

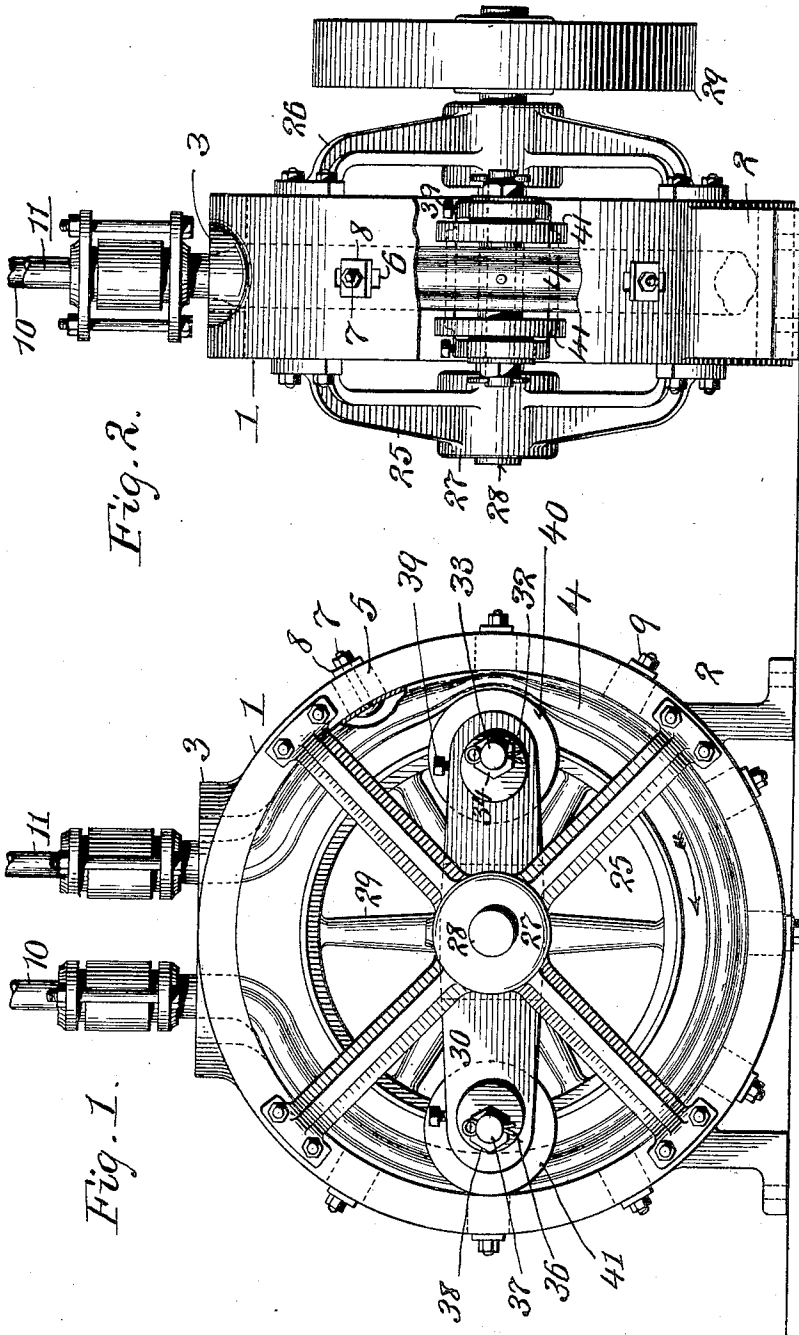
C. BEHN.
PUMP.

APPLICATION FILED JAN. 10, 1908.

909,135.

Patented Jan. 12, 1909.

