2 Sheets—Sheet 1.

J. H. & T. E. CONNELLY.

Automatic Chemical Fire-Extinguisher for Oil-Tanks.

No. 208,374. **Patented Sept. 24, 1878.**

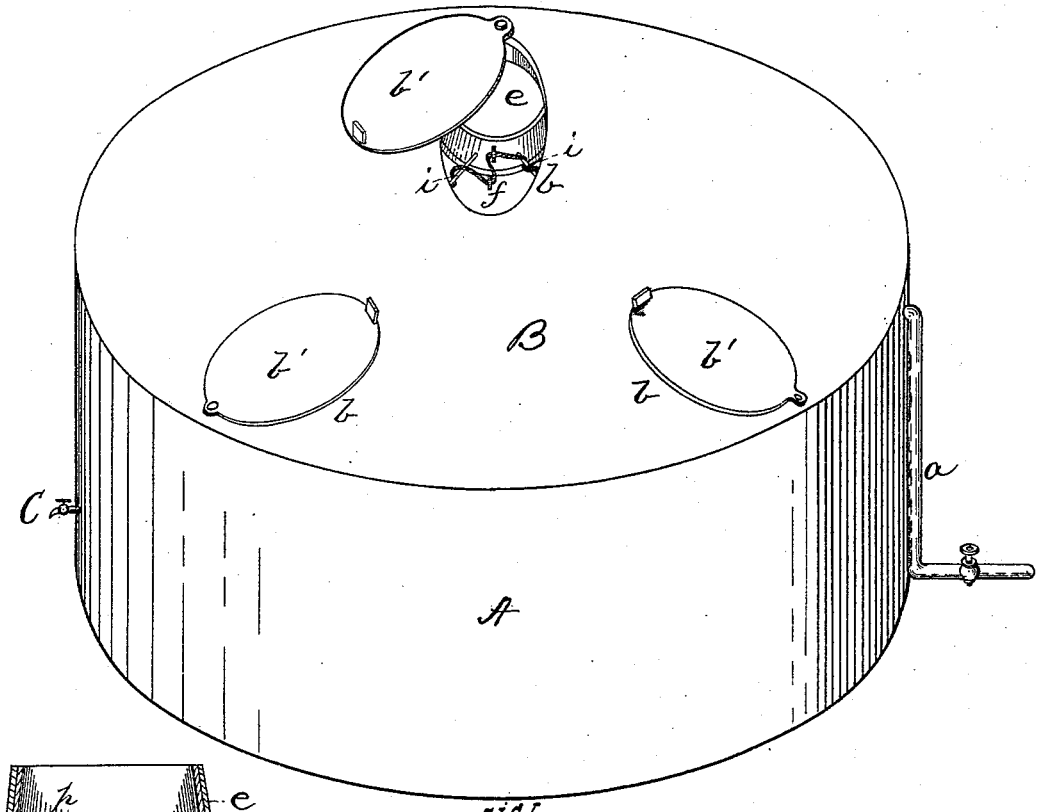
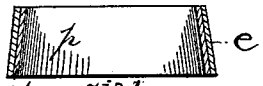


fig. 1.



i/p fig. 4

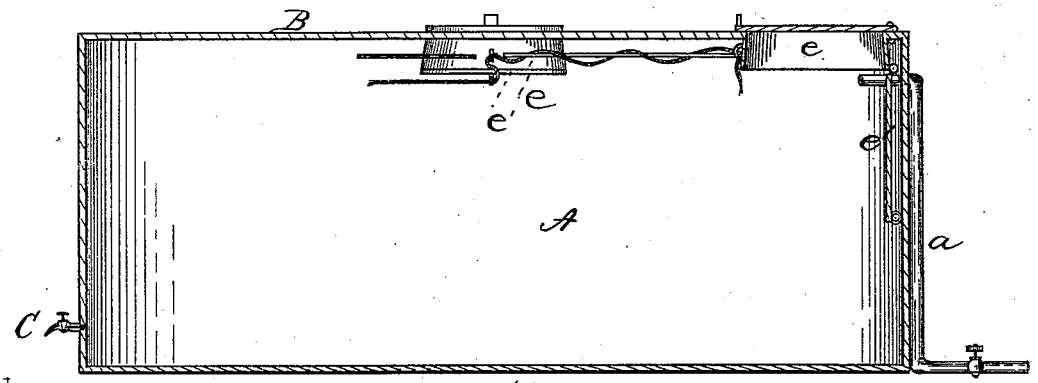


fig. 2.

