No. 733,229. PATENTED JULY 7. 1903.

C. W. LOOMIS.

ROTARY PUMP.

APPLICATION FILED DEC. 2, 1902.

NO MODEL.

Fig. 1.

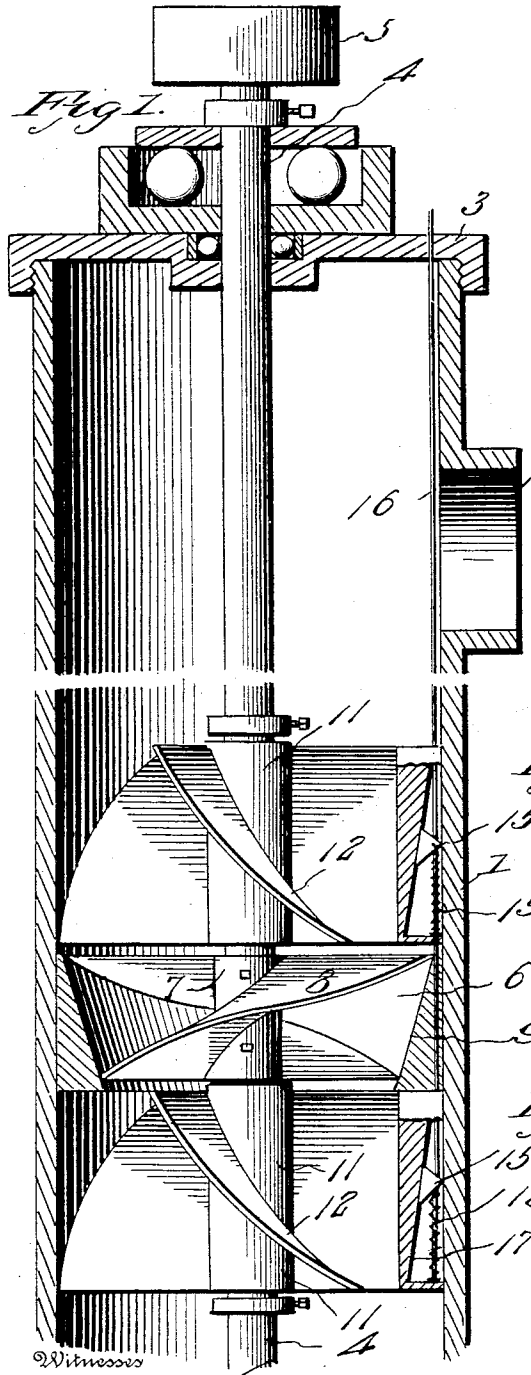



Fig. 2.

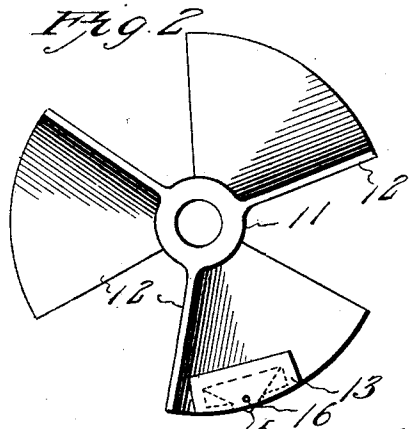



Fig. 3.

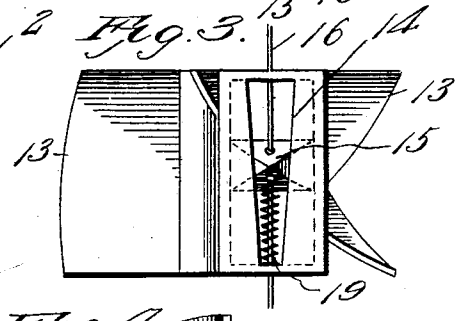



Fig. 4.

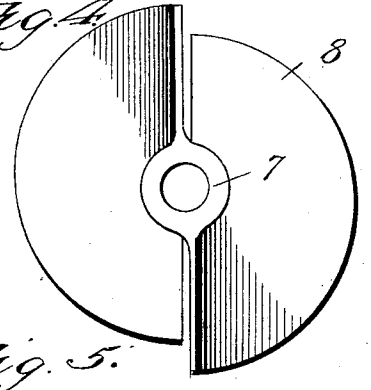
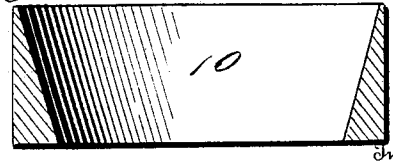



Fig. 5.




Witnesses

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No. 733,229. Patented July 7, 1903.

# UNITED STATES PATENT OFFICE.

CHARLES W. LOOMIS, OF LAKE CHARLES, LOUISIANA.

## ROTARY PUMP.

SPECIFICATION forming part of Letters Patent No. 733,229, dated July 7, 1903.

Application filed December 2, 1902. Serial No. 133,588. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES W. LOOMIS, a citizen of the United States, residing at Lake Charles, in the parish of Calcasieu and State of Louisiana, have invented new and useful Improvements in Rotary Pumps, of which the following is a specification.

My invention relates to new and useful improvements in rotary pumps; and the object is to provide a device of this character which is of simple and inexpensive construction and which is adapted to be readily applied inside the casing of a bored or driven well and to use the casing of said well as a pump-casing.

Another object is to employ a novel arrangement of fixed guide-blades which are used in conjunction with the blades of the rotary pump and are adapted to utilize the whirling movement of the water for directing the same upward, thereby increasing the capacity of the pump-blades.

