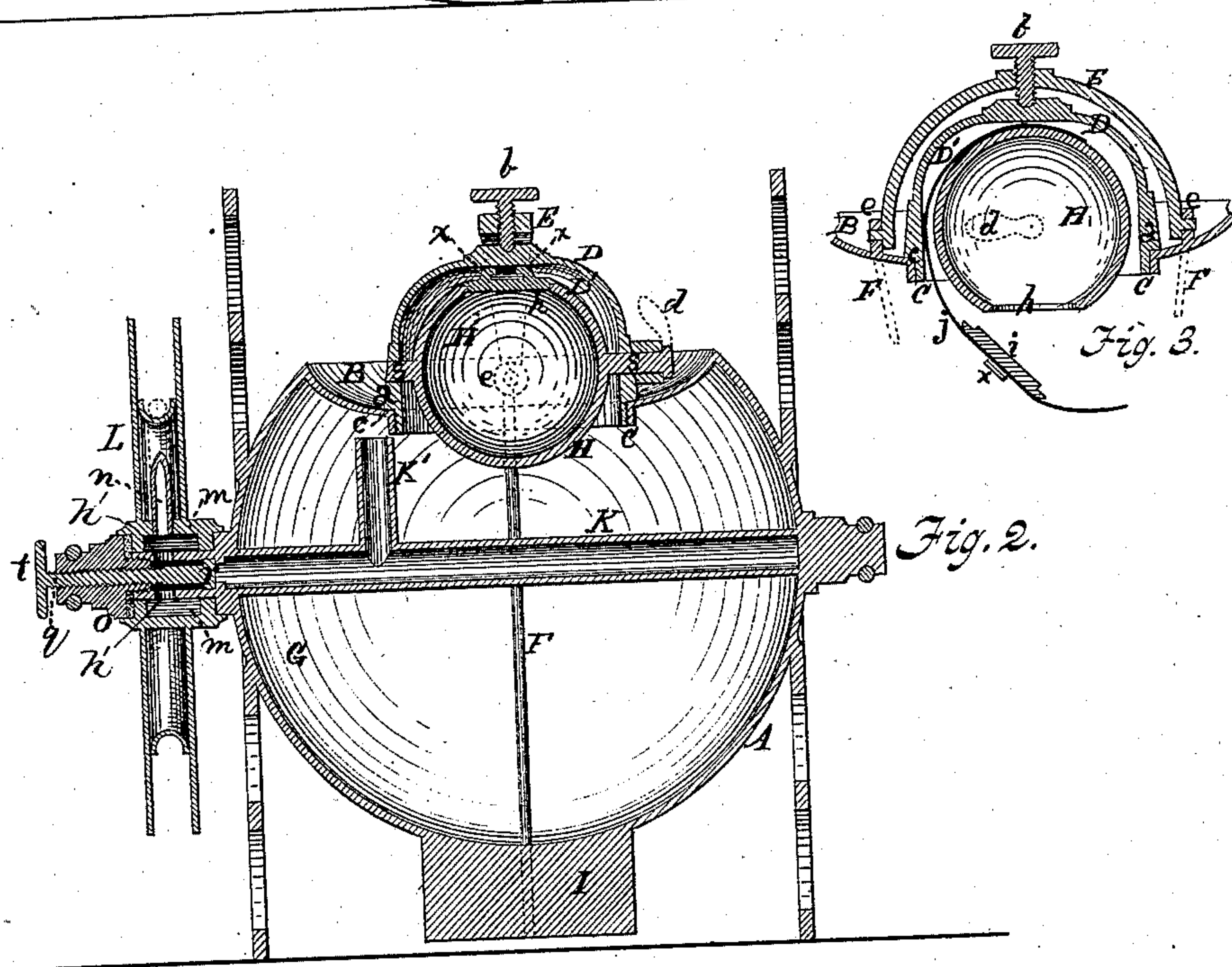
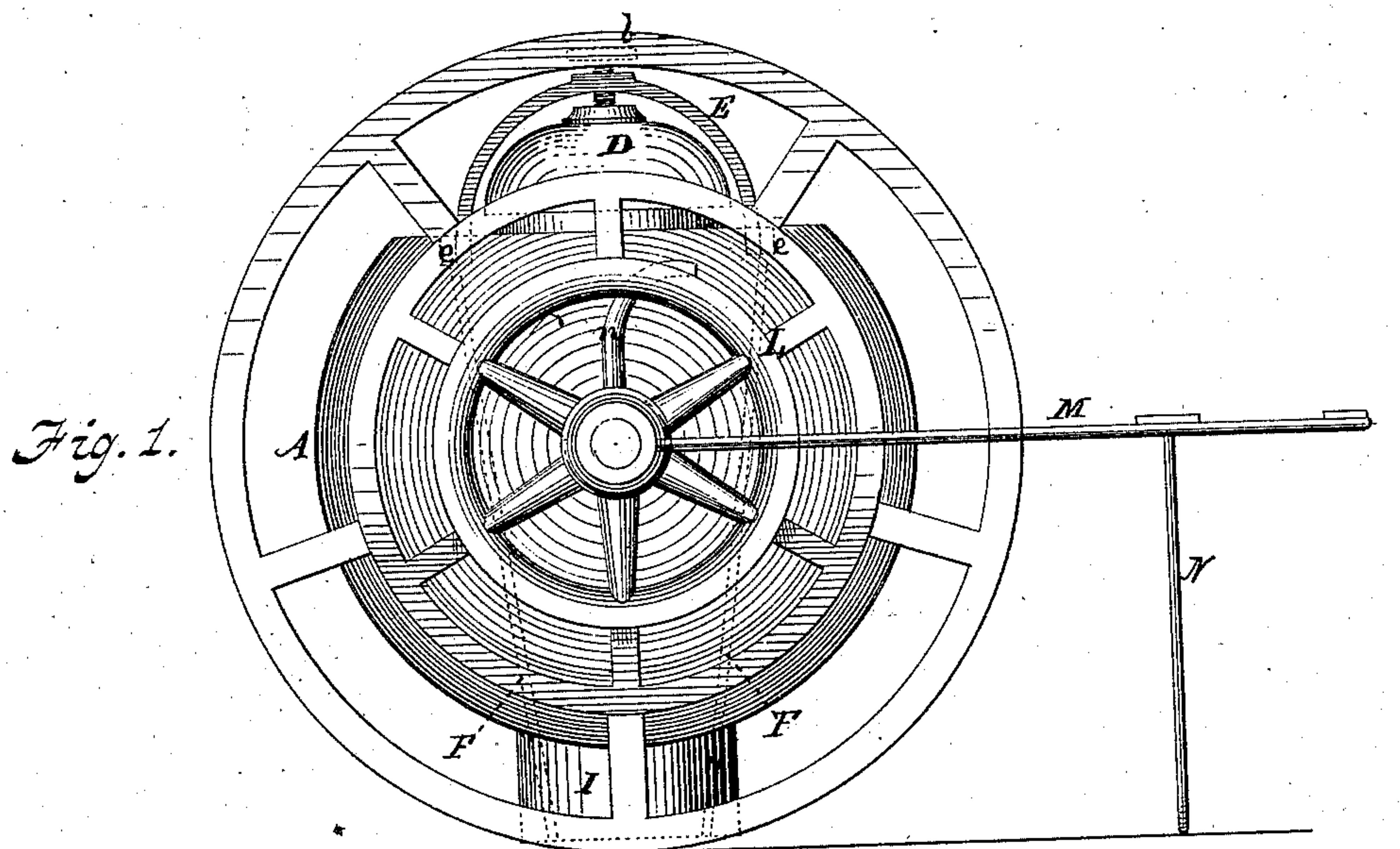


