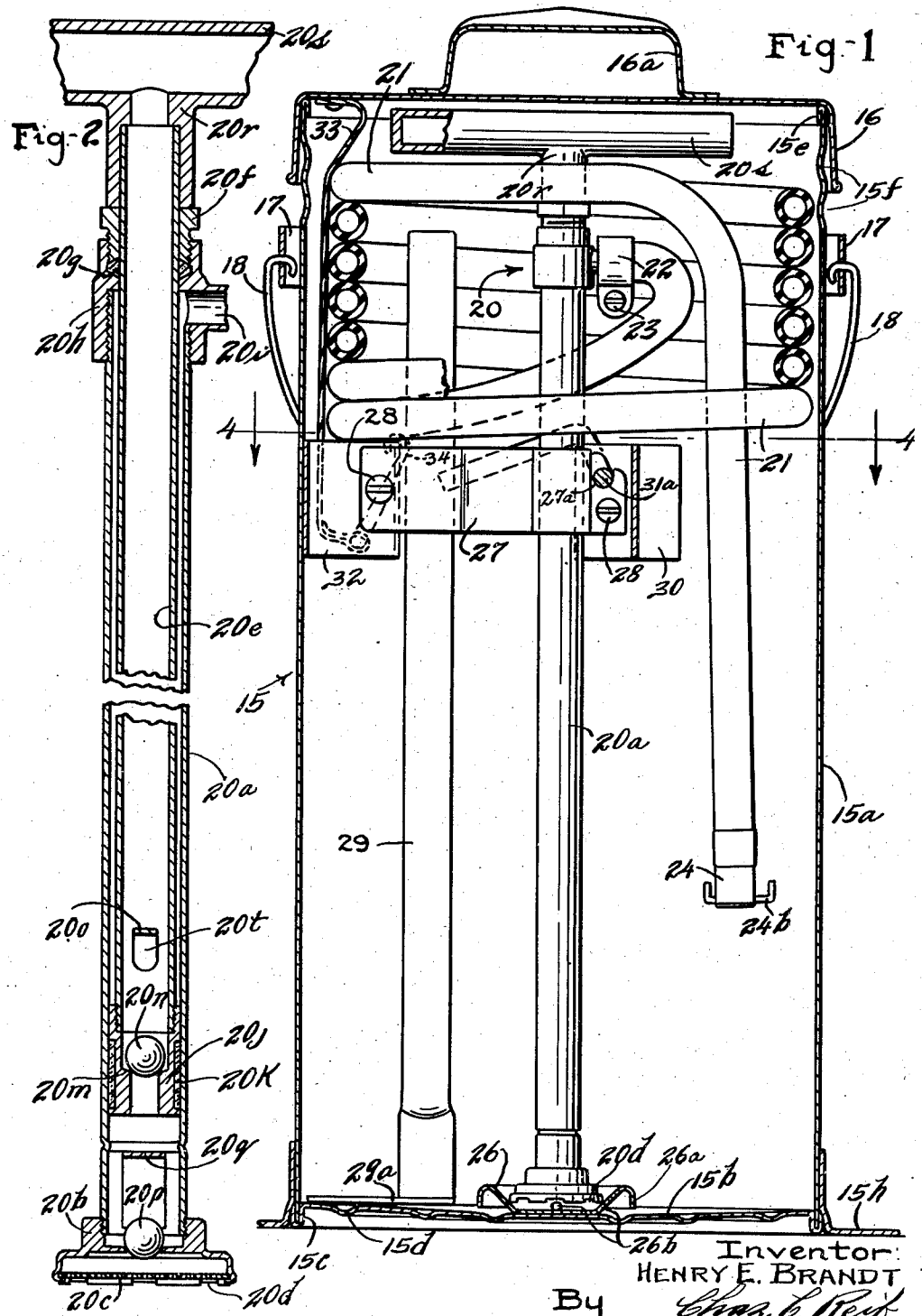
Jan. 9, 1945. H. E. BRANDT 2,366,692

FIRE EXTINGUISHING DEVICE

Filed Feb. 5, 1942 3 Sheets-Sheet 1



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FIRE EXTINGUISHING DEVICE

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Fig.-3.

