

No. 775,605.

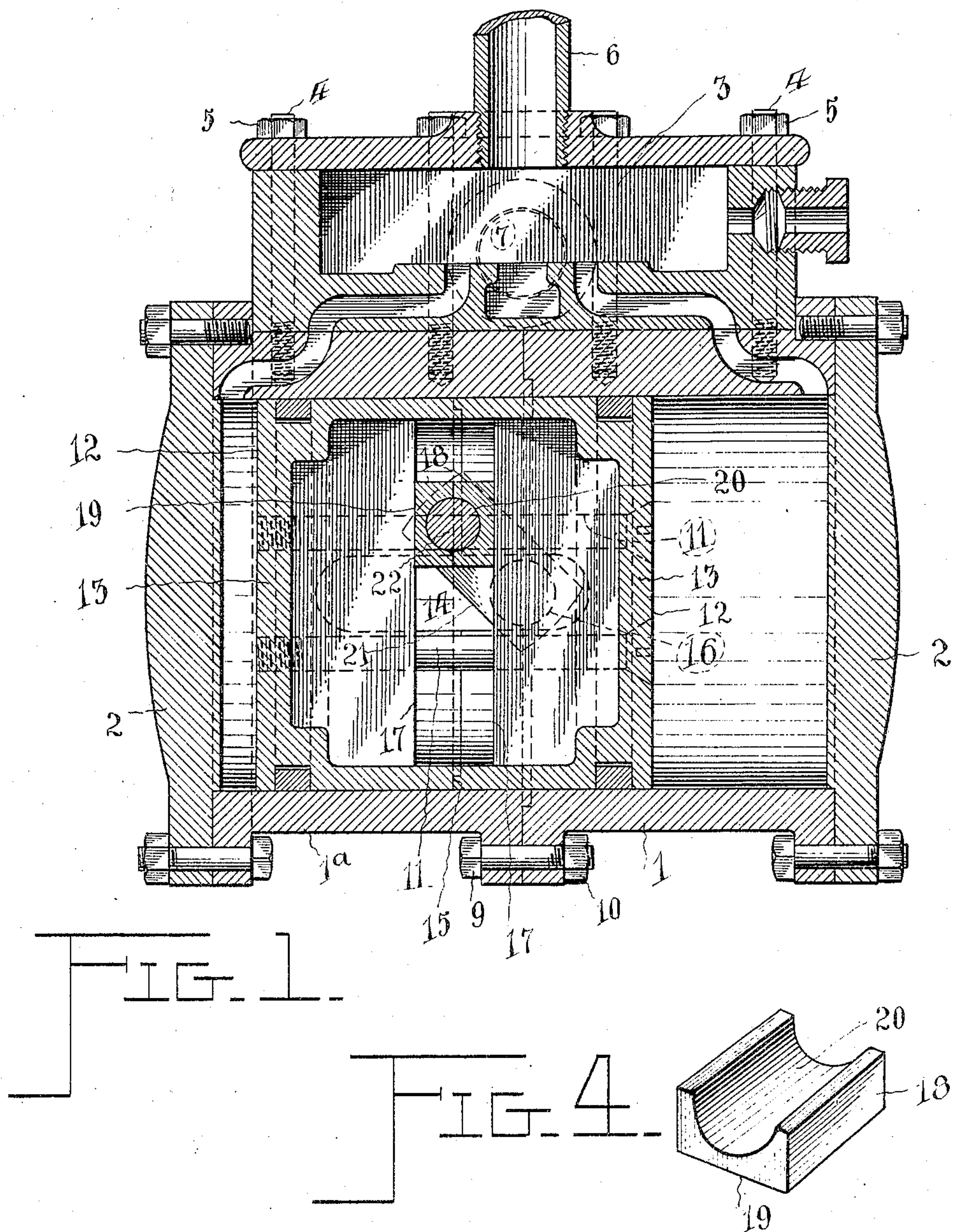
PATENTED NOV. 22, 1904.

