No. 786,983. PATENTED APR. 11, 1905.

C. R. McGAHEY.

ENGINE.

APPLICATION FILED MAY 16, 1904.

Fig. 1.

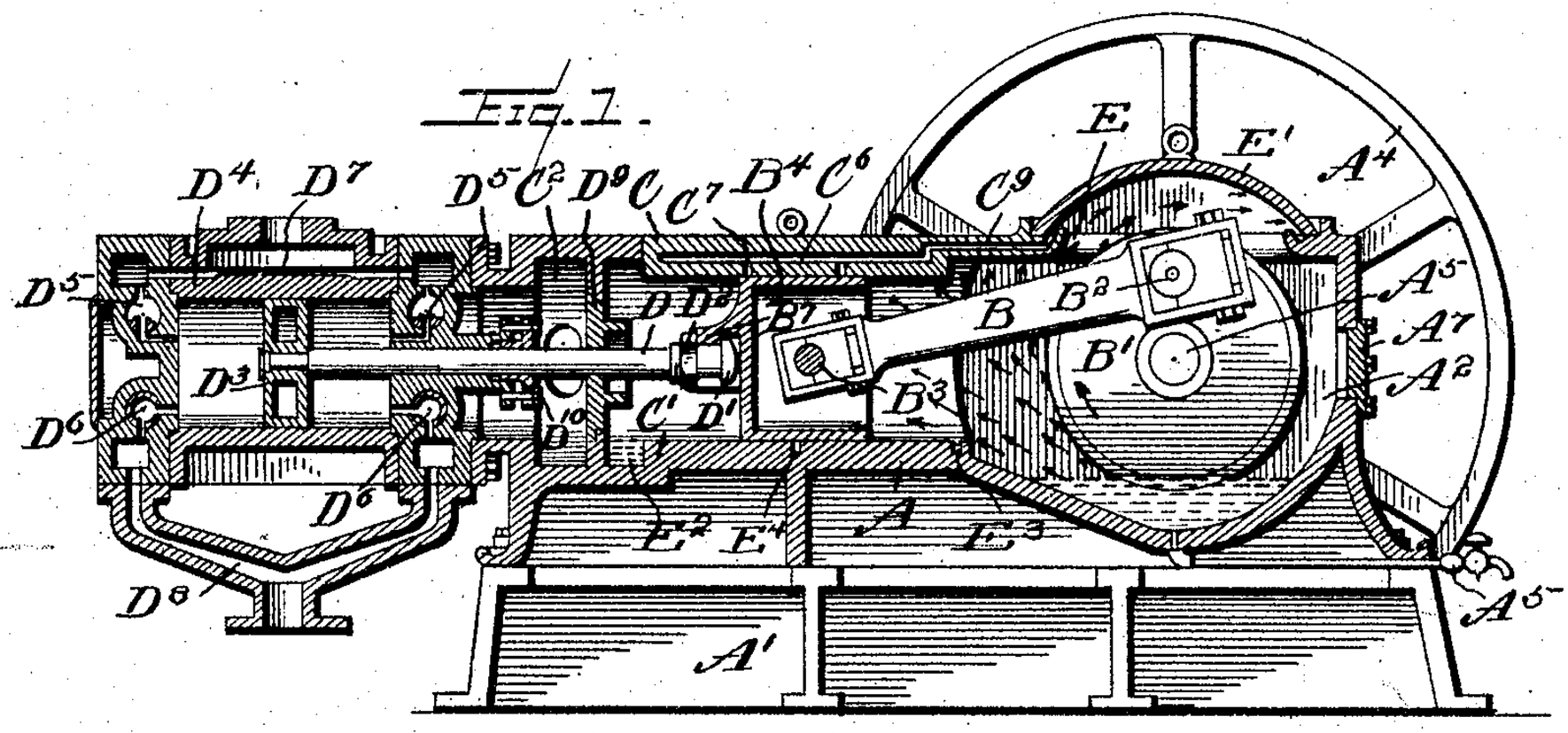


Fig. 2.

