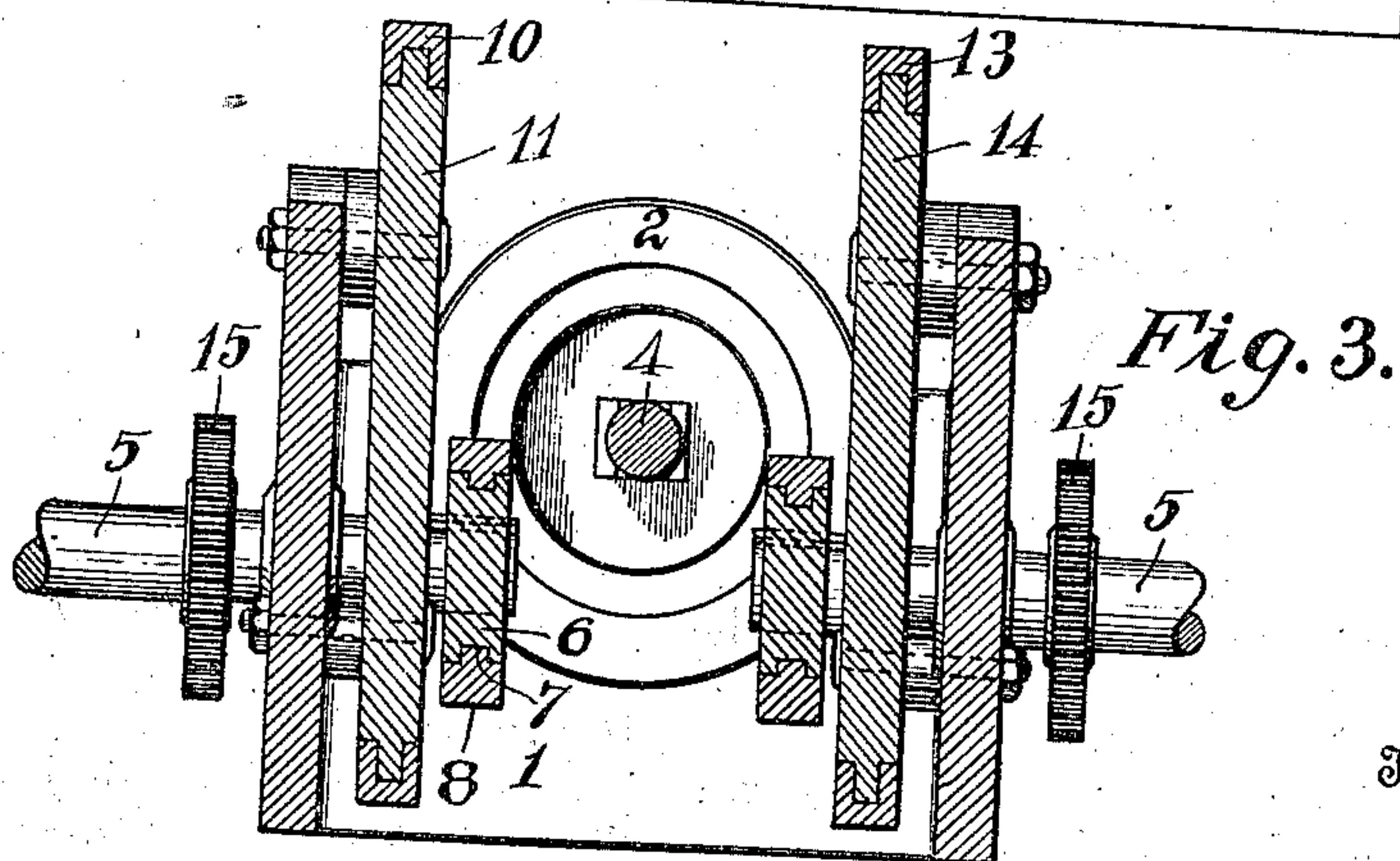
