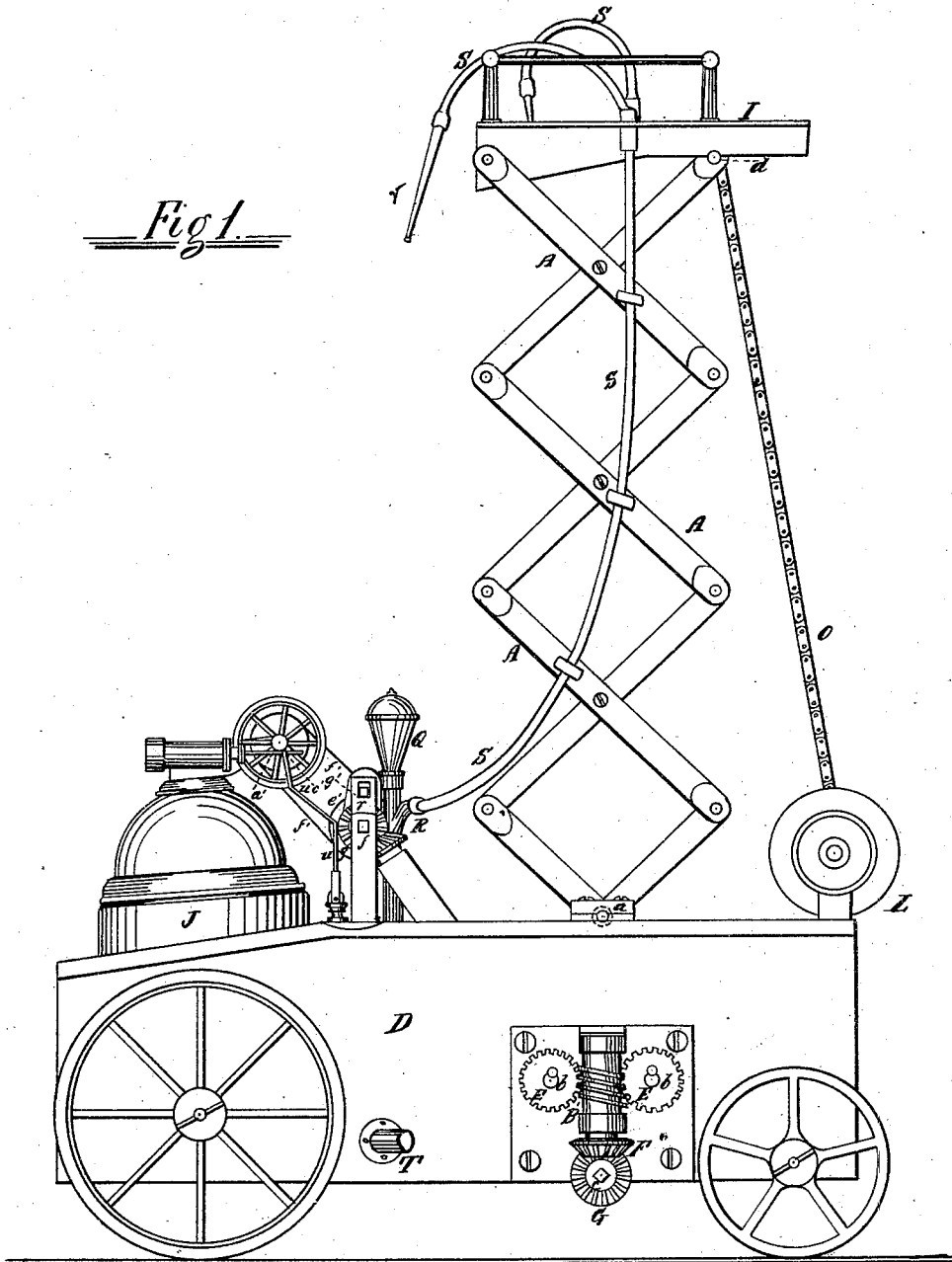


J. CHADDERTON.
STEAM FIRE ESCAPES.

No. 178,271.

Patented June 6, 1876.

Fig 1.



Witnesses.

W M Edwards.

