

(No Model.)

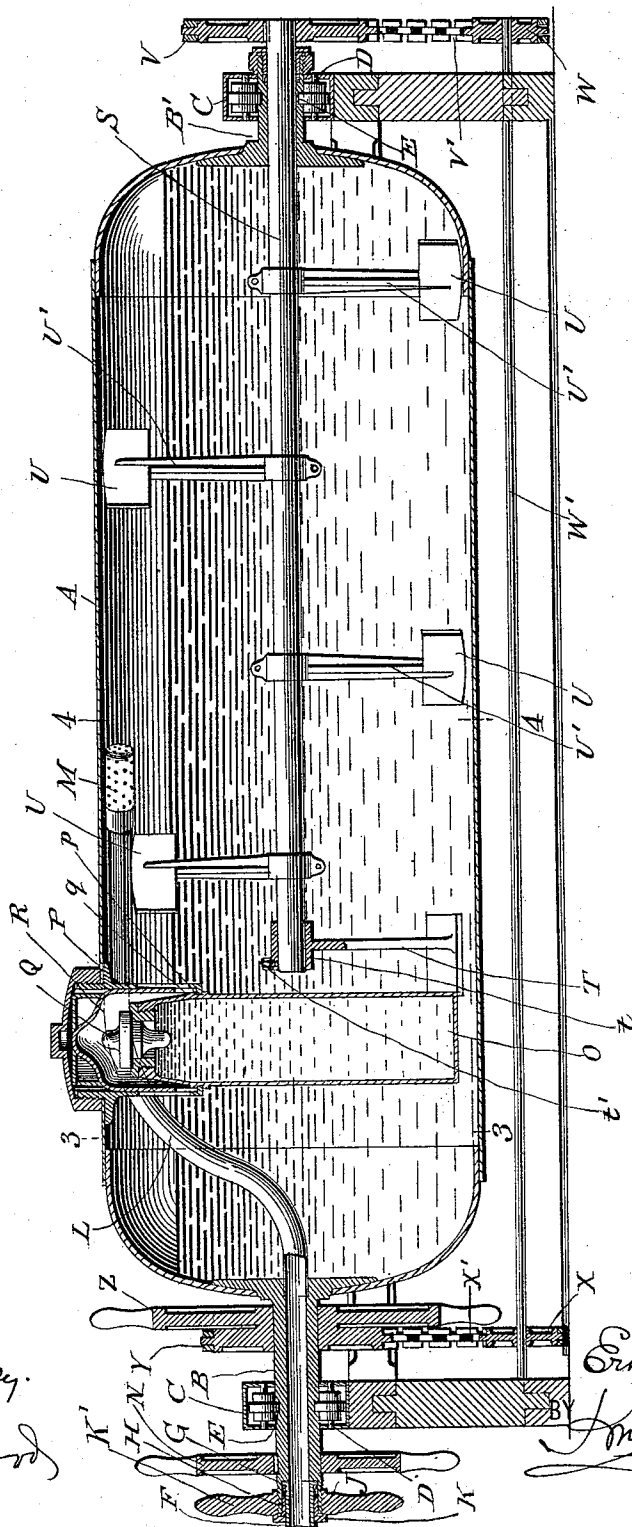
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E. F. STECK.
FIRE EXTINGUISHER.

No. 579,686.

Patented Mar. 30, 1897.

Fig. 1.



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(No Model.)

