No. 727,749. PATENTED MAY 12, 1903.

W. E. COOK.

ROTARY PUMP.

APPLICATION FILED FEB. 25, 1902.

NO MODEL.

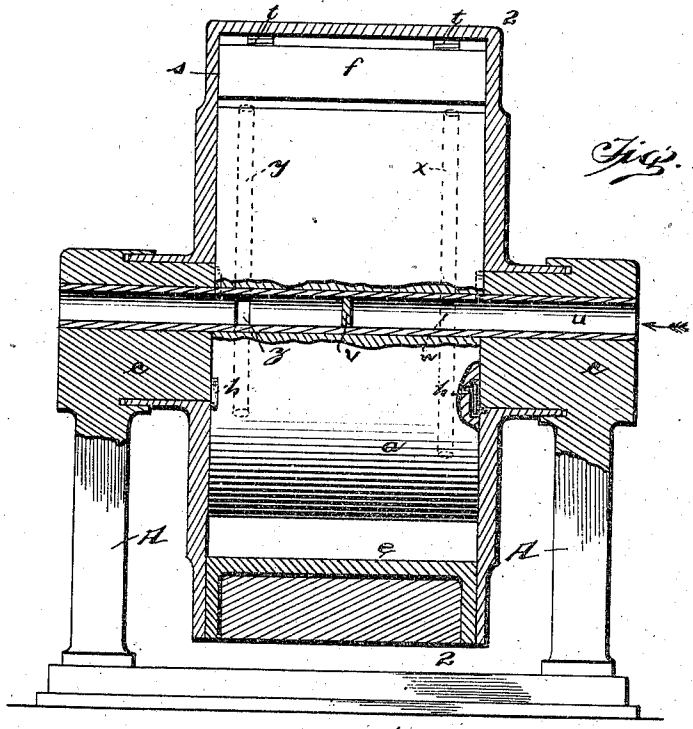


Fig. 1.

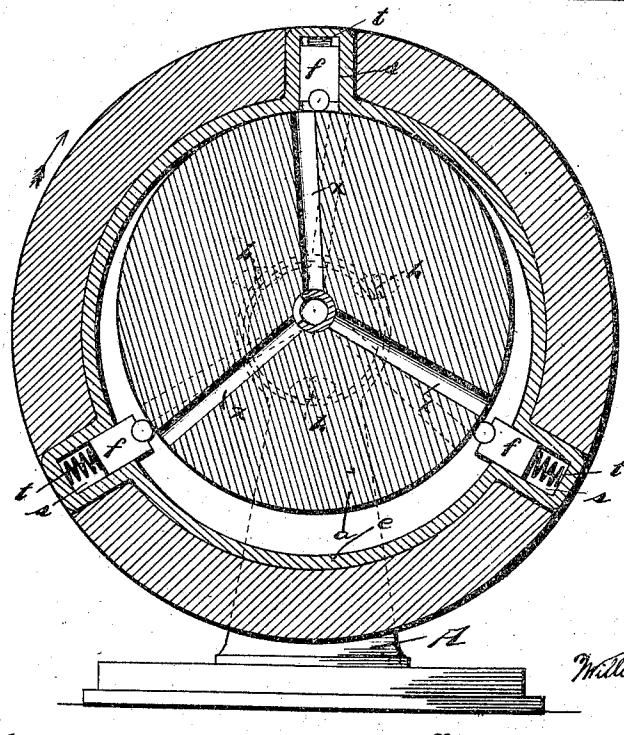


Fig. 2.

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No. 727,749. Patented May 12, 1903.

UNITED STATES PATENT OFFICE.

WILLIAM E. COOK, OF LONDON, ENGLAND.

ROTARY PUMP.

SPECIFICATION forming part of Letters Patent No. 727,749, dated May 12, 1903.

Original application filed October 29, 1901, Serial No. 80,428. Divided and this application filed February 25, 1902. Serial No. 95,515. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. COOK, a subject of the King of Great Britain, residing at London, in the county of London, England, have invented certain new and useful Improvements in Rotary 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 improvements in rotary pumps, and more particularly to that class wherein are employed nested drums.

