(No Model.)

W. MORRISON.

CHEMICAL FIRE ENGINE.

No. 313,755 Patented Mar. 10, 1885.

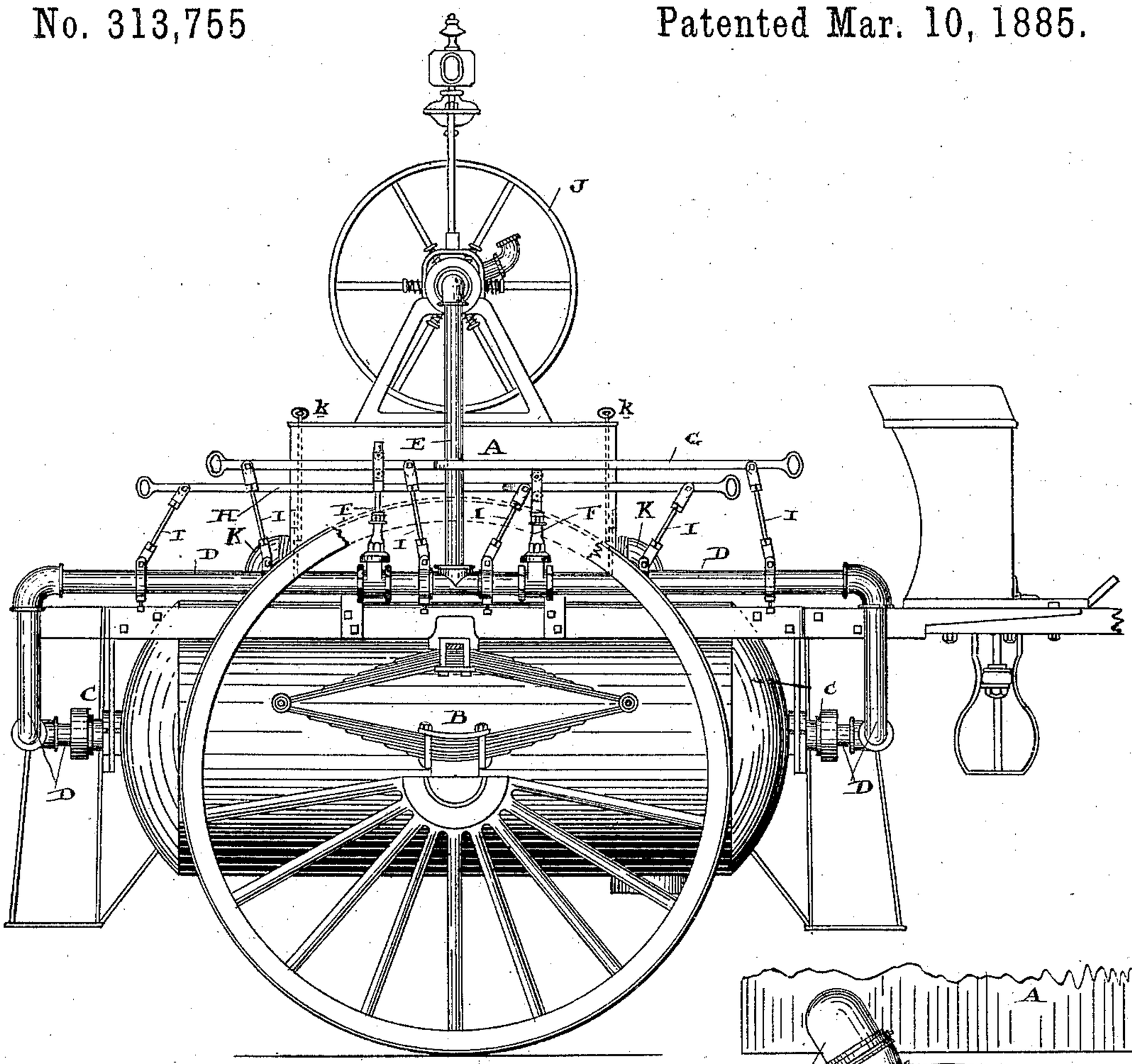

Fig. 1.