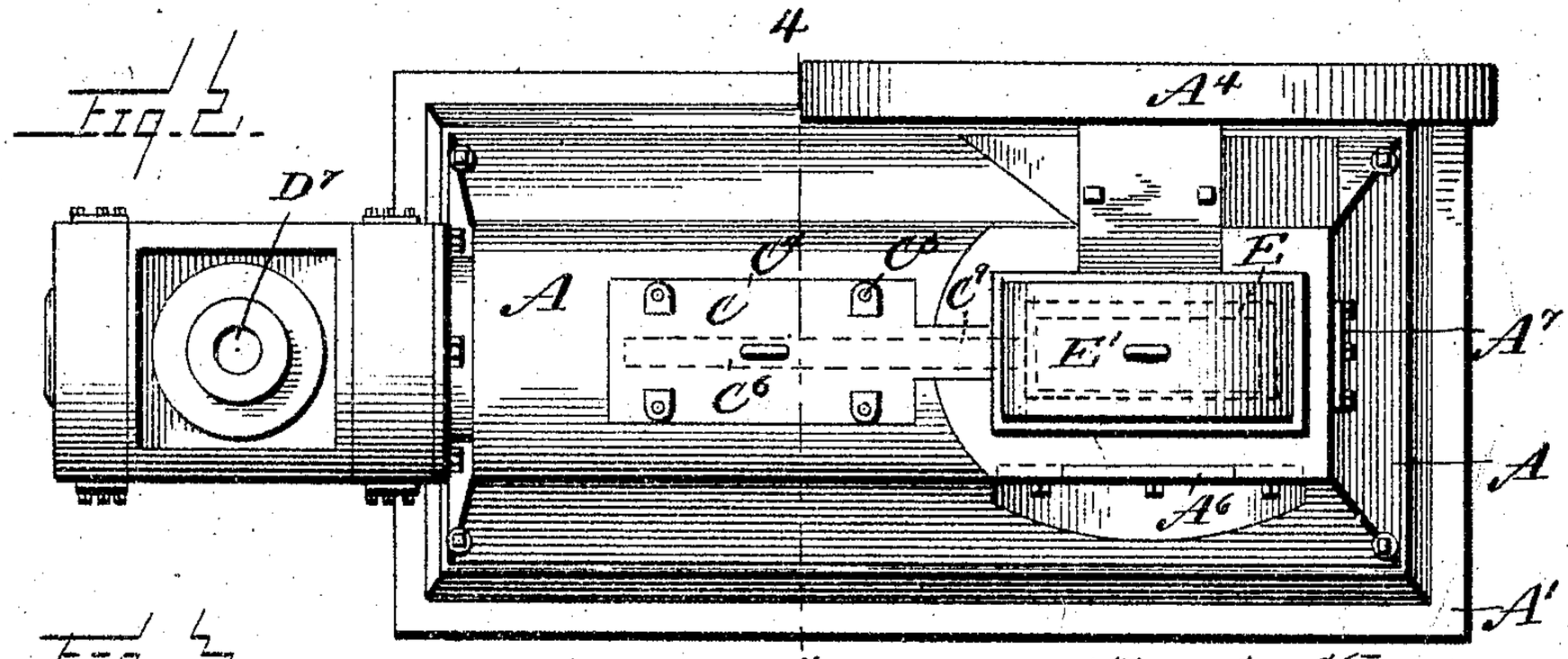


Fig. 3.

