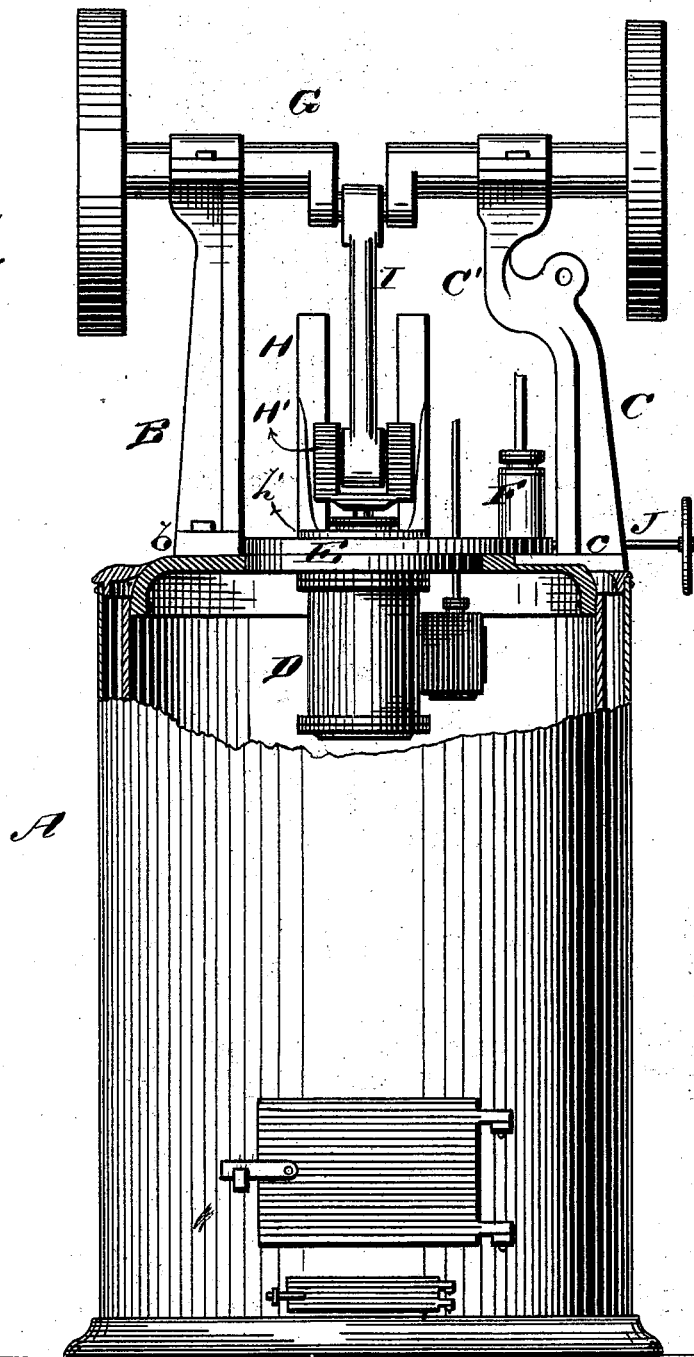


G. E. BANNER.
Steam-Engine Standard and Cylinder.

No. 204,283.

Patented May 28, 1878.

Fig. 1.



