A. S. WALBRIDGE.

Hand and Horse Power Fire-Engine.

No. 215,698. Patented May 20, 1879.

Fig. 1.

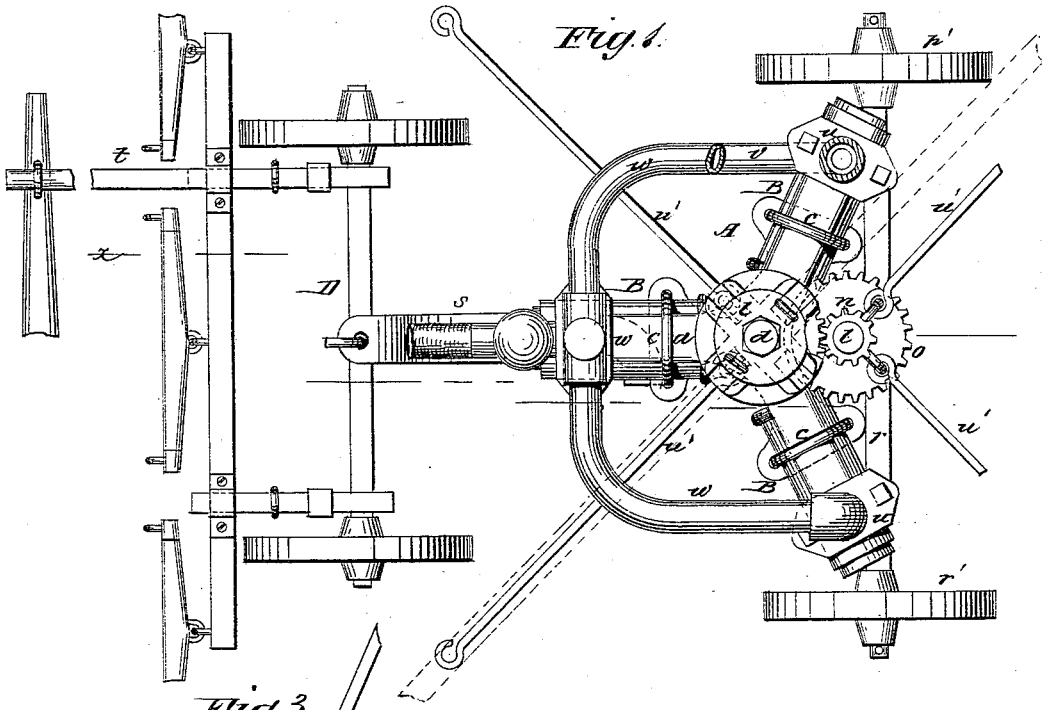


Fig. 3

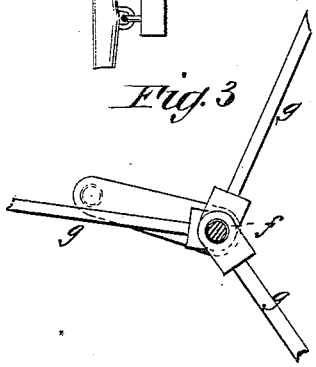
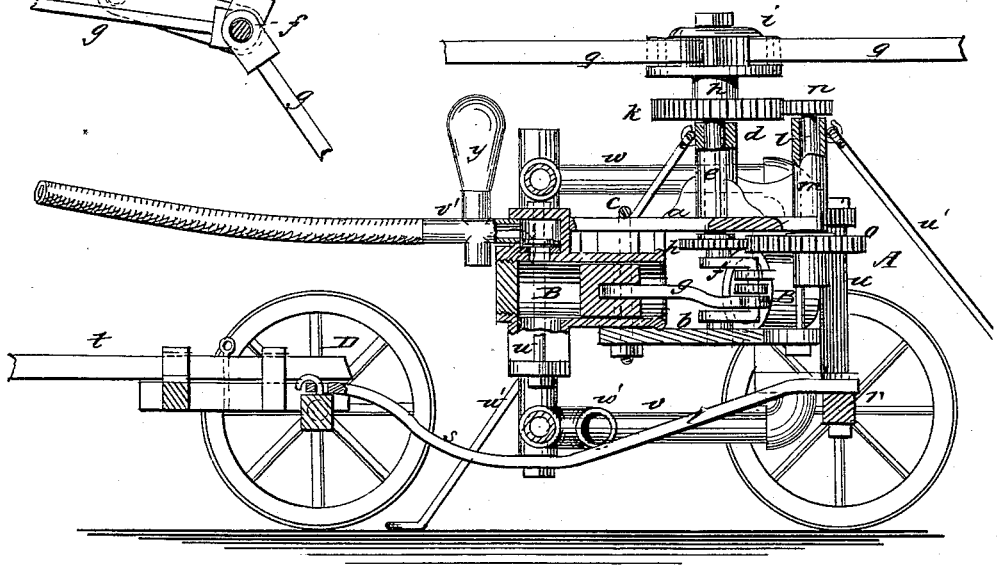


Fig. 2.



