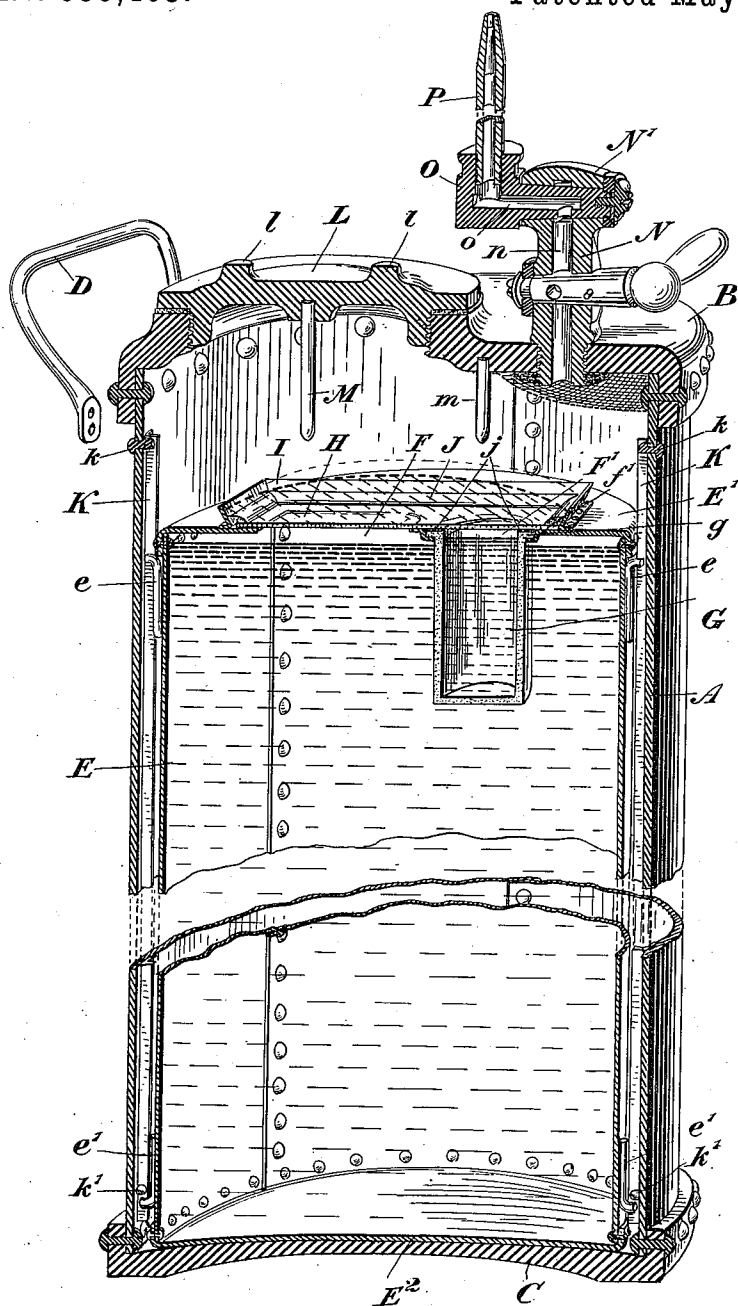


(No Model.)

D. D. WILSON.
HAND FIRE EXTINGUISHER.

No. 539,465.

Patented May 21, 1895.



Witnesses.

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UNITED STATES PATENT OFFICE.

DANIEL D. WILSON, OF TORONTO, CANADA, ASSIGNOR TO WILLIAM BURROWES CLOSE, OF SAME PLACE.

HAND FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 539,465, dated May 21, 1895.

Application filed April 20, 1894. Serial No. 508,378. (No model.) Patented in Canada March 27, 1894, No. 45,647.

To all whom it may concern:

Be it known that I, DANIEL D. WILSON, agent, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Hand Fire-Extinguishers, (for which I have received Letters Patent in Canada March 27, 1894, No. 45,647,) of which the following is a specification.

My invention relates to improved hand fire extinguishers and the object of the invention is, first, to provide means whereby the liquids used in fire extinguishers may be hermetically sealed in a chamber inclosed in the main cylinder so that there is no danger of any vapor arising therefrom in order to fill up the exit nozzle during the continued disuse of the extinguisher, and thereby impede the free passage of the combined liquid when it is desired to use the extinguisher; secondly, to provide a simple and cheap means whereby acid may be made to mix with the liquids without the necessity or expense of breaking the acid receptacle, and, at the same time provide a common cover for both the acid receptacle and the other liquid used; thirdly, to provide a nozzle which may be capable of ready adjustment in order to direct the stream to the point required, and it consists essentially, first, in providing within the main outer casing or cylinder an inner cylinder, the normal top of which is provided with a fragile diaphragm, of glass or other suitable fragile material, which is embedded in or otherwise secured by suitable cement or plaster, upon the top of the inner cylinder so as to cover the opening in the top and the mouth of the acid receptacle, as hereinafter more particularly explained; secondly, in providing suitable guides for the inner cylinder whereby when the main cylinder is inverted for use the fragile diaphragm at one end of the inner cylinder may be brought against one or more studs to break it; thirdly, of hinging the nozzle by means of a socket joint in the end of the faucet, which is preferably secured in the head of the cylinder, the extinguisher being otherwise constructed and arranged in detail as hereinafter more particularly explained.