Wm R Whitney

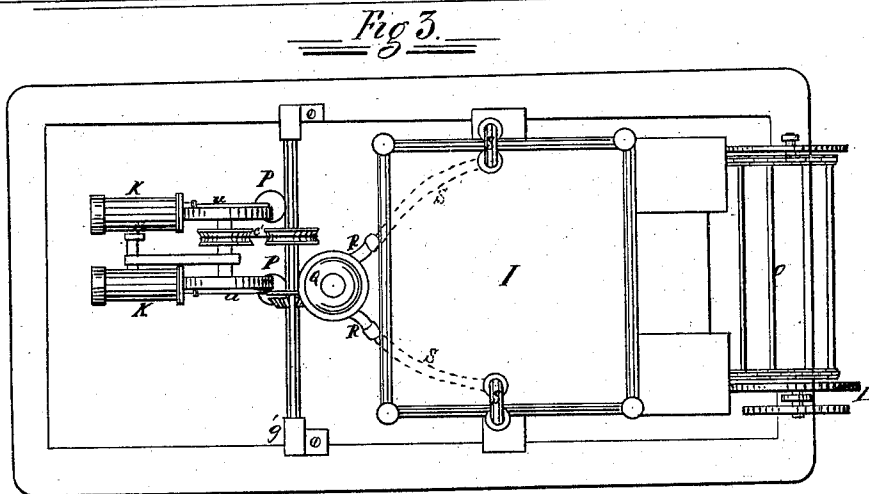
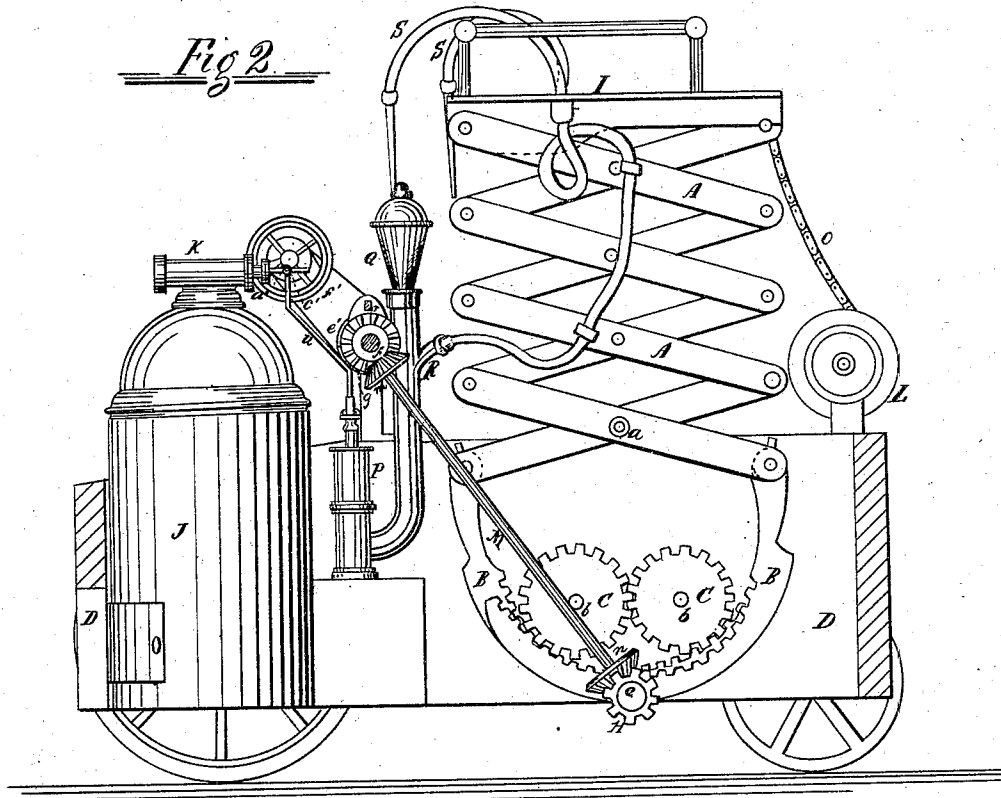
Inventor.

James Chadderton
per
James A. Whitney
atty.

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UNITED STATES PATENT OFFICE.

JAMES CHADDERTON, OF BROOKLYN, NEW YORK:

IMPROVEMENT IN STEAM FIRE-ESCAPES.

Specification forming part of Letters Patent No. **178,271**, dated June 6, 1876; application filed August 22, 1874.

To all whom it may concern:

Be it known that I, JAMES CHADDERTON, of Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Combined Fire Escape and Extinguishers, of which the following is a specification:

My invention comprises the combination, in an organized machine, of a system of lazy-tongs carrying a suitable platform, a steam-engine or equivalent motor, connecting with the lazy-tongs by appropriate gearing, and a pump or pumps, worked by the engine, and provided with a hose section or sections, attached to or elevated by the movement of the lazy-tongs, the whole constructed and arranged to serve the double purpose of a steam fire-escape and a steam fire-engine at one and the same time.

Figure 1 is a side view of an apparatus constructed according to my invention. Fig. 2 is a vertical longitudinal section, and Fig. 3 is a plan view, of the same.

The system of lazy-tongs is represented at A, the lower or supporting pivot or shaft thereof being shown at *a*. The lowermost of the superposed levers constituting the lazy-tongs have pivoted to their outer extremities the toothed sectors B, which lap past each other, and gear into pinions C, which said pinions gear into each other, all as shown in Fig. 2.

