(No Model.)

A. SCHNIER & S. R. SMITH.

STEAM ENGINE.

No. 276,479. Patented Apr. 24, 1883.

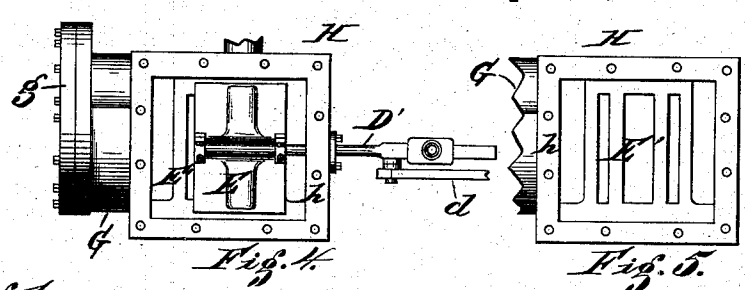


Fig. 4.

Fig. 5.

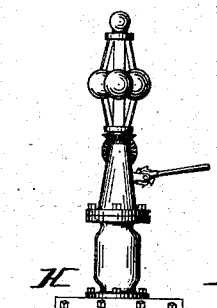


Fig. 1.

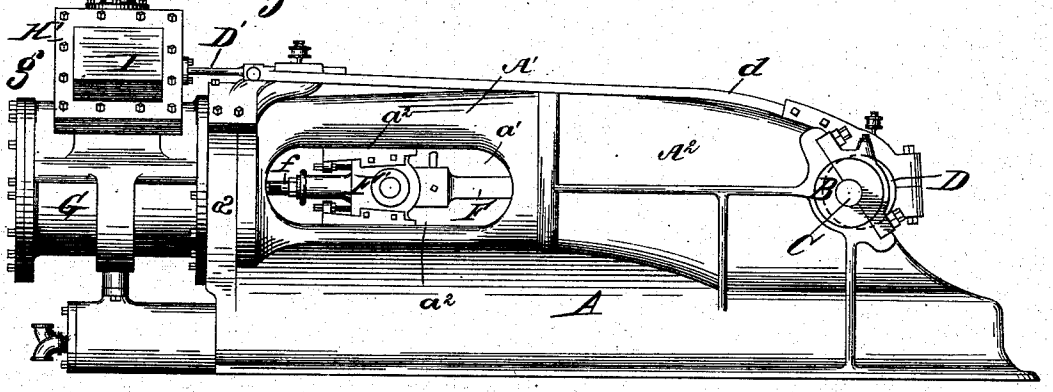


Fig. 2.

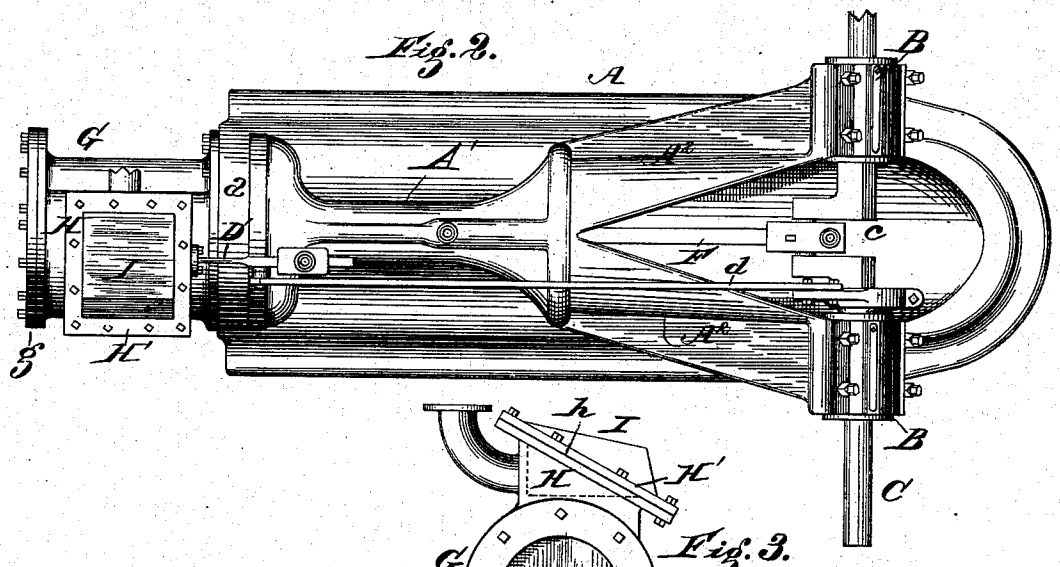
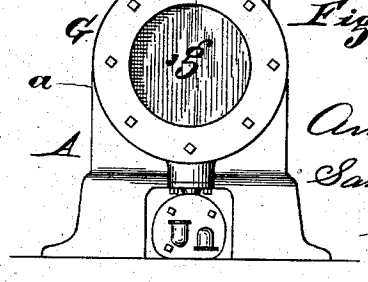


Fig. 3.



