

No. 755,236.

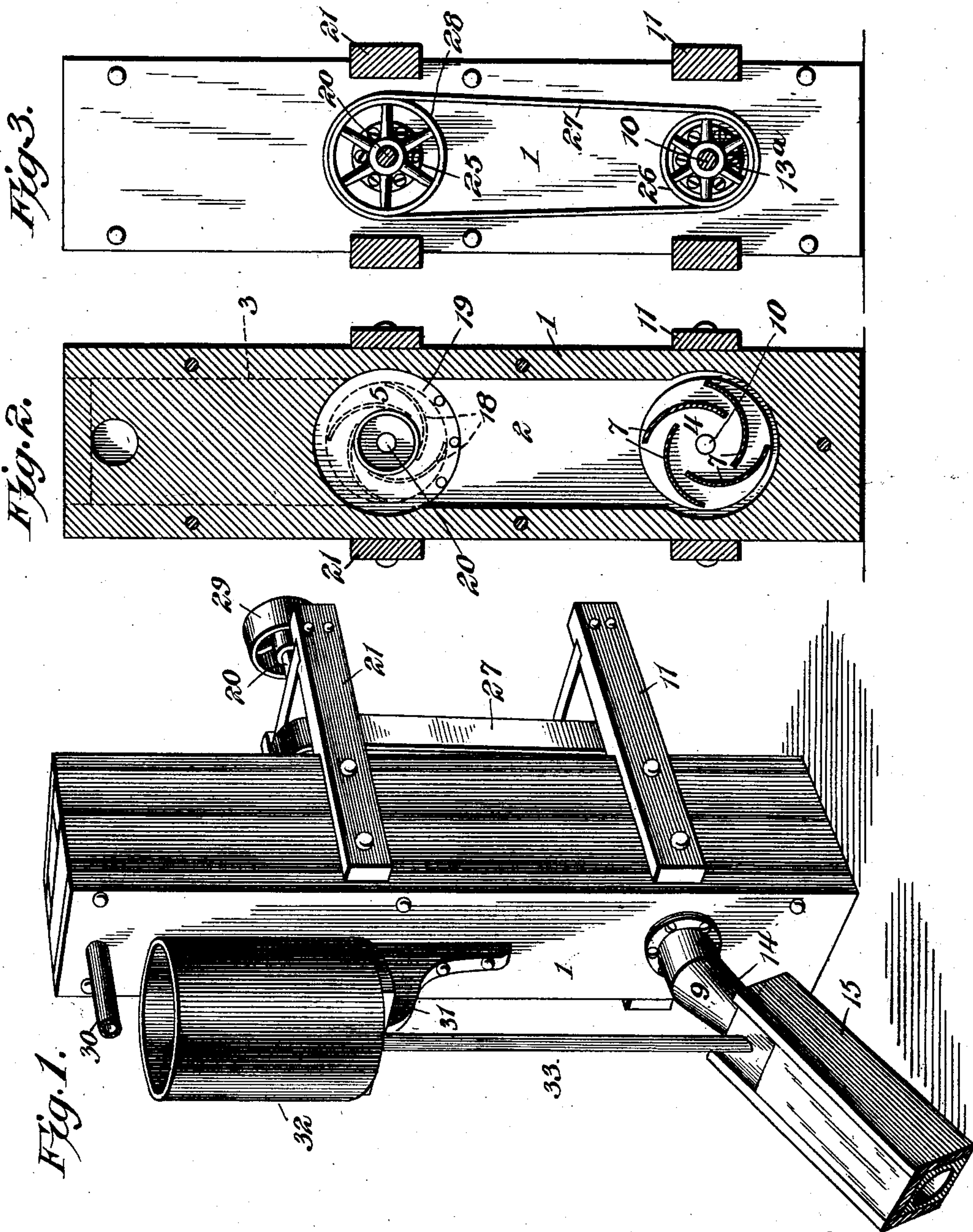
PATENTED MAR. 22, 1904.

