

(No Model.)

2 Sheets—Sheet 1.

E. F. STECK.
CHEMICAL FIRE EXTINGUISHER.

No. 571,582.

Patented Nov. 17, 1896.

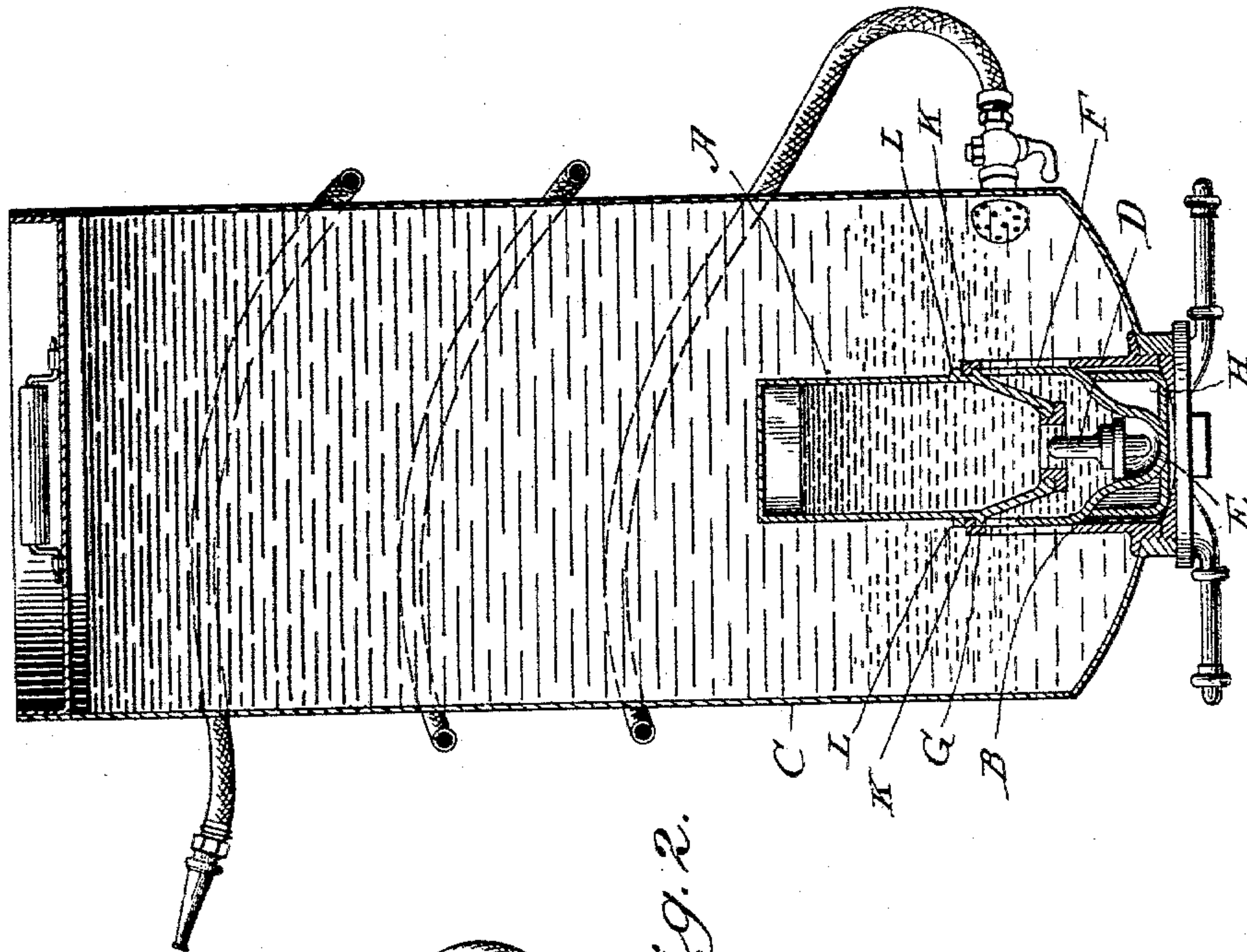


Fig. 2.

