

No. 673,120.

Patented Apr. 30, 1901.

A. B. FLOYD.
ENGINE.

(Application filed June 23, 1900.)

(No Model.)

2 Sheets—Sheet 1.

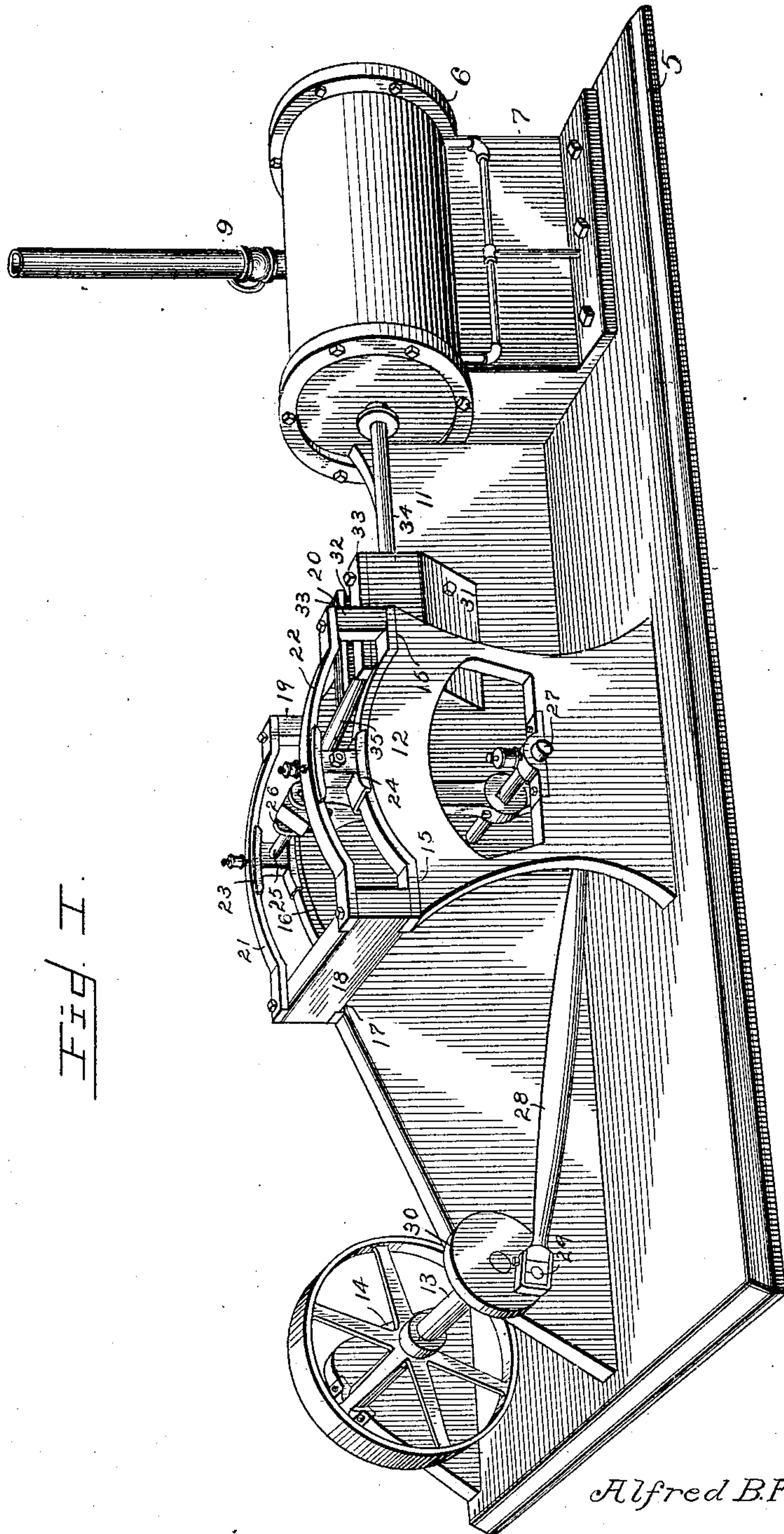


Fig. 1.