H. J. PARK.  
PUMP.

APPLICATION FILED FEB. 13, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Henry J. Park, Inventor,

By

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Witnesses

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*J. F. Riley*

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2 SHEETS—SHEET 2.

Fig. 5.

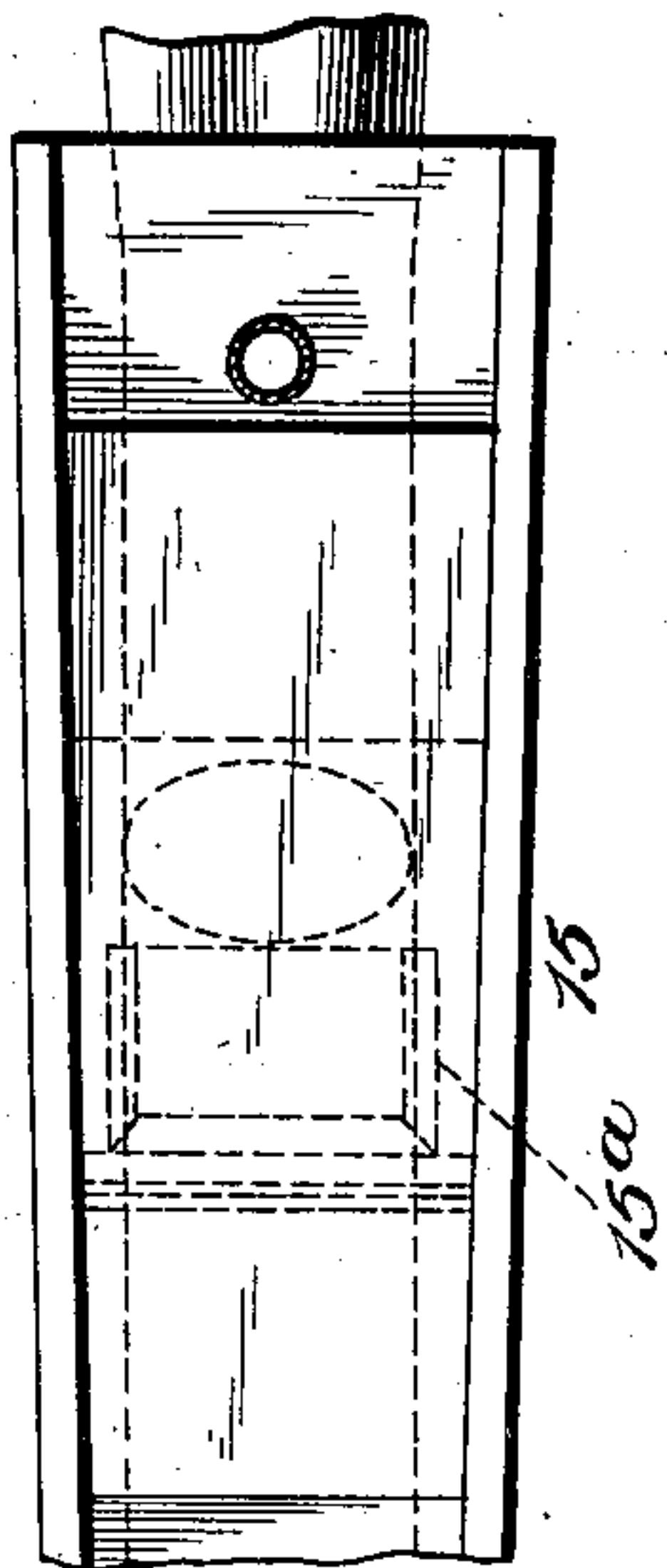


Fig. 6.

