(No Model.) 2 Sheets—Sheet 1.

I. ARTEMKIN.

ROTARY PUMP.

No. 591,522. Patented Oct. 12, 1897.

Fig. I.

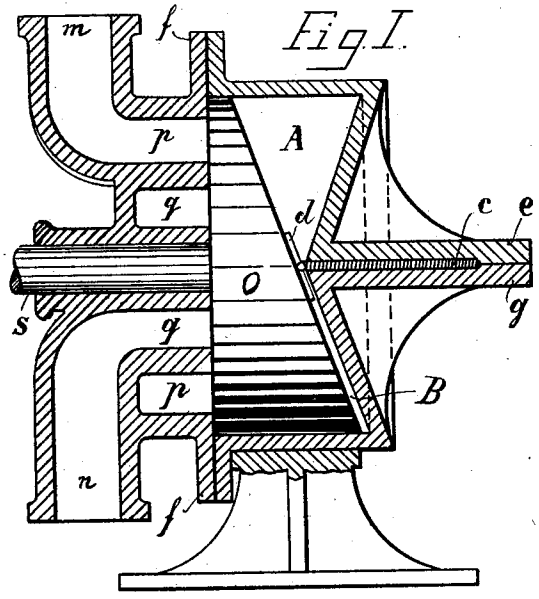


Fig. II.

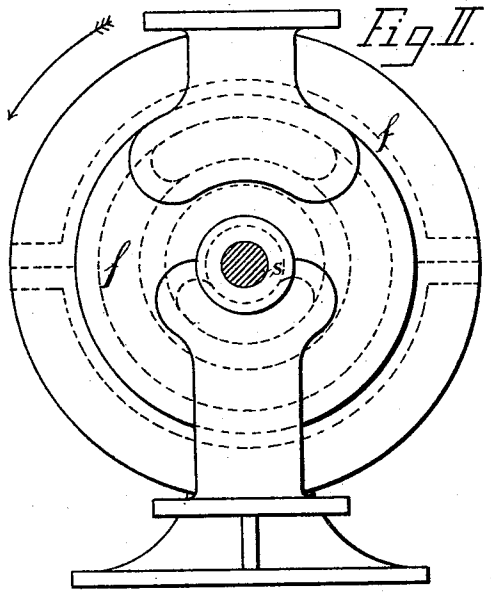


Fig. IV.

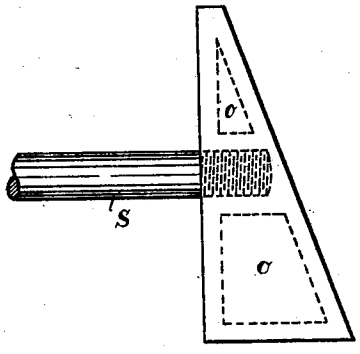
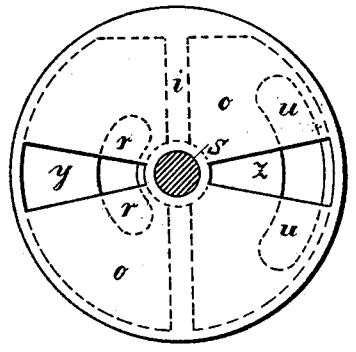


Fig. V.



WITNESSES:
Edw. F. Kaegeler
E. Gunther

INVENTOR:
I. Artemkin
BY Oscar F. Gunz
ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

I. ARTEMKIN.

ROTARY PUMP.

No. 591,522. Patented Oct. 12, 1897.

Fig. III.

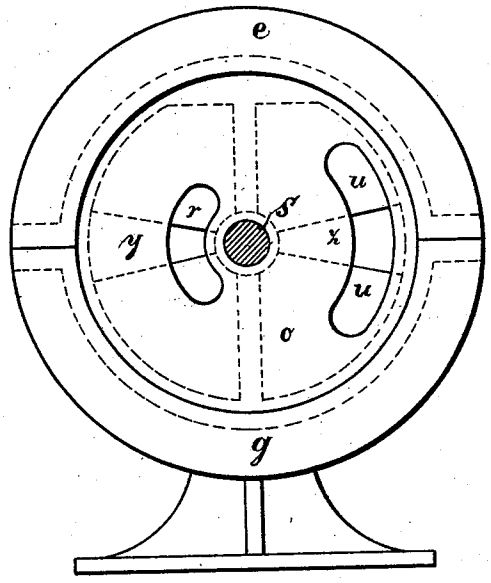


Fig. VI.

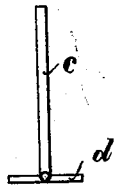
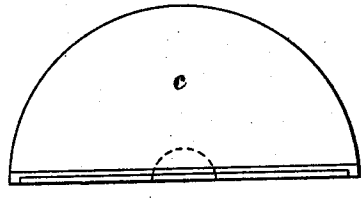


Fig. VII.



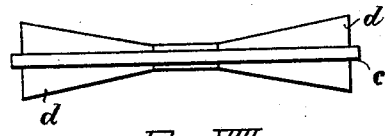


Fig. VIII.

WITNESSES:
Chas. F. Haegele
E. A. Gunter

INVENTOR:
I. Artemkin
BY Oscar F. Gunz
ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

IVAN ARTEMKIN, OF MOSCOW, RUSSIA.

ROTARY PUMP.

SPECIFICATION forming part of Letters Patent No. 591,522, dated October 12, 1897.

Application filed January 13, 1896. Serial No. 575,412. (No model.)