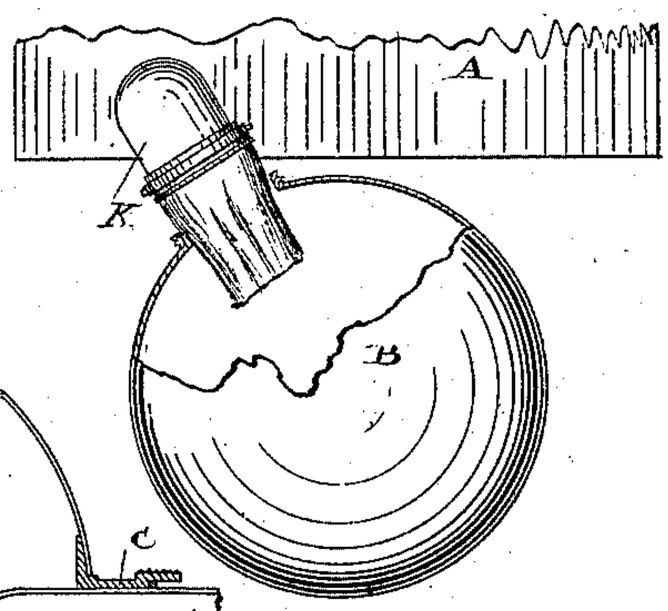

Fig. 3.

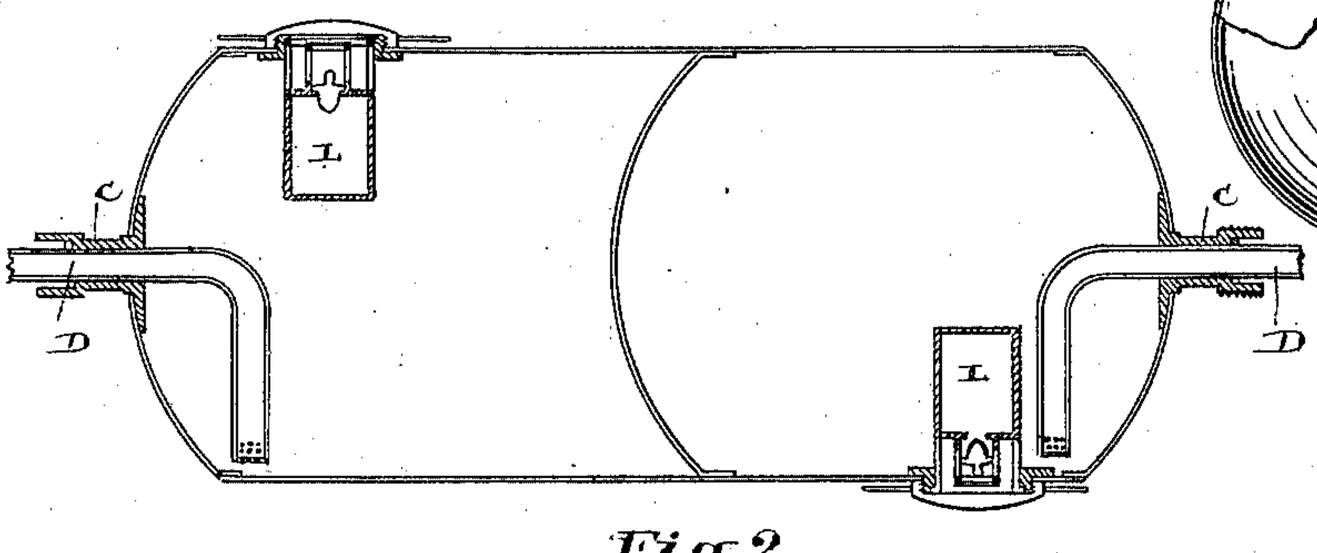

Fig. 2.

Witnesses.

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N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM MORRISON, OF TORONTO, ONTARIO, CANADA.

CHEMICAL FIRE-ENGINE.

SPECIFICATION forming part of Letters Patent No. 313,755, dated March 10, 1885.