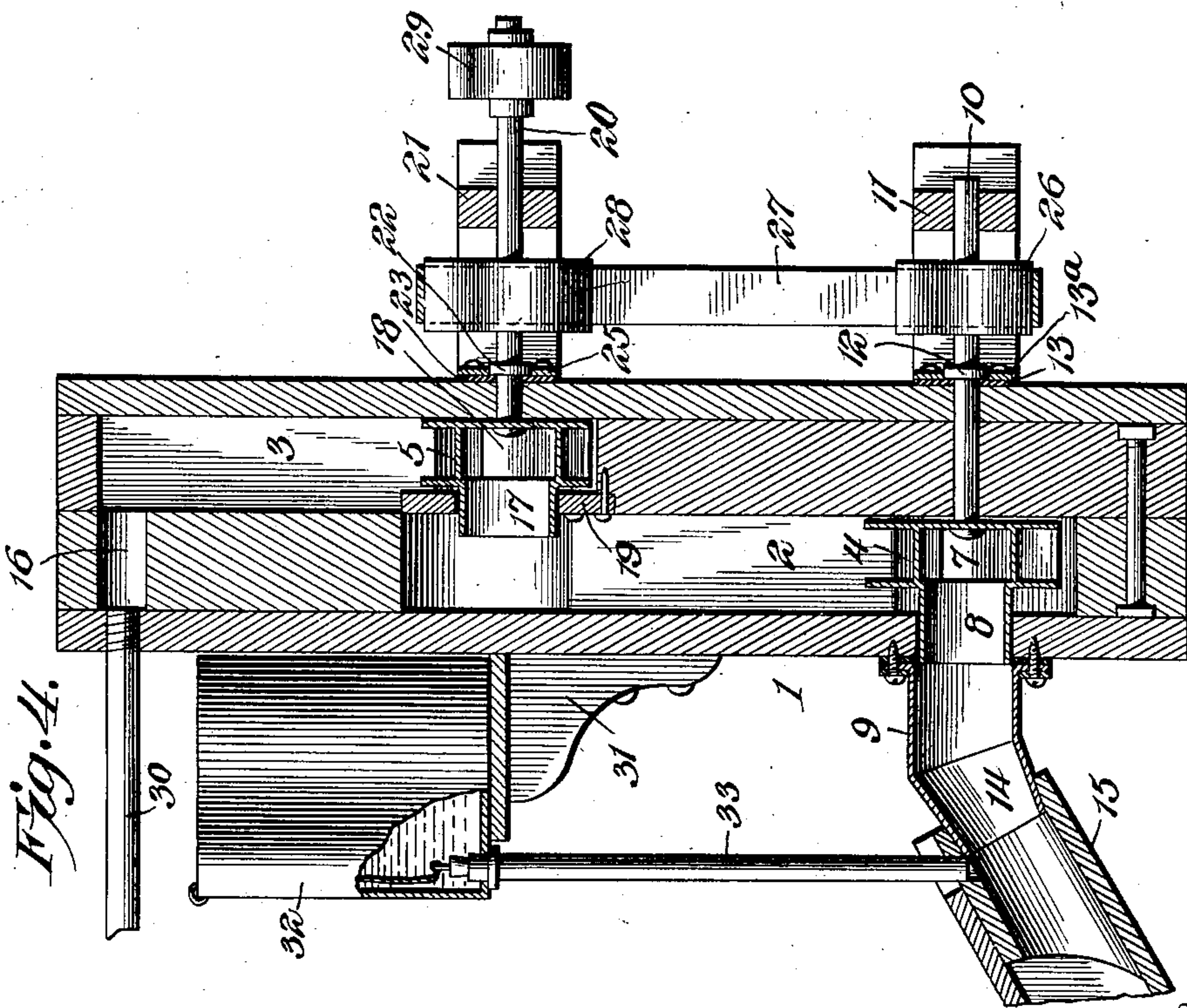