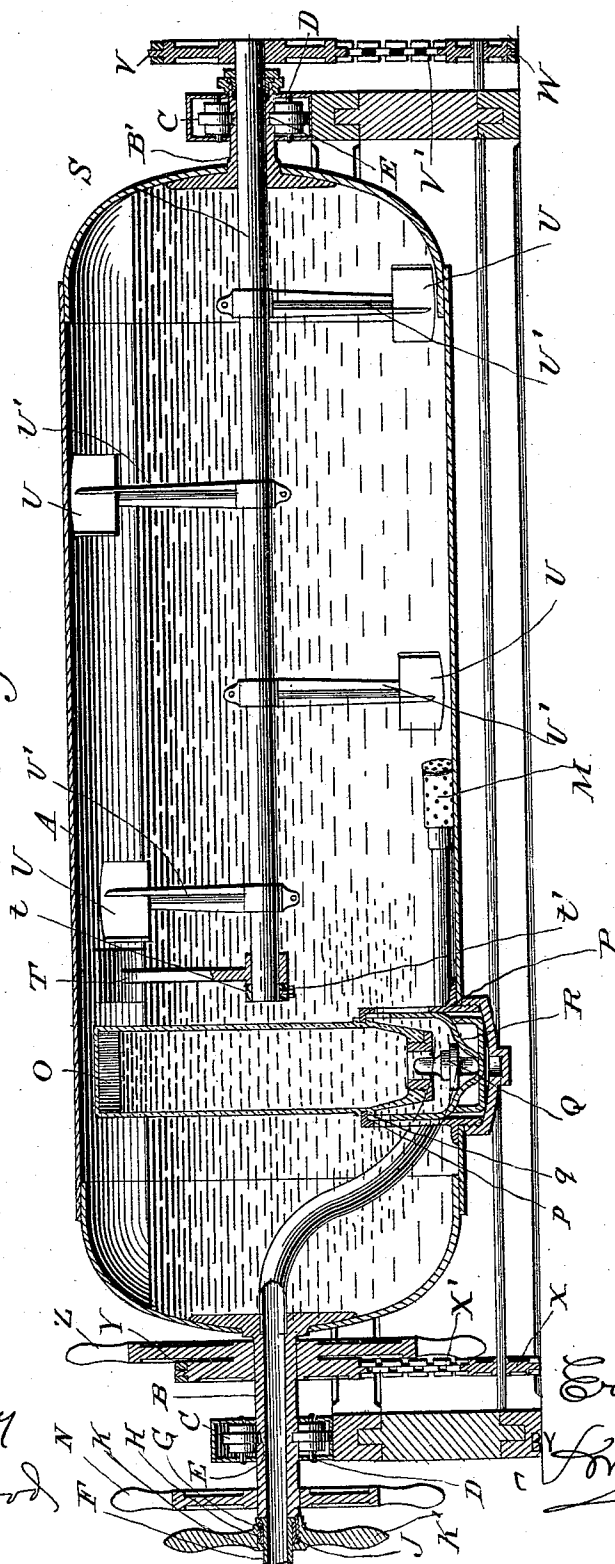
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Fig. 2.



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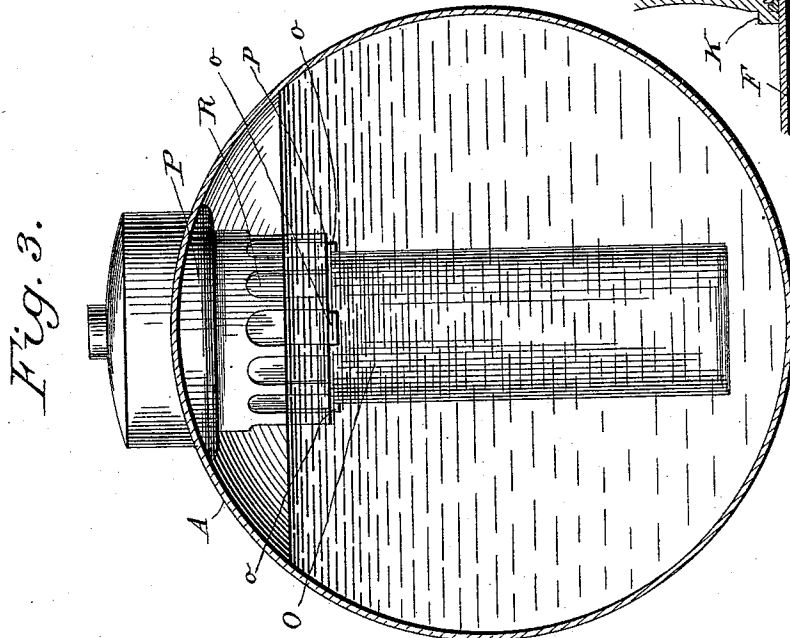
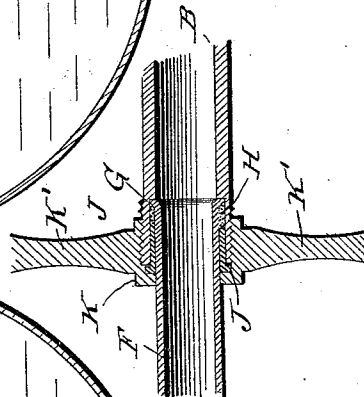
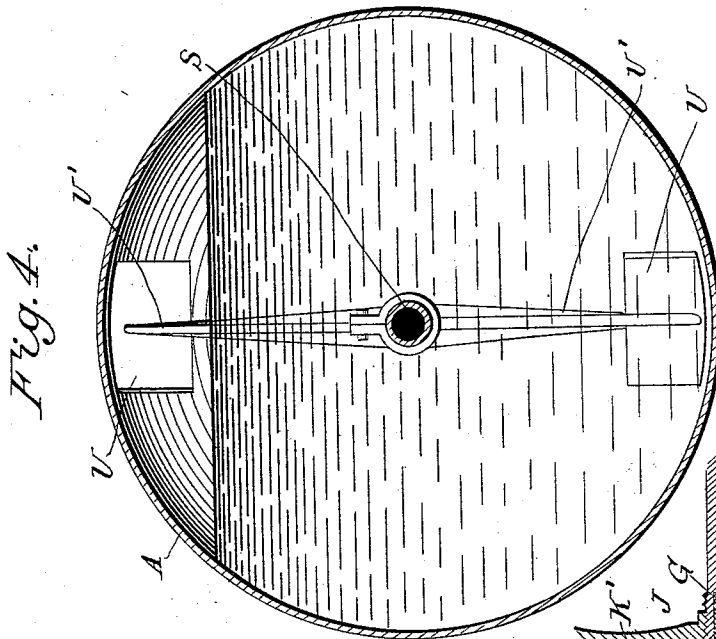
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3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