Application filed February 19, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MORRISON, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Chemical Fire-Engines, of which the following is a specification.

The object of the invention is to devise a chemical fire-engine in which a constant stream of equal volume can be ejected; and it consists, essentially, in locating below a water tank or reservoir a cylinder divided into two chambers and carried horizontally in journals, upon which it may be revolved, a discharge-pipe passing through each journal into the respective chambers formed at either end of the cylinder, the two discharge-pipes thus leading into the chambers of the cylinder being connected to a discharge-pipe common to both, and to which the hose is attached, suitable valves being provided so that one discharge-pipe may be cut off while the other is open to communicate with the discharge-pipe common to both, suitable appliances being provided by which the water from the elevated tank or reservoir may be readily discharged into the respective chambers within the cylinder, substantially as hereinafter more particularly explained.

Figure 1 is a side elevation of my improved chemical fire-extinguisher. Fig. 2 is a sectional view of the horizontal cylinder. Fig. 3 is an end view of cylinder and recharging-tank.

A is the water tank or reservoir, suitably supported by the frame of the machine and located above the cylinder B.

C are trunnions journaled in suitable bearings supported by the main frame of the machine, and located, as indicated, at opposite ends of the cylinder, which they are designed to support, the trunnions forming the pivot-point upon which the cylinder B may be revolved. These trunnions are, it will be noticed by Fig. 2, hollow to permit the discharge-pipes D to pass through them, suitable stuffing-boxes being provided to prevent the escape of the gas through the joint formed between the discharge-pipes and trunnions. While the cylinder may be revolved, the discharge-pipes D remain stationary in the position they are shown in Fig. 2. As the inner ends of the discharge-pipes D extend to the bottom side of the cylinder B, they act as siphons when their other ends are connected to pipes or hose which project below the level of the cylinder.

It will be noticed by reference to Fig. 1 that the discharge-pipes D, after passing out through the trunnions C at the ends of the cylinders, extend to a point near the center of the cylinder B. At this point the discharge-pipe E is connected, and is therefore common to both the discharge-pipes D.

F are cut-off valves, located on opposite sides of the discharge-pipe E, and designed to cut off the discharge-pipe D, leading from one end of the cylinder, while the discharge-pipe from the other end of the cylinder is open. In order to permit this end to be accomplished quickly and efficiently from either end of the cylinder, I provide two horizontal rods, G and H, supported from the discharge-pipes D by the pivoted links I. Consequently, the longitudinal movement of either of the rods G and H will cause the one moved to be carried closer to or farther from the discharge-pipe D, and, consequently, by connecting the spindles of the cut-off valves F, they are opened or closed by the longitudinal movement of the horizontal rod to which they are respectively connected.

As shown in Fig. 1, the horizontal rod G is located so as to hold open the cut-off valve F on the left-hand side of the discharge-pipe E, while the horizontal rod H is located so as to close the cut-off valve F, to which it is attached, and which in the figure referred to is located on the right-hand side of the discharge-pipe E.

As shown in the drawings, the discharge-pipe E leads into the axle of the hose-reel J, which axle is hollow, and is provided with a discharge-connection, to which the hose is attached. Although I consider this a preferable plan of arranging the discharge-pipe E, it will of course be understood that the hose-reel J may be dispensed with without affecting the general arrangement of my invention.

Having now described the general construction of my improved chemical fire-engine, I shall proceed to explain, briefly, its operation; but before doing so, I may mention that a chemical fire-engine not provided with a water-reservoir located above the cylinder

must, where water-pressure is not attainable, have its cylinder filled by buckets, which process is so slow that although there may be two cylinders connected with the common discharge, it necessarily takes longer to fill the empty cylinder than it does to empty the full one.

By the adoption of my peculiarly-arranged cylinder and water-reservoir, which latter ought more properly to be called a "recharging-tank," the above-mentioned difficulties are avoided.