It consists of eccentrically-nested drums mounted upon a suitable support, one of the drums being provided with vanes at various points of its periphery bridging the space between the drums, means for causing said vanes to so bridge said space without regard to the relative positions of the drums, means for permitting the introduction of liquid between said drums, and means for permitting the escape of said liquid, the structure being such that as the drums are rotated together their eccentric mounting will cause them to separate from the point of their meeting peripheries for drawing in the said liquid, and continued rotation will cause the drums to move together again for forcing the liquid from between them, said vanes preventing lateral movement of the liquid.

It further consists in certain other novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 represents a longitudinal vertical section taken centrally of a pump embodying the features of the present invention. Fig. 2 represents a transverse vertical section taken on the plane of line 2 2 of Fig. 1.

The present invention relates to a form of rotary pumps as fully set forth and described in my application for patent filed October 29, 1901, Serial No. 80,428, of which the present application is a division.

Referring to the drawings, I employ a suitable drum, as *a*, preferably rotatably mounted upon a fixed tube or pipe, as *u*, which pipe is formed with a partition, as *v*. A larger drum, as *e*, is adapted to inclose drum *a* and to rotate centrally about a different axis therefrom, being carried by suitable bearings *c c*. The drum *a*, it will be observed, is preferably mounted centrally upon its axis. The drum *e* is driven by a band and pulley or other suitable mechanism, and the two drums are linked together by the links *h*. Each of said links *h* is pivotally secured to drum *a*, and the links are preferably arranged at equidistant points of the drum on a circular line concentric with said drum. The other ends of links *h* are pivoted at equidistant points of the drum *e* on a circular line concentric with said drum, these two circular lines being of the same diameter. It will thus be seen that the drums will always rotate together, but are free to move eccentrically with respect to each other.

Each of the vanes *f* consists of a longitudinally-arranged member carrying a suitable packing-strip on its inner edge in contact with the outer periphery of the drum *a*, each vane being mounted to move laterally in its respective radial groove, as *s*, in the wall of drum *e*, any suitable springs, as *t*, normally pressing each vane inwardly for bridging the space between the drums *a* and *e*. When the drums rotate in the direction indicated by the arrow in Fig. 2, as each of the vanes *f* leaves the point of contact of the two drums the inner periphery of drum *e* and the outer periphery of drum *a* move apart, and liquid is thereby drawn into said space through one end of the tube *u* in the direction indicated by the arrow at the right-hand side of Fig. 1, through a port *w* in said tube, and through a suitable passage, as *x*, in drum *a*. As the drums continue to rotate the port *w* is closed, and when the respective vane approaches the point of contact between the drums the aforesaid space between the vanes and drums contracts, thereby forcing the fluid through the passage *y* and a port *z* into the opposite end of tube *u*, from which it may be directed by the force of the drums to any desired point.

Although I have illustrated three vanes provided with suitable corresponding passages and ports, yet it is obvious that the

number of vanes, with their coöperating passages and ports, may be varied as desired, and any other slight alterations may be made within the spirit and scope of the invention.

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

1. In a rotary pump, the combination with suitable supports, of a tube fixed thereon, eccentrically-nested drums inclosing the same, links loosely locking said drums together, means for rotating the outer drum, passages leading from said tube to the space between said drums, and means dividing said space into sections, substantially as described.

2. In a rotary pump, the combination with a suitable support, of a tube thereon, eccentrically-nested drums inclosing said tube, communicating means being provided between said tube and the space between the drums, means dividing said space into compartments, and links having their ends pivotally secured to the respective drums, each pivot-point being equidistant from the next preceding and succeeding one, such pivot-points being arranged in a circular line concentric to the respective drum, substantially as described.

3. In a rotary pump, the combination with suitable supports, of a tube fixed thereon, a partition dividing the bore of said tube, the tube being formed with an intake-port near one end and an exhaust-port near the other, eccentrically-nested drums inclosing said tube, the outer drum being formed with longitudinal, radially-extending grooves, vanes mounted in said grooves, and means pressing said vanes into contact with the outer periphery of the inner drum, a plurality of tubular passages being formed at each end of the inner drum and extending radially through the body thereof for permitting direct communication between the respective ends of said tube with the space between said drums, substantially as described.

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

WILLIAM E. COOK.

Witnesses:
JOHN AULD,
R. A. HUTCHON.