The drawing represents a sectional perspective view of a fire-extinguisher made in

accordance with my invention, the cylinder being intermediately broken away, as indicated.

A, is the outer cylinder of my fire extinguisher, B the head, and C the bottom. The bottom and the head are suitably secured to the cylindrical portion.

D, is the handle.

E, is the inner cylinder, which is made of metal or any other suitable material and provided with a suitable head and bottom, E', and E².

F, and F', are two openings made in the head E', of the cylinder, E.

G, is the acid receptacle which is preferably cylindrical in form and made of glass or any other suitable material. The acid receptacle, G, has preferably a rim, g, formed around its open end which is supported upon a ledge, f', formed in the head, E', around the opening, F'.

H, is a fragile diaphragm, made of glass or other suitable fragile material, which will not be affected by the acid in the receptacle, G. The fragile diaphragm is held in place by a wall, I, which surrounds it entirely and preferably abuts it on all sides.

J, is a beading of putty, plaster of paris or other suitable soft material which hardens and which is placed around the edge of the fragile diaphragm so as not only to hold it in place but also to hermetically seal the openings, F, and F', in the head, E'.

J', is a layer of plaster of paris which is preferably placed between the rim, g, and the fragile diaphragm so as to hermetically seal the acid receptacle.

The inner cylinder, E, is preferably filled with salt and water instead of soda and water, as the former will not freeze except at a very much lower temperature than the latter. The walled space at the top of the inner cylinder is preferably filled with dry soda, as indicated by dotted lines in drawing.

K, are vertical guideways secured inside of the main cylinder diametrically opposite each other. Only one side of each guideway is shown, but it will of course be understood that the other side is made exactly alike.

k, are stop pins which extend through the main cylinder in proximity to the top of the guideways and between the sides of each.

k' , is a boss or projection formed slightly above the bottom of each side of each guideway. There is only one boss of each guideway shown.

5 e , are two bent pins which are secured diametrically opposite to each other on the outside of the inner cylinder and extend into the guideways, K.

10 e' , represents two bent pins similarly secured to the sides of the inner cylinder and extending into the guideways, K, beneath the bosses, k' , when the inner cylinder is in its normal position.

15 L , is a plug which is secured into a threaded hole eccentrically situated in the top of the head, B.

20 l , represents two lugs formed in the top of the screw plug, L, and designed to form a means, by a stick laid crosswise between them, to unscrew the plug, L.

30 M , is a stud secured in the bottom of the screw plug, L, and m , is a similar stud screwed in the inner side of the head, B. Both plugs, M, and m , extend down vertically into the cylinder opposite the fragile diaphragm, the plug, m , being especially situated however so as to come opposite the center of the acid receptacle. Although I show two plugs, it will be understood that one plug might be sufficient.

N , is a faucet, the passage, n , of which leads into the passage way, o , in the socket, O, which is pivoted or hinged in the enlarged end, N' , of the faucet, N.

35 P , is the nozzle which extends into the right angle turn of the socket, O.

Having now described the principal parts of my invention, I shall briefly describe its advantages and operation.

40 When the cylinder is in its normal position, as shown in the drawing, it will be seen that the contents of the inner cylinder are hermetically sealed and consequently there will be no danger of any vapor arising which would have a tendency to choke up the passage way, n , of the faucet, N, when the fire extinguisher is left for an extremely long period without being used. It will also be seen that there will be no possibility of the contents of the fire extinguisher losing its strength.

50 In order to bring my fire extinguisher into position for use I invert it, and by so inverting it the inner cylinder will of its own gravity and as it is being gradually inverted, have a tendency to drop against the head. This will be effectively prevented by the bosses, k' , on each side of the guideways, K, forming a stop for the bent pins, e' , but as the bent pins are of less diameter than the distance between the bosses, k' , it will be seen immediately upon the extinguisher being brought to the perpendicular or almost so, the inner cylinder will be precipitated suddenly toward the head, C. As it falls the studs, M, and m , will come against the fragile diaphragm and break it, thereby freeing the contents and allowing

of their commingling with the soda to form carbonic acid gas, and this without destruction of the acid receptacle. The downward movement of the inner cylinder is of course limited by the bent pins, e , coming against the stops, k , at the end of the guideways, K. The faucet may now be turned on, and the nozzle being hinged as hereinbefore described, the stream may be directed by the user toward any point desired. The handle, D, may of course be utilized to more conveniently hold the extinguisher during its use.