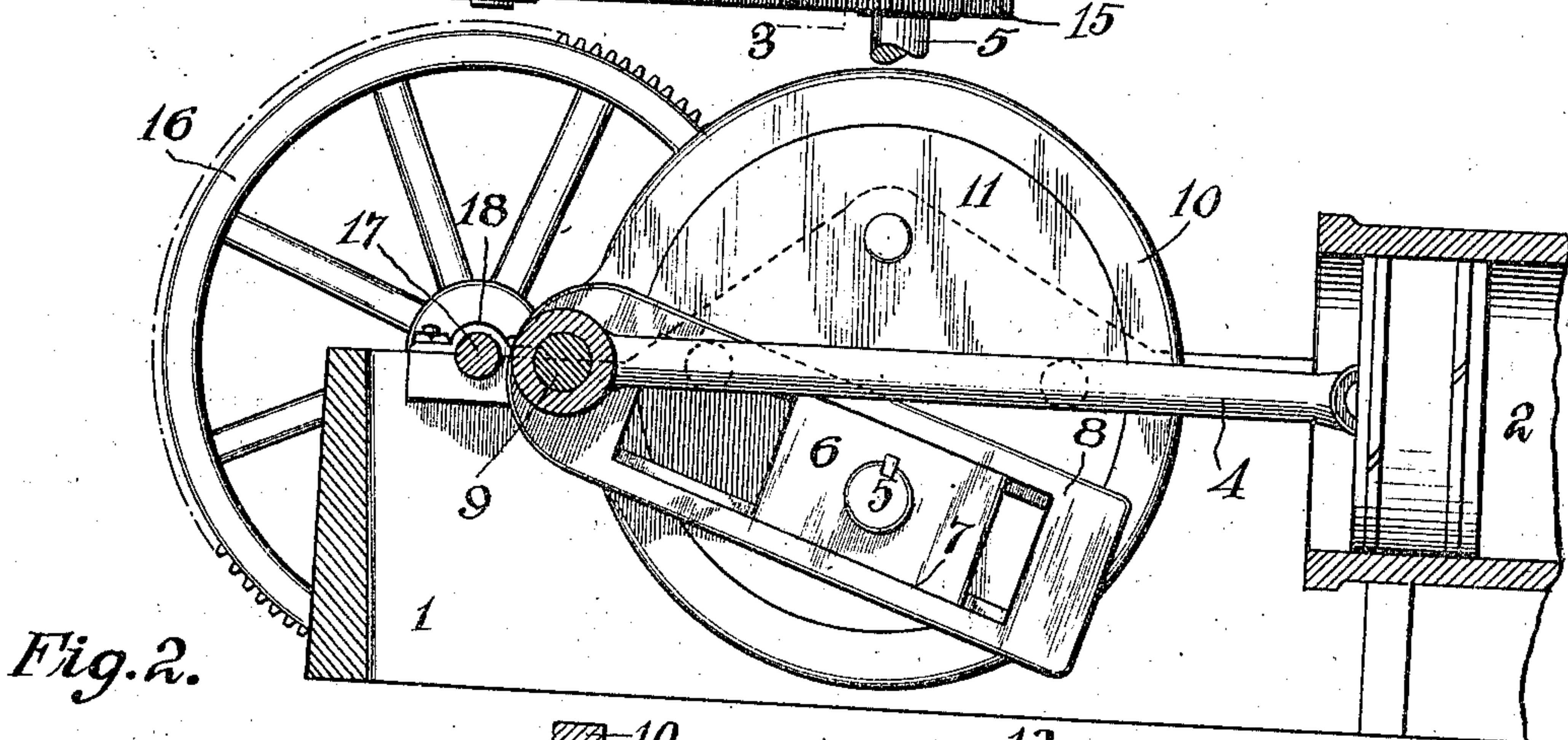