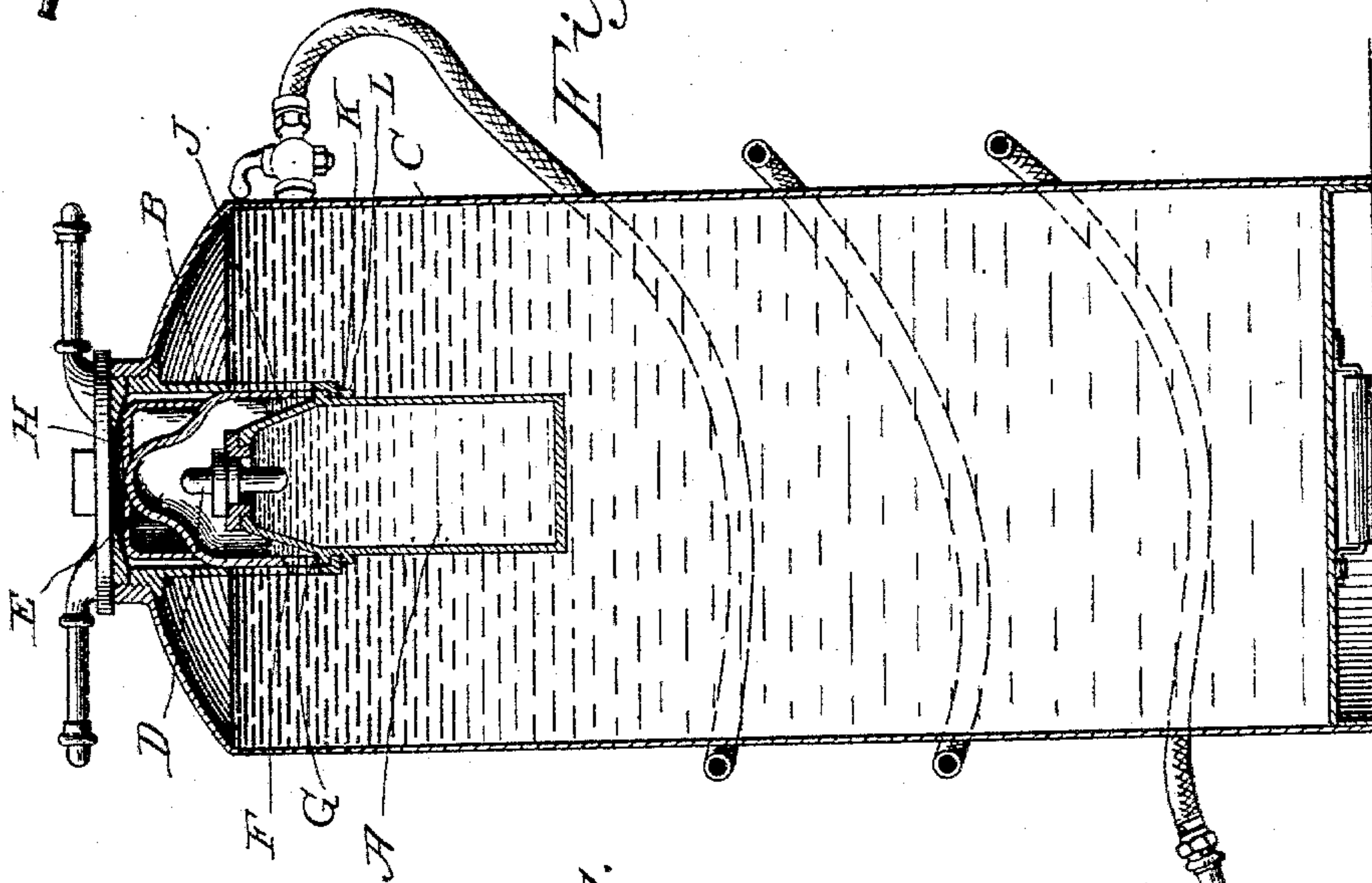


Fig. 1.

WITNESSES:

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W. V. Bedford

INVENTOR,

ERNST F. STECK,

BY

Amphibros
HIS ATTORNEYS.

