

No. 692,724.

Patented Feb. 4, 1902.

R. B. SIGAFOOS.
STATIONARY CHEMICAL FIRE ENGINE.

(Application filed Aug. 22, 1900.)

(No Model.)

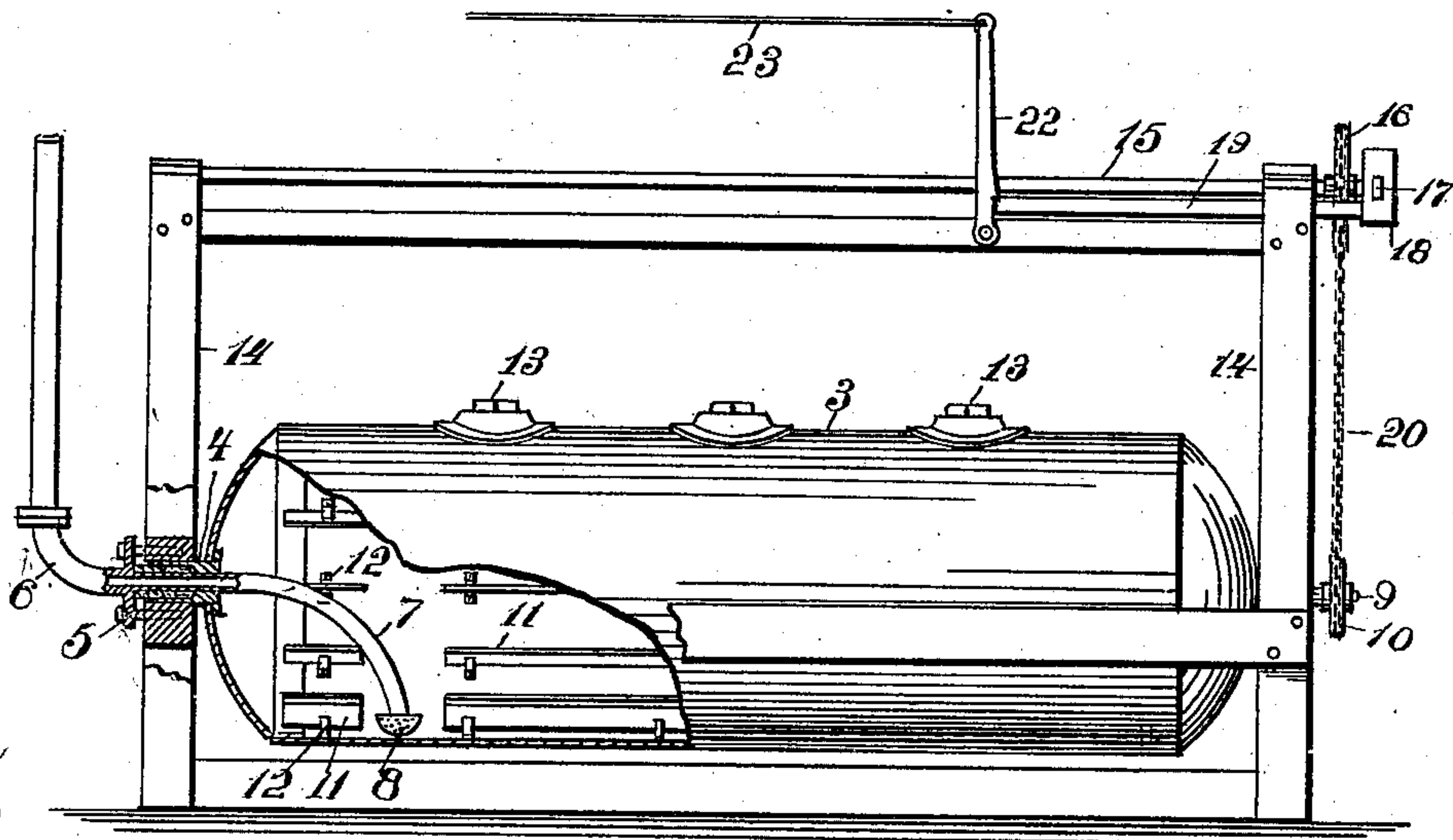


Fig. 1.

