No. 676,039. Patented June 11, 1901.

J. HOULEHAN.

MECHANISM FOR CONVERTING RECIPROCATING INTO ROTARY MOTION.

(Application filed Aug. 27, 1900.)

(No Model.)

FIG. 1.

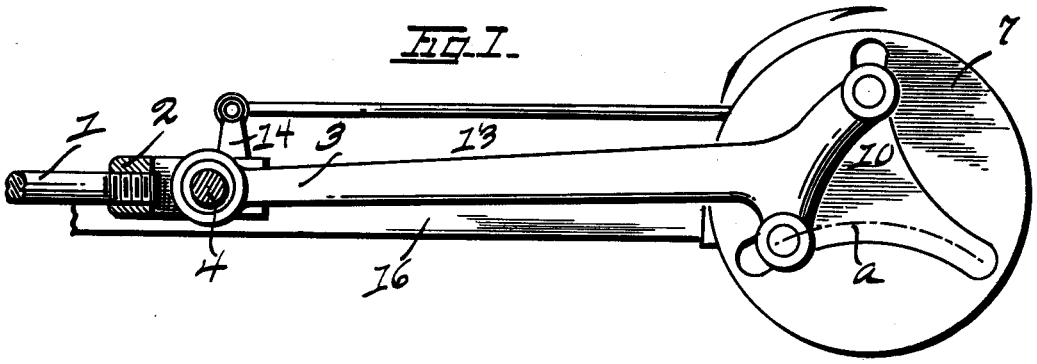


FIG. 2.

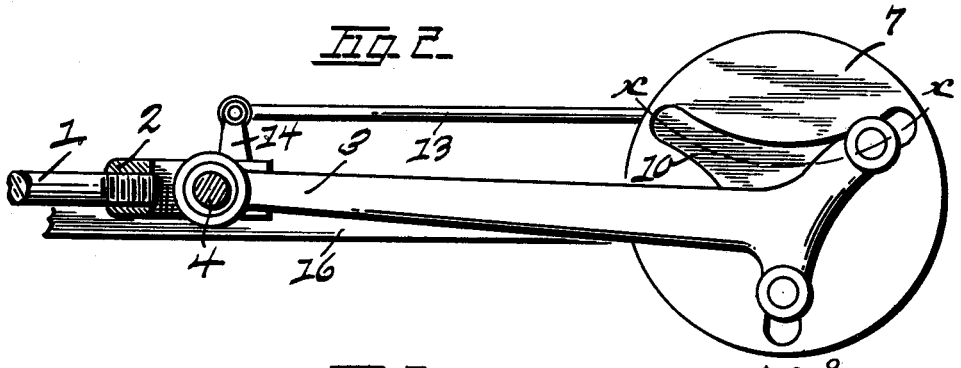
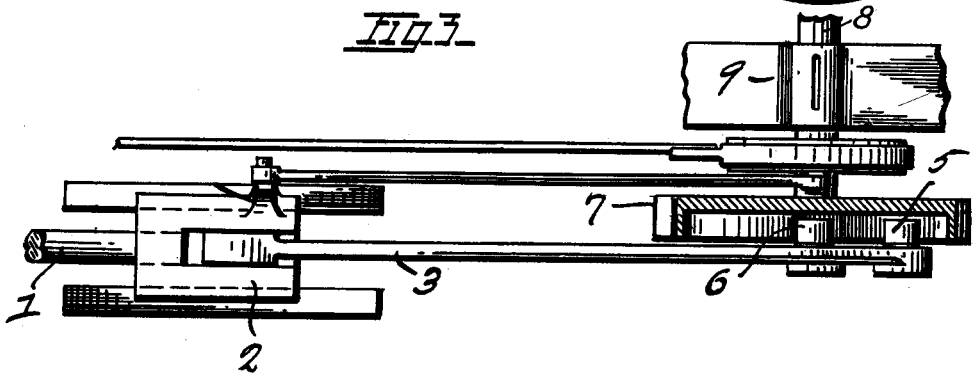


FIG. 3.



