(No Model.)

2 Sheets—Sheet 1.

D. D. PINKHAM.

STEAM ENGINE.

No. 321,313. Patented June 30, 1885.

Fig. 1.

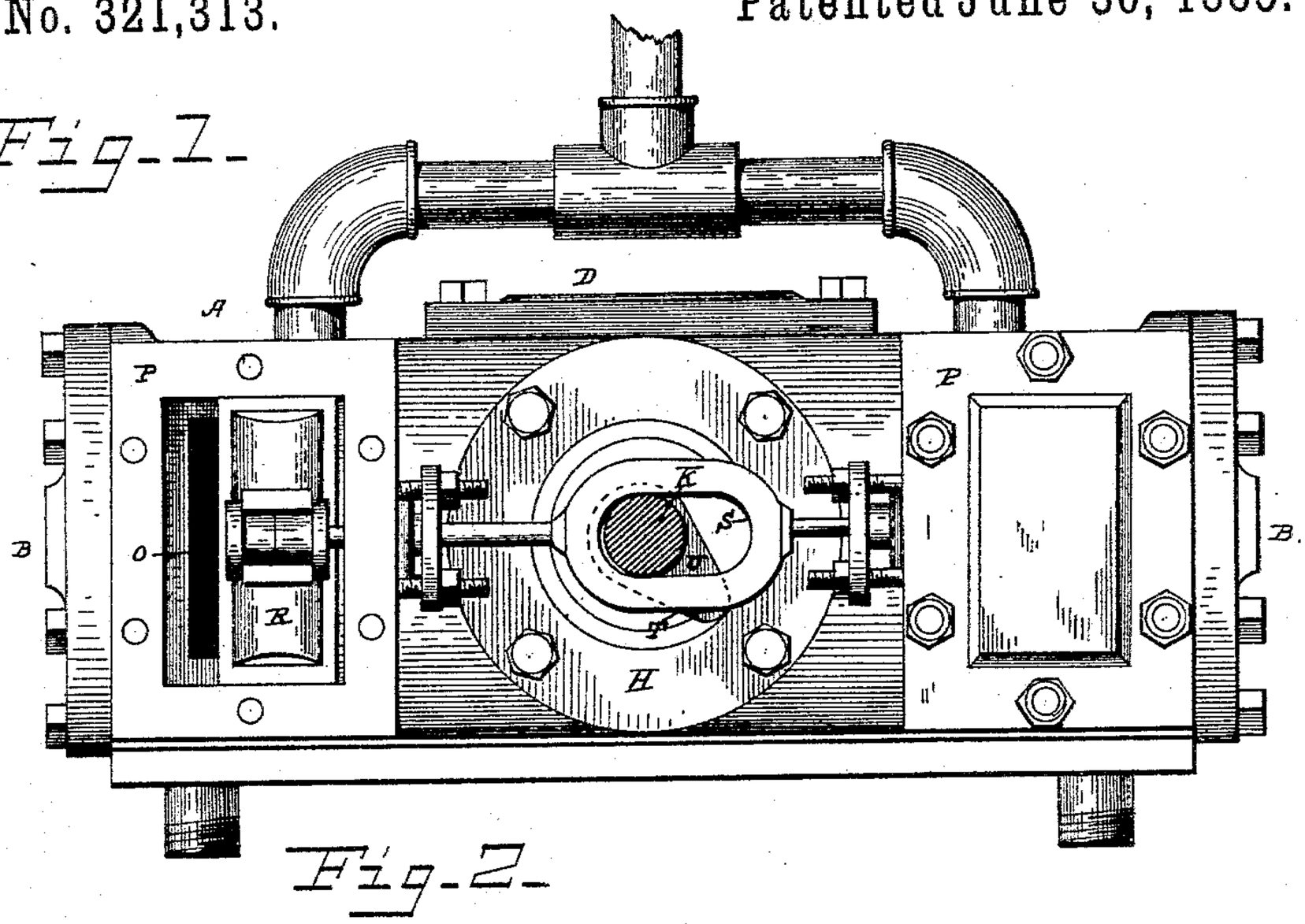
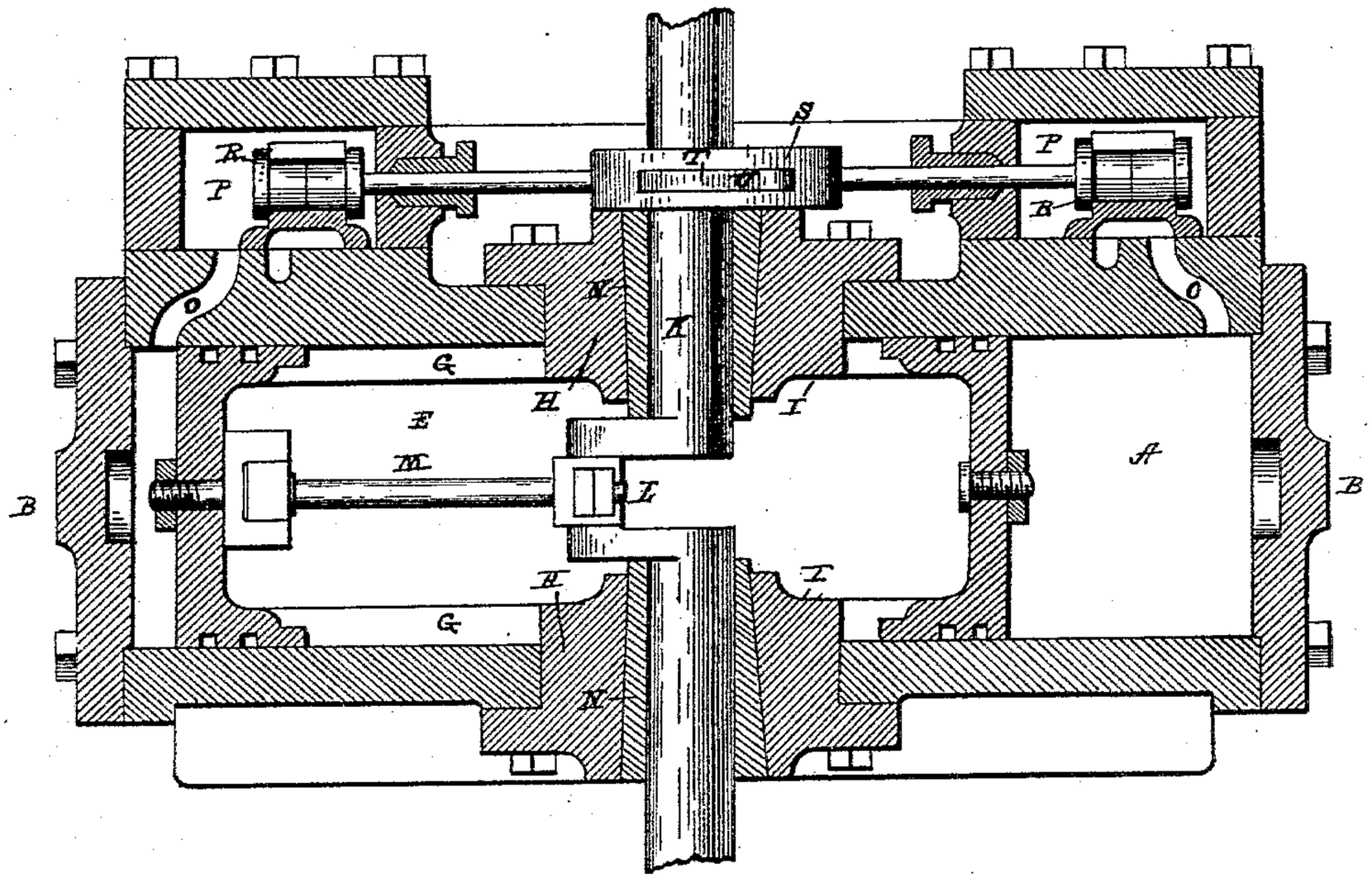