A. LANGLAIS.
STEAM ENGINE.

APPLICATION FILED MAY 16, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:

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By

Marion & Marion

Attorneys

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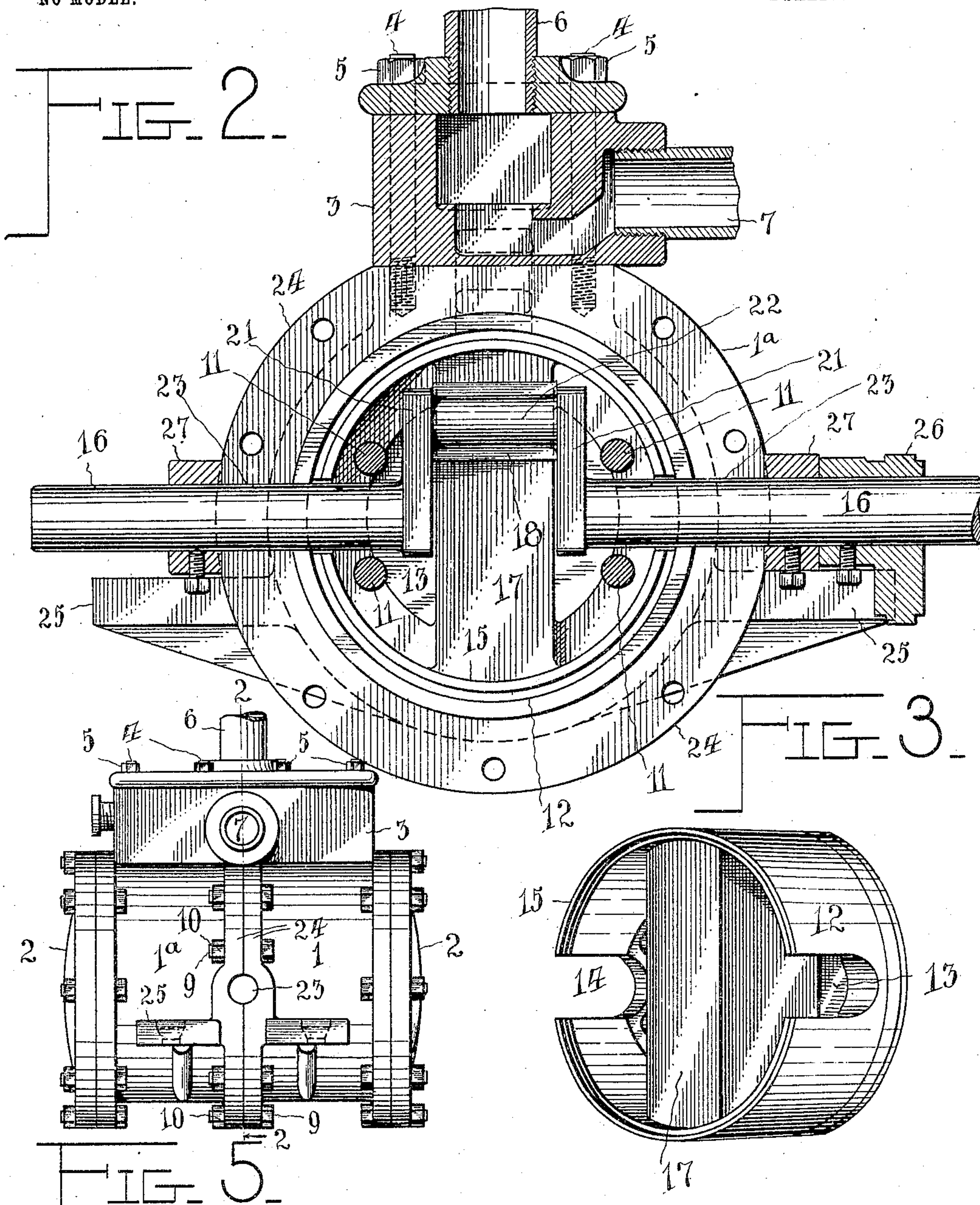
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UNITED STATES PATENT OFFICE.

ALONZO LANGLAIS, OF MONTREAL, CANADA.

STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 775,605, dated November 22, 1904.

Application filed May 16, 1904. Serial No. 208,301. (No model.)

To all whom it may concern:

Be it known that I, ALONZO LANGLAIS, a subject of the King of Great Britain, residing in the city and District of Montreal, in the Province of Quebec, Canada, have invented certain new and useful Improvements in Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to new and useful improvements in steam-engines; and it consists in certain features of novelty in the detail construction and arrangement of parts thereof, all as hereinafter more fully described and specifically pointed out in the claims.

The object of the invention is to produce a simple and compact engine in which the ordinary pitman-rod connected with the piston is dispensed with and a reciprocatory piston is provided, which has diametrically-disposed slide-bearings coöperating with bearing-boxes on the cranked portion of the main driving-shaft, all as hereinafter particularly described.

Referring to the drawings, in which similar numerals of reference indicate corresponding parts in all the views, Figure 1 is a longitudinal vertical section of an engine equipped with my improvements. Fig. 2 is a transverse sectional view thereof, taken on line 2 2 of Fig. 5. Fig. 3 is a detached isometric view of one of the piston-sections. Fig. 4 is a similar view showing one of the slide boxes or bearings; and Fig. 5 is a general view of the engine-cylinder assembled ready for use, except that the crank-shaft is not in position.

