

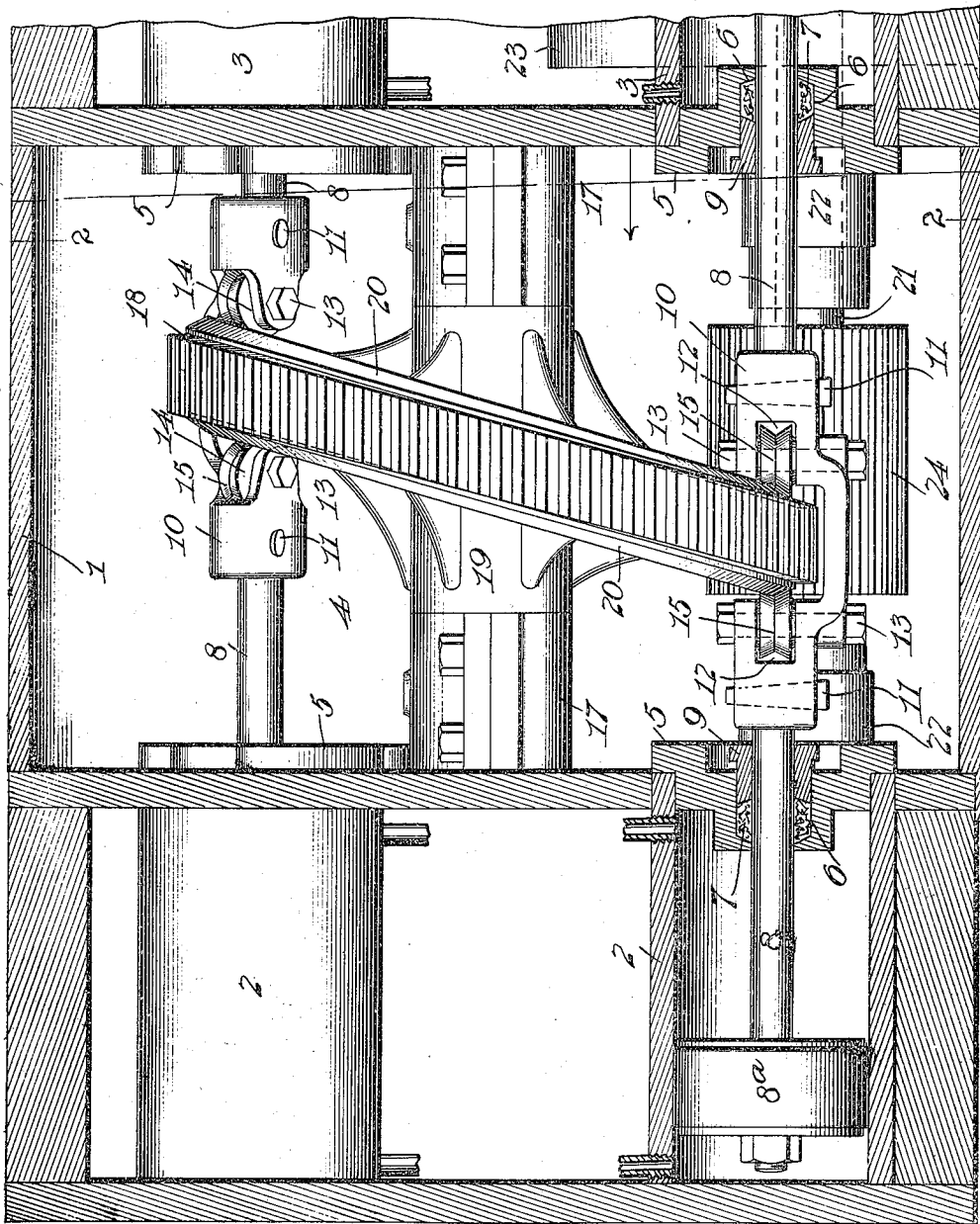
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PUMP.

APPLICATION FILED APR. 28, 1909.

Patented June 7, 1910.

2 SHEETS—SHEET 1.

960,575.



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2 SHEETS—SHEET 2.

