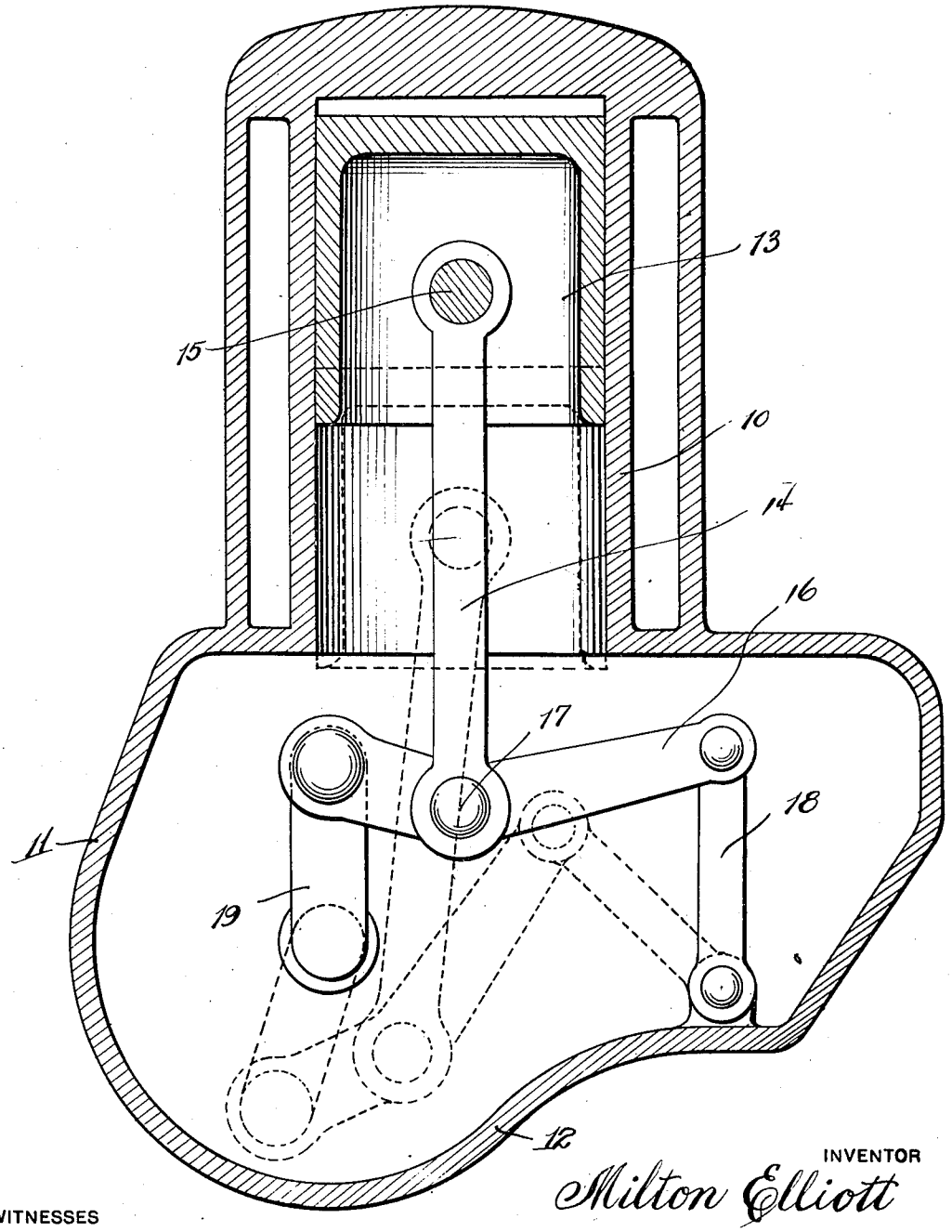
M. ELLIOTT.

CRANK SHAFT CONNECTION.

APPLICATION FILED DEC. 30, 1915.

1,207,003. Patented Dec. 5, 1916.



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CRANK-SHAFT CONNECTION.

1,207,003. Specification of Letters Patent. Patented Dec. 5. 1916.

Application filed December 30, 1915. Serial No. 69,434.

To all whom it may concern:

Be it known that I, MILTON ELLIOTT, a citizen of the United States, residing at Mossyrock, in the county of Lewis and State of Washington, have invented certain new and useful Improvements in Crank-Shaft Connections, of which the following is a specification.

This invention relates to a crank connection for an internal combustion engine and the principal object of the invention is to provide a device so constructed that the piston rod of the engine can be connected with the crank shaft, the improved construction giving the crank arm a longer throw than the throw of the piston and not only giving more power but also preventing pounding.

Another object of the invention is to so construct this connection that it may be mounted in the crank casing of the engine beneath the cylinder, the rocker arm and link having a transverse reciprocating movement and the piston rod having a vertical reciprocating movement.

Another object of the invention is to provide a connection of the character described which will comprise a relatively few number of parts, very simple in construction and easy to assemble.

In engines having the piston rod directly connected with the crank shaft pounding is often caused when running at low speed and in order to overcome this objection and permit the crank arm to have a longer throw than the piston, I have provided the construction shown in the accompanying drawing wherein there is disclosed an engine cylinder and casing in section and the connection in elevation. The cylinder 10 of this engine extends above the crank casing 11 and will of course be provided with the usual attachments which however are not shown as they do not form part of this invention. This crank casing is provided with a pocket 12 permitting the connection to move to the dotted line position shown when the engine is in operation. The piston 13 is slidably mounted in the cylinder 10 and carries the piston rod 14 which is pivotally connected with the piston by means of the pin 15. This piston rod 14 extends into the crank casing 11 and is connected with the rocker link 16. It should be noted that this rocker link is not straight throughout its length but is bent adjacent one end, the piston rod 14 being connected with the link 16 at the bend thereof by means of the pivot pin 17. This rocker link 16 is pivotally connected with the rocker arm 18 and has its opposite end portion pivotally connected with the crank shaft 19. When this engine is in operation the piston 13 moves in the cylinder 10 and as the piston moves, motion will be imparted to the crank 19 through the medium of piston rod 14 and rocker link 16. Therefore the crank shaft will be rotated, the piston rod 14, rocker link 16 and rocker arm 18 moving in the crank case 11 as indicated by dotted lines. It should be noted that this piston rod 14 is connected with the rocker link at a point about one-fourth the length of the link and therefore one-fourth of the piston pressure is on the crank shaft and one-fourth is on the rocker arm. When the stroke nears the middle it lifts and pulls the rocker arm forwardly thus reducing in a measure the power on the crank shaft until the rocker arm has been moved past its dead center. Therefore this construction would be very useful if used in connection with an engine of the steam type, as the engine will have a steady movement free from pounding.

What is claimed is:—

In an engine a crank casing, a cylinder positioned above said crank casing and communicating with the same, a piston slidably mounted in said cylinder, a crank shaft extending into said crank casing to one side of said cylinder and provided with a crank arm, a rocker arm pivotally mounted in said crank casing upon the opposite side of said cylinder, a rocker link pivotally connected to the crank arm of said crank shaft and to the rocker arm and having its end portions extending in converging relation from the rocker arm and the arm of said crank shaft to a point between the same and beneath the level of the free end of the rocker arm and

the arm of said crank shaft when the rocker arm is in a substantially vertical position, and a piston rod extending from said piston and pivotally connected with the rocker link at the junction of the converging end portions thereof.

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

MILTON ELLIOTT.

Witnesses:
R. C. ALLISON,
J. P. METZKER.