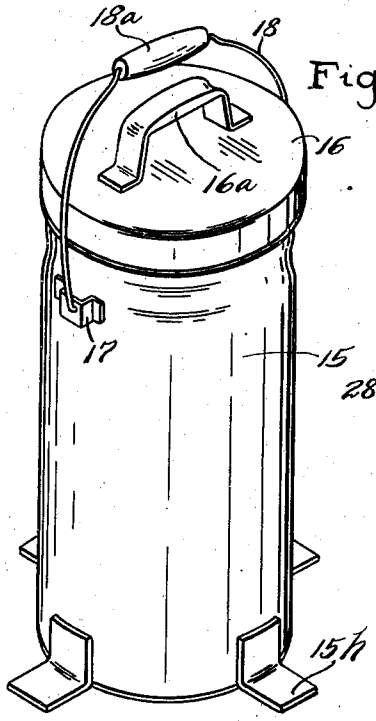


Fig.-5.

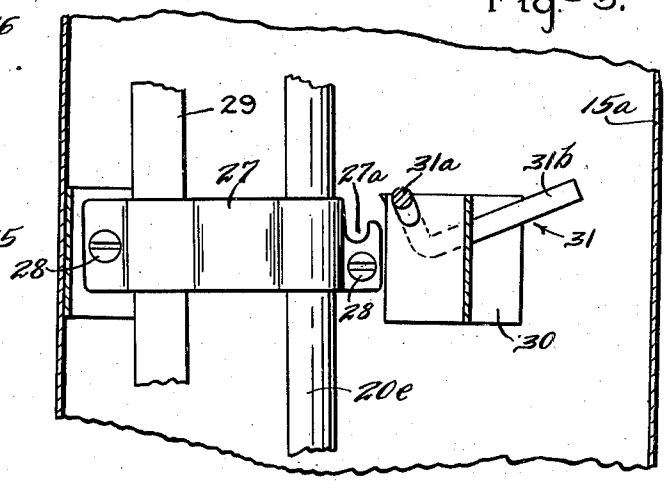


Fig.-6.

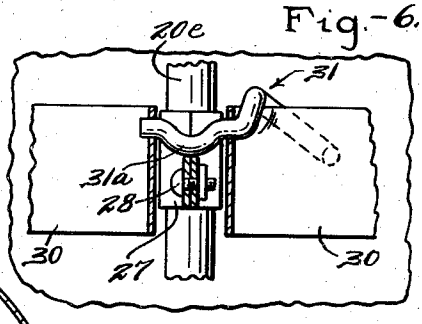


Fig.-4.

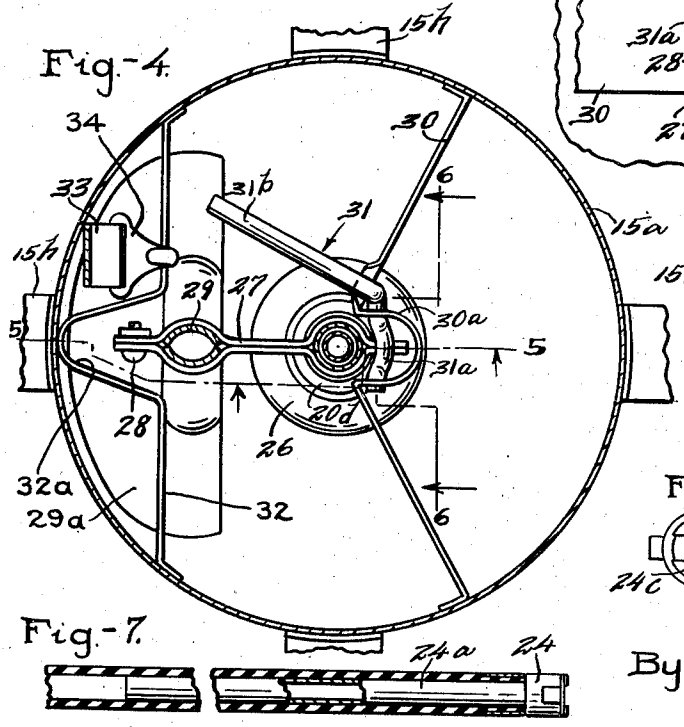


Fig.-8.