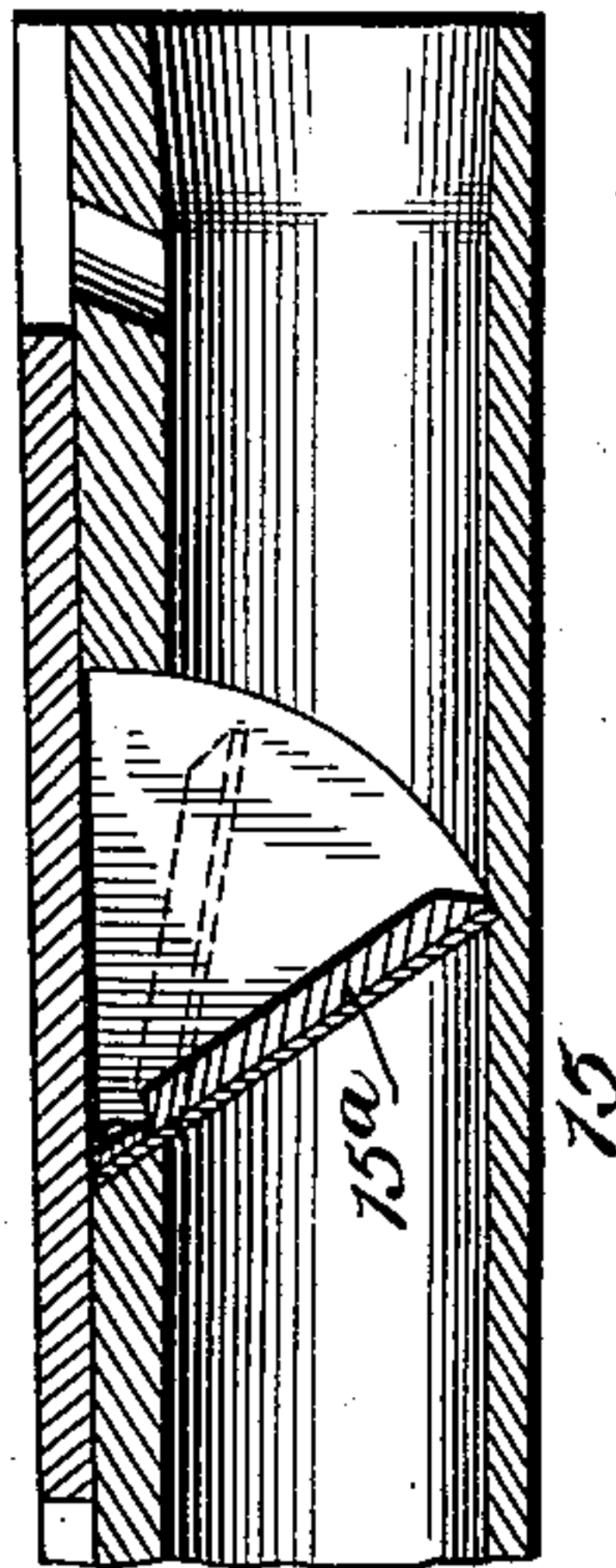


