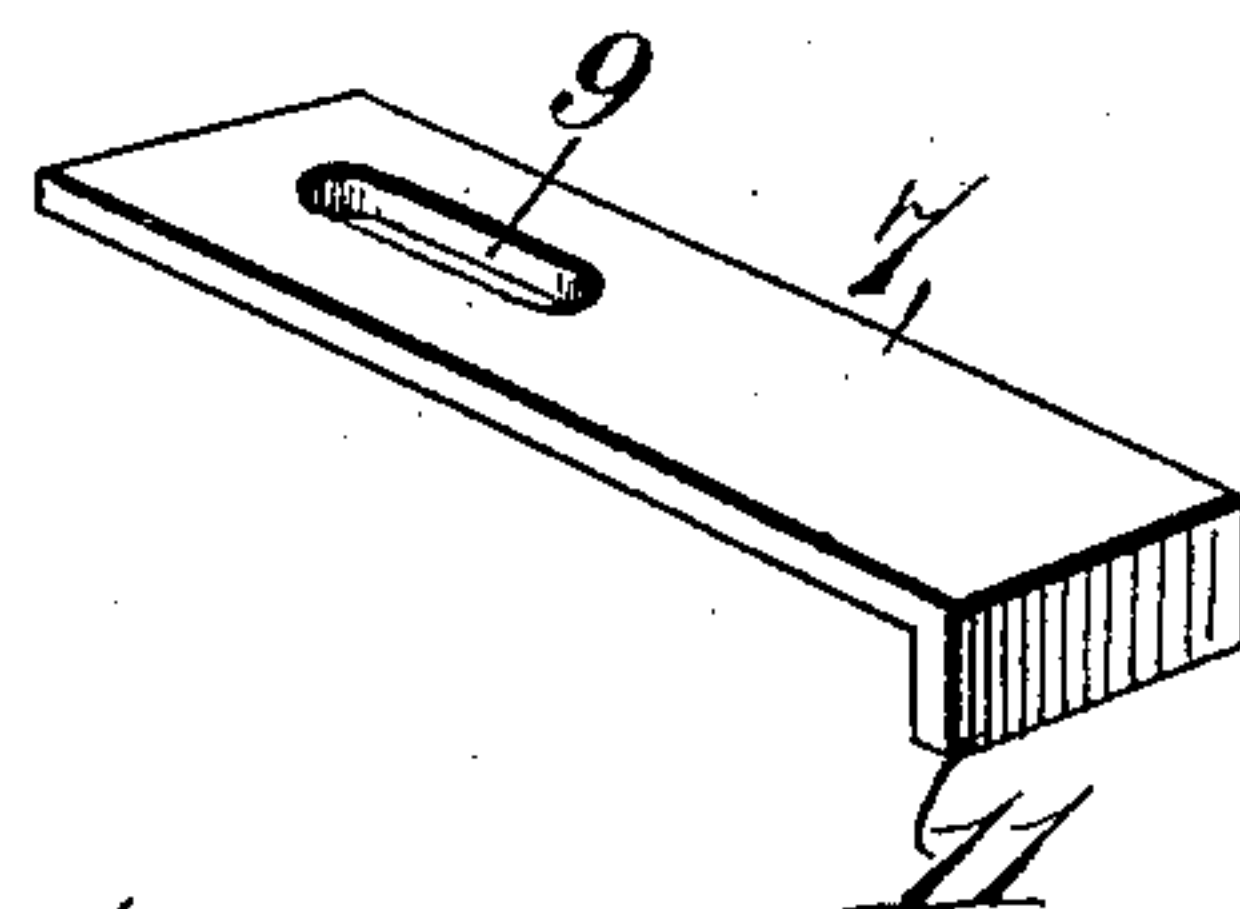


Fig. 3.



Witnesses.
Robert Smith.
[Signature]

Inventor.
Walter C. Aylor.
By *[Signature]*
Atty.

UNITED STATES PATENT OFFICE.

WALTER C. AYLOR, OF MADISON MILLS, VIRGINIA.

TURBINE ATTACHMENT.

No. 854,620.

Specification of Letters Patent.

Patented May 21, 1907.

Application filed February 13, 1906. Serial No. 300,883.

To all whom it may concern:

Be it known that I WALTER C. AYLOR, a citizen of the United States, residing at Madison Mills, in the county of Madison and State of Virginia, have invented new and useful Improvements in Turbine Attachments, of which the following is a specification.

This invention relates to turbine attachments. An attachment involving my invention may be used successfully in connection with different types of turbines such as those operated by water, steam or gaseous fluid. The attachment, however, is of particular advantage when employed in conjunction with a hydraulic turbine. Certain types of turbines of the latter class are at times rendered inoperative through the accumulation therein of dried leaves, sticks, eels and other foreign matter in the water. When the turbine is stopped through the collection of such foreign matter therein it is necessary before it can be again operated to remove the obstruction. By virtue of my invention this difficulty is wholly surmounted for I provide automatic means operative in connection with the turbine wheel to prevent the lodgment thereon of any foreign matter that may be in the water passing through the turbine. I accomplish this object in a simple manner.