WITNESSES:

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ALEXANDER S. WALBRIDGE, OF MYSTIC, QUEBEC, CANADA.

IMPROVEMENT IN HAND AND HORSE POWER FIRE-ENGINES.

Specification forming part of Letters Patent No. **215,698**, dated May 20, 1879; application filed March 25, 1879.

To all whom it may concern:

Be it known that I, ALEXANDER S. WALBRIDGE, of Mystic, in the Province of Quebec, Dominion of Canada, have invented a new and Improved Hand and Horse Power Fire-Engine, of which the following is a specification.

The object of my invention is to furnish a fire-engine adapted for being drawn by horses, and operated by horse or hand power.

I make use of three or more pumps, arranged radially around a vertical shaft, and operated by a single crank on the shaft. The shaft is fitted with a hub for carrying sweeps, so as to be driven by horse or hand power. The pumps are arranged to take water by a single suction-pipe, and discharge at a common opening. The whole apparatus is mounted on a truck of convenient construction.

The engine will be described more particularly in connection with the accompanying drawings, wherein—

Figure 1 is a top view. Fig. 2 is a vertical longitudinal section on line *x x* of Fig. 1. Fig. 3 is a detail view, showing the connection of the pump-rods to the crank.

Similar letters of reference indicate corresponding parts.

The pumps and other parts of the apparatus are fitted upon a suitable frame, A, which, as shown, consists of the upper portion or plate, *a*, and lower portion, *b*. The pump-barrels B are clamped between *a* and *b* by shackles *c*, so as to be held rigidly and lie horizontally and radially from a common center.

d is a central vertical shaft, stepped in plate *b* and supported by a box, *e*, that is formed at the upper side of plate *a*. This shaft *d* is fitted with a crank, *f*, to which the pump-rods *g* of pumps B are connected. Upon the upper end of shaft *d*, above box *e*, is fitted a loose sleeve, *h*, that is formed with a hub, *i*, and carries a gear-wheel, *k*.

l is an intermediate shaft, boxed in a standard, *m*, on plate *a*, and carrying a gear, *n*, that meshes with gear *k*. Shaft *l* also carries a gear, *o*, which meshes with pinion *p* on the main shaft *d*.

The hub *i* is formed with sockets to receive the arms or sweeps *q*, by which the engine is worked either by hand-power or by horses, or both combined.

The engine is mounted upon a rear axle, *r*, and wheels *r'*, and a forward truck, D, that is connected by a hook to a central reach, *s*, from axle *r*. The truck D swivels upon its connection to the reach, and is connected so that it can be detached for use as a hose-carriage.

The truck D will be arranged for the attachment of three horses abreast—one in the center between the shafts *t t* and one at each side. The shafts *t* are connected to the truck D so that they can be readily removed, and are constructed in a form whereby they are adapted to application to hub *i* for use as sweeps.

Attached upon boxes *l* and *m* are hooks for attachment of stays *u'*, to brace the apparatus when in use.

At the outer end of each pump B is fitted a valve-case, *u*. Each of these cases connects with an induction-pipe, *v*, and eduction-pipe *w*.

w' is an opening at which the suction-pipe will be connected. The hose is connected at *v'*, and an air-chamber, *y*, is shown as applied to the discharge-pipe.

Each pump is single-acting, and they are arranged to act in succession to give a continuous discharge. One or more of the pumps may be disconnected when there is not sufficient power to operate all of them. The pumps will discharge a continuous stream without an air-chamber.

This engine is adapted for use in towns and villages where the use of steam fire-engines is too expensive or not desired.

The same horses used for drawing the engine will be used for operating it, or hand-power depended upon entirely.

The construction and arrangement are compact, durable, with no unnecessary weight, and the power is applied directly and economically.

The stays *u* serve to steady the engine, and will be formed at their outer ends with eyes or loops, whereby they may be held in place by stakes driven through the eyes into the ground; or they may be hook-ended, for attachment to the pavement.

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

1. The combination of pumps B, crank-shaft *d*, sleeve *h*, hub *i*, and multiple gearing, substantially as described and shown, and for the purposes specified.

2. The combination, with the pumps B and their valve-boxes *u*, of the induction-pipe *v* and eduction-pipe *w*, substantially as described and shown, whereby all the pumps receive water by one suction-pipe and discharge at one point in a continuous stream, as specified.

3. The shafts *t*, detachably connected to truck D, and adapted for use as sweeps for the hub *i*, as specified.

ALEXANDER SOLOMON WALBRIDGE.

Witnesses:

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