

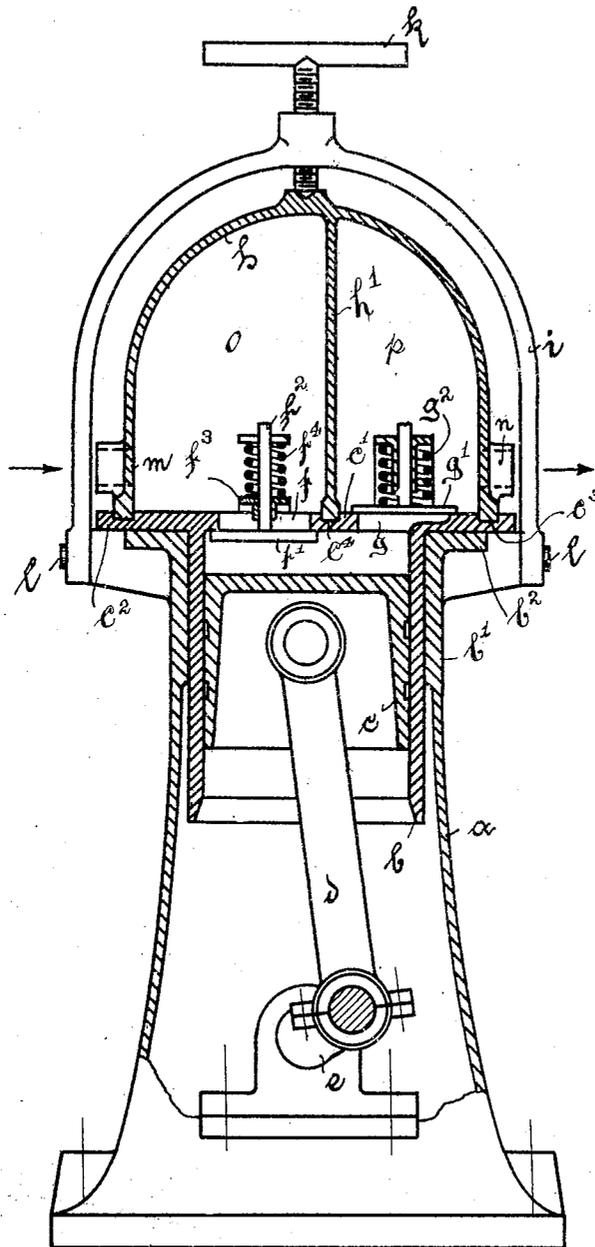
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PATENTED DEC. 20, 1904.

J. WILLMANN.  
PUMP.

APPLICATION FILED APR. 2, 1904.

NO MODEL.



Witnesses:

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# UNITED STATES PATENT OFFICE.

JOSEPH WILLMANN, OF ROME, NEW YORK.

## PUMP.

SPECIFICATION forming part of Letters Patent No. 777,828, dated December 20, 1904.

Application filed April 2, 1904. Serial No. 201,352.

*To all whom it may concern:*

Be it known that I, JOSEPH WILLMANN, a subject of the Emperor of Germany, residing at Rome, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Pumps; and I do hereby 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.

My invention relates to a novel construction in a pump, the object being to provide an efficient high-speed pump of simple and durable construction and which is easily taken apart for purposes of cleansing; and it consists in the features of construction and combinations of parts hereinafter fully described and claimed.

The accompanying drawing, illustrating my invention, shows my pump in central vertical section.

My said pump is designed particularly for the transportation of milk and other fluids requiring the greatest care as to cleanliness in handling. It is therefore essential that the pump should be so constructed as to enable it to be very easily taken apart and reassembled to permit access to every part of the interior thereof and that such interior should be as far as possible entirely devoid of inaccessible corners, so as to render the operation of cleaning as easy as possible.