WITNESSES
E. H. Bates
Wm. S. Shickler

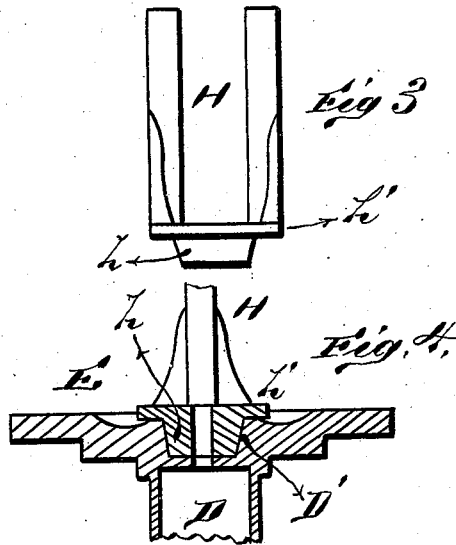
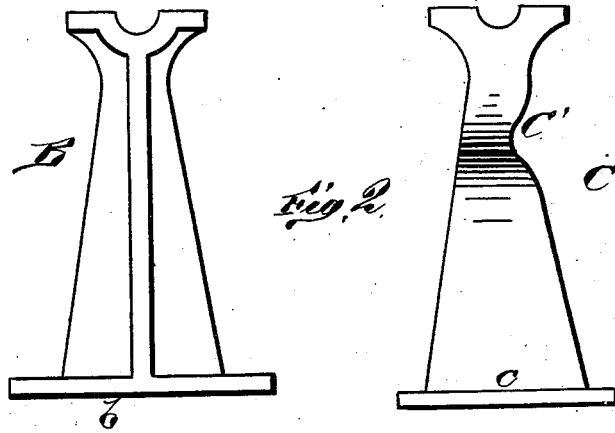
INVENTOR
George Edward Banner
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 ATTORNEY

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UNITED STATES PATENT OFFICE.

GEORGE E. BANNER, OF NEWARK, NEW JERSEY, ASSIGNOR OF ONE-HALF HIS RIGHT TO ANNA GRAY FALES, OF HARTFORD, CONNECTICUT.

IMPROVEMENT IN STEAM-ENGINE STANDARDS AND CYLINDERS.

Specification forming part of Letters Patent No. 204,283, dated May 28, 1878; application filed April 29, 1878.

To all whom it may concern:

Be it known that I, GEORGE EDWARD BANNER, of the city of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Steam-Engine Standards and Cylinders; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to the standards and cylinders of steam-engines; and it consists mainly in so constructing said parts that the cylinder of an engine can be removed without removing the standards or disturbing the shaft supported thereby, said cylinder being made in one piece with its cylinder-head or supporting-flange.

In the accompanying drawings, Figure 1 represents a side elevation of part of a steam-engine, partly in section, embodying my invention; and Fig. 2 is a detail view of the standards detached; Fig. 3, a detail view of the guide, and Fig. 4 a vertical section view of the same.

A designates an engine-boiler, to the top of which standards B and C are secured by means of screws or other fastenings passing through horizontal base-flanges *b* and *c* of said standards. D designates a cylinder, formed in one piece with cylinder-head or flange E, whereby it is detachably secured to said boiler. F designates the valve-box or casing for the governor-valve and valve-seat, which valve-box is formed in one piece with said cylinder-head. Standard B is made straight, and may have a pump attached to it. Standard C is curved over, as shown at C', so as to leave room below its upper part for valve-box F, and to allow the removal of the said cylinder and the parts formed therewith. Such removal does

not disturb in any manner the shaft G, supported by said standards, nor said standards themselves, their attachment being independent of said cylinder or the parts formed with it. The upper end of said cylinder is formed with a recess or depression, D', adapted to receive an offset or tenon, *h*, formed on the bottom of the base-plate *h'* of bifurcated guide H, which guides grooved block or cross-head H', carried by piston-rod I. The piston-rod is detachably connected to the guide-block, and the valve-rod is constructed in detachable sections, so that they will not interfere with the detachment of the cylinder. Said piston-rod works through a central aperture of plate *h'*. The adjusting-rod J of the starting-valve works through a hole in bent standard C.

The construction of the cylinder and bifurcated guide H, above described, enables said guide to be conveniently separated from said cylinder to repair the said guide, or renew, if worn. Any suitable additional fastening devices may be employed.

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

1. The cylinder D and governor valve-box, cast in one piece, in combination with the straight standard B and the curved standard C, independently attached to the boiler, and arranged so that the said cylinder and valve-box can be withdrawn from said boiler without moving said standards or the shaft carried thereby, substantially as set forth.

2. The combination of cylinder D, having depression D', with bifurcated guide H, having offset *h*, substantially as set forth.

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

GEORGE EDWARD BANNER.

Witnesses:

W. H. BABCOCK,
W. J. BABCOCK.