M. GOEHLER.

MANUALLY OPERATED HIGH SPEED ROTOR.

APPLICATION FILED FEB. 21, 1910.

981,757. Patented Jan. 17, 1911.

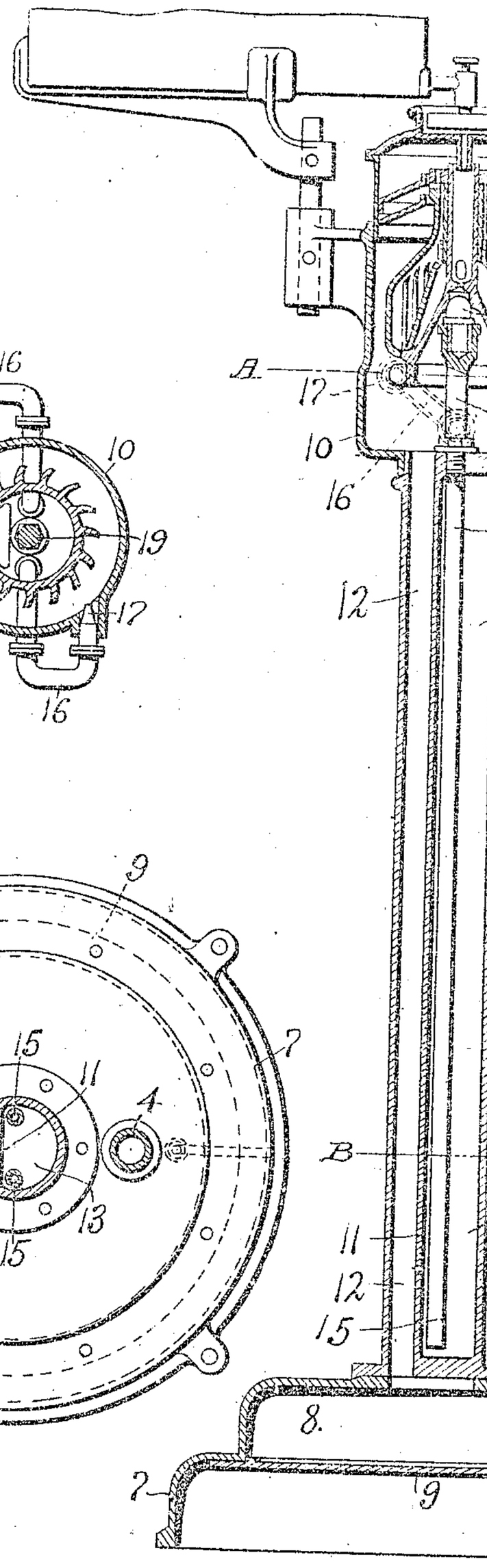

Fig. 1.

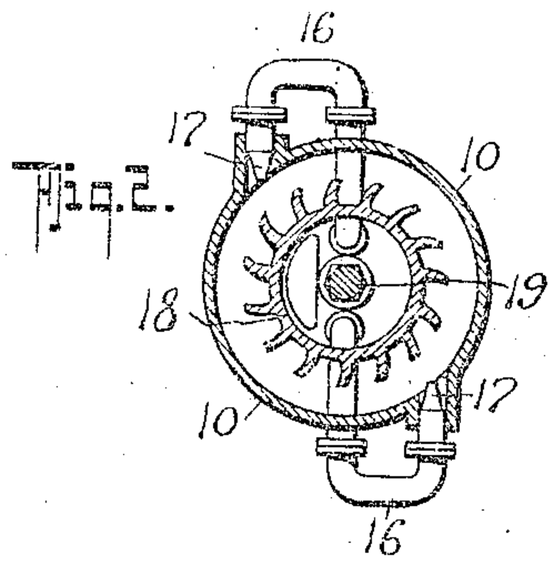

Fig. 2.