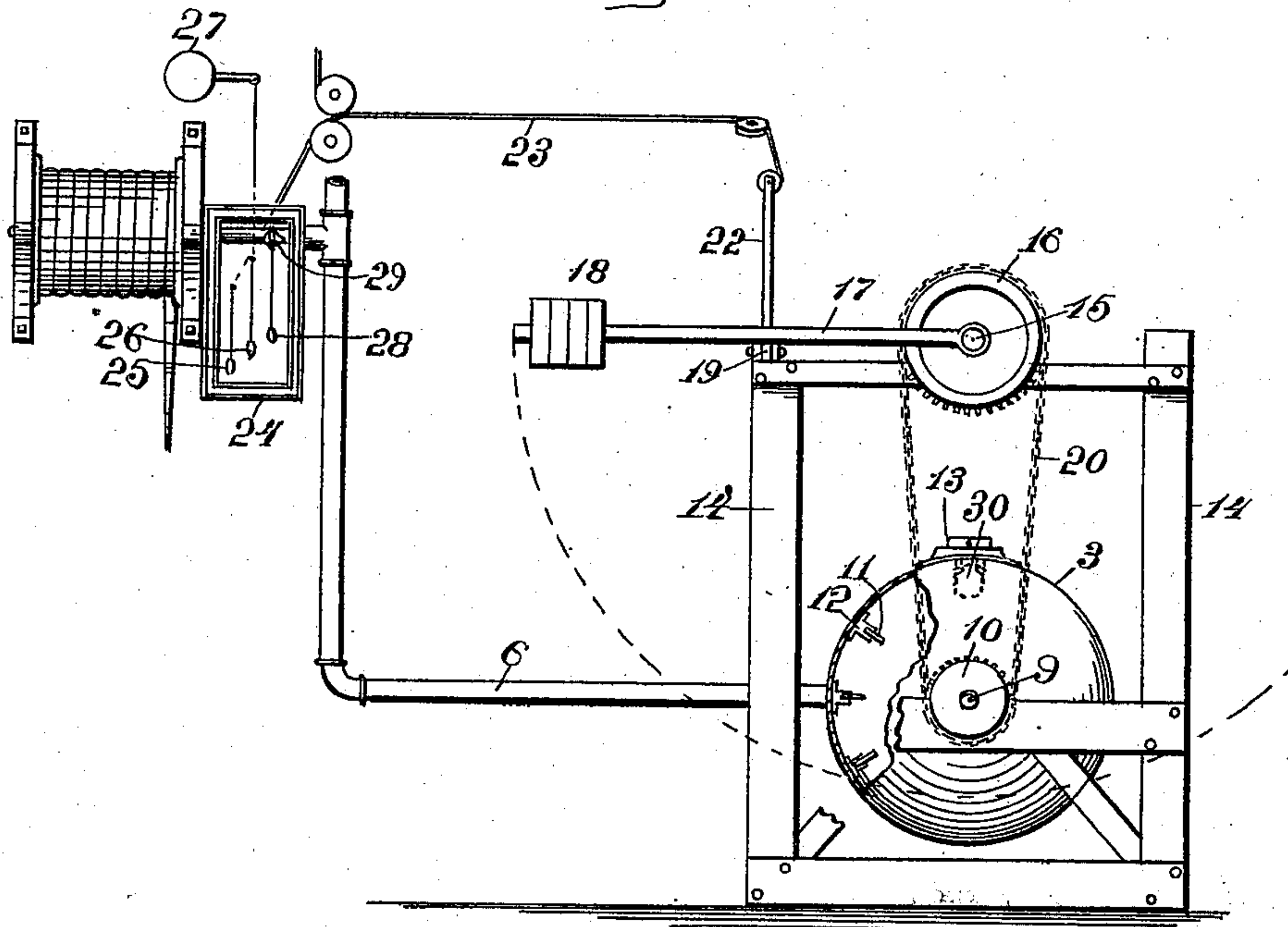


Fig. 2.

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UNITED STATES PATENT OFFICE.

RUSSEL BIGELOW SIGAFOOS, OF RACINE, WISCONSIN.

STATIONARY CHEMICAL FIRE-ENGINE.