Fig. 2.



WITNESSES

Edwin L. Yewell

Chas. A. Davis.

INVENTOR

D. D. Pinkham

By Wilkinson & Alexander

Attorney

(No Model.) 2 Sheets—Sheet 2.

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STEAM ENGINE.

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Fig. 3.

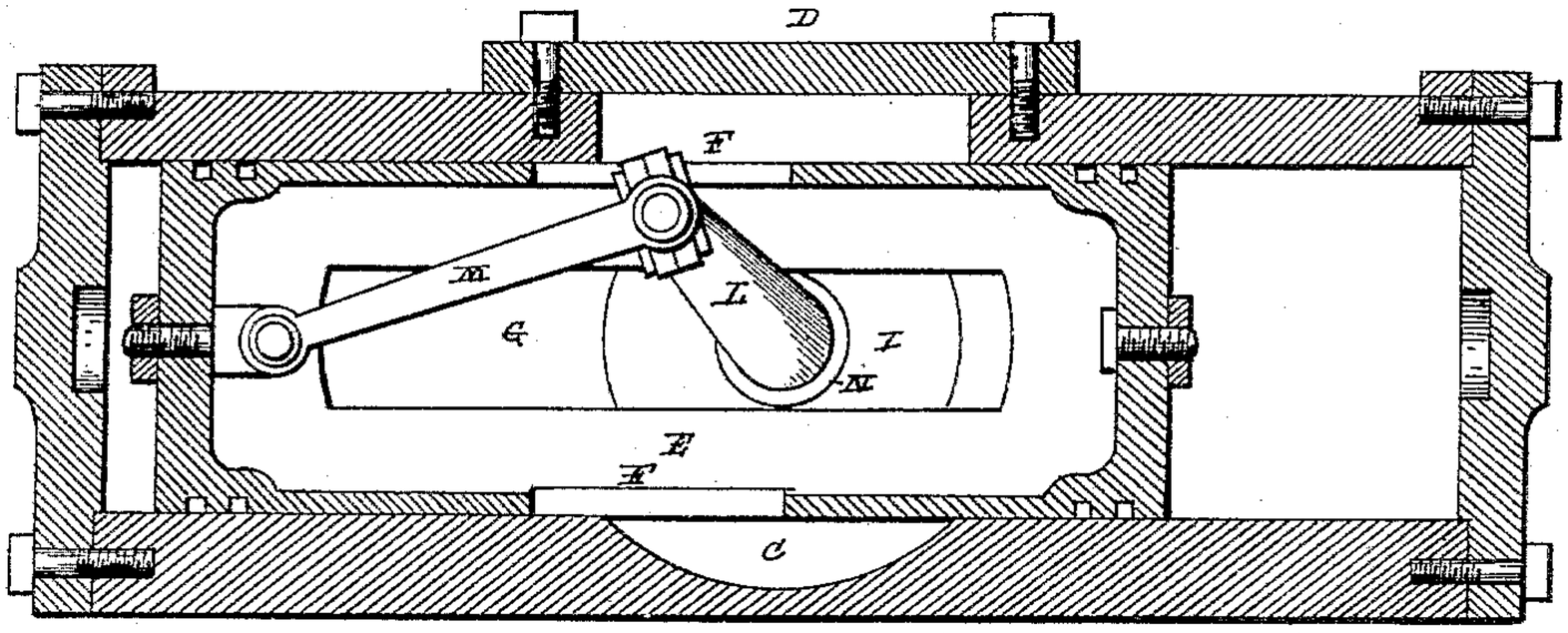


Fig. 4.

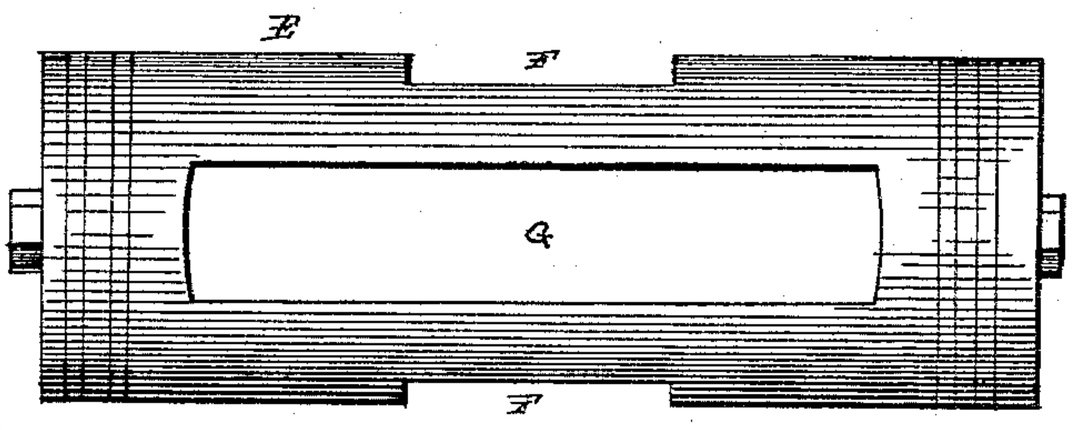


Fig. 5.

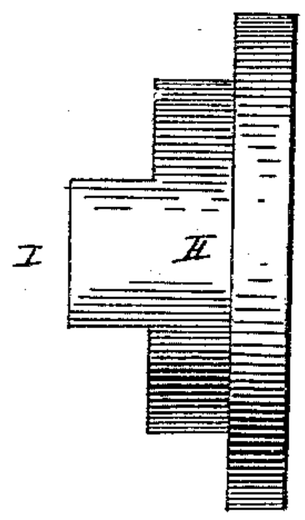
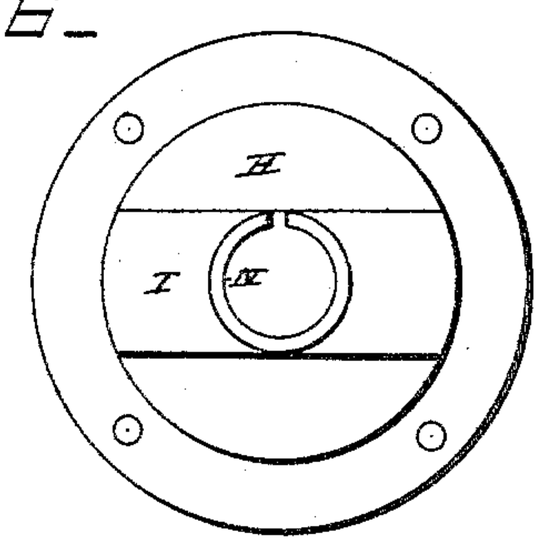


Fig. 6.