Fig. 4.

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# UNITED STATES PATENT OFFICE.

HENRY JACKSON PARK, OF ANGLETON, TEXAS, ASSIGNOR, BY MESNE ASSIGNMENTS, OF ONE-HALF TO RUFUS CLARK DARROUGH, OF HOUSTON, TEXAS.

## PUMP.

SPECIFICATION forming part of Letters Patent No. 755,236, dated March 22, 1904.

Application filed February 13, 1903. Serial No. 143,270. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY JACKSON PARK, a citizen of the United States, residing at Angleton, in the county of Brazoria and State of Texas, have invented a new and useful Pump, of which the following is a specification.

The invention relates to improvements in pumps.

The object of the present invention is to improve the construction of pumps and to provide a simple, inexpensive, and efficient one adapted to be readily operated at the expenditure of a minimum amount of power and capable of readily lifting water to the desired height and capable of affording a continuous flow of the same.

A further object of the invention is to improve the construction of that class of pumps employing a plurality of rotary suction devices or pumping-wheels and to enable the centrifugal force to be utilized for throwing the water upward.

Another object of the invention is to enable the pump to be readily primed when necessary.

With these and other objects in view the invention consists in the novel construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the claims hereto appended, it being understood that changes in the form, proportion, and minor details of construction within the scope of the claims may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a perspective view of a pump constructed in accordance with this invention. Fig. 2 is a vertical sectional view of the same. Fig. 3 is an elevation, partly in section, illustrating the arrangement of the means for rotating the shafts. Fig. 4 is a vertical sectional view taken at right angles to Fig. 2. Figs. 5 and 6 are detail views illustrating the construction of the valve and valve-casing of the inlet-pipe.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a pump-casing designed to be

mounted upon a suitable foundation or support and provided with a plurality of vertically-disposed water-chambers 2 and 3, which form water-passages for the reception of rotary suction devices or pumping-wheels 4 and 5, located at the lower ends of the chambers, as clearly illustrated in Fig. 4 of the accompanying drawings. Any number of chambers or compartments may be provided to secure the desired lift of the water, and each wheel is adapted to throw the water, as hereinafter explained, from the bottom to the top of its chamber or compartment. It will thus be apparent that by increasing the number of wheels and compartments the water may be lifted to any desired height.

The wheels are constructed in the same manner and are disposed vertically, as shown, being provided with a central horizontal inlet and having peripheral discharge openings or apertures arranged to throw the water upward by centrifugal force, whereby a maximum lifting effect may be obtained from a given power. The lower pumping-wheel 4 consists of a pair of disks or heads and a series of curved connecting-blades 7, extending inward from the periphery of the head or disk and diverging therefrom and terminating at a point between the center and the periphery of the wheel and presenting exterior convex faces adapted when the wheel is rotated to throw the water upward and capable of permitting the same to readily slide off of it without retarding or interfering with the upward passage of the water. By this construction the centrifugal force is utilized to the greatest degree in effecting a lifting of the water, and a suction is thereby created which causes the water to readily flow into the pump. The lower wheel is provided at one of its heads or disks with a central opening, and it has a sleeve extending outward from the opening and communicating with the inlet pipe or tube 9, which communicates with a body of water. The other head or disk of the lower wheel is mounted on a horizontal shaft 10, which is journaled in suitable bearings of the pump-casing, and a supporting-frame 11, which may be constructed in any desired manner, but which



preferably consists of horizontal bars or arms and a connecting cross-piece. The shaft 10 is provided between its ends with a collar 12, and a washer 13, which is secured to the pump-casing, extends between the same and the collar of the shaft, whereby the pressure of the water against the washer will force the same against the collar, and thereby form a tight joint and prevent the pump from leaking at the bearing of the shaft 10. The washer 13 is secured to the pump-casing beyond the collar of the shaft by means of a ring or plate 13<sup>a</sup>, constructed of suitable metal and perforated for the reception of screws or other suitable fastenings.

The inlet-pipe 9, which extends outward from the pump-casing, may be of any desired length and is provided with an outer tapered portion 14, inclined as shown and fitting within the upper end of an inclined valved box or casing 15<sup>a</sup>, which is designed to extend into the water and be partially submerged by the same. The valve-casing, which is open at its lower end, is provided with an inwardly-opening valve 15, arranged at an inclination, as clearly illustrated in Fig. 6 of the drawings. The valve box or casing is provided with an inclined seat to receive the valve, which will be held firmly closed by interior pressure when the pump is not working, whereby water within the pump will be prevented from returning through the inlet-pipe.

