J. Williams, Jr.

Fire Engine,

No. 1,150. Patented May 11, 1839.

Fig. 1.

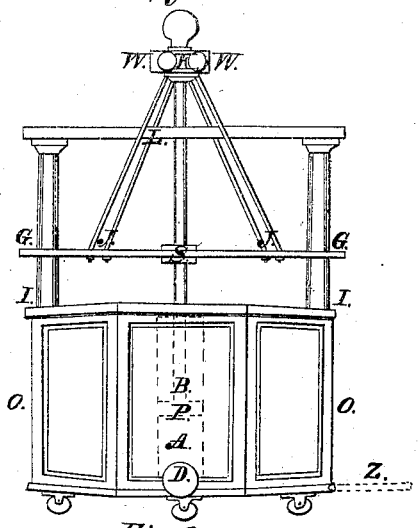


Fig. 2.

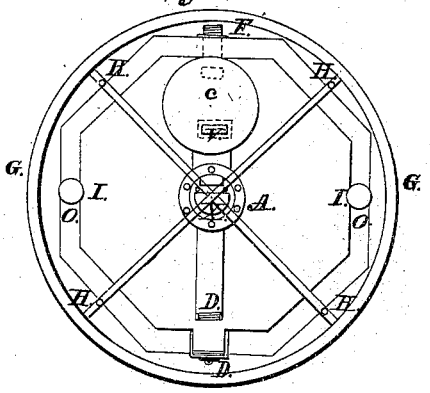


Fig. 4.

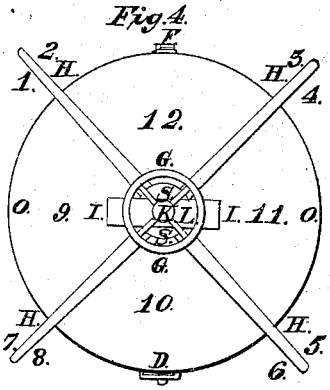
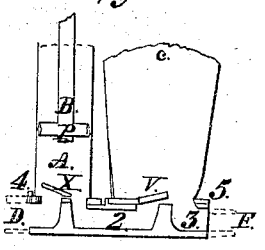


Fig. 3.



Attest:

A. M. Pruett
Josiahus Stone

Inventor:

John Williams Jr

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN WILLIAMS, JR., OF SALEM, NEW YORK.

IMPROVEMENT IN FIRE-ENGINES.

Specification forming part of Letters Patent No. 1,150, dated May 11, 1839.

To all whom it may concern:

Be it known that I, JOHN WILLIAMS, Jr., of Salem, in the county of Washington and State of New York, have invented a new and useful Improvement in the Fire-Engine; and I do hereby declare that the following is a full and exact description of the same.

The nature of my invention consists in a mode of applying the power of the firemen directly on the piston of a fire-engine without the intervention of levers or brakes, which are commonly used for the purpose, thereby rendering the instrument more compact, less liable to get out of order, and peculiarly applicable to steamboats.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation, and will refer to drawings for the purpose of rendering the description more intelligible.

Figure 1 represents an elevation, and Fig. 2 a bird's-eye view, of an engine which has been found to operate well, and I will give the dimensions of it with the description.

The drawings represent the box or case as an octagon, but it may be a hexagon, a circle, or a square, or any figure that will admit of the operatives taking their stations on all sides of it, and at the same time being equidistant from the center or cylinder, if the latter is placed in the center, the object being to apply the greatest number of hands to an instrument of the smallest size.

The letters which occur in the different figures are the same on similar parts of the machine.

The dotted lines at A, Fig. 1, represent the cylinder appearing through the box O O. The interior diameter of this is five inches by twenty-one long.

B is the piston-rod, one and one-half inch in diameter and four and one-half feet long, extending from the piston-head P through the hub S and cross-piece L, and screwing into the upper hub, K.

G G is a circle one and one-eighth inch round iron, three feet diameter, (represented more perfectly in Fig. 2 by the same letters.)

H H H H, Fig. 2, are arms, (not seen in Fig. 1,) one extremity introduced into the hub S and the other fitted to the circle G G, and keyed out from the piston-rod against the circle firmly.

J J J J are braces for the better support of the parts, the arms an inch diameter, and the braces five-eighths of an inch, the length to meet the other parts.

I I are pillars or standards to support the cross-piece L and keep the piston-rod perpendicular. Fig. 2 is represented without the cross-piece, cover, or hubs, to show the interior work.

X is a valve at the bottom of the cylinder, shutting the communication to the suction D through the bed-piece, which is cast in one piece, as represented in Fig. 3 by the figures 1, 2, and 3. It will be seen by reference to this figure that there are only two flanges in the engine to be secured by bolts—viz., the bottom of the cylinder (marked 4) and the bottom of the air-vessel (marked 5) and only two valves, (marked *x* and *v* in both figures.) Those acquainted with engines will readily perceive the parts and operation. The operatives take their stations around the circles or at the arms, and by moving them vertically about nineteen inches, (and consequently the piston-head) perform the work. When the piston is raised, the water is drawn through the suction or out of the box at D, and passes up through *x*, and when the workmen all press down at the same instant it is forced out at the other side of the bottom of the cylinder into the air-vessel *e*, and through the other side of the engine at F, Fig. 2, when any length of hose is allowed. The circle is sufficiently large for eight or nine men to work at, and if arms are introduced into the upper large hub at *w w w*, four or more can be mounted on the top of the box to work them. If the box of the engine is made of wood, and it is necessary to use the suction-hose without first filling the box with water, two or more men are necessary on the top to prevent the machine from lifting up; but as it is more convenient to place them below, and as six or eight are sufficient to operate an engine of the above dimensions, wings (represented at *z*) may be affixed to the sides to turn up a slide under the box when not in use; or, if space is no object, a platform may be continued around the outside for all the men to stand on. The difficulty of raising up power may be entirely remedied by making the case or box a circle of cast-iron, which is preferable for steamboat-engines. The wooden platform I use for land engines, as large

wheels can be placed under them without bringing the arms (if used) or circle too high for the men to work to advantage. It is evident that variations may be made in the instrument by making the lower hub larger and introducing arms without a circle or braces, putting a circle of smaller diameter above on other handles, which would give more room for the workmen on large engines; or by introducing arms altogether and of a different form, instead of circles; by placing the standards nearer the center of the box, to give the men more space upon the top; by placing the cross-head on the piston and slides for it to play in, or other alterations analogous.

It should have been mentioned before that rods were placed on the outside of the pillars I I, (not represented in the drawings,) and small circular guide-pieces affixed to the inside of the large ring G G, for the purpose of keeping the arms vertical and preventing them from marring the brass pillars or plating which covers all the iron-work.

Fig. 4 represents a bird's-eye view of the engine with arms below and a small circle above G G for twelve men.

What I claim as my invention, and wish to secure by Letters Patent, is—

The above-described mode of arranging and constructing the respective parts of a fire-engine, having a vertical cylinder in the center of the body or box thereof, with arms (duly braced) projecting radially from the piston-rod, with their outer ends attached to a hoop, or merely extending out so as to be grasped by the hands, as herein set forth, by which arrangement the engine is rendered so compact as to adapt it to steamboats and to other situations where economy of room is important, while at the same time a sufficient power can be applied to it to render it an efficient instrument.

It is to be distinctly understood that I do not make any claim to novelty in the construction of the cylinder, the piston, the valves, the air-chamber, or their immediate appendages, these being similar in their individual characters to such as are now in use, they only being so arranged as to adapt them to my engine.

JOHN WILLIAMS, JR.

Witnesses:
THOS. P. JONES,
LINTON THORN.