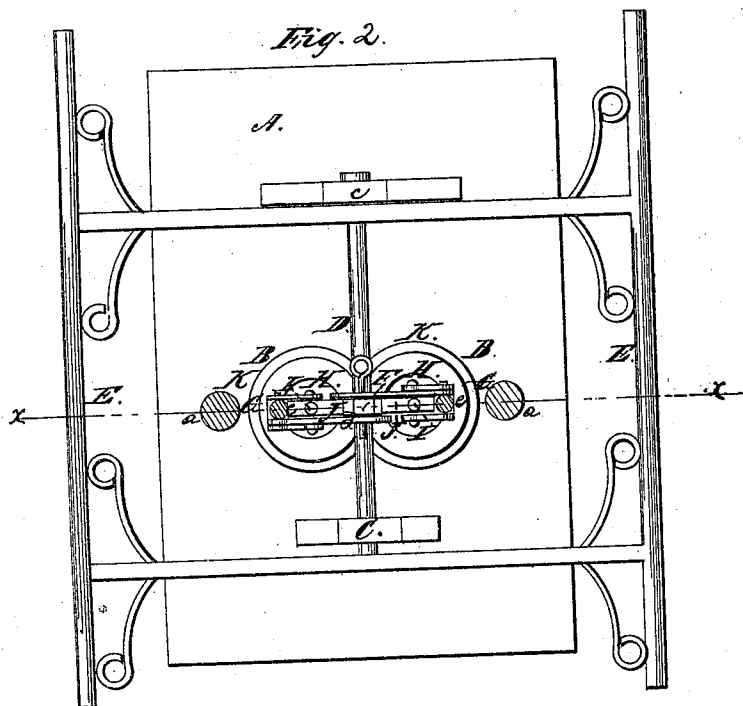
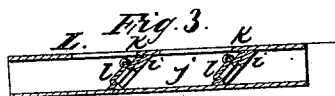
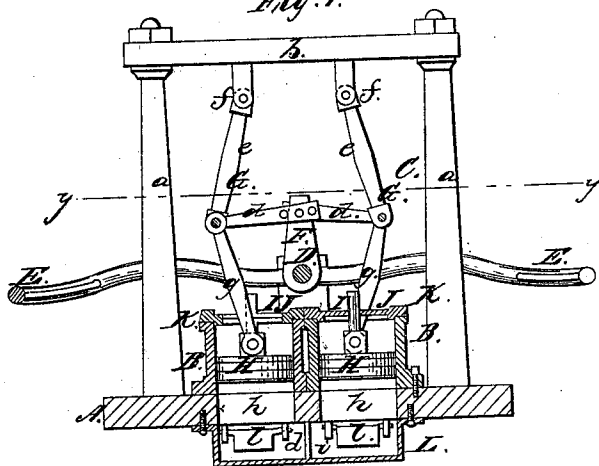


J. F. P. & G. Cowing,

Fire Engine.

N^o 14,089.

Patented Jan. 15, 1856.



UNITED STATES PATENT OFFICE.

JOHN P. COWING, PHILO COWING, AND GEORGE COWING, OF SENECA FALLS, NEW YORK.

METHOD OF OPERATING FIRE-ENGINES.

Specification of Letters Patent No. 14,089, dated January 15, 1856.

To all whom it may concern:

Be it known that we, JOHN P. COWING, PHILO COWING, and GEORGE COWING, of Seneca Falls, in the county of Seneca and State of New York, have invented certain new and useful Improvements in Fire-Engines; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a vertical section of our improvement, (x), (x), Fig. 2, showing the plane of section. Fig. 2, is a horizontal section of ditto, (y), (y), Fig. 1, showing the plane of section. Fig. 3 is a longitudinal section of the box underneath the bed plate and cylinders.

Similar letters of reference indicate corresponding parts in the several figures.

The nature of our invention consists in the arrangement of the mechanism employed for operating the pistons as will be presently shown and described.

To enable others skilled in the art to fully understand and construct our invention, we will proceed to describe it.

A, represents a bed plate on which two cylinders B, B, are secured, said cylinders being placed side by side.

C, represents a frame formed of the uprights (a), (a), having their upper ends connected by a cross piece (b), see Fig. 1.

D, represents a rock shaft which is fitted within bearings (c), (c), on the bed plate A, and E, E, are lever frames which project from opposite sides of the rock shaft. To the center of the shaft D, an arm F, is attached having two rods (d), (d), attached to its upper end. The outer ends of the rods (d), are attached to toggles G, G. The upper levers (e), (e), of the toggles are attached to pendants (f), (f), which are secured to the cross piece (b). And the lower ends of the lower levers (g) of the toggles are attached to piston heads H, H, which are fitted within the cylinders B, B.

I, I, are the piston rods which work through guides J, J, attached to the upper end of the cylinders. The guides J, J, are bars which extend across the centers of the upper parts of the cylinders. The ends of the bars, J, are attached to rings, K, which are equal in diameter to the cylinders, and

the rings are secured upon the upper ends of the cylinders in any proper manner.

Circular apertures (h), (h), are made through the bed plate A, directly underneath the cylinders. The diameters of these apertures are equal to that of the bores of the cylinder. To the under side of the bed plate A, there is attached a box L, which has two inclined partitions (i), (i), placed in it. The cylinders B, B, communicate with the space between the two inclined partitions. This space is divided into two compartments by a partition (j), and each partition (i), has a brass valve seat (k), fitted snugly to it. These seats (k), having valves (l), attached to them see Fig. 3, a suction and force valve communicating with each compartment at each side of the partition (j). The valve seats (k), are planed perfectly smooth so that they may be properly fitted to the partitions (i), (i), and are secured to the partitions by bolts or in any proper manner. The box L, and partitions (i), (j), may be constructed of any kind of metal.

As the lever frames E, E, are operated the pistons H, H, will be moved up and down within the cylinders by means of the toggles G, G, one piston moving upward while the other is moving downward and the water is drawn into the compartments underneath the cylinders as the pistons move upward and is ejected or forced from said compartments as the pistons move downward. By the use of the toggles G, G, the pistons are operated with a small expenditure of power and by having the valves and valve seats formed of brass and attached to the partitions (i), (i), as shown durability is obtained and also a perfect operation of the valves.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent, is,

The arrangement of the toggles G, G, shaft D, arm F, and rods (d) (d) for operating the pistons H, H, substantially as shown and described.

JOHN P. COWING.
PHILO COWING.
GEORGE COWING.

Witnesses:

JAMES WILCOXON,
NATHAN BAKER.