No. 635,694. Patented Oct. 24, 1899.

C. F. W. MANZEL.

OIL PUMP.

(Application filed July 7, 1898.)

(No Model.)

Fig. 1.

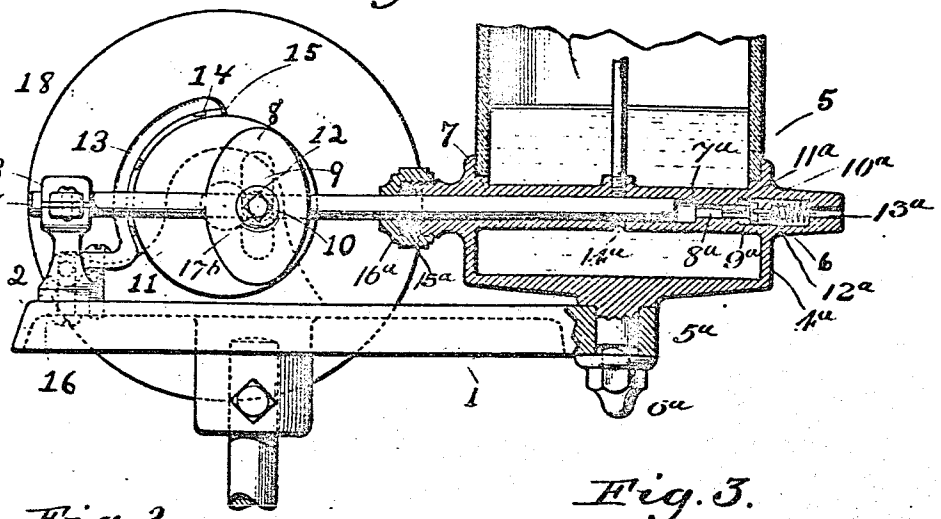


Fig. 2.

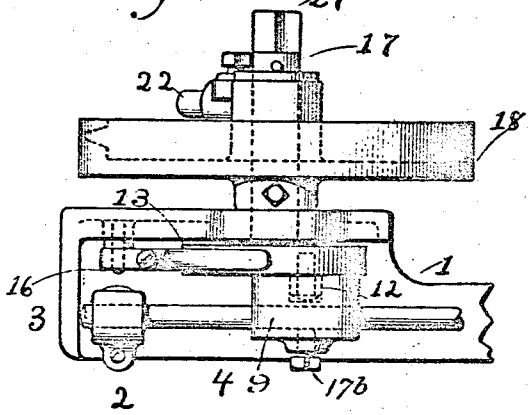


Fig. 3.

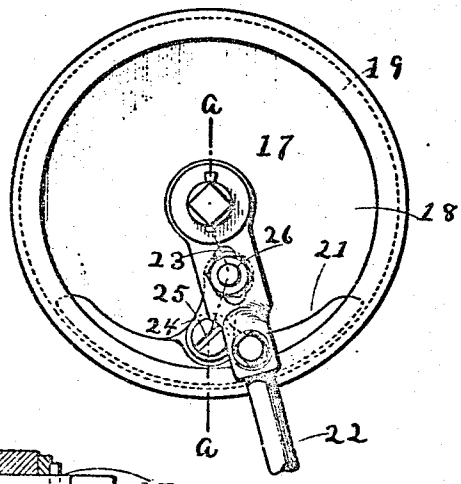


Fig. 5.

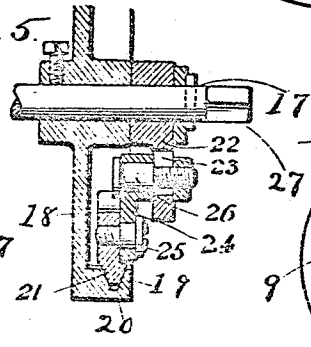


Fig. 4.