On reference to Fig. 1 it will be noticed that there are two pipes (marked K) extending from opposite sides of the recharging-tank or reservoir A. These pipes are provided with suitable cut-off valves, as *k*, (shown in dotted lines,) so that the flow of water from the tank may be stopped or regulated, as circumstances require. These pipes K extend, respectively, to a point over the cylinder that will permit the opening in the cylinder made for the insertion of the acid-pot L, or any other suitable opening, to be brought below it in order to permit the water from the recharging-tank A to be discharged through the pipe K, to which a flexible nozzle is attached, into one or other of the chambers at the opposite end of the cylinder.

For the purpose of illustration, we will assume that the solution is being discharged from the chamber in the cylinder B at the left-hand side of Fig. 1. It will be noticed in that figure that the cut-off valve F on the left-hand side is open for that purpose. Before this valve is so opened, the valve F on the right-hand side of the figure is closed, which effectually cuts off the discharge-pipe E from the interior of the chamber on the right-hand side of the figure, which chamber is supposed at the time to require recharging. The operator, immediately upon arranging the valves as specified, removes the acid-pot L belonging to this particular chamber. The hole in the cylinder thus left is then brought below the pipe K, when the valve in the pipe K is opened and the water from the reservoir or recharging-tank A is permitted to flow into the chamber at the right-hand end of the cylinder. As soon as sufficient water is thus permitted to flow into the cylinder, the cut-off valve from the pipe K is closed, and the acid-pot L replaced and screwed once more into position, when the chamber thus recharged is ready for use.

By pivoting the cylinder B on the trunnions C, as hereinbefore referred to, the said cylinder can readily be adjusted not only to bring it properly below the pipe K, but also to move it into a position where the operator can readily take out or replace the acid-pot L.

By placing the pipes K at points on one or the other side of the tank A the hole in the cylinder must necessarily be on a slight incline when brought beneath the said pipe K, which angle permits the water to flow out of the hole before the cylinder is completely full; consequently it is not possible when the pipe K is thus arranged for the operator to put too much water into the cylinder.

What I claim as my invention is—

1. In a chemical fire-engine in which the recharging-tank or water-reservoir is located above the cylinder, the hollow trunnion C, fixed to either end of the divided cylinder B, and arranged to support it horizontally, in combination with the discharge-pipe D, passing through the trunnions into the chambers at either end of the cylinder, and connected at their outer ends to a discharge-pipe common to both.

2. In a chemical fire-engine in which a recharging-tank or water-reservoir is located above the cylinder, the hollow trunnion C, fixed to each end of the divided cylinder B, and fitting into bearings formed on the main frame of the machine, so that the said cylinder may be revolved on the bearings with the trunnions as pivot-points, holes being made in the side of the cylinder leading into each chamber, and designed to hold the acid-pots L, in combination with pipes K, provided with suitable cut-off valves through which the contents of the recharging-tank are conveyed into the cylinder, substantially as and for the purpose specified.

3. In a chemical fire-engine, the combination of a horizontal cylinder divided into two chambers and pivoted in suitable bearings formed in the frame and arranged to support hollow trunnions fixed to the ends of the cylinder, the discharge-pipes D, extending through the hollow trunnions C into the chambers formed within the cylinder to a point near the bottom side of the said cylinder, with a discharge-pipe, E, common to both discharge-pipes D, and provided with a suitable outlet, to which a hose or pipe may be connected for the purpose of forming the discharge-pipe D into siphons, substantially as and for the purpose specified.

4. In a chemical fire-engine having a horizontal cylinder divided into two chambers and pivoted in suitable bearings formed in the frame and arranged to support hollow trunnions fixed to the ends of the cylinder, the discharge-pipes D, extending through the hollow trunnions C and arranged to connect with the discharge-pipe E, in combination with cut-off valves F, by which the communication between the pipes D and E may be regulated at pleasure.

5. In a chemical fire-engine, the combination of the divided cylinder B, the pipes D, connecting with the discharge-pipe E and the ends of the cylinder, and provided with cut-off valves F, and the horizontal rods G and H, supported by the pivoted links I, all arranged substantially as and for the purpose specified.

Toronto, February 14, 1884.

W. MORRISON.

In presence of—

CHAS. C. BALDWIN,

W. I. GRAHAM.