In the drawings accompanying and forming a part of this specification I show a familiar type of water turbine and in connection therewith an attachment involving one form of embodiment of the invention, which attachment I shall describe in detail to enable those skilled in the art to practice the invention.

In said drawings, Figure 1 is a sectional elevation of said turbine. Fig. 2 is a detail view in horizontal section of the inlet portion of the turbine. Fig. 3 is a detail view in perspective of the attachment shown in the preceding figures.

Like characters refer to like parts throughout the several figures.

In Figs. 1 and 2 of the drawings I have illustrated a known form of water turbine, the same embodying a casing, as 2, in which is mounted the turbine-wheel 3 for rotation about an axis disposed longitudinally of the casing. The wheel 3 includes in its make-up a plurality of vanes or buckets as 4 set vertically and each having a shoulder, ledge or flange 5. The casing has an inlet for the water, such inlet being shown as provided with a plurality of obliquely disposed guides 6 which

divide the water into streams to be directed at an angle against the buckets or vanes 4 for rotating the turbine-wheel 3. In connection with the turbine-wheel I provide means for clearing the same of foreign matter and the clearing device will be adapted to the particular form of turbine-wheel.

I show a clearing device in detail in Fig. 3 adapted especially to the type of turbine-wheel shown in Figs. 1 and 2 and I will hereinafter describe the same in detail. This clearing device is adapted to clear the wheel of all matters that might tend to lodge upon the same and this result is accomplished without retarding in anywise the motion of the wheel. In the case of a turbine wheel like that shown in the drawings, I find that heretofore in practice all kinds of matter lodge upon the horizontal shoulders or ledges 5 so that in time the accumulation stops the motion of the wheel and renders necessary the cleaning of the turbine before it can operate. The clearing device has an elongated body or shank as 7 which is shown as extending through and in the direction of one of the guides 6. Said body 7 may be fastened in place in any desirable way, for example, it may be held in position by a set screw, as 8, extending through a longitudinal slot 9 in said body 7 and tapped into the flange 10. From this it will be understood that the body is capable of longitudinal adjustment. From the inner or working end of the body 7 there depends a flange 11 which extends entirely across the said body or shank 7. The inner portion of the body 7 as clearly shown in Fig. 2 is adapted to extend over the horizontal flanges or ledges 5 of the turbine-wheel, the flange 11 extending angularly of said ledges 5, in order to insure the diversion of foreign matters into the spaces between the buckets or vanes 4. The lower edge of the flange or lip 11 does not contact with the ledges 5 so that the clearing or scraping device does not interfere with the rotation of the turbine-wheel. It is really the flange or lip 11 that practically clears the ledges 5 of matters that might tend to stick thereto, although the clearing operation is participated in by the inner portion of the blade or body 7.

I have shown in Fig. 1 the customary gate or sluice 12 for regulating the flow of water toward the turbine-wheel.

It will be obvious, of course, that I may use my attachment in connection with a hori-

zontally disposed turbine wheel, it having been illustrated in connection with a vertically disposed turbine wheel simply for convenience.

5 What I claim is:

1. The combination of a turbine wheel comprising vertically disposed buckets having horizontally formed shoulders, a casing provided with obliquely disposed chutes for
10 directing streams of water against said buckets, and a clearing device extending through one of the chutes, provided with a flange depending from the inner end thereof, said flange being disposed angularly to the
15 shoulders and being adapted to free the same of foreign matter on the rotation of the wheel.

2. In a turbine, the combination of a turbine wheel comprising vertically disposed
20 buckets each having a horizontally formed shoulder, a casing for the wheel provided with obliquely disposed chutes for directing streams of water against said buckets, an obliquely disposed clearing device extending
25 through one of the chutes and provided with a longitudinal slot, and a screw extending through said slot and tapped into the casing,

the inner end of said clearing device having a down turned flange angularly disposed with respect to and adapted to clear said shoulders
30 of foreign matter on the rotation of the wheel.

3. In a turbine, the combination of a turbine wheel comprising vertically disposed
35 buckets, each having a horizontally formed shoulder, a casing for the wheel provided with obliquely disposed chutes for directing streams of water against said buckets, an obliquely disposed plate extending through
40 one of the chutes, fitting flatwise against the bottom thereof and having a longitudinal slot, and a screw extending through said slot and tapped into the casing, the inner end of
45 said plate having a downturned flange angularly disposed with respect to and adapted to sweep said shoulders free of foreign matter on the rotation of the wheel.

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

WALTER C. AYLOR.

Witnesses:

J. MORTON,
W. H. MORTON.