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Fig. 1.

PATENTED APR 18 1871

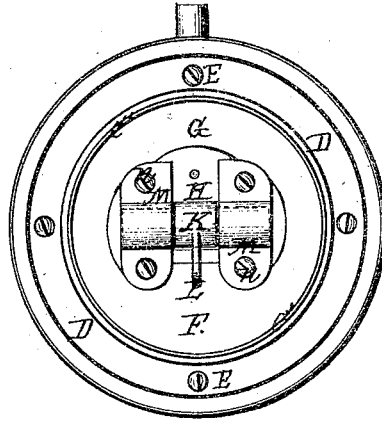


Fig. 2.

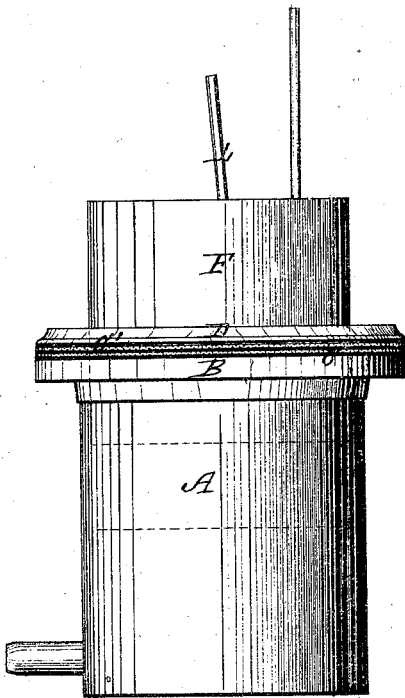
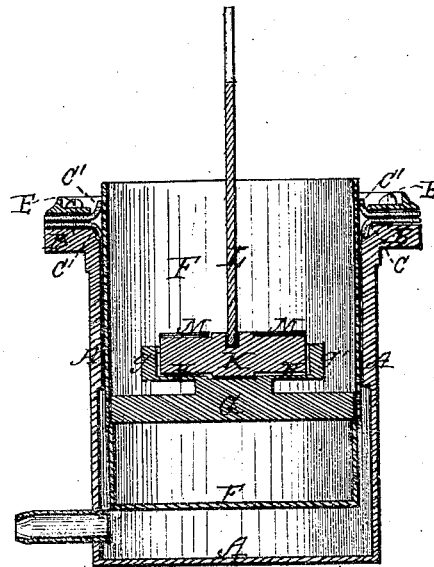


Fig. 3.



Witnesses:

Arthur O'Neil
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WILLIAM T. HALLEFAS, OF NEW YORK, N. Y.

Letters Patent No. 113,764, dated April 18, 1871.

IMPROVEMENT IN CALORIC-ENGINES.

The Schedule referred to in these Letters Patent and making part of the same.

I, WILLIAM T. HALLEFAS, of the city, county, and State of New York, have invented certain Improvements in Caloric-Engines, of which the following is a specification.

My invention consists in the peculiar construction of the box which receives the cross-head rocker of the piston, said box being cast on the piston-head in such manner as to form an oil-well equal in depth to one-half (or more) the diameter of the cross-head, whereby frequent attention to oiling the cross-head is obviated, as I will further explain by reference to the drawing, in which—

Figure 1 represents a top view of my invention;

Figure 2, a side elevation; and

Figure 3, a vertical section.

In the said drawing—

A indicates the cylinder;

B, a flange cast on the cylinder for reception of the packing C C', which consists of leather rings, or their equivalents, one of the rings, C, keeping the cylinder air-tight, the other, C', preventing dirt or too much oil passing down with the piston into the cylinder, both rings forming a V when pressing against the piston, as shown in fig. 3; and

D is the confining-plate, which holds the packing C C' in position by screws E E, &c., passing through the plate and packing into the cylinder-flange B.

F is the piston;

G, the piston-head;

H, the box or bearing for the reception of the cross-head, cast on the piston-head G, said box being closed at the ends *g' g'*, thereby forming an oil-well for the rocking cross-head K of the piston-rod L; and

M M are the caps for holding the cross-head in the box by screws *n n*.

The raised cross-head box H prevents its becoming too much heated by the hot air of the engine, and prevents the burning or drying up of the oil in the oil-reservoir.

The double packing O C', with a space between, is also specially intended to isolate the lubricating oil held above the outer packing, and thereby protect it from the excessive heat of the hot air employed to drive the engine.

What I claim as my invention in a hot-air or caloric-engine is—

The device herein described for keeping the journals of the cross-head K lubricated notwithstanding the high temperature of the air in the cylinder, consisting of the raised isolated box H having an oil-well or reservoir formed around the said cross-head journals, substantially as herein specified.

In testimony whereof I have hereunto set my signature this 16th day of September, 1870.

WILLIAM T. HALLEFAS.

Witnesses:

ARTHUR NEILL,

THOMAS MALONEY.