(No Model.)

J. R. WILSON.
Chemical Fire Extinguisher.

No. 231,696.

Patented Aug. 31, 1880.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES R. WILSON, OF BUFFALO, NEW YORK.

CHEMICAL FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 231,696, dated August 31, 1880.

Application filed April 30, 1880. (No model.)

To all whom it may concern:

Be it known that I, JAMES R. WILSON, of the city of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Chemical Fire-Extinguishers, of which the following is a specification.

My invention relates to improvements in chemical fire-extinguishers. There is employed a spherical vessel for generating gas, provided with a dome carrying an acid-holding vessel and having carrying-wheels secured to said generating-vessel, so as to revolve the same to agitate the chemicals therein, and provided with means for the escape of the gas from the generating-vessel to the hose on the reel; and the objects of my improvements are, first, to provide a generating-vessel which will be of the strongest form of construction and fixed to carrying-wheels, so that the said wheels will be the means of agitating and thoroughly mixing the chemicals in said vessel while the said vessel is being conveyed by the carrying-wheels from one place to another; second, to provide a means by which the acid will be held apart from the chemicals in the generating-vessel and be discharged therein as may be required; third, to effect a balancing of the spherical generating-vessel, so that the said vessel will be uniformly revolved by the carrying-wheels secured thereto; fourth, to securely close the generating-vessel by a dome holding an acid-vessel above the opening of the generating-chamber below in such a manner that the pressure on the dome will be communicated to the portion of the shell of the generating-vessel opposite from the said dome; fifth, to provide a means by which the gas generated within the generating-chamber will be readily conducted to a discharge-pipe connected with the reel; sixth, to provide a means by which the gas generated will be discharged in a hose held in the reel, which will be capable of being revolved independently of the generating-vessel and its carrying-wheels; seventh, to provide a means by which the reel will be held on its axle, and at the same time close or open the tube which leads the gas from the generating-vessel to the discharge-pipe. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 represents a side elevation of the apparatus. Fig. 2 is a cross-sectional view of the same, and Fig. 3 is a sectional view of dome and acid-holder.