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UNITED STATES PATENT OFFICE.

ANTHONY SCHNIER AND SAMUEL R. SMITH, OF CINCINNATI, OHIO.

STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 276,479, dated April 24, 1883.

Application filed January 2, 1883. (No model.)

To all whom it may concern:

Be it known that we, ANTHONY SCHNIER and SAMUEL R. SMITH, both citizens of the United States, and residents of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Steam-Engines, of which the following is a specification.

This invention relates to improvements in horizontal steam-engines, and has for its objects to provide a frame of novel construction for supporting the crank-shaft, the reciprocating yoke, and the cylinder in such manner that the yoke is guided by the walls of a transverse slot formed in a vertical extension of the frame. The crank, the pitman-rod, and the eccentric for actuating the slide-valve are located within the frame, between the journal-bearings of the crank-shaft. The steam-chest is vertically arranged on a cylinder fixed to one end of the frame, and the rod connecting the valve with the eccentric is curved and arranged above the plane of the shell and its vertical extension.

The construction and arrangement of parts which constitute our invention are hereinafter described and claimed, and illustrated by the accompanying drawings, in which—

Figure 1 is a longitudinal elevation of a horizontal steam-engine embodying our invention. Fig. 2 is a plan view of the same. Fig. 3 is an end view thereof, showing the cylinder-head and steam-chest. Fig. 4 is a plan view of the cylinder, steam-chest, and valve devices, with the cover or lid of said chest removed. Fig. 5 is a plan view of the steam-chest, with the lid and valve removed to show the valve-seat.

A represents the bed or mounting-frame of the engine. It is preferably made in one piece, suitable openings and depressions being provided for the accommodation of the working parts. It is also made hollow, and ribbed, as shown, for lightness, economy, and strength. This shell-frame is formed with a longitudinal vertical extension, A′, in the form of a narrow web, the forward end of which is constructed with a head, *a*, which is vertical on its outer face, and the said vertical web-extension is also provided with a longitudinal slot, *a′*, the top and bottom walls, a^2 a^2, of which are parallel and serve as guides to the cross-head F′, which is located in the slot *a′* and reciprocates therein. The rear end of the vertical extension is joined to the journal-bearings B by the diverging webs A^2 A^2, and thus all these parts are strongly counterbraced.

B B are journal boxes or bearings for the driving-shaft. These bearings are mounted upon the sides of shell A, and made long, so as to suitably support the shaft and crank.

C *c* represent a crank and shaft journaled upon its bearings B B.

D represents the eccentric, located on shaft C, between crank *c* and one of the bearings B.

d represents the eccentric-rod, having suitable journals, *d′*, rigidly connected to said rod *d*, the parts being bent to rise above the plane of shell A, and journaled on a wrist-pin on valve-stem D′, which projects laterally from one side of said valve-stem a sufficient distance to bring the journal of the wrist in direct line with the eccentric D, so as to avoid torsional strain on the valve-stem and guides. Instead of projecting the wrist-pin laterally, it might be placed on top, and the rod *d* bent laterally, as well as vertically, to bring its journaled end in a direct plane parallel with the valve-stem and guides.

F represents the pitman, F′ the customary adjustable sliding cross-head, and *f* the piston-rod, all these parts connecting the crank *c* in a direct line with the pitman moving in cylinder G.

H is the steam-chest, made integral with cylinder G, vertically over it, and having its cap-flange *h* inclined at any suitable angle to leave an open side for the introduction of a file, the tool of a planer, or other means for constructing and properly finishing the horizontal valve-seat E′.

H′ is the lid or cap of the steam-chest, having a hollow protuberant center, I, to make provision for the presence and movement of the valve, and secured to the said chest in any suitable manner.

The cylinder G is constructed and centrally secured to the fore end of frame A, so that but one detachable head, *g*, is necessary. This is due to its direct connection with the bed-plate and on line with crank *c*, the said fore end, *a*, forming the other head of the cylinder.

We claim—

1. In a steam-engine, the horizontal shell-

frame A, constructed with the vertical web-extension A′, having a slot, *a′*, formed transversely through it to receive the cross-head F′, which is guided by the top and bottom walls of the slot, combined with the crank-shaft, the pitman-rod, the eccentric located on the shaft between its crank and one of its bearings B, the cylinder connected with the upright head *a* of the frame, the steam-chest mounted on the cylinder, and the curved rod connecting the slide-valve and the eccentric, and located above the plane of the vertical extension of the frame, substantially as described.

2. The shell-frame A, constructed at one end with the vertical extension A′, having the transverse slot *a′* to receive and guide the cross-head, and at its other end with bearings B for the crank-shaft, which are joined to the vertical extension by the diverging webs A^2, substantially as and for the purpose described.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

ANTHONY SCHNIER.
SAML. R. SMITH.

Witnesses:
JNO. E. JONES,
JNO. E. WILES.