WITNESSES.

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UNITED STATES PATENT OFFICE.

JOHN HOULEHAN, OF TOLEDO, OHIO, ASSIGNOR OF ONE-HALF TO JAY B. FRANZ, OF SAME PLACE.

MECHANISM FOR CONVERTING RECIPROCATING INTO ROTARY MOTION.

SPECIFICATION forming part of Letters Patent No. 676,039, dated June 11, 1901.

Application filed August 27, 1900. Serial No. 28,115. (No model.)

To all whom it may concern:

Be it known that I, JOHN HOULEHAN, of Toledo, county of Lucas, and State of Ohio, have invented certain new and useful Improvements in a Mechanism for Converting Reciprocating into Rotary Motion; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form part of this specification.

My invention has reference to a reciprocating engine, and has particular reference to the means for converting the reciprocating motion of the piston into rotary motion.

My invention comprises certain novel details of construction and the parts and combination of parts hereinafter shown, described, and claimed.

In the drawings, Figure 1 is an elevation disclosing my invention and showing the position of the drive-rod at the commencement of a stroke. Fig. 2 is a similar view showing the position of the drive-rod at the completion of a stroke. Fig. 3 is a plan view of my invention, the driving-disk being shown in section, line *x x*, Fig. 2.

Referring to the parts, 1 is the piston-rod of an ordinary reciprocating engine, the end of which is suitably secured to a cross-head 2, which operates between guides provided therefor.

3 is a drive-rod pivoted to the cross-head at 4. Arranged upon the end of the drive-rod and extending laterally therefrom are two antifriction-rollers 5 and 6, respectively. These occupy a position apart, with their respective centers of rotation in a line at an angle of approximately sixty degrees to the axis of the piston-rod 1.

7 is a driving-disk upon the end of the driving-shaft 8, which is suitably mounted in bearings, one of these being shown at 9. Shaft 8 is also adapted to receive a balance-wheel, which is, however, not shown in the drawings, the same not being an essential part of my invention. Driving-disk 7 is formed with a recess 10 to receive the rollers 5 and 6, the sides of which are arc-shaped, the same being drawn from three points equidistant from the center of the disk and also equidistant from each other. It will thus be noticed that the recess described is approximately the form of an equilateral triangle, with the sides and base extending inwardly in the form of arcs.

The operation of my invention will be apparent from the drawings. A short description thereof is, however, added. At the commencement of the first stroke the drive-rod will be in the position shown in Fig. 1, and at the completion of the stroke the same will be in the position shown in Fig. 2, the roller 6 in the meantime traversing the path of the line *a*. A return stroke of the drive-rod will cause the driving-disk to complete a third of a revolution. Thus it will be seen that the driving-disk will revolve once while the piston reciprocates three times.

I wish it understood that my invention may be attached to any form of reciprocating engine and that I do not desire to be confined to the employment of steam as a motive power, but that I may employ any fluid.

Although I have described my invention preferably in its application to an engine, many other applications of the same will be apparent. I also wish it to be understood that the same arrangement may be employed for converting rotary into reciprocating motion.

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

1. In a mechanism for converting reciprocating into rotary motion, a driving-shaft suitably journaled, a driving-disk mounted upon the end thereof, an approximately triangular recess in the face of the driving-disk, a reciprocating drive-rod, laterally-extending lugs arranged upon said drive-rod in a line at an angle to the direction of the stroke thereof, and adapted to engage the walls of the said recess, substantially as set forth.

2. In a mechanism for converting reciprocating into rotary motion, a revoluble drive-shaft, a driving-disk mounted thereon having a recess the walls of which form three simi-

lar arc-shaped bearing-surfaces, a reciprocating drive-rod, laterally-extending antifriction-rollers arranged upon said drive-rod in a line at an angle of sixty degrees to the stroke thereof, adapted to engage the walls of the recess in the aforesaid disk, as shown and described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN HOULEHAN.

Witnesses:
CARL H. KELLER,
JAS. W. CORWIN.