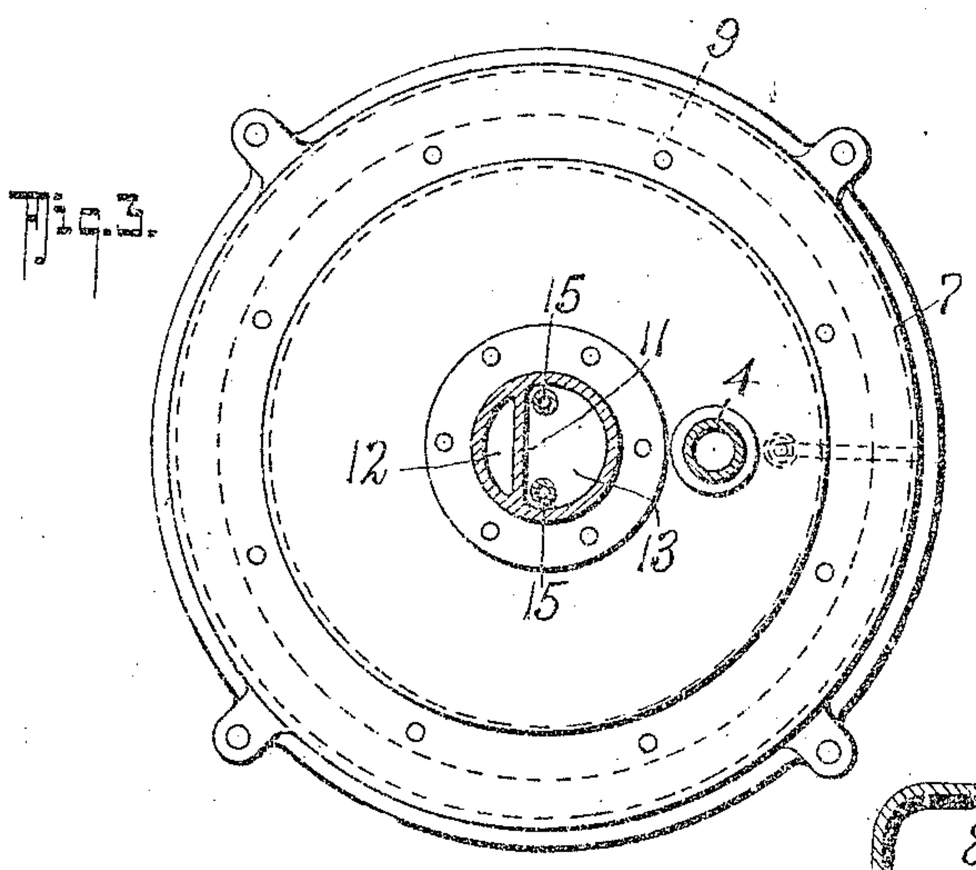

Fig. 3.

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MANUALLY-OPERATED HIGH-SPEED ROTOR.

981,757. Specification of Letters Patent. Patented Jan. 17, 1911.

Application filed February 21, 1910. Serial No. 545,124.

To all whom it may concern:

Be it known that I, MAX GOEHLER, citizen of the Swiss Republic, residing at Vancouver, in the Province of British Columbia, Canada, have invented a new and useful Manually-Operated High-Speed Rotor, of which the following is a specification.

This invention relates to a means for deriving a rapid rotatory movement from a manual effort, and is designed to effect this object by a means that is extremely simple in its parts and operation and free from the usual losses due to friction. This production of rapid rotation from manual effort is usually effected by means of tooth gearing, and where a high rate of speed is required, the gears must be very carefully designed and cut, making an expensive mechanism and one that with even that care absorbs a considerable amount of power in overcoming friction. The mechanism is also complicated in its number of parts and liable to derangement. It is to overcome these defects that the invention which is the subject of this application has been designed. The principle of it lies in the application of the manual effort to compress by means of a pump a fluid, preferably water, and thereafter to supply that compressed fluid to rotate a turbine directly connected to the object which it is desired to impart a high speed of rotation to.

The device although particularly designed for use in a cream separator may be applicable to a variety of purposes where it is desired to rotate a body by a manual effort.

There are, also, other important features in the manner of pivotally supporting the rotatable member to which attention will be called in the following specification which particularly describes the invention reference being made to the drawings by which it is accompanied, in which:

Figure 1 is a vertical longitudinal section and part elevation showing the application of the invention to a cream separator, Fig. 2, a cross section on the line A A in Fig. 1, and Fig. 3, a cross section on the line B B in Fig. 1.