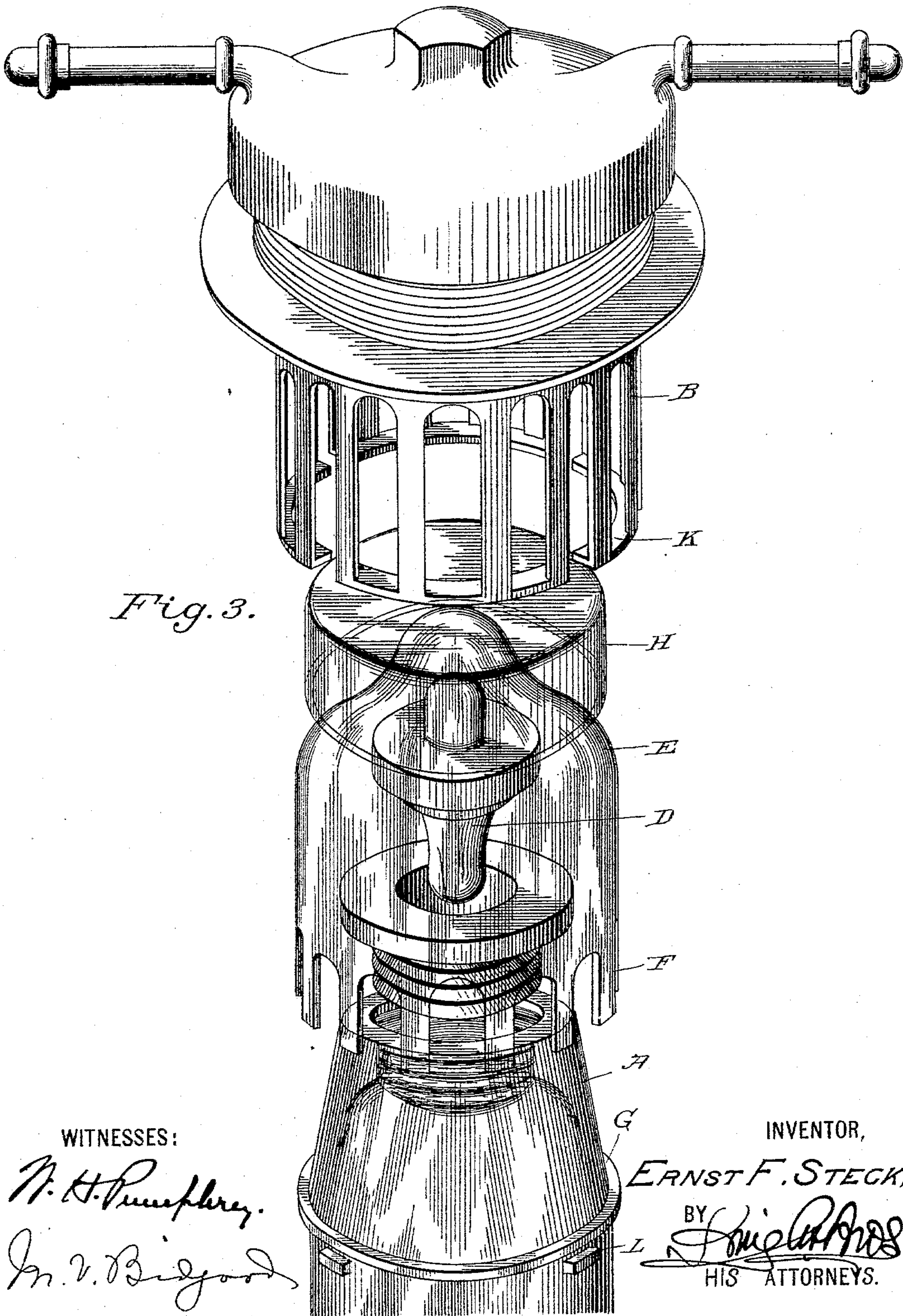
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UNITED STATES PATENT OFFICE.

ERNST F. STECK, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE FIRE EXTINGUISHER MANUFACTURING COMPANY, OF SAME PLACE AND NEW YORK, N. Y.

CHEMICAL FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 571,582, dated November 17, 1896.

Application filed April 30, 1896. Serial No. 589,665. (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 Chemical Fire-Extinguishers, of which the following is a specification.

The invention herein described relates, broadly, to a means for obtaining an improved and more effective seal between the active agents of a chemical fire-extinguisher whereby the possibility of deteriorating effects of leakage is removed.

Heretofore in apparatuses of this nature it is often the case that where a hermetical seal is not employed between the two liquids that leakages will occur from the more active agent, namely, the sulfuric acid, and the resulting fumes reaching the metallic sides of the apparatus will corrode them and gradually destroy their efficiency.

In an application filed April 10, 1896, in the United States Patent Office by the present applicant in conjunction with George H. Robinson, Serial No. 586,903, an apparatus embodying the principles set forth and claimed in the present application is therein shown; but no claim is made to said invention in said application, such claim being reserved for the present case.

The present invention relates specifically to the maintenance of a liquid seal between the two bodies of liquid aforesaid, whereby the escaping fumes from the sulfuric-acid gas will be absorbed in the alkaline water, and their consequent neutralization will prevent the corrosive effect aforesaid, and is applicable only to such cases where hermetical seals are not employed. I accomplish this result by means of a glass cap, bell, or dome, which I support in a suitable manner above the acid-containing vessel and in such a manner as that it dips down into the alkaline liquid, as will be explained.