SPECIFICATION forming part of Letters Patent No. 692,724, dated February 4, 1902.

Application filed August 22, 1900. Serial No. 27,742. (No model.)

To all whom it may concern:

Be it known that I, RUSSEL BIGELOW SIGAFOOS, a citizen of the United States, and a resident of Racine, in the county of Racine and State of Wisconsin, have invented certain new and useful Improvements in Stationary Chemical Fire-Engines, of which the following is a specification.

The object of this invention is to provide a stationary chemical fire-engine. A feature peculiar to nearly all stationary chemical fire-engines is that since they are stationary the chemical solution, owing to its density, will settle to the bottom of the tank or cylinder in which it is contained and when brought into use the cylinders are made to revolve or turned in such a manner as to change its normal condition, and when they are of the revolving type the cylinder usually revolves only half-way around, so that the volume of the liquid or alkali solution used therein remains in the bottom only partially disturbed. As the cylinder thus turns the liquid is agitated but very little, if any. Consequently the action of the chemicals or acid on the alkali is slow and unsatisfactory. In order to overcome this objection, which is well founded, I have constructed an engine with a view of fully meeting the difficulties and acquiring a quicker and more vigorous action of the chemicals and also means whereby the agitation will continue automatically for a limited time until the elements are thoroughly united, as will now be set forth in detail.

In the drawings, Figure 1 is a side view, partly in section, of my improved chemical fire-engine; and Fig. 2 is an end view, partly in section, with a view of the operating-box and connecting-hose and reel.

I construct a cylindrical tank or cylinder 3 of any desired capacity, on the ends of which are trunnions, upon which the cylinder may be turned for the purpose of inverting the acid-receptacles. The acid in the receptacles are thus thrown into the alkali solution contained in the cylinder. One of the trunnions 4 is hollow and is provided with a packing-box 5, through which the discharge-pipe 6 is placed, the inner end of this pipe being curved downwardly, as at 7, and provided with a strainer-head 8, which is located near

the bottom of the cylinder, so that as much as possible of the liquid in the cylinder will be withdrawn by this pipe. The other trunnion 9 has thereon at its projecting end a sprocket-wheel 10, by means of which motion is imparted to the cylinder. In this cylinder are placed long strips of suitable metal 11, running lengthwise with the tank, varying in width according to the size of the tank, and any suitable number may be employed, dependent on the size of the cylinder. These longitudinally-disposed strips or shelves serve to push, lift, or stir the volume of liquid which is embraced in their dimensions as the tank is revolved, thus pouring over their surfaces the dense liquid in the bottom, thoroughly mixing it as it moves to and fro. An annular brake is made in the strips to permit the downturned end of the pipe 7 to approach the shell as closely as possible, as shown in Fig. 1. These shelves are secured to the shell of the cylinder by means of suitable legs 12 in sufficient number to secure strength, each strip having its edge a short distance from the shell of the cylinder, so as to provide a space beneath each strip, by which means a portion of the liquid will flow beneath and move any accumulation of the alkali or sediment in the bottom at or near the strips, thus assisting materially in the agitation of the solution and preventing any remaining at the bottom undisturbed. The cylinder has one or more hand-heads 13, to which are attached interiorly the acid-receptacles, (indicated by dotted lines 30 in Fig. 2,) but as they form no part of the present invention are not described. The tank thus constructed is mounted or suspended on a suitable frame 14, of wood or iron, giving it sufficient clearance from the ground and sides of the cylinder whereby the latter can be revolved without interference. On the top of the frame is a horizontal shaft 15, parallel with the axis of the cylinder 33, on which is mounted at one end, directly above the sprocket-wheel 10, a larger sprocket-wheel 16, which is preferably double the diameter of the sprocket-wheel 10, the purpose being that when the upper sprocket-wheel is revolved one-quarter turn the lower one will turn half-way around or sufficiently far to fully turn