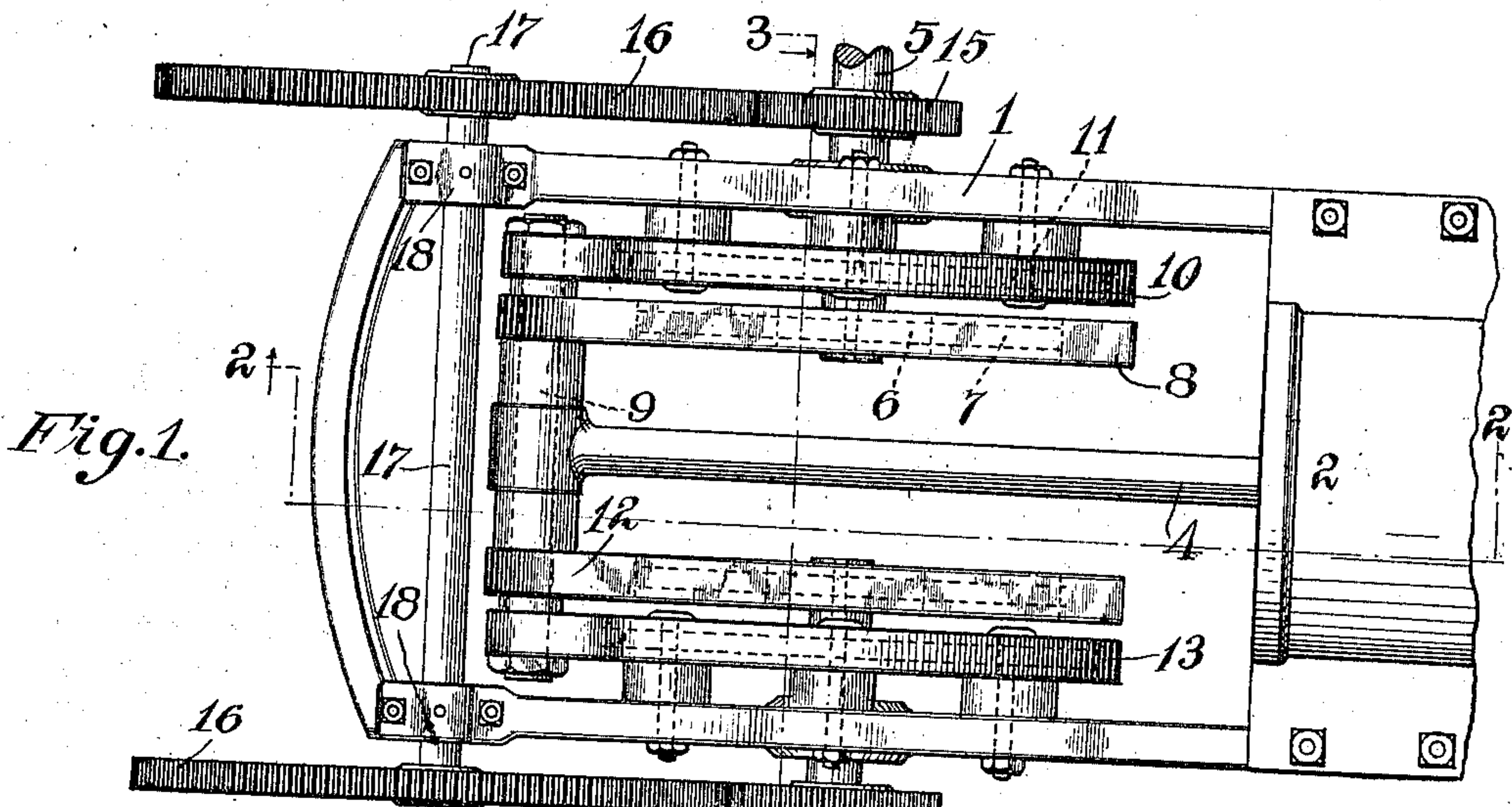


