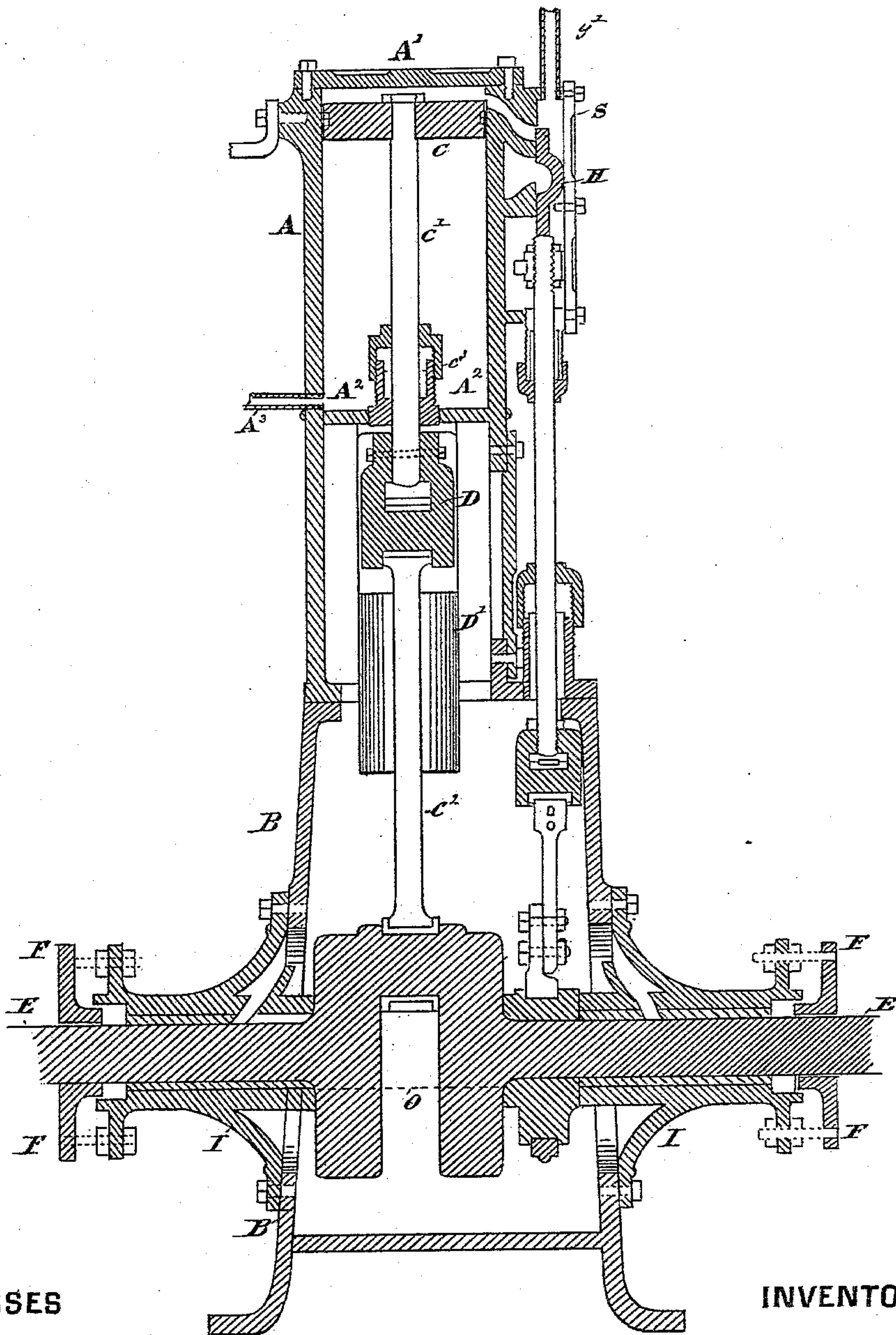


(No Model.)

A. T. BEMIS.
STEAM ENGINE.

No. 411,706.

Patented Sept. 24, 1889.



WITNESSES

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ALBERT T. BEMIS, OF LOUISVILLE, KENTUCKY.

STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 411,706, dated September 24, 1889.

Application filed April 29, 1889. Serial No. 308,923. (No model.)

To all whom it may concern:

Be it known that I, ALBERT T. BEMIS, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Vertical Single-Acting Steam-Engines; and I do hereby declare the following to be 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.

My invention relates to the class of vertical single-acting steam-engines in which the cylinder is placed above a base and crank-chamber closed at bottom, so as to form a receptacle for oil, so that all the wearing parts of engine are inclosed and move in a lubricating material, and which are especially adapted for high speed, as they take steam only above the piston-head and take up their lost motion. These engines may be constructed with one or more cylinders, and when only one cylinder is used the crank-shaft is supplied with counter-balances. In engines of this class as ordinarily constructed the bottom of the cylinder opens directly into the base and crank-chamber and the water of condensation runs down the sides of the cylinder and base-chamber and mingles with the oil. In order to prevent too much accumulation of water and oil, these engines are supplied with an overflow-pipe at a proper height in the crank-chamber, which carries off the excess. This overflow causes a constant waste of oil, and makes necessary careful and frequent attention to the supply of oil in cups.

The object of my invention is to prevent this waste of oil and to render unnecessary this constant care in regard to the oil-supply. I accomplish this object by placing in the cylinder at a proper distance below the cylinder-head to suit the stroke of the piston a partition provided with an aperture and a stuffing-box for the piston-rod, and just above the partition I insert a drip-pipe through the wall of the cylinder to carry off the water of condensation. By this means the downflow

of water into the base-chamber is prevented, and I am able to dispense with the use of oil-cups and an overflow-pipe in the base-chamber and to pour the proper quantity of oil into the base-chamber, where it does its work without waste from overflow and requires no attention except replenishing every few weeks.

My invention is illustrated in the accompanying drawing, which represents a vertical section of an engine of the class described.

In the drawing, A represents the cylinder; B, the base and crank-chamber; A', the cylinder-head; A², the partition I provide in the cylinder to shut off water from the base-chamber; A³, the drip-pipe; C, the piston-head; C', the piston-rod; C², the connecting-rod; C³, the stuffing-box for the piston-rod; D, the cross-head, and D' the slides.

E E represent the crank-shaft with counter-balances; F F, the stuffing-boxes against oil only; S, the steam-chest; G', the pipe to admit steam; H, the slide-valve, and I I the main bearings attached to base.

The dotted line O shows the height to which the base-chamber is filled with oil.

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

The combination, in a single-acting vertical engine in which the cylinder is provided with a steam-port at its upper end and an exhaust-port independent of the lower side of the piston, of a lower head in the cylinder, between the crank-pit and the piston, provided with a stuffing-box for the piston-rod, and a pipe leading from the lower end of the cylinder to the atmosphere to carry off the water of condensation that escapes past the piston, substantially as and for the purpose described.

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

ALBERT T. BEMIS.

Witnesses:

ROBT. ELLIOTT,
M. H. FERRELL.