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Fig. 2. 1

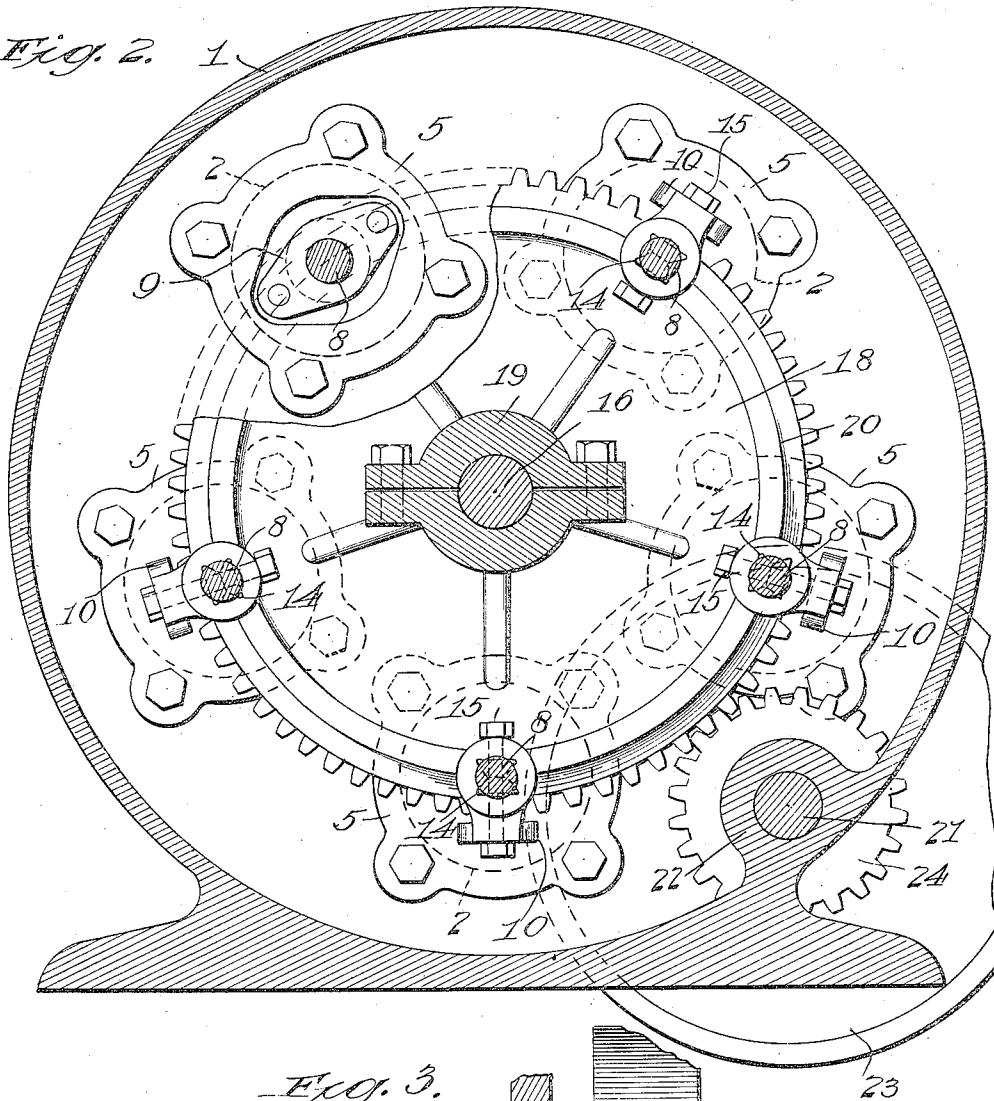
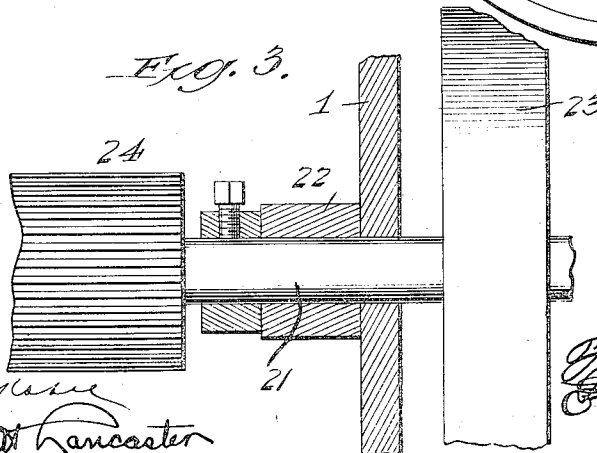


Fig. 3.



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UNITED STATES PATENT OFFICE.

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960,575.