2 SHEETS—SHEET 1.



Witnesses:
C. H. Bartholf
Gertrude T. Porter

Inventor
Carl Behn
By his Attorney Paul Pennington

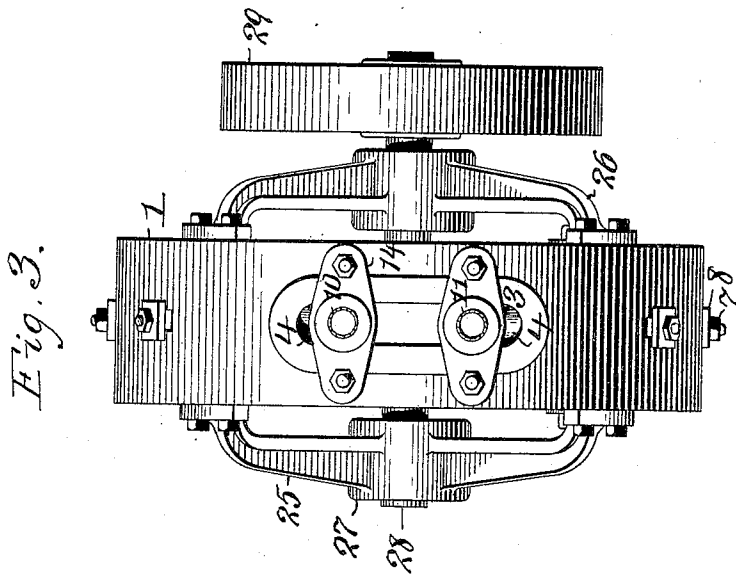
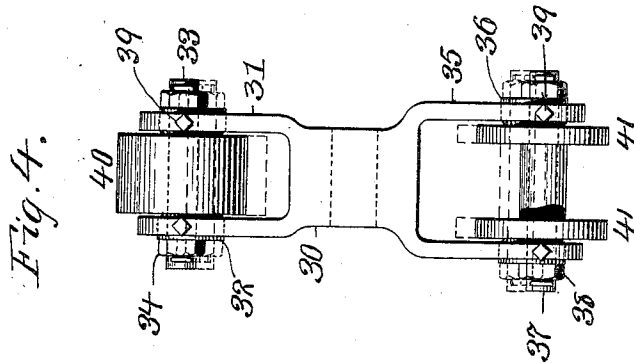
C. BEHN.
PUMP.

APPLICATION FILED JAN. 10, 1908.

909,135.

Patented Jan. 12, 1909.

2 SHEETS—SHEET 2.



Witnesses:
C. H. Berthoff
Gertrude T. Forbes.

Inventor
Carl Behn
By his Attorney Carl Benjamin

UNITED STATES PATENT OFFICE.

CARL BEHN, OF EAST ORANGE, NEW JERSEY.

PUMP.

No. 909,135.

Specification of Letters Patent.

Patented Jan. 12, 1909.

Application filed January 10, 1908. Serial No. 410,072.

To all whom it may concern:

Be it known that I, CARL BEHN, a citizen of the United States, residing at East Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Pumps, of which the following is a specification.

The invention relates to that type of pump in which an elastic tube is disposed on the inner periphery of a circular support and compressed by a traveling roller carried by a radial arm on a rotary shaft coaxial with said support.

The object of the invention is to simplify the construction of the pump and to improve its operation.

The invention consists in the various combinations more particularly recited in the claims.

In the accompanying drawings Figure 1 is a side elevation of my elastic tube pump; Fig. 2 an edge elevation, with a portion of the hollow cylindrical support 1 broken away; Fig. 3 is a top view; Fig. 4 shows the roller carrying bar separately.

Similar numbers of reference indicate like parts.

1 is a hollow cylindrical support, fixed in position and provided with, preferably integral, foot brackets 2 which may be bolted to the floor. On the upper portion of the support 1 is formed the integral boss 3 having two vertical openings to receive the ends of an elastic tube 4, which tube extends around and within the inner periphery of said support. Said tube is preferably longitudinally corrugated, and, on the side which lies in contact with support 1, is provided with projections 5 which are received in slots 6 made through the support wall. Bolts 7 headed within, or otherwise secured to, the tube 4 pass through the projections 5 and through loose plates 8 on the exterior of said wall and receive nuts 9 on their outer threaded extremities, which nuts bear on plates 8. In this way, the tube 4 is firmly secured in position within the cylindrical support 1, and is also prevented from moving in the direction of its length. The ends of the tube 4 which extend upwardly beyond the boss 3 are secured respectively to the delivery pipe 10 and the inlet pipe 11.