the cylinder when the upper sprocket-wheel makes a half-revolution. To this shaft 15, containing the upper sprocket-wheel, is attached a lever 17 with a fixed connection, said lever being of such length as to clear the floor when swinging past the end of the frame. On this lever, which may be termed a "pendulum," is placed or attached in any suitable manner iron weights 18 of sufficient size and number to overbalance the weight of the cylinder and its contents. This pendulum, with the attached weights, rests in a horizontal position upon the end of the trip-bar 19 when the tank is in an inactive position. When, therefore, the trip-bar 19 releases the pendulum by being withdrawn, the weights 18 swing the pendulum downwardly and transmit power to the sprocket-wheels 16 10 through the intermediate sprocket-chain 20, and thus turns the cylinder 3, and as the pendulum swings past a vertical position it continues to oscillate back and forth until it becomes stationary by force of gravity. By this means of keeping the cylinder in motion for a limited time I thoroughly agitate the contents of the tank, the strips within serving to disturb the contents while this oscillating movement takes place.

A vertical lever 22 is hinged to the side of the frame directly behind the rear end of the trip-bar and so connected with the trip-bar that when the upper end of the lever 22 is thrown back the bar 19 will be withdrawn from beneath the pendulum 17. The upper end of the lever 22 is operated by a cable 23, which extends to the operating-boxes 24, located throughout the building.

Each operating-box has a handle 25 for operating the trip-bar, a handle 26 for ringing the gong 27, and a handle 28 for throwing open the valve 29, which supplies the extinguishing fluid through the pipe 6, leading from the cylinder 3.

It will be observed that I do not attach any tripping or catch device to the cylinder or any portion thereof, but operate entirely upon the weighted pendulum.

It will be understood that I do not claim in this invention any portion of the operative system set forth in the application Serial No. 23,917, in which an engine of this character is used.

What I claim as new is—

1. In a stationary chemical fire-engine, the combination of a cylindrical shell fitted on trunnions, and adapted to revolve, one of the trunnions being hollow and having a stationary discharge-pipe therein curved downwardly and extending to the bottom of the cylinder, and receptacles within the upper side of said cylinder, and a series of narrow longitudinal shelves, with their sides radially disposed and located a short distance from the wall of the cylinder and having an annular

break in the shelves to provide a path for the stationary discharge-pipe, as set forth.

2. In a stationary chemical fire-engine, a cylindrical shell fitted on trunnions in a frame and adapted to revolve, having connections at one end with a discharge-pipe, and provided with means for generating pressure and agitating the chemicals, in combination with a shaft on the upper end of the frame, said shaft having at one end a lever projecting therefrom horizontally when in its normal position, said lever having weights thereon, a sprocket-wheel on the trunnion of the cylinder and a sprocket-wheel on the upper shaft in alinement and connected by a chain, and means for tripping said weighted lever, substantially as set forth.

3. In a stationary chemical fire-engine, a cylindrical shell adapted to revolve; the interior having longitudinally-disposed strips and acid-receptacles, a small sprocket-wheel on the shaft at one end and a shaft above carrying a larger sprocket-wheel and a connecting sprocket-chain, and a weighted trip-lever or pendulum secured to said upper shaft, normally held in a horizontal position and adapted to oscillate when released from its normal position.

4. In a stationary chemical fire-engine, a cylindrical shell for containing and generating chemicals, having at one end a sprocket-wheel, in combination with an upper shaft having a larger sprocket-wheel thereon, and a connecting-chain between the two wheels, a weighted lever secured to the end of the upper shaft to serve as a pendulum, said lever resting normally on the end of a horizontal trip-bar, and a trip-lever connected with said trip-bar and hinged to the frame, said trip-lever being operated by a cable extending from the operating-boxes in a building, substantially as shown.

5. In a stationary chemical fire-engine, the combination of a frame, a cylinder horizontally mounted therein on trunnions and adapted to revolve, one trunnion being hollow and having a discharge-pipe leading therefrom, the other trunnion having thereon a sprocket-wheel the interior of the cylinder having acid-receptacles and agitating-strips, a horizontal shaft above the cylinder, having at one end a sprocket-wheel in alinement with the lower sprocket-wheel, and connecting-chain, a weighted lever on the end of the upper shaft, a trip-bar on which said lever rests, and a trip-lever for operating said bar, substantially as shown.

Signed at Racine, in the county of Racine and State of Wisconsin, this 22d day of June, A. D. 1900.

RUSSEL BIGELOW SIGAFOOS.

Witnesses:

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