Witnesses

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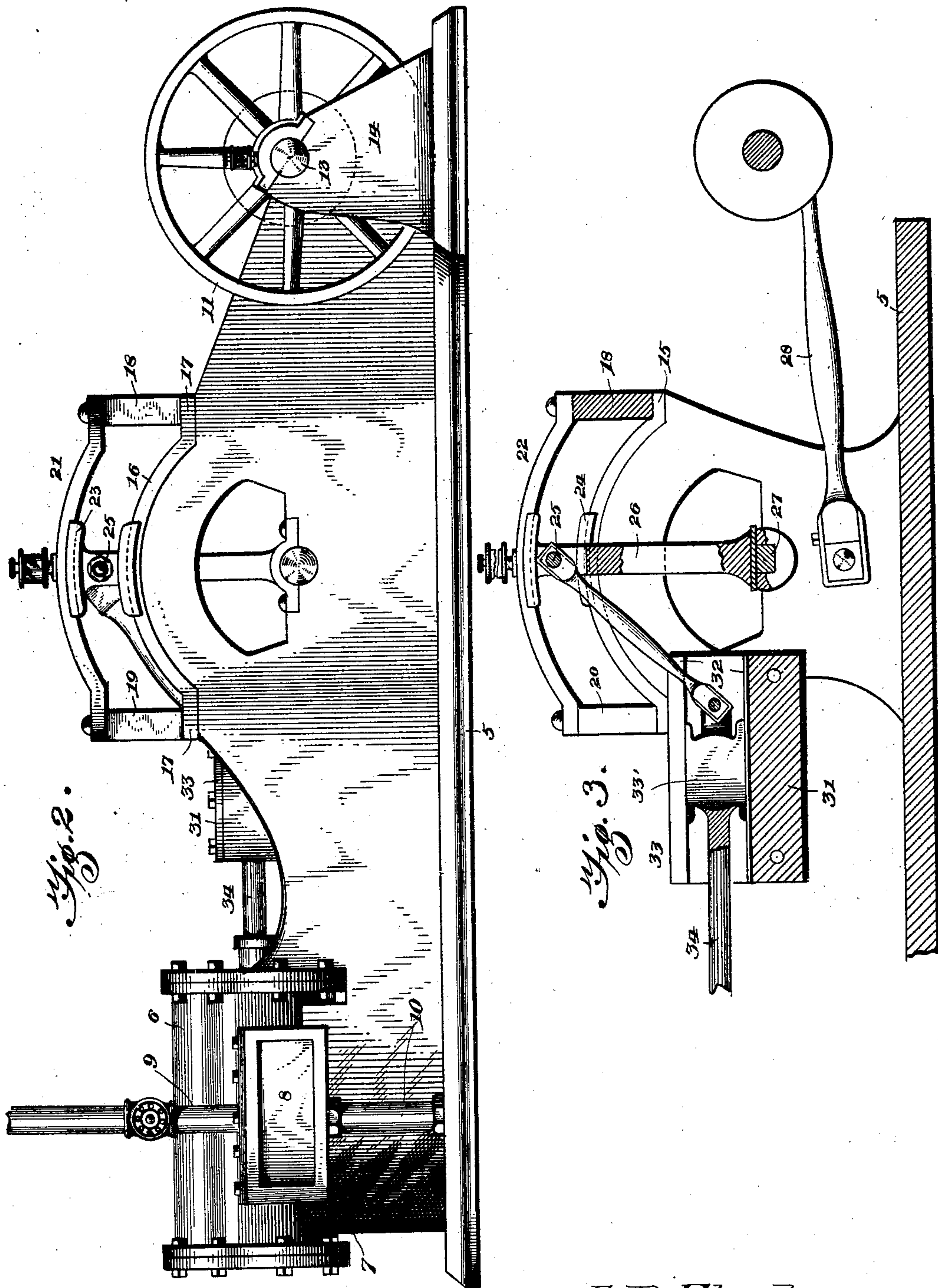
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UNITED STATES PATENT OFFICE.

ALFRED B. FLOYD, OF HELENA, ARKANSAS.

ENGINE.

SPECIFICATION forming part of Letters Patent No. 673,120, dated April 30, 1901.

Application filed June 23, 1900. Serial No. 21,389. (No model.)

To all whom it may concern:

Be it known that I, ALFRED B. FLOYD, a citizen of the United States, residing at Helena, in the county of Phillips and State of Arkansas, have invented a new and useful Engine, of which the following is a specification.