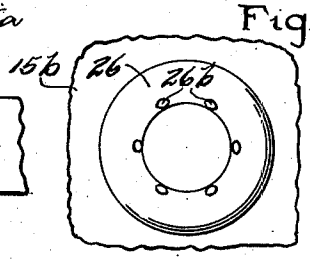


Fig.-9.

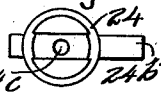


Fig.-10.

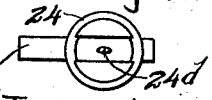


Fig.-7.

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FIRE EXTINGUISHING DEVICE

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Fig-11

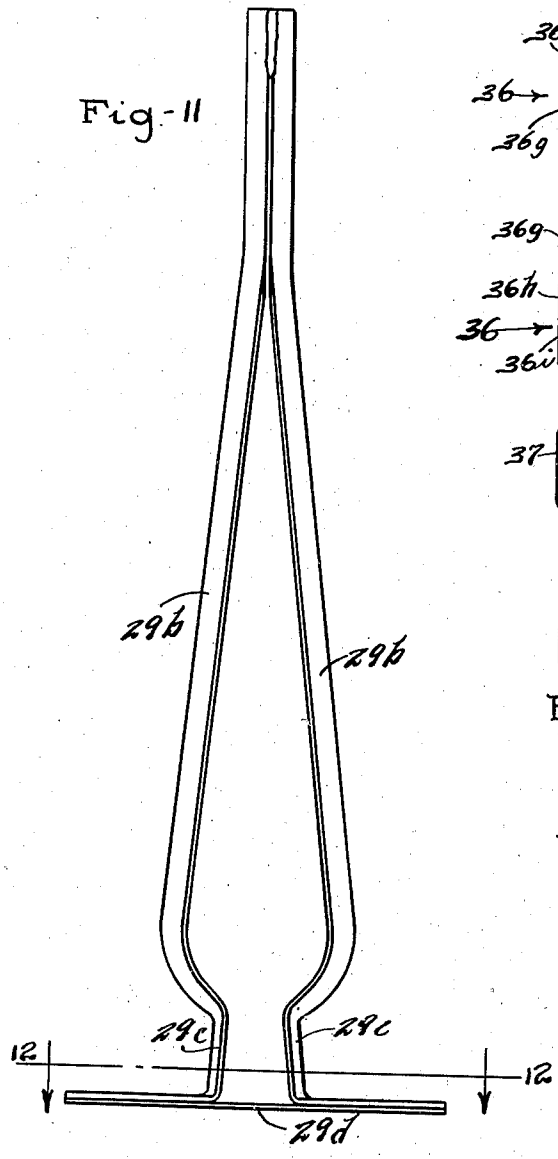


Fig-12.

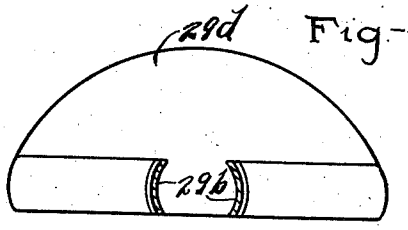
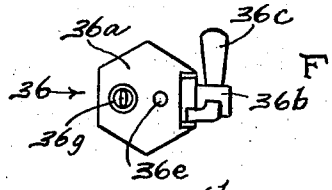


Fig-13.



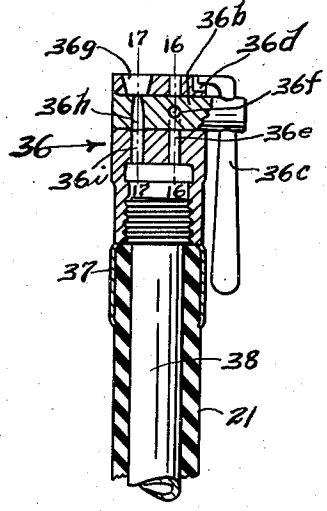


Fig-15.