To all whom it may concern:

Be it known that I, IVAN ARTEMKIN, a citizen of the Empire of Russia, and a resident of the city of Moscow, Russia, have invented certain new and useful Improvements in Rotary Pumps, of which the following is a specification.

This invention relates to a new and improved pump with a rotating piston of wedge shape in transverse section, which piston rotates in a cylindrical casing, one head of which is flat and the other cone-shaped, with the apex toward the interior of the casing, and which piston, by its wedge shape, produces alternately a forcing and a sucking action.

In the accompanying drawings, forming a part of this specification, and in which like letters of reference indicate like parts in all the views, Figure 1 is a vertical sectional view through my improved rotary pump at right angles to the face of the same, the rotary piston being shown in elevation. Fig. 2 is a front view of the same. Fig. 3 is a similar view, the front plate having been removed. Fig. 4 is a side view of the wedge-shaped rotary piston. Figs. 5 to 8 show details of construction.

The pump-casing is composed of the two sections *g* and *e*. In the same the rotary body *o*, which is fixed on the shaft *s*, is mounted to rotate. Between the two sections *g* and *e* a plate *c* is arranged loosely to swing, and on a straight edge of the same a wing-shaped valve *d* is hinged. The plate *c* and valve *d* serve for separating the two chambers A and B, formed by the two sections *g* and *e*, from each other and also to close the openings *y* and *z* in the inclined face of the rotary piston. The said piston *o* is hollow and is divided by the partition *i* into two chambers for the purpose of making it lighter, requiring less material, and can be cast more easily. It might be made solid and only have two openings, but for the reasons stated I prefer to make it hollow.

In the straight face of the piston two openings *r* and *u* are provided, and thus each half of the piston has an opening in each face of the piston. The casing formed of the sections *g* and *e* is closed by a cover *f*, having channels *p* and *q*, which latter connect the openings *r* and *u* with the necks *m* and *n*. The valve *d* on the plate *c* rests on the inclined face of the rotary piston *o* in accordance with the rotation of the same. The casing formed of the two sections *g* and *e* has such shape that the piston *o* can rotate freely in the same.

The pump operates in the following manner: When the piston is rotated in the direction indicated by the arrow in Fig. 2 from its position shown in Fig. 1, the openings *y* and *z* pass from under the valve *d*, the opening *y* passing into the chamber B and the opening *z* into the chamber A. After a half-rotation the thicker part of the piston is in the chamber A and the thinner part in the chamber B. By this rotation the liquid or air has been drawn by suction into the chamber B, and at the same time the liquid or air that was formerly in the chamber A is forced through the openings *u* and *z* out of said chamber A. After the half-rotation the openings *y* and *z* are again closed by the valve *d*. During the continued rotation the openings *y* and *z* again pass from under the valve *d*, but move the opening *y* in the chamber A and the opening *z* in the chamber B, and therefore the liquid or air is drawn by suction into the chamber A and forced out of the chamber B until finally after a complete rotation the piston arrives at the position shown in Figs. 1 and 3. As the liquid or air is always drawn by suction into that chamber in which the thinner part of the piston is at the time, this is repeated for each rotation of the piston.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a pump, the combination with a rotary piston having unequal volumes on two opposite sides of its axis of rotation and having two passages through it, of a symmetrical casing adapted in form to receive said piston, whereby, as the piston rotates, opposite sides of the casing will contain alternately larger and smaller portions of the piston, a suction-passage in constant communication with one end of one of said passages through the piston, a discharge-passage in constant communication with the corresponding end of the other of said passages, the other ends of said passages through the piston, communicating

with the interior of said casing and lying substantially in the plane between the larger and smaller sides of the piston, and a partition movably mounted in said casing in position to engage the piston and divide the unoccupied portion of the casing into two portions, substantially as described.

2. In a pump, the combination with a rotary piston having unequal volumes on two opposite sides of its axis of rotation and having two passages through it, of a symmetrical casing adapted in form to receive said piston, whereby as the piston rotates, opposite sides of the casing will contain alternately larger and smaller portions of the piston, a suction-passage in constant communication with one end of one of said passages through the piston, a discharge-passage in constant communication with the corresponding end of the other of said passages, the other ends of said passages through the piston communicating with the interior of said casing and lying, substantially in the plane between the larger and smaller sides of said piston and a partition movably mounted in said casing, in position to engage the piston and divide the unoccupied portion of the casing into two portions, and a valve mounted on the edge of the partition, which engages the piston, in position to cover the ports therein, which communicate with the interior of the casing as they pass such edge, substantially as described.

3. In a rotary pump, the combination with a cylindrical casing, one head of which is cone-shaped, with the apex toward the interior of the casing, and the other head of which is plane and provided with suction and discharge passages, and a cylindrical piston, wedge-shaped in a direction transverse to the axis of rotation, and having two diametrically opposite passages through it, communicating with the interior of the casing and with said suction and discharge passages respectively, and a rocking partition, mounted in the casing in position to engage the inclined face of the piston, substantially as described.

4. In a rotary pump, the combination with a cylindrical casing, one head of which is cone-shaped, with the apex toward the interior of the casing and the other head of which is plane and provided with suction and discharge passages, and a cylindrical piston, wedge-shaped in a direction transverse to the axis of rotation, and having two diametrically opposite passages, through it, communicating with the interior of the casing and with said suction and discharge passages respectively, a rocking partition in the casing, in position to engage the inclined face of the piston and a valve hinged to said partition to rest on the inclined face of the piston, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 21st day of November, 1895.

IVAN ARTEMKIN.

Witnesses:
GUSTAV HERMAN THIEL,
ADOLPH BILLHARDT.