On each side of the circular support 1 is bolted a four armed spider 25, 26, which spiders have central bearings 27 for the

shaft 28, on one end of which is fastened the driving pulley 29, by means of which pulley said shaft is rotated. Secured on said shaft is a bar 30 forked at both ends. In each fork are circular openings to receive circular disks, and in these disks are formed apertures which are eccentrically placed. Thus in the arms of the fork 31 are disposed the disks 32, and through the eccentrically placed apertures in said disks 32 passes the shaft 33, which is threaded at its ends and provided with nuts 34 thereon, whereby it is clamped to said disks. Similarly in the arms of the fork 35 are disposed disks 36, and through the eccentrically placed apertures in said disks 36 passes the shaft 37 which is threaded at its ends and provided with nuts 38 thereon, whereby it is clamped to said disks. In each fork arm is a clamping screw 39 which bears against the edge of the disk therein. When said screws 39 are loosened the disks 32 and 36 may be rotated and thus by reason of the eccentricity of the shaft apertures therein, either shaft 33 or 37 may be adjusted laterally nearer to or further from the middle point of the bar 30, as indicated in dotted lines in Fig. 4. The shaft 33 between the arms of fork 31 carries a loose roller 40. The shaft 37 carries, between the arms of fork 35, two disks 41. When the bar 30 is in place as shown in Figs. 1 and 2 the roller 40 bears upon and compresses the elastic tube 4, while the disks 41 receive said tube between them and bear on the inner periphery of the circular support 1. It will be evident that by adjusting the roller shaft 33 in the manner above described the amount of compression of the tube 4 by said roller can be regulated, and similarly by adjusting the shaft 37 the pressure of the disks 41 on the inner periphery of the support 1 can be regulated.

The operation of the pumps is as follows: The shaft 28 being rotated in the direction of the arrow Fig. 1, the roller 40 pressing upon the tube 4 forces the fluid therein ahead of it and out through the delivery pipe 10. Regurgitation is prevented by a suitable check valve. Meanwhile new fluid constantly flows into the tube from the inlet pipe 11 and in rear of the roller. The disks 41 guide the bar and through their adjustment equalize the pressure exerted upon shaft 28, thus preventing any distor-

tion of said shaft. The operation of the pump is of course continuous as long as the shaft 28 is kept rotating.

I claim:

5 1. The combination of a circular support, a rotary shaft coaxial therewith, an elastic tube disposed on and around the inner periphery of said support, a bar extending radially on both sides of said shaft, a roller
10 on one end of said bar bearing upon and compressing said tube, and a disk on the opposite end of said bar bearing on the inner periphery of said support.

15 2. The combination of a circular support, a rotary shaft coaxial therewith, an elastic tube disposed on and around the inner periphery of said support, a bar extending radially on both sides of said shaft, a roller on one end of said bar bearing upon and
20 compressing said tube, a disk on the opposite end of said bar bearing on the inner periphery of said tube and means for adjusting said disk nearer to or further from said shaft.

25 3. The combination of a circular support, a rotary shaft coaxial therewith, an elastic tube disposed on and around the inner periphery of said support, a bar extending radially on both sides of said shaft, a roller
30 on one end of said bar bearing upon and

compressing said tube, a disk on the opposite end of said bar bearing on the inner periphery of said tube, and means for independently adjusting said roller and said disk nearer to or further from said shaft. 35

4. The combination of a circular support, a rotary shaft coaxial therewith, an elastic tube disposed on and around the inner periphery of said support, a bar extending radially on both sides of said shaft, a roller
40 on one end of said bar bearing upon and compressing said tube and two disks on the opposite ends of said bar bearing on the inner periphery of said support on each side of said tube. 45

5. The combination in an elastic tube pump of the type set forth, of a rotary shaft, a bar extending radially on both sides of said shaft, a roller at one end of said bar bearing upon and compressing said tube, a circular
50 abutment, and a freely rotating member disposed on the opposite end of said bar and bearing upon the inner periphery of said abutment.

In testimony whereof I have affixed my 55 signature in presence of two witnesses.

CARL BEHN.

Witnesses:

GERTRUDE T. PORTER,
ANNA M. WETSEL.