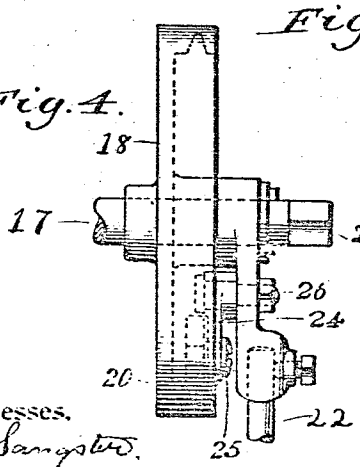
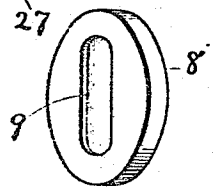


Fig. 6.



Witnesses.
C. F. Langster.
G. A. Neubauer.

Charles F. W. Manzel Inventor.

By James Langster Attorney.

UNITED STATES PATENT OFFICE.

CHARLES F. W. MANZEL, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF TO ADOLPH W. F. MANZEL, OF SAME PLACE.

OIL-PUMP.

SPECIFICATION forming part of Letters Patent No. 635,694, dated October 24, 1899.

Application filed July 7, 1898. Serial No. 685,900. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. W. MANZEL, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Devices for Converting Motion, of which the following is a specification.

My invention relates to an improved oil-pump; and the objects of the invention are to provide a simple and convenient feeding device therefor and a simple and convenient means for regulating the feed.

It also relates to certain details in construction of the oil-pump and its operating mechanism, all of which will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 represents a side elevation of the oil-pump complete. Fig. 2 is a top view of the same. Fig. 3 represents a detached side elevation of the annular internally-grooved ring and its operating-clutch. Fig. 4 represents an edge view of the flanged disk and its annular grooved ring and the operating clutch mechanism. Fig. 5 represents a detached section of the clutch mechanism on or about line *a a*, Fig. 3. Fig. 6 is a detached view of the slotted cam.

In referring to the drawings in detail like numerals represent like parts.

1 represents the frame, which is of the usual iron construction and is provided at one end with an upright 2, having boxes 3, in which the forward end of the plunger-shaft 4 is supported. The oil-cup is supported at the opposite end of the frame, the cup portion 4^a being provided with a downwardly-extending portion 5^a, which passes through an opening in the frame and is rigidly secured in place by the lock-nut 6^a. A tubular portion 6 extends horizontally through and outwardly a short distance on each side of the flanged part of the cup, being preferably formed integral with said cup. The longitudinal opening 7, extending through the tubular portion, forms a supporting-slideway for the forward end of the plunger 4. To limit the forward stroke of the plunger, the opening reduces in circumference, forming a shoulder 7^a, against which the end of the plunger abuts. The reduced opening 8^a enlarges again to form a valve-chamber 9^a, in which a valve device 10^a is placed, having a rearwardly-extending stem 11^a, projecting into the reduced opening 8^a. The valve device 10^a also has a forward stem 12^a, which is encircled by a spiral spring 13^a, said spring 13^a serving to normally maintain the valve in a closed position. A transverse opening 14^a extends through the side of the tubular portion and affords a passage for the oil into the longitudinal opening 7. The forward end of the tubular portion 6, through which the plunger passes, is provided with a packing device comprising an elastic washer 15^a, which encircles the plunger, and the screw-cap 16^a screws upon the end of the portion 6, (see Fig. 1,) thus preventing the escape of oil. The cylinder 5 of the cap, which is preferably formed of glass or similar transparent material, is supported in the flanged top edge of the portion 4^a. A cam 8 is provided with a slot, in which a crank-pin 10 of the rotating disk 11 is adapted to travel, and has extensions 9, provided with an opening through which the plunger 4 passes. The cam is secured to the plunger at any position to which it may be adjusted longitudinally by the locking-screw 17^b.

To lessen the friction, the crank-pin is provided with a loosely-encircling annular ring 12.