Another object is to employ peculiar locking means for securing the guide-blades in position within the casing.

With the above and other objects in view the invention consists in the novel construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is a central vertical section through a portion of a casing and my improved rotary pump therein. Fig. 2 is a plan view of one set of guide-blades detached. Fig. 3 is a side elevation thereof, showing the locking-wedge. Fig. 4 is a plan view of the rotary wheel of the pump, and Fig. 5 is a section through the inner casing of said wheel.

Referring to the figures by numerals of reference, 1 is the cylindrical casing of a well, having an outlet 2 adjacent to the upper end thereof, and within a cap 3, secured to the upper end of said casing, is suitably journaled a vertical shaft 4, preferably driven by a belt or other similar means mounted upon a pulley 5 on the end of said shaft. This shaft extends downward to a point below the water-level within the casing, and a rotary wheel 6 is secured adjacent to the lower end thereof. This wheel comprises a hub 7, having two substantially semicylindrical blades 8 at opposite sides thereof and inclined in such a manner that when the wheel is rapidly revolved these blades will throw the water outward and upward by centrifugal force against the tapered inner surface 9 of a casing 10, fitted within casing 1 and surrounding the wheel 6. A sleeve 11 is loosely fitted upon the shafts 4 at a point directly below the hub 6 and is provided with preferably three inclined blades 12, which are inclined toward the blades 8. These blades fit snugly within the casing 1, and one of them is formed integral with a box 13, having a slot 14 in the outer face thereof, through which projects the apex of a pyramid-wedge 15, slidably mounted within the box and resting upon a spring 18. A rod of wire 16 is secured to the lower end of this spring and passes upward through a passage formed within the casing 10 and along the inner face of casing 1 to the top thereof. The inner face 17 of the box 13 is inclined upward and outward, as illustrated in Fig. 1, and it will be understood that when the wedge is moved upward upon said face the point thereof will be forced outward through the slot 14 and into contact with the inner face of casing 1. The spring 18 serves to hold said wedge normally flat upon the inclined face 17 and at the same time press it outward into contact with casing 1 when the rod or wire 16 is pulled upward. This wedge serves to lock the blades 12 in position within the casing, and said blades serve as supports for the casing 10, before referred to. I preferably place a similar set of inclined blades 12 directly above the rotary wheel 6, and these blades also extend from a sleeve 11 and are arranged parallel to the blades before referred to. A wedge 15 is arranged within a box formed upon one of these upper blades and serves to lock the said blades in proper position above the rotary wheel. The rod or chain 16, extending upward from the lower wedge 15, may also be connected to the lower end of a spring 19, adapted when the rod is pulled upward to bear upon the upper wedge and hold it in locking position.

In operation the shaft 4 is rapidly revolved in any suitable manner and the wheel 6 is turned therewith. The inclined blades of this wheel serve to throw the water outward

into contact with the inner beveled face of casing 10, and the impact thereof upon said face will cause the water to rise with a whirling motion. This motion will cause the water to flow upward upon the upper inclined blades 12, and it will thus be seen that the capacity of the rotary pump is increased by reason of the fact that the whirling motion of the water is utilized for hoisting it above the blades of the pump. As the pump revolves it also causes the water directly thereunder to whirl in the direction in which the wheel is moving, and the lower blades 12 therefore serve to guide this whirling mass upward into the paths of the blades 8.

In the foregoing description I have shown the preferred form of my invention; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such changes as fall within the scope of my invention.

Having thus described the invention, what is claimed as new is—

1. In a rotary pump, the combination with a casing and a rotary pump-wheel therein, of an internally-beveled casing inclosing said wheel and adapted to direct upward water thrown into contact therewith by said wheel, stationary inclined blades arranged below said wheel and adapted to direct whirling water within the casing upward to said wheel, and means for wedging said blades in position within the casing.

2. In a rotary pump, the combination with a casing, of a rotary pump-wheel therein, an internally-inclined casing inclosing said wheel and adapted to direct upward water thrown into contact therewith by the wheel, stationary inclined blades below the wheel and adapted to direct whirling water upward toward said wheel, and a spring-pressed wedge for securing the blades in position below the wheel, said blades serving to support the casing of the wheel.

3. In a rotary pump, the combination with a casing, of an inner casing therein having an inclined inner surface, a rotary pump-wheel arranged within said inner casing and adapted to throw water thereagainst whereby the same is directed upward, stationary inclined blades arranged above and below said wheel and adapted to direct the whirling water within the casing upward from and to the wheel respectively, a slotted box integral with each set of stationary blades, a spring-pressed wedge within each of said boxes and adapted to contact with and lock said blades within the casing, and an operating-rod extending from said wedges to a point without the casing.

4. In a rotary pump, the combination with a pump-wheel, of stationary inclined blades arranged thereunder and adapted to direct whirling water upward to the pump-wheel, a slotted box integral with said blades, a spring-pressed wedge therein and projecting therefrom, and an operating-rod extending from said wedge.

5. In a rotary pump, the combination with a casing, of a pump-wheel therein, stationary inclined blades arranged above and below said wheel and adapted to direct the whirling water within the casing upward from and to the wheel, respectively, a slotted box integral with each set of stationary blades, a spring-pressed wedge within each of said boxes and adapted to contact with, and lock said blades within, the casing, and operating means extending from said wedges to a point without the casing.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES W. LOOMIS.

Witnesses:
GEORGE S. TAYLOR,
FRANK PHILBRICK.