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FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 579,686, dated March 30, 1897.

Application filed June 5, 1896. Serial No. 594,420. (No model.)

To all whom it may concern:

Be it known that I, ERNST F. STECK, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Fire-Extinguishers, of which the following is a specification.

The present application relates more particularly to an improvement in what are known as "chemical-engine fire-extinguishers," that is to say, engines or machines which are transportable upon wheels, trucks, or otherwise, and which are generally employed in public fire departments, although the invention may be applied to any species of chemical fire-extinguishers. Heretofore in apparatuses of this nature it has been found occasionally that owing to the size or dimensions of the cylinder of a fire-extinguishing engine a more rapid means or method of mixing the reagents would be desirable, and my present invention appertains to a combination of the tilting gravity-mixer heretofore employed by me in various forms of chemical fire apparatus and inventions, with a stirrer or supplementary mixer adapted and arranged to facilitate the rapid intermingling of the two liquids. By this means I am enabled, (in case there is any lack of tendency of the more active agent, to wit, I will say the sulfuric acid, to intermix with the alkaline liquid,) to bring the stirrer or mixer into play to accelerate the mixing and produce the desired effect without loss of time.

As a means of carrying my invention into effect I provide a chemical fire-engine cylinder and inside thereof and near one end I place the acid-containing jar with its support, provide means for giving said cylinder with its contained apparatus a half-rotation, and in connection therewith arrange a shaft, preferably extending through one of the trunnions of the cylinder, and on said shaft, within the cylinder, provide flukes or blades, which, upon being rotated, serve to violently agitate the liquids and produce and accelerate the effect aforesaid. For the more convenient operation of this apparatus I provide means, at the same end of the cylinder, for operating the said cylinder, as by giving it the half-rotation aforesaid, and also means

for operating the stirrer or mixer, all of which increases the desirability and efficiency of the apparatus.

I will now proceed to describe my invention in connection with the accompanying drawings, which serve to illustrate one form of my invention, and in which—

Figure 1 represents a longitudinal section of a chemical fire-engine cylinder with my invention applied. Fig. 2 is a similar section showing the cylinder after it has been given a half-rotation. Fig. 3 is a cross-section on the line 3 3, Fig. 1. Fig. 4 is a cross-section on the line 4 4, Fig. 1. Fig. 5 is a detail view illustrating the method of attaching the fluid exit and distributing pipes to the hollow or tubular trunnion.

Referring to the drawings, A represents an alkaline-water-containing cylinder such as is employed in chemical-engine fire-extinguishers, provided at both ends with trunnions B and B' and in the present case with hollow trunnions, these trunnions in turn being supported by antifriction-rollers C, suitably supported at D and working in grooves E of the said trunnions. The hollow or tubular trunnion B is connected near its outer end to the fluid-distributing pipe F, the latter terminating at its inner end in a turned-over flange G.

At H is a packing and at J a follower. A securing-nut K, having screw connection with the terminus of the trunnion B, operates to secure a tight joint between the hollow or tubular trunnion and the distributing-pipe F. For convenience of manipulation the nut K is provided with handles K'. These parts are shown to advantage in the detail view, Fig. 5.

Extending inwardly from the hollow or tubular trunnions B is a pipe L, which may be termed the "fluid-exit pipe" or "discharge-pipe," and it extends, preferably, while the cylinder is in its normal position, as shown in Fig. 1, upwardly toward the crown of the cylinder and to a point somewhere near its center, and it terminates in a perforated cap or protector M. The outer end of the pipe L is securely fixed to the inner terminal of the outer hollow or tubular trunnion B, and is adapted, when the cylinder turns, to move with the cylinder in Fig. 2 of the drawings. The pipe L, in-

stead of lying along the top of the cylinder, will assume a corresponding position at the bottom. By means of the connection between the hollow or tubular trunnion B and the distributing-pipe F the trunnion is enabled to turn upon the said distributing-pipe. A handle or hand-wheel N is provided, which is secured to the hollow or tubular trunnion B and affords means for rotating the trunnion with its attached cylinder A.