J. W. BRACKEN.
ENGINE CRANK.
APPLICATION FILED APR. 20, 1910.

995,948.

Patented June 20, 1911.



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JOHN W. BRACKEN, OF LAKE LAND, FLORIDA.

ENGINE-CRANK.

995,948.

Specification of Letters Patent. Patented June 20, 1911.

Application filed April 20, 1910. Serial No. 556,495.

To all whom it may concern:

Be it known that I, JOHN W. BRACKEN, a citizen of the United States, residing at Lakeland, in the county of Polk and State of Florida, have invented new and useful Improvements in Engine-Cranks, of which the following is a specification.

This invention relates to an improved crank mechanism particularly adaptable for hydro-carbon engines.

The object of the invention is the provision of means for increasing the power from the same piston travel and not to increase the crank travel and also to prevent back kicks common in internal combustion engines.

Further objects of the invention will appear as the specific description which follows is read in connection with the accompanying drawings which form a part of this application, and in which:

Figure 1 is a top plan view of my improved crank shown applied to a stationary horizontal engine of the hydro-carbon type. Fig. 2 is a longitudinal section on the line 2—2 of Fig. 1. Fig. 3 is a transverse section on the line 3—3 of Fig. 1.

Referring more particularly to the drawing 1 represents the engine bed upon which the cylinder 2 is mounted having the ordinary piston head arranged therein which is connected to the usual piston rod 4. Journalled in the engine bed is the main shaft 5 which is in two parts and has its inner ends rigidly secured to slide plates 6 having grooves on their opposite edges as at 7 to receive the ribs of the crank arms 8 and 12. These crank arms are connected directly at one end with a wrist pin 9 secured as is usual to the piston rod 4 and passes through the crank arms and is rigidly connected to straps 10 and 13 which surround the stationary disks 11 and 14 keyed to the engine frame in any suitable manner. Both of the straps are provided with internal peripheral grooves which are engaged by peripheral ribs on each of the disks so as to prevent lateral displacement. The main shaft passes eccentrically through the disks 11 and 14 below the horizontal position of the piston rod so that at the time of admission of the charge in the cylinder, the crank arms 8 and 12 will be at an incline to the line of travel of the piston in the direction of its rotation so that a back kick is impossible.

Keyed to the main shaft on the outside of the engine bed are small pinions 15 which mesh with larger gears 16 keyed to a counter-shaft 17 which is journaled in the engine bed as at 18 beyond the throw of the cranks. These gears neutralize any side strain upon the main shaft and balance the action when the load is on one side of the shaft only and thereby prevent wear on the wrist pin.

By eliminating one of the cranks and making the crank pin an ordinary stub shaft or wrist pin, it will be seen how the device may be applied to a one-side crank, or side crank engine.

From an inspection of Fig. 2, it will readily be seen how the back kick common in the present type of crank used is avoided. When the piston of the engine is in its farthest upward position and ready for the explosion, the piston rod will be in line with the center of the disk and out of line with the main shaft and the crank arms will be at an angle to the piston rod so that when the piston receives the impetus of the expanded gases, the crank will be driven in its proper direction and not in the reverse direction, which causes the back kick on the starting lever.

Having thus described the invention, what is claimed is—

In a device of the class described, the combination of a reciprocating member of a two part driving shaft, stationary disks surrounding the ends of the driving shaft and mounted eccentrically thereto, guiding members keyed to the ends of the driving shaft, cranks slidably mounted upon said guiding members and adapted to rotate the same, a pair of sleeves surrounding the stationary disks, a wrist pin having its ends keyed to the sleeves and having the cranks and reciprocating member journaled thereon, a balance shaft and an inter-gearred connection between each end of the balance shaft and the respective ends of the driving shaft.

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

JOHN W. BRACKEN:

Witnesses:

J. W. SCALLY,
JOHN J. MCCOLPIN.