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To all whom it may concern:

Be it known that I, FRANK NEGLEY, a citizen of the United States, residing at Alameda, in the county of Alameda and State of California, have invented certain new and useful Improvements in Pumps, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to pumps of the opposed cylinder type, and has specially in view certain novel improvements in the piston operating mechanism whereby the necessary reciprocatory movements may be positively and directly applied to the same.

In carrying out the object of the invention generally stated above it will, of course, be readily understood that the essential features thereof are susceptible of wide variations of details and structural arrangements, one practical example of which is shown in the accompanying drawings, wherein

Figure 1 is a central vertical sectional view of an opposed cylinder pump equipped with the present invention. Fig. 2 is a transverse sectional view taken on the line 2-2, Fig. 1. Fig. 3 is a detail view of the shaft and gear for applying power to the piston operating mechanism.

Referring to said drawings by numerals, 1 designates a pump casing, the ends of which are provided with an annular row of pumping cylinders 2-3, which are arranged in opposed relation, the central portion 4 of the casing being of such shape and size to permit of the operation of the piston operating mechanism therein, as will presently appear. The rear ends of the pumping cylinders 2-3 are closed by the end walls of the pump casing 1, the other ends of the cylinders being closed by the shouldered caps 5 which are recessed as indicated at 6 for the reception of packing material 7, forming a packing or stuffing box through which the piston rods 8 reciprocate. The packing 7 is retained in the packing or stuffing box by means of the cap 9. The ends of the piston rods within their respective cylinders are provided with the usual heads 8^a. The ends of the piston rods which project exteriorly of their cylinders are connected to the piston rods directly opposite by means of links 10, and keys 11, the intermediate portion of each link being provided

with a central clearance space and oppositely disposed side recesses 12 through each of which a shaft 13 passes and which holds a pulley or antifriction roller 14 within each recess 12, said antifriction roller being provided with a V-shaped periphery, as indicated at 15.

A main shaft 16 extends centrally through the portion 4 of the pump casing and has its ends mounted in bearings 17. A gear wheel 18 which may be integral with its hub or sleeve 19 is mounted on the shaft 16 between and in the end bearings or hangers 17, said gear wheel being obliquely disposed relative to its hub or sleeve so that when rotating it will gyrate. The side edges of the rim of the gear wheel 18 carry outstanding substantially V-shaped flanges or ribs 20 which engage with the V-shaped grooves of the oppositely disposed antifriction rollers 14 of each link 10, as is shown more clearly in Fig. 1 of the accompanying drawings.

A power shaft 21 is mounted in end bearings 22 at the lower portion of the pump casing 1, one end of said shaft projecting beyond said casing and provided with a pulley or gear 23 for connection with a source of power, not shown. The intermediate portion of said shaft 21 within the central portion 4 of the casing, has an elongated gear 24 mounted thereon which is in mesh with the teeth of the gear wheel 18, so that when power is applied to said shaft 21, the gyrating gear 18 will be rotated, and through its described engagement with the links 10 which connect each oppositely disposed piston rods, impart a reciprocatory movement to said pistons, as will be readily understood.

From the foregoing description it will be apparent that as the opposed piston rods are connected, and as such connection is positively engaged by the gyrating gear 18, the movements of such gear will be positively and directly communicated to the pistons, thereby assuring of a constant and uniform operation of the pump.

It has not been thought necessary to illustrate in detail the construction of the pump casing in so far as its communication with a source of supply and its valve mechanism are concerned as it will be obvious that the present invention may be applied to any of the usual types of opposed cylinder pumps,

whether the said opposed cylinders are arranged in annular series or if but two opposed cylinders are employed.

I claim as my invention:—

- 5 A pump comprising a casing provided with opposing cylinders, pistons and piston rods, each pair of opposed pistons being connected by a link having a central clearance space, and side recesses, an anti-friction
10 roller mounted in each side recess, and having a V-shaped peripheral groove, a gyratory gear wheel mounted on a central shaft, and rotatable through the clearance spaces of

the links, and having a laterally projecting V-shaped rim engaging the V-shaped grooves 15 of the anti-friction rollers, and a driving shaft projecting into said casing and having an elongated gear wheel meshing with said gyratory gear wheel.

In testimony whereof I hereunto affix my 20 signature in presence of two witnesses.

FRANK NEGLEY.

Witnesses:

JOHN ARMSTRONG,
H. C. SCHROEDER.