I will now proceed to describe the acid-containing receptacle or jar, and in this connection I prefer to employ the form shown, described, and claimed by me in an application heretofore filed on the 30th day of April, 1896, serially numbered 589,665, for improvements in chemical fire-extinguishers, wherein I disclose a novel means for securing a liquid seal between the two bodies of liquids.

Referring to the accompanying drawings, O represents an acid-containing jar or receptacle supported in the frame P by means of lugs or rim o, seating over and under lugs or rim p of the frame or structure P. The acid-receptacle is provided with a lead stopper Q, which rests thereon by means of gravity, which stopper may be omitted, if desired, as it is not absolutely essential.

At R is a glass dome, bell, or tumbler having cut-away portions at q and resting upon the inwardly-extending lugs or rim p of the frame P, the parts being so arranged as that when the glass dome, bell, or tumbler is placed in position it will establish and maintain so long as the apparatus is in the normal position, as shown in Fig. 1, a liquid seal between the two bodies of liquid, as fully set forth in the aforesaid application.

When the handle or hand-wheel N is given a half-rotation, sending the cylinder with its attached acid-containing receptacle to the position shown in Fig. 2, the stopper Q, if employed, will fall away, and the acid rushing into the cylinder will mix with the alkaline water and produce the well-known effect. At times, however, and in some cases this intermixing is not sufficiently rapid to produce the effect desired, and in such cases my present invention affords means for supplementing the same. I will therefore now proceed to describe my mechanical agitator.

Extending through the hollow or tubular trunnion B', located upon the cylinder A at the opposite end to the hollow or tubular trunnion B, and supported by similar anti-friction devices, as shown, is a hollow shaft S. This hollow shaft extends into the cylinder and up to a point in close proximity to the acid-containing receptacle and is there supported by a standard T, the latter provided with a journal t for affording it the necessary rotary movement, a thumb-screw t' being also provided for adjustment at this point.

Upon the hollow shaft S are mounted flukes, blades, or paddles U, secured to the shaft by means of arms U'. These may be arranged at an angle of forty-five degrees to the shaft

S, as shown, and by turning the shaft S rapidly in one direction or the other or in both directions successively the liquid in the cylinder is violently agitated and caused to intermix with the acid flowing from the receptacle.

For the purpose of giving the shaft S the desired rotation I have devised means whereby it can be conveniently done by the operator or attendant who operates the cylinder itself, and for this purpose have mounted upon the shaft S a sprocket-wheel V and have connected it by a sprocket-chain V' with a corresponding sprocket-wheel W, mounted upon a longitudinally-arranged shaft W', which is provided at its outer end with a sprocket-wheel X, having a sprocket-chain X', operating in connection with a sprocket-wheel Y, controlled by a handle or hand-wheel Z.

It will be seen from the foregoing that I have devised a novel and simple means for supplementing the ordinary mixing of the chemical reagents by an actively-operating mechanical device and have so arranged it that both the cylinder and the said stirrer can be conveniently manipulated by the same operator or attendant; also, that the available spaces for agitating the contents of the cylinder are utilized by placing the acid-containing receptacle near one end of the cylinder and extending the shaft which carries the agitating blades or flukes from the other end of the cylinder up to a point approximately near the acid-containing receptacle. It will also be seen that the movements of the mechanical agitator do not interfere with the acid-containing receptacle nor with the discharge-pipe.

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

1. In a chemical fire-extinguishing engine, the combination of an alkaline-water-containing cylinder mounted on hollow trunnions as shown and having affixed within it a sealed acid-containing receptacle, a discharge-pipe extending through one of the hollow trunnions, a shaft extending through the other hollow trunnion and provided with blades or flukes adapted to operate as a supplementary mixer, as set forth.

2. In a chemical fire-extinguishing engine, the combination of an alkaline-water-containing cylinder mounted on hollow trunnions as shown, an acid-containing receptacle affixed within said cylinder and near one end thereof, a discharge-pipe extending through one of said hollow trunnions, a shaft provided with blades or flukes extending through the other hollow trunnion and up to a point in close proximity to said acid-receptacle, all arranged substantially as and for the purposes set forth.

3. In a chemical fire-extinguishing engine, the combination of an alkaline-water-containing cylinder, an acid-containing receptacle affixed within said cylinder and near one end thereof, hollow trunnions upon which the cyl-

inder is mounted, a shaft extending through one of said hollow trunnions into the said cylinder and up to a point approximately near the acid-receptacle and provided with blades or flukes as shown, a discharge-pipe extending through the other hollow trunnion with means substantially as shown and described

for rotating the cylinder and operating the mixer-shaft from the same or approximately the same point, as set forth.

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Witnesses:

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