The upper chamber or compartment 3, which communicates at its top with a discharge opening or aperture 16, is offset from the plane of the lower chamber or compartment 2, and the sleeve 17 of the upper wheel extends into the upper end of the lower chamber, as clearly shown in Fig. 4. The water from the lower chamber flows into the central inlet of the upper wheel and is discharged at the periphery thereof through centrifugal force by the curved blades 18, which connect the heads or disks of the upper wheel. The lower portion of the upper chamber is separated from the upper portion of the lower chamber by a circular plate or partition 19, which is provided with a central opening for the sleeve 17. The outer disk or head of the upper wheel is mounted upon a horizontal shaft 20, which is journaled in suitable bearings of the pump-casing and a frame or support 21, similar to that heretofore described. The upper shaft is provided with a collar or flange 22, and a washer 23 is interposed between the collar or flange and the pump-casing to prevent leaking at the upper shaft. The upper washer 23 is secured to the exterior of the pump-casing by a plate 25 and suitable fastening devices, which pierce the plate and the washer, as before described. The lower shaft has screwed or otherwise secured to it a pulley 26, which is connected by a belt 27 with a pulley 28 of the upper shaft, and the latter carries a pulley 29, designed to receive a belt and to be driven by a suitable

power. The lower pulley 26 is smaller than the upper one to produce a more rapid rotation of the lower pumping-wheel, whereby a greater quantity of water will be delivered into the lower chamber than is discharged or thrown upward by the upper wheel. A suitable discharge pipe or tube 30 is connected with the discharge opening or aperture at the top of the pump-casing, and it may be of any desired character and may extend in any desired direction to deliver the water at the desired points.

The pump-casing is preferably provided above the inlet-pipe with a bracket 31 for the reception of a tank or receptacle 32, designed to contain a quantity of water and connected by a tube 33 with the valve box or casing at a point above the valve, as clearly shown in Fig. 4 of the drawings. The pipe 33 pierces the top of the valve box or casing and is designed to supply water for priming the cup when necessary; but the pump when in proper condition will prime itself. A suitable valve or cut-off is provided for controlling the flow of water through the tube 33.

It will be seen that the pump is simple and comparatively inexpensive in construction and that as the water is thrown upward by the centrifugal force resulting from the vertical arrangement of the pumping-wheels a maximum lifting effect is obtained from a given amount of power.

What I claim is—

1. In a pump of the class described, the combination of a plurality of communicating chambers or compartments arranged in different vertical planes, and a plurality of rotary suction devices arranged at different elevations and in different vertical planes and rotating on horizontal axes at the bottoms of the chambers or compartments, said suction devices being provided with central inlets and peripheral discharge-openings, the inlet of one rotary suction device being extended into the upper end of the adjacent chamber or compartment so as to receive its supply from the peripheral discharge-openings of the other suction device, substantially as described.

2. A pump of the class described comprising a vertical casing provided with a plurality of communicating vertical chambers or compartments arranged in different vertical planes, and a plurality of suction devices rotating on horizontal axes in the chambers or compartments at the lower ends thereof and provided with central inlets and peripheral discharge-openings, the inlet of one rotary suction device being extended from the lower end of its chamber or compartment into the upper end of the adjacent chamber or compartment and being located directly above the other rotary suction device, substantially as described.

3. A pump of the class described comprising a casing provided with a plurality of upright communicating chambers offset from each



other, vertically-disposed pumping-wheels arranged at the lower ends of the chambers and having central inlets and peripheral discharge-openings, a plate or partition interposed between the chambers and receiving the inlet of the adjacent wheel and means for operating the wheels, substantially as described.

4. A pump of the class described comprising an upright pump-casing having a plurality of communicating chambers offset from each other and arranged in a vertical series, a plurality of vertically-disposed wheels arranged at the lower ends of the chambers and having

central inlets and peripheral discharge-openings, shafts arranged horizontally and connected with the wheels, and means for connecting the shafts and for rotating the same, substantially as described. 15

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses. 20

HENRY JACKSON PARK.

Witnesses:

M. L. LOPER,

J. R. MARMION.