By providing a fragile diaphragm as hereinbefore stated, it will be readily seen that the fragile diaphragm being very cheap may be readily replaced when broken. Not only is this so, but it forms a very perfect means for hermetically sealing the contents of the acid receptacle and inner cylinder and with the wall, I, forms a receptacle for the reception of the soda.

What I claim as my invention is—

1. In a hand fire extinguisher, the outer cylinder, the inner cylinder carrying a fragile portion, the means for breaking the fragile portion and the stops for limiting the movement of the inner cylinder when the extinguisher is reversed whereby a chamber is maintained between the heads of the inner and the outer cylinders to allow the ingredients contained in said cylinders to commingle after the said fragile portion is broken, substantially as described.

2. In a hand fire extinguisher the outer receptacle, the inner receptacle having sliding movement therein and having a fragile portion, the means for breaking said fragile portion, said inner receptacle filling the outer receptacle excepting a space at the top and guiding and limiting means for the inner receptacle comprising the guides on the sides of outer receptacles, the stops therein and the pins on the inner receptacle projecting into the said guides whereby the inner receptacle will be held against rotary movement with the fragile portion in line with the breaking means and will be limited in its sliding movement after the fragile portion has been broken, to maintain an upper space, substantially as described.

3. The combination with the outer cylinder, the inner cylinder capable of longitudinal movement therein and provided with a fragile diaphragm, of the guideways, studs extending into said guideways, and bent pins engaging with said studs whereby the movement of the said inner cylinder is prevented until the outer cylinder is entirely reversed, substantially as described.

4. In combination, the outer cylinder the inner cylinder capable of longitudinal movement therein, the supplemental chamber within said inner chamber, and the fragile diaphragm covering both the inner cylinder and the supplemental chamber, substantially as described.

5. The combination with the outer cylinder

of an inner cylinder capable of longitudinal movement within the outer cylinder and provided with a fragile diaphragm secured to the head and normally separating the ingredients, two guideways secured to the outer cylinder situated diametrically opposite each other, bent pins secured to the inner cylinder and extending into the guideways, the retarding bosses, *k'*, formed on each side of the guideways near the bottom end and means whereby the fragile diaphragm is broken, as and for the purpose specified.

6. The combination with the outer cylinder of an inner cylinder filling the same with the exception of an upper space and capable of longitudinal movement within the outer cylinder and provided with a fragile diaphragm secured to the head and normally separating the ingredients, two guideways secured to the outer cylinder situated diametrically opposite each other, bent pins secured to the inner cylinder and extending into the guideways, and the stops, *k*, extending into the opposite ends of the guideways to limit the movement of the inner cylinder to maintain an upper space and means whereby the fragile diaphragm is broken, as and for the purpose specified.

7. The combination with the outer cylinder, *A*, and the inner cylinder, *E*, capable of longitudinal movements within the outer cylinder the fragile diaphragm, *H*, secured by suitable cement in the head of the inner cylinder so as to cover the opening in the same and the opening in the acid receptacle and hermetically seal both and means whereby the fragile diaphragm is broken, as and for the purpose specified.

8. The combination with the outer cylinder of the inner cylinder provided with a fragile diaphragm, *H*, extending over the openings, *F* and *F'*, the opening, *F'*, having a ledge, *f'*, formed around it, the acid receptacle, *G*, having the rim, *g*, by which it is supported upon the ledge, *f'*, the layer, *j*, of plaster of

paris situated between the top of the rim of the acid receptacle and the fragile diaphragm and the bead, *J*, of plaster of paris or other suitable material, surrounding the edge of the fragile diaphragm as and for the purpose specified.

9. The combination with the outer cylinder of the inner cylinder the acid receptacle carried by the inner cylinder, said cylinder being provided with a fragile diaphragm to normally hermetically seal the acid in the receptacle and the liquid in the inner cylinder, of the wall, *I*, surrounding the fragile diaphragm and arranged, as shown, and for the purpose specified.

10. In a hand fire extinguisher, the outer cylinder, the inner cylinder having a fragile portion, the acid receptacle on the inner cylinder with the fragile cover, said inner cylinder being movable within the outer cylinder and the means for breaking the fragile covering, substantially as described.

11. In combination in a fire extinguisher, the outer cylinder, the inner sliding cylinder having an upper opening, the acid receptacle carried by the inner receptacle and having an upper opening and the fragile diaphragm extending over both the opening in the inner cylinder and that in the acid receptacle, substantially as described.

12. In combination in a hand fire extinguisher, the outer receptacle, the inner sliding cylinder having an upper opening, the acid receptacle carried by the inner cylinder, the fragile covering for the inner cylinder and acid receptacle, the studs for breaking the said coverings and the guide ways for the inner cylinder whereby it will be maintained in proper relative position to the breaking studs, substantially as described.

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