To this end my pump consists of a hollow base *a*, in the lower end of which a crank-shaft *e* is suitably journaled, such shaft being geared to any suitable source of power. The said base *a* terminates at its upper end in a cylinder *b'*, which is of less diameter than the lower portion of said base and is surrounded at its upper end by an annular flange *b''*. At two diametrically opposite points at its upper end said base *a* is provided with trunnions *l*, on which a yoke *i* is pivotally mounted, said yoke carrying a hand-screw *k* at its middle portion. Extending into said cylinder *b'* from the upper end thereof is a cylinder *b*, which is open at its lower end and is adapted to receive the trunk-piston *c*, which is connected with said crank-shaft *e* by means of the pitman *d*. Said cylinder *b* is provided with an integral head

*c'* at its upper end and with an annular flange *c''*, which is adapted to rest upon said flange *b''*. In said head *c'* is an inlet-port *f*, which is controlled by a check-valve *f'*, the stem *f''* of the latter passing through a guide member *f'''*, mounted on said head and spanning said port *f*, said valve *f'* being held normally closed by means of the spring *f''''*. An exhaust-port *g* in said head is similarly controlled by a valve *g'*, normally held closed by a spring *g''*. In said annular flange *c''* is an annular groove *c'''*, and in said head *c'* is a lateral groove *c''''*, connecting with said groove *c'''* at its ends. The said grooves *c'''* and *c''''* are adapted to receive the lower edge of a dome *h* and the partition-wall *h'* thereof, which latter divides said dome into two chambers *o* and *p*. Said dome *h* is held in place upon said flange *c''* and head *c'* by means of said hand-screw *k*.

The liquid to be transported is admitted to the chamber *o* through the inlet-port *m* in the lower end of said chamber and is exhausted through the exhaust-port *n* in the lower end of said chamber *p*, the upper portion of said chamber serving as an air-chamber to cushion the flow of said liquid as it enters said chamber.

It will be noted that the inlet and exhaust valves are of large area and located very near each other, so that the liquid travels only a short distance from one to the other thereof, while the piston has a short stroke and reciprocates at high speed. The disposition of the valves adjacent each other, combined with the high speed of the piston and the large areas of the ports, insures the highest efficiency.

It will be obvious that my said pump is very easily taken apart and assembled and that the parts are very few and simple in construction, thus rendering the cleansing operation very easy and rapid of accomplishment.

I claim as my invention—

1. In a pump, the combination with the base, the cylinder removably mounted thereon, and the cylinder-head provided with inlet and exhaust ports, of a dome disposed above and resting on said cylinder and having two separate chambers each communicating with said cylinder through one of said ports, and each having an opening for the passage of liq-

uid, and clamping means carried by said base and bearing on said dome to hold the same and said cylinder in position on said base.

2. In a pump, a hollow base terminating at  
5 its upper end in a cylindrical sleeve, a cylinder open at its lower end fitting telescopically in said sleeve, a crank-shaft in said base, a piston in said cylinder connected therewith,  
10 an annular flange on said cylinder, an inlet and an exhaust port in the cylinder-head, valves controlling same, air-chambers disposed above the cylinder-head and communicating with said cylinder through said inlet and exhaust ports respectively, and openings  
15 in the walls of said air-chambers.

3. A pump comprising a hollow base terminating at its upper end in a cylindrical sleeve, a crank-shaft journaled in said frame, a cylinder open at its lower end fitting telescopically in said sleeve, a trunk-piston in said cyl-

inder connected with said crank-shaft, valve-controlled inlet and exhaust ports in the head of said cylinder, a dome resting on said cylinder-head, a yoke pivotally secured to said base and carrying a hand-screw adapted to bear on  
25 said dome, a partition-wall in said dome dividing same into two compartments and so disposed relatively to said inlet and exhaust ports as to establish independent communication between both said compartments and said  
30 cylinder, and openings in the outer walls of said compartments forming inlet and exhaust ports respectively.

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

JOSEPH WILLMANN.

Witnesses:

JOHN D. McMAHON,  
JOHN A. SMITH.