The shafts *b* of the pinions C extend through their bearings in the sides of the wheeled supporting-frame D, their projecting ends being furnished with pinions E. At each side of the aforesaid frame is a vertical worm, B, provided between and gearing with the pinions E, and furnished with a bevel-gear, F, which latter gears into a similar bevel-wheel, G. The bevel-wheels G are provided upon the ends of a transverse shaft, *c*, which is journaled in suitable bearings in the frame D, and has, furthermore, another bevel-wheel, H, the purpose of which is hereinafter fully set forth.

At the top of the system of lazy-tongs is a horizontal platform, I. One end of this platform is pivoted fast to the adjacent portion of the lazy-tongs, but the other simply rests upon a transverse bar, *d*, provided to the lazy-tongs in such manner that, during the narrowing of the latter in the elevation of the platform, the

said platform may slide or move upon the bar *d* without binding.

J is the boiler of a steam-engine, the cylinders of which are shown at K, and which, through suitable piston-rods *a'*, cranks *c'*, pulleys *e'*, band *f'*, &c., give rotary motion to a shaft, *f*, which shaft *f* carries a bevel-pinion, *g*. A shaft, M, has at one end a bevel-pinion, *m*, gearing into the pinion *g*, and at the other a like pinion, *n*, gearing into the bevel-wheel H. The working of the engine, therefore, rotating the shaft M, gives motion to the shaft *c*, and thence through bevel-wheels G and F, worms B', spur-pinions E, spur-wheels C, and sectors B, to draw the latter inward to raise the lazy-tongs, or thrust them outward to lower the same, according as the shaft *f* is moved in one direction or the other, by reversing the engine, or by any other suitable agency.

The bevel-pinion *g* is capable of a longitudinal movement upon the shaft *f*, and is connected with a shipper, *r*, whereby it may be moved into or out of gear with the pinion *m*, the said shipper being provided in its under side with notches, catching upon a shoulder or stud at *g'*, to hold the aforesaid pinion *g* in position, in gear or out of gear, as the case may be, with the pinion *m*. When out of gear, as required, when the lazy-tongs have been elevated to the required height, the latter are held against descent by the locking action of the worms B' against the reverse movement of the spur-pinions E. Any desired form or construction of steam boiler or engine may be used, or an air-engine or other equivalent motor may be used in place of the steam-engine. The gearing whereby the engine is connected with the system of lazy-tongs may also be modified in various ways without affecting the principle of my invention.

At one end of the wheeled frame D may be provided a reel, L, carrying a flexible ladder, *o*, the upper or outer extremity of which is attached to the platform I, the ladder being wound from the reel as the platform is raised, and affording a means of ascent to or descent from the aforesaid platform when elevated.

P P are pumps, the plungers of which are worked by rods *u*, connecting to the cranks *c'*, actuated by the engine, as hereinbefore set

forth. Q is the air-chamber of the pumps, and R the outlet, to which are attached the hose-sections S, the inlet to the pumps being shown at T. To this inlet, when the apparatus is in use, should be attached a hose or pipe, extending to a hydrant or other suitable source of water-supply.

The hose-section S is attached at intervals to the lazy-tongs, as shown in Figs. 1 and 2, its upper end portion being furnished with the usual nozzle *r'*, and left loose and flexible, so as to be turned in any direction, at the option of the fireman managing the same, and standing upon the platform I.

Instead of plunger-pumps, rotary pumps may be used, and the mechanism by which they are connected with the engine may, when desired, be modified in various ways without affecting the *modus operandi* of the apparatus.

The several essential parts of the machine being thus combined, organized, and arranged, the operation of the engine elevates the lazy-tongs, thereby raising the platform to bring the fireman standing upon it, and the hose-sections manipulated by such fireman, in proper relation to the burning building to permit the most efficient play of water upon the flames, and simultaneous with this the same motive power that thus actuates the lazy-tongs operates the pumps to force water through the aforesaid hose-sections, to provide for the just-mentioned play of water upon the flames; this elevation of the lazy-tongs and power-pressure, and projection of water

through the hose-sections, enabling the platform to be brought sufficiently near the windows of upper stories to permit the escape of persons therefrom to the said platform while the flames are being fought back from the vicinity of the latter by the jets, steam propelled, as just mentioned, from the hose section or sections, for, when preferred, two or more such sections, or only one, may be employed.

It will be understood that the operation of the pumps and lazy-tongs, and their respective adjuncts, is alike simultaneous whether the lazy-tongs are in upward movement or stationary in their elevated position, this last-named position of the lazy-tongs being that in which they are available for the escape of persons from high windows, and in which they enable the jets propelled from the steam-driven pumps to be most advantageously directed against the flames.

What I claim as my invention is—

The combination, in an organized machine, of the lazy-tongs, firemen's elevating-platform, and a steam-motor connected therewith by suitable gearing to operate the same, said steam-motor being also adapted, by means of a force pump or pumps and hose-connections, to serve as a fire-engine, substantially as described.

JAMES CHADDERTON.

Witnesses:

JAMES A. WHITNEY,
WILLIAM R. WHITNEY.