WITNESSES.

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Frank M Reese

INVENTORS

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by Bakewell & Kerr

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2 Sheets—Sheet 2.

J. H. & T. E. CONNELLY.

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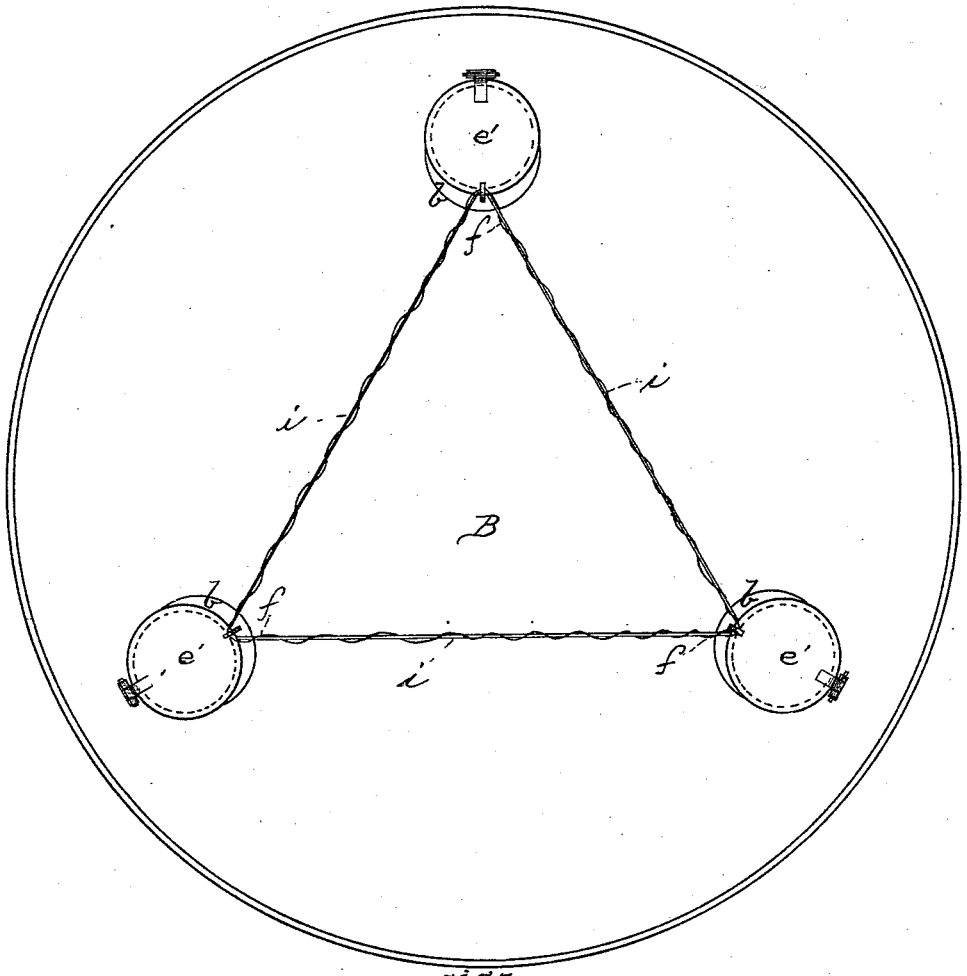

Fig. 3.

WITNESSES.

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UNITED STATES PATENT OFFICE.

JOSEPH H. CONNELLY AND THOMAS E. CONNELLY, OF PITTSBURG, PENNSYLVANIA, ASSIGNORS TO THEMSELVES AND CHARLES LOCKHART, OF SAME PLACE.

IMPROVEMENT IN AUTOMATIC CHEMICAL FIRE-EXTINGUISHERS FOR OIL-TANKS.

Specification forming part of Letters Patent No. **208,374**, dated September 24, 1878; application filed August 29, 1878.

To all whom it may concern:

Be it known that we, JOSEPH H. CONNELLY and THOMAS E. CONNELLY, of the city of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Automatic Chemical Fire-Extinguishers for Oil-Tanks; and we do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a perspective view of devices embodying our invention. Fig. 2 is a vertical section of the same. Fig. 3 is an under-side view of the tank-cover with the devices attached. Fig. 4 is a detail sectional view of one of the receptacles.

Like letters refer to like parts wherever they occur.