This invention relates to steam-engines in general and has specific reference to the mechanism connecting the piston with the drive-shaft, one object of the invention being to provide a simple and efficient construction wherein a piston of long stroke may be utilized to secure a large leverage in the operation of the drive-shaft, further objects of the invention involving the specific structure being evident from the following description.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a general perspective view of the complete mechanism. Fig. 2 is a side elevation of the engine. Fig. 3 is a longitudinal vertical section taken between the supporting-plates of the frame of the engine and showing portions of the connecting elements in section.

Referring now to the drawings, 5 represents the bed-plate, upon which the engine proper is mounted, and which engine comprises a steam-cylinder 6, supported upon the usual base 7, the cylinder having the usual steam-chest 8, with which communicate the supply and exhaust pipes 9 and 10, respectively. Extending from the base 7 and resting against the head of the adjacent end of the cylinder is a frame-plate 11, which reaches to a point adjacent the opposite end of the bed-plate 5 from the cylinder, and parallel therewith and substantially midway of the ends thereof is a second frame-plate 12. At the outer end of the plate 11 is formed a bearing for the crank-shaft or drive-shaft 13 of the engine, said shaft having also a bearing in a parallel pillow-block 14 at one side of the plate 11.

The upper end of the plate 12 is convex and arc-shaped, with flat terminal portions 15, while a corresponding portion of the upper edge of plate 11 is similarly formed to present a convex arc-shaped portion 16 and terminal flat portions 17. Upon one corresponding pair of portions 15 and 17 are disposed the ends of a cross-beam 18, while upon the remaining flat

portions are disposed blocks 19 and 20, these blocks being equal in height to the cross-beam. Bowed plates 21 and 22 are formed to correspond with these corresponding bowed and flat portions of the upper edges of the plates 11 and 12 and have their ends disposed upon the cross-beam and the blocks in the manners shown, whereby two arc-shaped guides are formed, one upon each of the plates 11 and 12, to slidably receive the cross-heads 23 and 24 in the usual manner.

In the cross-heads 23 and 24 are mounted revolvably the ends of a pin 25, which engages the upper end of a lever 26, fixed to a rock-shaft 27, which is journaled at its ends in bearings upon the plates 11 and 12, the lower end of said lever, which is the short section thereof, having a connecting-rod 28 pivoted thereto, and which connecting-rod is engaged at its outer end with the wrist-pin 29 upon the crank-disk 30 at one end of the engine-shaft.

Upon the side of the plate 11 is secured a block 31, in the upper face of which is formed a guideway 32, having retaining-plates 33, and in this guideway is disposed a cross-head 33', to which the piston-rod 34 of the engine is connected, and between the ears at the opposite side of the cross-head is pivoted the end of a connecting-rod 35, the outer end of which is pivotally engaged with the pin 25. Thus as the piston-rod is operated the rock-lever 26 will be rocked and the lower end thereof will move the connecting-rod 28, being reciprocated to actuate the engine-shaft.

With this construction it will be seen that there is a simple and cheap arrangement of parts and one in which there is an increased leverage applied to the engine-shaft.

What is claimed is—

1. A steam-engine comprising a cylinder having a reciprocatory piston, parallel plates adjacent to the cylinder and having bowed edges terminating in flattened portions, a beam connecting corresponding flattened portions, blocks upon the remaining flattened portions, bowed plates disposed above and parallel with the bowed portions of the first plates and having flattened ends engaged with the beam and blocks, a cross-head disposed between the second plates and the adjacent bowed edges of the first plates, connections between said head and the piston, a rock-

shaft mounted in bearings upon the first plates, a lever fixed to the rock-shaft connected at one end with the cross-heads, and a crank-shaft having a crank operatively connected with the lever.

2. In a steam-engine, the combination with a cylinder having a reciprocatory piston and a rod therefor, of a rock-shaft, a lever fixed to the rock-shaft, a cross-head carried by the lever, arcuate guides with which the cross-head is engaged, a connecting-rod connecting

the cross-head and the piston-rod, a crank-shaft, and a connecting-rod connected with the crank-shaft and with the lever.

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

ALFRED B. FLOYD.

Witnesses:

CAGE REMBERT,
F. F. KITCHENS.