Referring to the accompanying drawings, forming part of this specification, Figure 1 represents a vertical section of a portable fire-extinguisher with my invention applied. Fig. 2 is a similar view of the same apparatus in position of action. Fig. 3 is a perspec-

tive view to a larger scale of the acid-containing jar, the supporting-frame therefor, and the glass cap, bell, or dome, showing their relative positions and manner of assembling.

In the drawings, A represents an acid-containing vessel supported in a frame B, the latter depending from and attached to the main cylinder or vessel C, the said vessel C containing the alkaline water.

At D is a lead or other suitable stopper maintaining its position when the apparatus is not in active operation by reason of gravity.

At E, I show the glass cap, bell, or dome fitting down over the vessel A and having legs F, which seat upon the shoulder G of the acid-receptacle, the latter being retained in place by the supporting-frame B.

At H is a cap for retaining the bell or dome in proper position.

It will be seen from the foregoing that at the points J, I obtain what may be termed a "liquid seal" and that the escaping fumes from the sulfuric-acid vessel A, rising into the bell or dome E, will be forced through the said liquid seal and will be absorbed by the body of alkaline water and will be prevented from reaching the metallic side of said alkaline vessel and thus preventing corrosion, as aforesaid. It will also be seen that by this arrangement all contact between the escaping fumes and the metallic portions of the structure are absolutely prevented, and said fumes escaping from this glass receptacle pass into the glass dome or bell and from thence into the body of the alkaline fluid, where they are absorbed.

The supporting-frame B is provided with inwardly-extending lugs or with an annular rim K, and the acid-containing vessel A is provided with complementary outwardly-extending lugs or rims L, which fit over and under the lugs or rim K of the supporting-frame. By this means the acid-containing vessel is locked to its proper vertical position when the apparatus is not in active operation.

When the cap or bell E is placed in position after the vessels have received the proper charges of their respective liquids, the pressure exerted by the cap or bell will, by compressing the inclosed air, somewhat displace

the liquid immediately beneath it. The drawings show, approximately, the positions which the fluids will assume relatively to one another under these circumstances. The method of
5 doing this for obtaining a liquid seal between two different bodies of liquids I consider new.

In Fig. 2 the machine is shown in active operation. The main vessel has been given a half-rotation. The lead stopper of the sulfuric-acid jar has fallen away, liberating the
10 sulfuric acid, and the latter, mingling with the alkaline water, is enabled to carry out the well-known operation of a chemical fire-extinguisher, so that the liquid seal obtained
15 in the manner described will not interfere in any manner with the proper operation of the apparatus.

I have shown this invention as applied to what is known as the "Champion" fire-extinguisher, and it is shown in the application
20 hereinbefore referred to as applied to an automatic chemical fire-extinguisher, but it may be applied to any form.

In the practical use of the apparatus the
25 stopper D may be omitted, if desired, and in the claims where I set forth an unsealed stopper I wish it to be understood that I claim a construction in which the stopper may be omitted. Still I prefer to use a heavy loose
30 stopper which is adapted to fall away by the operation of gravity when the apparatus is upset.

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

1. In a chemical fire-extinguisher, the com-

bination of an outer vessel for holding the alkaline liquid, an unsealed acid-containing vessel having an annular shoulder supported
40 by and within the alkaline vessel, a supporting-frame, and a glass sealing-cap or bell seated upon the shoulder of the acid-containing vessel.

2. In a chemical fire-extinguisher, the combination of an outer alkaline-containing ves-
45 sel, an inner acid-containing vessel, a supporter, and a cap or bell covering the upper part of the acid-containing vessel and having openings at the bottom whereby a liquid-sealed escape is provided for the gaseous
50 fumes.

3. In a chemical fire-extinguisher, the combination of an outer alkaline-containing vessel, an inner acid-containing vessel, a glass
55 cap or bell covering the upper part of the acid-containing vessel and means substantially as shown and described for introducing the escaping fumes from the acid-containing vessel directly into the alkaline water without
60 contacting with the metallic parts.

4. In a chemical fire-extinguisher, the combination of an outer vessel containing alkaline water, an inner vessel supported by the
65 outer vessel, and containing acid, a glass bell, cap, or dome arranged over the top of the inner vessel and retaining between it and the inner vessel a quantity of alkaline water, the latter forming a liquid seal, with said seal.

ERNST F. STECK.

Witnesses:

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