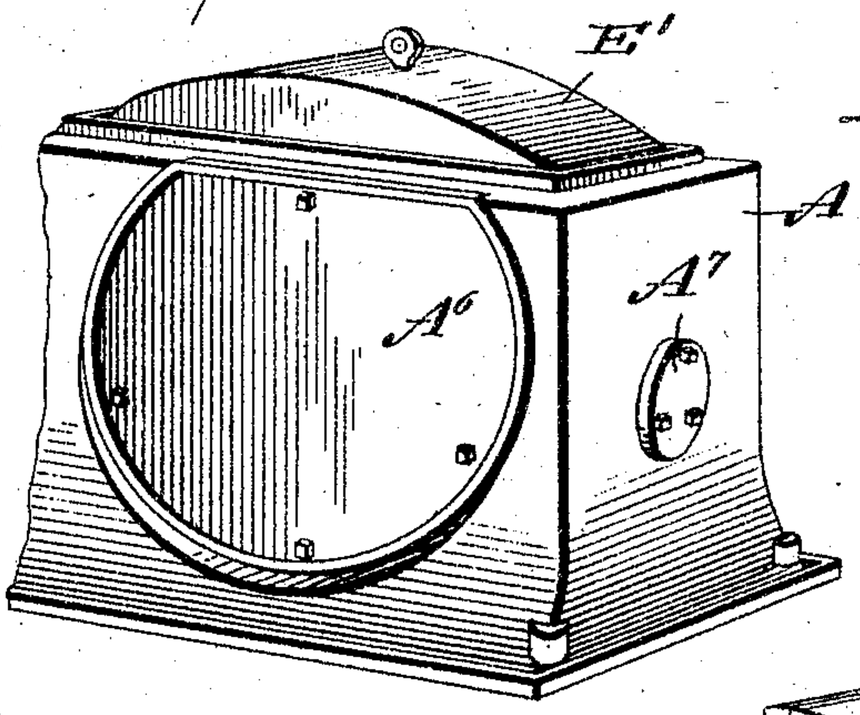


Fig. 4.

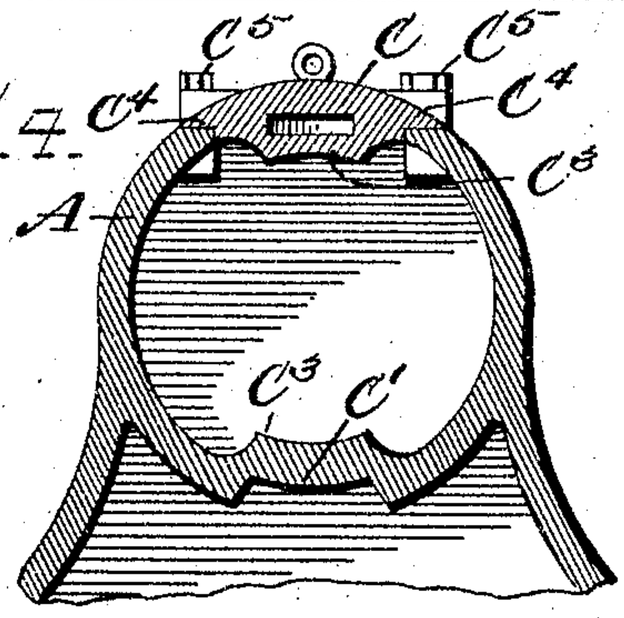
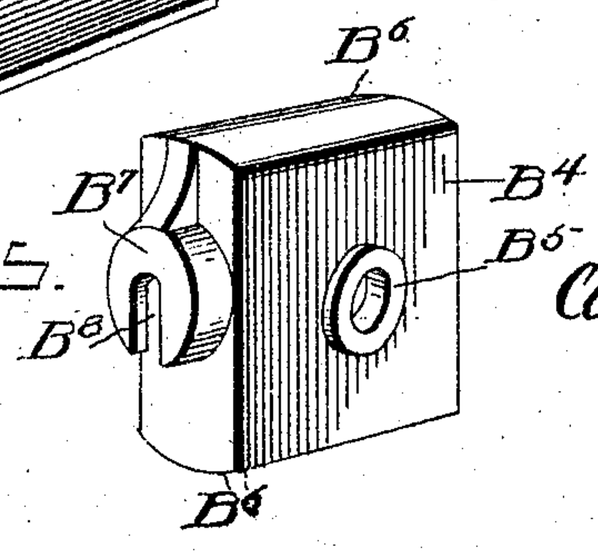


Fig. 5.