In these drawings 2 represents a semi-rotatory or "wing pump" of a well known type, 3 being the handle lever by which the wings of the pump are oscillated from side to side, 4 the suction pipe and 5 the delivery. This pump 2 is secured to the side of a hollow column 6, which column stands upon and is securely fastened to a hollow base 7 a portion 8 of which is divided off by a partition 9 to form a water reservoir. The column 6 forms the support of the rotatory mechanism which is inclosed within a casing 10 secured to its upper end. The column 6 is divided longitudinally by a partition 11 to provide a passage 12 from the chamber 10 to the water vessel 8 in the base, and the larger division of the column is closed at each end to form an air vessel 13.

The suction pipe 4 of the pump is carried through the top of the base 7 and projects into the water chamber 8 to within a short distance of the bottom, and the pump discharge pipe 5 delivers into the air vessel 13 toward its upper end.

Extending downward through the upper end of the air vessel 13 to within a short distance of the bottom of it are two jet delivery pipes 15 to the upper ends of each of which is connected a jet pipe 16 terminating in a nozzle 17 delivering the water tangentially on to the vanes of an impact turbine 18 integral with or directly connected to the body it is desired to rotate which body and its turbine wheel is rotatably mounted on a central stand 19 projecting upward within the chamber 10 from the upper end of the column 6.

Where the character of the rotatory effort required will admit, the pivotal support of the turbine is projected through the plane of its rotation, and the wheel 18 and its attached parts is so mounted that it will be free to adjust itself during rotation. This result is attained by supporting the turbine wheel and its connected parts on the spherical end of the pin 20 the lower cylindrical end of which pin is rotatably mounted in a bearing within the support 19 which bearing may be provided with an anti-friction device such as a race of balls to sustain the weight of the rotatable parts.

In use a manual effort is applied to the handle lever 3 of the pump in a lateral back and forward movement in a vertical plane which movement is the most effective in which to apply a manual effort. Water is thus raised from the base tank 8 and is discharged through 5 into the air vessel 13. As the water rises within this vessel the elasticity of the air compressed in the upper end of it will absorb the pulsations of the pump and water will be forced up to the two pipes 15 and will deliver in a uniform

stream, through the oppositely directed nozzles 17, on to diametrically opposite sides of the turbine wheel 18. The water having finished its work will return down the passage 12 to the base tank 8.

A simple and effective means is thus provided by which the manual effort on the handle 3 is converted into a rotatory movement of the turbine wheel 18 and any attached mechanism and this is effected without the use of a complicated mechanism liable to derangement and absorbing power in friction.

The fluid is merely an elastic intermediate means between the pump handle and the turbine by which the varying pressure of the manual effort is converted into a constant high speed of rotation. Although water is preferred, it will be obvious that air will also serve the purpose though possibly subject to losses which the water is free from.

Having now particularly described my invention and the manner of its application, I hereby declare that what I claim as new and desire to be protected in by Letters Patent, is:

1. In a device of the class described, a hollow base having a chamber forming a reservoir and an opening in its top, a pipe secured to said base over said opening, said pipe having a longitudinal partition to divide the same into two compartments, one of said compartments being in communication at one end with said water reservoir, the other compartment having both ends closed, a manually operated pump, a suction pipe connecting said pump with said water reservoir, a delivery pipe connecting said pump with the closed chamber of said pipe, a support mounted on the upper end of said pipe, a casing mounted on the upper end of said pipe and in communication with the upper end of said open chamber of said pipe, a turbine mounted to turn in said support, nozzles carried by said casing for projecting a stream against said turbine, and pipes joined with said nozzles and communicating with said closed chamber of said first mentioned pipe near the bottom of the same.

2. In an apparatus of the class described, a hollow base inclosing a water reservoir, a pipe standard mounted on said base and projecting upwardly therefrom, said standard having a longitudinal partition dividing the same into an open ended chamber and a closed ended chamber, a casing mounted on the upper end of said pipe and in communication with said open ended chamber, a rotary impact turbine mounted in said casing, impacting nozzles for directing a fluid against said turbine, pipes connected to said nozzles and passing into said casing and down through the upper end of said pipe standard into said closed ended chamber and communicating with said chamber near the bottom of the same, a pump supported on said pipe standard, an inlet pipe connecting said pump with said water reservoir and an outlet pipe connecting said pump with said pipe standard and in communication with said closed ended chamber at a place below the upper end of the same to leave an air cushion in said closed chamber above said place of communication, substantially as shown and described.

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

MAX GOEHLER.

Witnesses:
ROWLAND BRITTAIN,
MAY WILYTE.