WITNESSES

Edwin L. Yewell.
Chas. O. Davis.

INVENTOR

D. D. Pinkham
By C. M. Alexander
Attorney

UNITED STATES PATENT OFFICE.

DELMAR D. PINKHAM, OF LONGVIEW, TEXAS.

STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 321,313, dated June 30, 1885.

Application filed March 24, 1885. (No model.)

To all whom it may concern:

Be it known that I, DELMAR D. PINKHAM, a citizen of the United States, residing at Longview, in the county of Gregg and State of Texas, have invented certain new and useful Improvements in Steam-Engines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in steam-engines, having reference to the cylinder and its mechanism particularly, and is designed to produce a cylinder containing the piston, crank on the shaft, and the pitman in its interior arranged in such a manner as to obviate unequal pressure by the piston on the cylinder, and hence the wearing of the bore out of round, and thus producing pounding and blowing. Further, the object of the invention is to produce a quick-acting valve mechanism to be used with the style of cylinder described. The device accomplishing these objects is described below, and illustrated in the annexed drawings, in which—

Figure 1 represents a side elevation of the cylinder; Fig. 2, a lateral section of the same; Fig. 3, a longitudinal vertical section; Fig. 4, a detail elevation of the piston; Fig. 5, a detail end view of one of the journal-boxes, and Fig. 6 a plan view of the same.

The cylinder A is provided with heads B, a recess, C, about midway, and an opening opposite the recess closed by a cap, D.

The piston E is cylindrical in shape, provided with openings top and bottom, (shown at F,) and with a slot, G, on each side. This slot is of a general rectangular shape, somewhat longer than the stroke, and having its longer sides parallel to each other and to the line of stroke. The heads at each end of the piston are provided with suitable packing.

Journal-boxes H are secured in each side of the cylinder about midway. The boxes have each an extension, I, of general rectangular shape, fitting into the slots G and acting as guides for the piston, keeping it perfectly true to its work, preventing thereby all unequal wearing on the cylinder, with its attendant evils of pounding and blowing.

The shaft K passes through the journal-boxes, and is provided with a crank, L, which is connected to one or both of the piston-heads by a pitman, M.

The journal-boxes are provided with bushings N, preferably conical in shape.

Parts O at each end of the cylinder admit steam thereto from the steam-chests P, in which operate slide-valves R.

The valves R are connected by rods to a yoke, S, slotted both top and bottom at T, through which passes the end of the cam U on the shaft, said cam giving a reciprocatory motion to the yoke.

The openings in the piston and the recesses in the cylinder are for the passage of the end of the crank on the shaft.

The motion of the yoke is not slow and regular, as in the eccentric, but rapid for a portion of the stroke, and then resting while the cam passes from one side to the other. Thus it will be seen that the cut-off is accomplished with sufficient rapidity for practical purposes. The time of the cut-off may be varied by the position of the cam.

The cap D is removable, so that the interior of the cylinder may be readily reached.

The invention is not confined to the exact construction shown, the improvement being essentially in the guidance of the piston and the quick-operating slide-valve; hence the right to vary the construction and location of the parts consistent with the spirit of the invention is reserved.

I claim—

1. The combination, with a piston slotted longitudinally, of journal-boxes in a cylinder, said boxes having an extension which rests in the slot and acts as a guide for the said piston, substantially as and for the purpose specified.

2. The combination, with a cylinder, of a cylindrical piston longitudinally slotted, a crank-shaft with the crank within the cylinder, and journal-boxes for the shaft, said boxes having extensions which rest within the slots in the piston and act as guides therefor, substantially as and for the purpose specified.

3. A cylinder having a longitudinally-slotted piston, a crank-shaft with the crank within the said cylinder and connected to the pis-

ton, journal-boxes with extensions acting as guides to the piston in the slots of which they rest, a cam on the shaft, exterior to the cylinder, and a slotted yoke connected to the slide valve or valves, said cam engaging in the slots in the yoke, substantially as and for the purpose specified.

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

DELMAR D. PINKHAM.

Witnesses:
T. E. SIMMONS,
A. W. MORISON.