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No. 786,983. Patented April 11, 1905.

UNITED STATES PATENT OFFICE.

CALVERT R. McGAHEY, OF COVINGTON, VIRGINIA.

ENGINE.

SPECIFICATION forming part of Letters Patent No. 786,983, dated April 11, 1905.

Application filed May 16, 1904. Serial No. 208,278.

To all whom it may concern:

Be it known that I, CALVERT R. McGAHEY, a citizen of the United States, residing at Covington, in the county of Alleghany, State of Virginia, have invented certain new and useful Improvements in Engines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to an engine, and particularly to a frame or inclosing casing for the movable parts thereof.

The invention has for an object to provide an improved construction of removable guide for the cross-head whereby access may be had thereto and to the pitman connection on the crank-shaft, so that these parts may be readily disconnected and removed when necessary for repair or adjustment.

A further object of the invention is to provide an improved connection between the piston-rod and the cross-head by which these parts may be readily separated for the purpose of removal and also to provide an automatic oil-feed from the chamber beneath the crank-shaft to the guide and ways for the cross-head.

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

In the drawings, Figure 1 is a longitudinal section; Fig. 2, a top plan view; Fig. 3, a detail perspective of one end of the casing; Fig. 4, a vertical cross-section on the line 4 4 through the guideways, and Fig. 5 a perspective of the cross-head.

Like letters of reference refer to like parts in the several figures of the drawings.

The letter A designates the inclosing casing for the movable parts of the engine, which may be mounted in any desired manner—for instance, upon a base A′—and is provided at one end with an enlarged chamber A^2, through which the crank-shaft A^3, carrying the usual fly-wheel A^4, passes. This chamber at its lower portion is provided with a drain-pipe and cock A^5 for the purpose of removing oil therefrom, while at one side thereof a removable head A^6 is provided and a similar cap A^7 at the end of the portion A^2. By the removal of the head A^6 access may be had to the connection between the pitman B and the crank-disk B′, carried by the shaft A^3, as shown at B^2, the opposite end of this pitman being connected by a cross-pin B^3 with the cross-head B^4. This cross-head is of hollow construction, so that the end of the pitman B extends into the same, and is provided with side apertures B^5, through which the pin B^3 passes, and the opposite faces B^6 of the head are suitably curved and finished to travel upon the slide or guide ways C and C′ above and below the cross-head, respectively, as shown in Fig. 1. The closed end of the cross-head B^4 is provided with a hook B^7 thereon, having a slot B^8 therein adapted to embrace the piston-rod D, which is provided at its free end with a head D′ to fit behind the hook and is secured in its connection by a lock-nut D^2, adjustably mounted upon the piston-rod. The piston-rod at its opposite end is provided with the usual piston D^3, disposed within a cylinder D^4. At each end of this cylinder valves D^5 and D^6 are provided, the former of which communicates with a steam-inlet passage or chamber D^7 and the latter with an exhaust passage or chamber D^8, suitable means being provided to operate these valves in the usual manner when the engine is running. The piston-rod D is supported adjacent to the cross-head in a suitable bearing-plate D^9 and passes through an ordinary packing D^{10} before entering the cylinder, these parts being disposed so as to provide an apertured chamber C^2 between the same.

For the purpose of obtaining access to the cross-head and piston-rod the slideway C is formed as a removable part in the body A of the engine, and the under face C^3 thereof is provided with a suitable guide to engage the head, a similar portion being provided upon the lower way C′, while at the opposite sides of the way C flanges C^4 are provided to rest upon the body A of the engine-casing, and in order to secure this part rigidly in position nuts and bolts C^5 may be applied, as shown in Figs. 2 and 4. This slideway is provided with an oil-channel C^6, extending longitudinally thereof, from which feed-openings C^7 extend downward to the face C^3 of the slide.