In the drawings, 1 and 1^a are cylinder-sections provided with the usual heads 2 and steam-chest 3, which steam-chest is connected with the cylinder-sections by means of the vertically-projected bolts 4, projected through the steam-chest casing into the cylinders and provided with the usual nuts 5. A steam-supply pipe 6 and exhaust 7 are provided for the valve-casing, and a slide-valve operable in the usual manner may be provided therein, though not shown.

As the cylinder 1 1^a is divided into two parts, which are connected by means of the

bolts 9 and nuts 10, and as each cylinder-section is identical with the other, a description of one will answer for both. Likewise, the piston is divided into two parts which are substantially identical in construction, which parts are connected by means of the longitudinally-extended securing-bolts 11, projected through the heads of each piston-section, and a description of either piston-section will answer for both.

Referring now particularly to Fig. 3, 12 indicates a piston-section, which, as will be noted from an inspection of that figure, is approximately cup-shaped and provided with the head 13, while incisions 14, adapted to extend longitudinally of the cylinder, are provided in the piston-section, which incisions open from the edge 15 and extend approximately to the head 13. The incisions 14 are disposed at diametrically opposite positions—that is, in alinement with the crank-shaft 16—which in this type of engine becomes the main driving-shaft thereof. Extending diametrically across each piston-section and having its axis at right angles to a line drawn through the shaft 16—that is, through the incision 14—is a slide 17, which extends entirely across each piston-section, as shown in Fig. 3.

In Fig. 4 is illustrated one of a pair of bearing-boxes 18, provided with the flat face 19 and semicylindrical bearing 20 upon the opposite face thereof from said face 19. The crank-shaft 16 is provided with the crank-arms 21 and connected crank extension 22, which is adapted to be held between a plurality of bearing-boxes 18.

When the piston-sections are connected, as shown in Fig. 1, it will be noted that their combined length is less than the cylinder-opening, so that when steam is admitted to either end of the cylinder the piston thus provided will be projected to the opposite end of such cylinder, and when this occurs it is evident that the bearings 18 will slide longitudinally between the slide members 17, thereby causing the shaft 16 to rotate in its bearings 23, which bearings are arranged at diametrically opposite sides of the cylinder and formed by semicylindrical meeting faces in the connecting flanges 24 thereof. Supporting-brackets

25 are connected with the cylinder-casing for the purpose of supporting the engine in position, as may be desired. A continued reciprocation of the compound piston thus produced will cause continuous rotary motion of the shaft 16, and it will be convenient to provide such shaft with a suitable fly-wheel and means for transmitting power to any suitable source of application thereof and provide said shaft with the eccentric 26, (shown in Fig. 2,) as well as the collars 27, which bear against the flanges 24, which collars are provided for adjusting the crank-shaft 16 longitudinally—that is, transversely of the length of the cylinder.

By using the construction shown and described it is evident that a compact steam-engine is provided in which the ordinary pitman and incidental connections are avoided and the power applied directly to the crank-shaft or driving-shaft of the engine.

While I have shown in the accompanying drawings the preferred form of my invention, it will be understood that I do not limit myself to the precise form shown, for many of the details may be changed in form or position without affecting the operativeness or utility of my invention, and I therefore reserve the right to make all such modifications as are included within the scope of the following claims or of mechanical equivalents to the structures set forth.

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

1. In an engine, a cylinder formed in two

sections, a flange on each of said sections, bolts connecting the flanges, a piston, comprising a plurality of oppositely-disposed, cup-shaped members, a slide member extending across each of said members, a bearing disposed intermediate of said slide members, a crank-shaft rotatable in said bearing, and tie-bolts extending continuously from end to end of the piston.

2. In an engine, a cylinder formed in sections, a piston, comprising a plurality of recessed members, a slide member on each of said members, each of said recessed members being provided with a plurality of slots, a bearing disposed between said slide members, a crank-pin in said bearing, a shaft connected to said crank-pin, and means for longitudinal adjustment of the shaft.

3. In an engine, a cylinder formed in sections, a piston, comprising a plurality of oppositely-disposed, cup-shaped members, a slide member on each of said members, each of said cup-shaped members being provided with a plurality of oppositely-disposed slots in the sides thereof, a bearing between the slide members, a crank-pin in said bearing, a shaft connected with the crank-pin, a collar on said shaft bearing against said cylinder and a set-screw arranged to maintain the collar in operative position.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

ALONZO LANGLAIS.

Witnesses:

F. H. GIBBS,
P. MENARD.