The device is also provided with a brake mechanism comprising a curved brake-spoon 13, having the interior lugs 14 and the leather portion 15. This brake-spoon is preferably secured to the frame 1 by a screw or bolt 16, thus allowing a range of pivotal movement sufficient to allow it to enter into or withdraw from frictional contact with the periphery of the disk 11. The crank-disk 11 is rigidly mounted upon a shaft 17, which is supported in boxes upon the frame, and a second disk 13 is also rigidly mounted upon the shaft 17, which is provided with a laterally-extending circular flange forming an annular ring 19, the interior of which is provided with a groove 20, preferably V-shaped in cross-section, in which the clutch-block 21 is adapted to travel.

The clutch-block 21 is actuated by a vibra-

tile arm 22, which is loosely hung at one end from the shaft 17, so as to rotate freely thereon. It is provided with a longitudinal slot 23, and a connecting-rod 24 is pivoted at one end to the clutch-block by means of the screw or bolt 25, and a screw-bolt 26 is passed through the opposite end and through the slot 23. (See Fig. 3.)

By referring to Fig. 3 it will be seen that a movement of the vibratile arm in one direction will cause the clutch-block to frictionally engage with or grip against the interior of the groove 20, thus rotating the disk 18 and its shaft 17, and that a movement in the opposite or reverse direction will move the clutch-block without rotating the disk. The direction of the rotation of the shaft can be changed by moving the clutch-block to the opposite side of the vibratile arm, and the tension of the grip of the clutch-block upon the interior of the grooved annular ring can be regulated to a certain degree by varying the angle of inclination from the center by means of moving the bolt 26 in the slot 23.

By means of the annular grooved ring and the clutch mechanism the reciprocating movement of the vibratile arm is converted into an intermittent rotary movement of the shaft, and that is in turn converted into a reciprocating movement of the plunger by means of the slotted cam and crank-disk.

The shaft can be rotated by hand, if desired, by fitting a crank or similar tool upon its square end 27.

The cam S is longitudinally adjustable upon the plunger to regulate the position of the plunger in its slideway and adjust it relatively to the feeding channel or opening 14^a.

The screw-bolt 17^b serves to fasten the cam to the plunger at any position to which it may be adjusted.

As the bolt 26 is longitudinally adjustable in the slot 23, the angle of the clutch-block with respect to the operating-arm can be varied to take up the wear of the opposing surfaces for the clutch-block and the grooved portions of the ring or to adjust the block to obtain a better gripping effect.

I claim as my invention—

1. A device for converting a reciprocating movement into an intermittent rotary movement, comprising an internally-grooved annular ring rigidly mounted upon a shaft, a reciprocating arm loosely suspended from the same shaft and having a longitudinal slot, a clutch-block adapted to fit and travel in the groove in the ring, a rod pivotally connected at one end to the clutch-block and a bolt passing through the opposite end of the rod and the longitudinal slot in the arm, and adjustable in said slot to vary the position of the clutch-block with respect to said arm, as set forth.

2. In an oil-cup, the combination of the supporting-frame, a cup mounted upon said frame and having a valve and a plunger device, a slotted cam secured to the plunger and adjustable longitudinally thereon, a shaft mounted in boxes in said frame, a crank-disk rigidly mounted upon said shaft and having a crank-pin adapted to travel in the slot in the cam, a second disk also rigidly mounted upon said shaft and having a laterally-extending flange having an interior groove, a clutch-block adapted to travel in said groove, a reciprocating arm swinging loosely from said shaft and having a longitudinal slot, and a connecting-rod pivotally fastened at one end to the clutch-block and provided at the opposite end with a bolt adapted to be inserted and adjustably secured in the slot in the reciprocating arm, as set forth.

3. In an oil-pump, the combination with the pump, of a plunger, a slotted cam mounted on said plunger and adjustable longitudinally thereon, a shaft, a disk rigidly secured to said shaft and having a crank-pin adapted to travel in the slot in the cam, an annular ring also rigidly secured to said shaft, a clutch-block adapted to operate in said ring, a reciprocating arm for operating said clutch-block and means for adjusting said clutch to vary the angle of inclination with respect to said arm, as set forth.

CHARLES F. W. MANZEL.

Witnesses:
ADOLPH W. F. MANZEL,
A. J. SANGSTER.