The same letters refer to similar parts throughout the several views.

In the drawings, A represents a spherical shell, made preferably of sheet-copper. Secured to the two opposite sides of said shell vessel are carrying-wheels, which wheels support said vessel free from the floor or ground, and revolve it when the said wheels are moved over the surface on which they stand. Made with the said shell is the concave annular rim B, surrounding opening C, as shown. Fitting over and closing opening C is the dome D, which dome is held tightly in place by its flanged base *a* entering the said opening, and shoulder *c* resting on the marginal surface of the concave annular rim, and the clevis E, provided with the binding-screw *b*. The clevis E is made with a bow form, and has its arms pivoted to ears *e e*, made with stay-bolts F F, running from the upper side of the annular concave rim downward through the chamber G of the vessel or shell A, and through said shell, where the said stay-bolts are secured. The dome D is made with a semi-spherical form of interior chamber, D'. Placed in said chamber is the spherical acid-vessel H, provided with trunnions *s s*, working in bearings in the interior sides of the dome, as shown. Connected with one of said trunnions is the lever *d*, which lever affords a convenience for operating the vessel H from the outside. The vessel H is provided with opening *h*, and is closed by a stopper, *i*, which nicely fits said opening.

The said stopper is carried by an elastic strap, *j*, which strap has one of its ends attached to a side of said vessel and its other end projecting past the stopper.

Made with the upper or outer side of the stopper *i* are bearing-lips *x x*, which project slightly above the upper surface of said stopper, so as to bear tightly against the upper surface of the dome, and thereby tightly press the said stopper down over the opening in the acid-vessel H and tightly close the same.

Secured to the outside of the vessel A, and at antipodes with the dome D, is the weight-

protuberance I, through which the stay-bolts F F pass when the lower ends are secured.

Extending from side to side of vessel A, and through chamber A' of the same, is the tubular shaft K, one end of which passes through the shell of said vessel and projects outwardly from the same past a carrying-wheel, and serves as a pintle, on which the hose-reel L may be revolved. This outwardly-projecting end of said tubular shaft is pierced with several holes, *h'*, which open into an internal annular chamber, *m*, made in the hub of reel L. Stuffing-washers are employed to make the annular chamber *m* gas-tight, with the pierced projecting end of said tubular shaft. Communicating from the chamber *m* in the hub of the reel is the discharge-tube *n*, which runs from said chamber to the bottom of the reel, so as to readily connect with the inner end of the coil of hose wound on said reel.

Connected with the tube K, and standing at an angle (preferably) with the same, and within the chamber G of the vessel A, is the induction-tube K', one end of which communicates with tube K, while the opposite end communicates with chamber G.

The reel L is held on its tubular axle by the shouldered stopper O, which stopper screws into the projecting end of tube K to a short distance. The said stopper is longitudinally pierced and provided with a screw-thread, into which works a screw-threaded stem, *q*, which enters the bore of the tubular axle to a short distance. To the inner end of said stem is fixed a stopper, *r*, while to the outer and projecting end of said stem is secured a finger or hand wheel, *t*, by which the said stem may be turned to carry stopper *r* inward to close the tube K at the vessel A, so as to prevent the escape of either gas or liquid when the machine is standing idle, or to carry it outward, so as to open said tube to permit the gas to pass from the vessel to the chamber *m* in the hub of the reel.

Pivoted from the axis of the carrying-wheels are the draw-handles or thills M, which thills are properly braced at their forward ends, and are supported by standards or legs N.

The manner in which the several parts of my improved apparatus operate is as follows: The vessel A receives the carbonates employed and water, which are introduced through the opening C. The vessel H receives and holds the acid. To introduce the acid into the vessel H, the operator will turn said vessel in the dome so as to bring the stopper over the opening in said vessel to the open end of said dome, when the spring *j* will throw the stopper of said vessel up and off from the opening of said acid-vessel. The acid will then be introduced; the stopper *i* will then be closed down and held until the acid-vessel has been revolved, so as to carry said stopper within the dome so that the sides of the same will press on the bearing-lips *x x*, made on the stopper, when the stopper will be securely held

in place and tightly close the acid-vessel. The operator will then set the dome in position over the opening C of vessel A, and turn the clevis E over said dome, and turn the binding-screw *b* down, so as to tightly press on the dome at its apex and force it tightly down on its seat on the rim of opening C. The operator will then close the tube K by the stopper *r*, by screwing the stem *q* inward, when all communication of the tube K with the chamber *m* in the hub of the reel will be closed. The apparatus is then ready for use, and may be rolled by its carrying-wheels to any place where it may be selected it shall stand until used.