Our invention relates to the construction and operation of devices to be used in connection with oil-tanks or other tanks for the storage of inflammable liquids, for the purpose of automatically extinguishing fires therein; and consists in combining, with an oil or similar tank, a single receptacle or a series of receptacles for fire-extinguishing compounds, each of said receptacles having a drop-bottom or equivalent construction, so arranged as to automatically discharge the contents of the receptacle into the tank on the occurrence of a fire therein.

We will now proceed to describe our invention, so that others skilled in the art to which it appertains may apply the same.

In the drawing, A indicates a tank for storage of oil or other inflammable liquid, said tank being provided with a cover, B, and a try-cock, C. In the cover B we form a series of oval or other shaped openings, *b*, and provide the same with corresponding covers or caps *b'*, by which they may be closed.

To the under side of cover B, at the openings *b*, we secure receptacles *e*, somewhat smaller than the openings *b*, so as to permit the introduction of the arm into the tank on one side of the receptacle. These receptacles *e* are made slightly tapering in form, as shown, being wider below, so as to facilitate the discharge of their contents, and are closed by pivoted or drop bottoms *e'*. The drop-bottoms are held up, when the receptacle is charged, by a light cord, *f*, or equivalent means, which is passed through eyes or staples *g h* on the receptacle and bottom; and the same cord *f*, if used to secure several of the series, may be supported by a series of rods or wires, *i*, connecting the several receptacles.

In the case of most, if not all, the dry compounds used for extinguishing fires, the presence of water is required to set up chemical action, and in most oil-tanks there will be sufficient water present which has separated from the crude oil; but as such may not always be the case, we prefer to provide the tank A with a supply-pipe, *a*, by means of which water can be introduced into the tank when required.

The compound preferred by us is that described in Letters Patent No. 196,562, granted to Joseph H. Connelly, October 30, 1877; but any other compound adapted to the purpose may be employed.

When about to charge the receptacles, the covers *b'* are turned to unclose the openings *b*. The operator then introduces his arm through the opening *b* on one side of the receptacle *e*, and ties up or secures the drop-bottom *e'* by passing the light cord *f* through the staples *g h;* and if there are several receptacles, the operation is repeated with each, the cord being, by preference, wound around wires *i* in its passage from one to the other. This cord *f* is, by preference, prepared with a saturated solution of nitrate of potassa, or other means are employed to render it highly inflammable; and in some cases we may prefer to use a wire of easily-fusible metal in lieu of the cord *f*. The bottoms *e* having been secured, as specified, we next line the interior of the receptacle with paper or equivalent material, as at *p*, and, after inserting the charge of the fire-extinguishing material, close the receptacle by means of the covers *b'*, which latter, if preferred, may be luted or sealed, to render the whole tight.

The paper lining *p* is not essential, but is

beneficial as preventing the adhesion of the compound to the receptacle, and insuring its discharge from the receptacle.

In case of fire, the operation of the devices will be as follows: The cord *f* being burned off will liberate the drop-bottom *e'*, which, falling, will discharge the fire-extinguishing compound into the oil in the tank. Said compound, sinking to the bottom of the tank, will encounter the stratum of water, when chemical action will take place, liberating carbonic-acid or other gas, which, rising through the oil, will collect just above the same, in such manner as to cut off the air-supply and cause the fire to go out. Moreover, when the compound referred to above and described in Letters Patent No. 196,562, or an equivalent compound, is employed, the residuum (sulphate of soda, oxide of alumina, &c.) will be carried to the surface of the oil by the ebullition, and will form a crust or covering, which will materially protect the contents of the tank.

The advantages of our invention are the simplicity and effectiveness of the devices and the sureness with which they operate.

Having thus set forth the nature and advantages of our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination, with an oil or similar tank for storing inflammable liquids, of a receptacle or receptacles for fire extinguishing compounds, said receptacle or receptacles having drop-bottoms, and adapted to automatically discharge the extinguishing compound into the tank, substantially as and for the purpose specified.

2. The combination, with an oil-tank having one or more elongated openings provided with covers, of one or more tapering receptacles provided with drop-bottoms, substantially as and for the purpose specified.

3. The combination, with the drop-bottom receptacles, of the supporting-wires and a cord or cords for securing the bottoms of the receptacles, substantially as specified.

In testimony whereof we, the said JOSEPH H. CONNELLY and THOMAS E. CONNELLY, have hereunto set our hands.

JOSEPH H. CONNELLY.
THOMAS E. CONNELLY.

Witnesses:
R. H. WHITTLESEY,
F. W. RITTER, Jr.