Beyond the slideway an extension C^9 is provided, having an oil-opening therein communicating with the opening C^6. This extension is disposed at the crank-shaft end of the engine and adjacent to said shaft, at which point it communicates with an oil tray or flange E, extending about the opening in the upper portion above the crank-shaft, so that in the rotation of said shaft the oil is carried upward, as indicated by arrows in Fig. 1, and thrown into said tray, from which it drains through the oil-passages to the cross-head, thus automatically lubricating that part. For the purpose of covering the oil tray and opening above the crank and pitman connection a cover E′ is provided and adapted to rest upon the top of the casing, as shown in Figs. 1 and 3. The lower slideway C′ is provided at one end with an oil-recess E^2 and at the opposite end with a similar recess E^3, while intermediate thereof a recess E^4 is provided, thus carrying a body of oil adjacent to the lower slideway, from which a feed may be maintained in the reciprocation of the cross-head.

In the operation of the invention it will be seen that the crank-disk carried by the crank-shaft will in its rotation carry upward a body of oil, which, as indicated by the arrows in Fig. 1, will be caught by the groove above the pitman and fed therefrom through the top guide of the cross-head, so as to produce an automatic and thorough lubrication of this part, which is essential to a smooth and economical operation of the engine, and the movement of this disk also throws the oil from the reservoir beneath the crank-shaft onto the lower portions of the guides, so that the recesses therein will be filled and maintain a proper supply of oil for the lubrication of these parts. Further, the removable top guide for the cross-head permits ready access thereto, and the means for attaching the cross-head to the piston-rod allows the same to be quickly disconnected from the rod and withdrawn from the engine-casing for the purpose of adjustment or repair without the necessity of changing the position of the piston and rod, as by loosening the nut upon the piston-rod. The cross-head and parts can be elevated from the casing, when the top guide is removed and the pitman readily disconnected from the head, if it be desired.

It will be obvious that changes may be made in the details of construction and configuration without departing from the spirit of the invention as defined by the appended claims.

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

1. An engine-casing, a crank-shaft, an oil-reservoir thereunder, a pitman carried thereby, a cross-head carried by the pitman, a guide beneath said cross-head, a removable guide secured to the casing above said cross-head and provided with an oil-channel extending therethrough, an oil tray or flange disposed upon the casing above the crank-shaft to surround the pitman connection thereto and communicating with the channel in the removable guide, a cover for said tray adapted to drain therein at all its edges, and means carried by said shaft to raise oil from said reservoir.

2. In an engine, a crank-shaft, a pitman extending therefrom, a casing provided with an opening in alinement with said pitman, a cross-head carried by said pitman and provided with a depending hooked portion, a piston, a piston-rod provided with a head to be embraced by said hooked portion, and a closure-plate for said opening provided with a top guide for the cross-head.

3. An engine-casing having an opening in its top, a crank-shaft, a pitman carried thereby in alinement with said opening, a cross-head carried by the pitman, a guide beneath said cross-head, a removable guide-plate to close said opening secured to the casing above said cross-head and provided with an oil-channel extending therethrough, an oil tray or flange disposed above the crank-shaft to surround the pitman connection thereto and communicating with the passage in the removable guide, a reservoir beneath said crank-shaft, a disk carried by said shaft and connected to the pitman, a piston and piston-rod, and a detachable hooked connection between said cross-head and rod.

4. In an engine, a casing provided at one end with an oil-reservoir in its lower portion, a lower cross-head guide at one side of said reservoir and provided with oil-recesses therein at its opposite ends, and a top guide disposed opposite said cross-head guide and provided with a longitudinally-disposed oil-passage and feed-openings therefrom.

5. In an engine, a casing provided at one end with an oil-reservoir in its lower portion, a cross-head guide at one side of said reservoir and provided with oil-recesses therein, a top guide disposed opposite said cross-head guide and provided with an oil-passage and feed-openings therefrom, a crank-shaft disposed in said casing above said oil-reservoir, and means carried by said shaft for automatically feeding oil from said reservoir to the passage in said top guide.

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

C. R. McGAHEY.

Witnesses:
C. W. SHEPPE,
S. GARNER.