When a fire occurs on the premises the apparatus is in, the operator will turn the lever *d* at the side of the dome D in a direction to revolve the acid-vessel H, so as to carry its stopper *i* downward and facing the opening C of the vessel A, when the elastic strap *j* will be freed and will suddenly throw the said stopper from off the opening in said acid-vessel, when the acid will be discharged therefrom and into chamber G below. The operator will then move the apparatus from its place to the place it is to be used by the thills. In this operation of moving the apparatus from one place to another the carrying-wheels will be revolved, which wheels being secured to vessel A, so that the latter will be revolved with the former, will cause the water and chemicals to be greatly agitated and thoroughly mixed. The operator will then open tube K by turning the hand or finger wheel *t* so as to screw the stem or stopper *r* outward, and thereby draw said stopper in a direction for opening communication of the chamber G and tube K to the chamber *m* in the hub of reel L, when the gas, by reason of the pressure within vessel A, will be forced from said vessel through induction-tube K' and tube K into chamber *m*, and escape with great force through the discharge-tube *n* and hose attached to the same, to be discharged on the fire.

It will be readily seen that by my improvements the apparatus is made very compact, and the main vessel may be of great strength because of its spherical form, and that the chemicals will be held separate until intentionally brought together, and that the chemicals will be thoroughly mixed together by the action of the carrying-wheels revolving the vessel while being moved from place to place; and, further, that the discharge of the gas can be readily controlled by the operator, and the discharge-pipe connecting the hose with the generator will be in all cases fully protected.

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

1. In a chemical fire-extinguisher, the combination, with a vessel of spherical form for generating gas from chemicals by their being mixed together, of supporting or carrying wheels secured to said vessel, so that when said wheels are drawn over a floor or other

surface and revolved thereby the said vessel will also be made to revolve and agitate the chemicals therein, substantially as set forth.

2. In a chemical fire-extinguisher, the combination, with a spherical vessel for holding water and alkaline substances, and having a dome-shaped stopper, D, for closing the same, of the spherical acid-vessel H, having stopper *i* attached to said acid-vessel by elastic connection-piece *j*, and adapted to close the same by pressure against the inner surface of the walls of said dome when said acid-vessel is turned in one direction, and to open the same when revolved in an opposite direction, substantially as and for the purpose set forth.

3. In combination with the spherical vessel A, having carrying-wheels securely fixed thereto and provided with dome D and its internal adjuncts, of the weight-protuberance I, whereby the said dome will be counterbalanced to give a uniformity of revolution to said vessel and said carrying-wheels when revolved, substantially as set forth.

4. In a chemical fire-extinguisher, the combination, with vessel A, having stay-bolts F extending through the chamber of said vessel and from one side of the shell thereof to the other, and having ears *e e* rising exterior to said shell and adjacent to the opening of said vessel, of the dome D, holding an acid-vessel, clevis E, and binding-screw *b*, whereby said dome will be made to tightly close said vessel, substantially as and for the purpose set forth.

5. In a chemical fire-extinguisher, the combination, with vessel A, adapted to be revolved, tubes K K', and discharge-openings *h'*, of the chamber *m*, made in the hub of the reel, and discharge pipe or tube *n*, substantially as and for the purpose set forth.

6. In a chemical fire-extinguisher, the combination, with vessel A, provided with carrying-wheels for supporting and revolving the same, and reel L, for holding hose, arranged exterior to said vessel and carrying-wheels, and adapted to revolve independent of the same, of the tubular shaft K, serving in one part as the axle of said reel and having communication with the interior chamber of said vessel, and also with internal annular chamber, *m*, made in the hub of said reel, and the discharge-tube *n*, communicating from said annular chamber to the hose held in said reel, all for operation substantially as and for the purpose set forth.

7. The combination, with the shouldered stopper O, closing the end of the tubular axle of the reel and holding said reel on said axle, of the screw-threaded stem *q*, working in said shouldered stopper, and provided at one end with stopper *r*, and at its other end with a finger or hand wheel, substantially as and for the purpose set forth.

JAMES R. WILSON.

Witnesses:

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J. H. HOFFMAN.