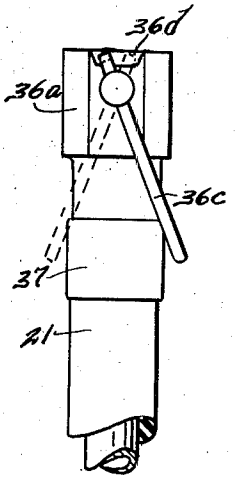


Fig-14.

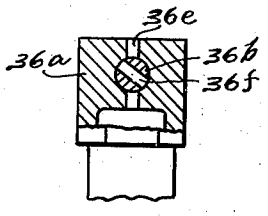


Fig-16.

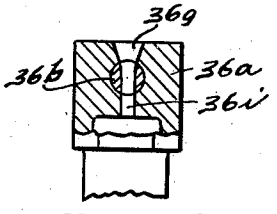


Fig-17.

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UNITED STATES PATENT OFFICE

2,366,692

FIRE EXTINGUISHING DEVICE

Henry E. Brandt, St. Paul, Minn.

Application February 5, 1942, Serial No. 429,609

12 Claims. (Cl. 169—33)

This invention relates to a fire extinguishing device and particularly to such a device constructed and arranged to be very quickly available for extinguishing a fire, particularly such a fire as one started by incendiary bombs.

When fires are started in bombing raids by the use of incendiary bombs it is very essential that these fires be handled with great rapidity. The incendiary bombs usually contain magnesium which burns with a very hot flame. The quicker the extinguishing operations can be performed, the less chance there is of the fire spreading to very damaging proportions. A fire comprising burning magnesium must be handled with a spray of water, particularly a fine spray, to properly control it. If a fine spray of water is played on the burning magnesium it will burn out without doing a great deal of damage. It is very objectionable to direct a full stream of water upon the magnesium.

It is an object of this invention to provide a fire extinguishing device comprising a container or receptacle which will normally be filled with water. A pump is disposed within the container ready for operation and it will only be necessary to carry the container to the fire and then immediately begin the extinguishing operation.

It is a further object of the invention to provide a fire extinguishing device comprising a container adapted normally to hold a supply of water, a pump disposed within and held within said container arranged for instant operation, said pump having a delivery hose of rather great length, the same being arranged to be disposed within the container with the pump so that it can be very quickly removed and placed in operative position.

It is also an object of the invention to provide a fire extinguishing device comprising a container adapted normally to hold a supply of water, a pump with delivery means disposed in said container and quickly releasable means for holding said pump in position so that said pump can be quickly used to discharge the water in said container while in said container and can then be instantly removed to be placed in a separate supply of water if desired.

It is still another object of the invention to provide a fire extinguishing device comprising a receptacle adapted to normally hold a supply of water, a pump secured and disposed within said receptacle, said pump carrying a foot rest to be used when said pump is used outside of said receptacle together with means for quickly releasing said pump so that it can be moved out of said receptacle to be used in a separate water supply.

Other objects of the invention are to provide a double acting pump of a structure particularly adapted to be carried within the container and simple and efficient means for holding the pump in the container and so that it can be instantly released and removed therefrom together with a discharge nozzle for said pump arranged to discharge either a spray of water or a full stream of water.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawings in which like reference characters refer to similar parts throughout the several views and in which:

Fig. 1 is a central vertical section through the device;

Fig. 2 is a central vertical section through the pump cylinder shown on an enlarged scale;

Fig. 3 is a perspective view of the device in inoperative position;

Fig. 4 is a horizontal section taken on line 4—4 of Fig. 1 as indicated by the arrows;

Fig. 5 is a vertical section taken substantially on line 5—5 of Fig. 4 as indicated by the arrows;

Fig. 6 is a vertical section taken substantially on line 6—6 of Fig. 4 as indicated by the arrows;

Fig. 7 is a central section through the discharge end of the delivery hose;

Fig. 8 is a plan view of the pump supporting member in the receptacle;

Fig. 9 is a front view of a discharge nozzle used;

Fig. 10 is a view of said nozzle in a different position;

Fig. 11 is a view in front elevation of a foot rest used;

Fig. 12 is a horizontal section taken on line 12—12 of Fig. 11 as indicated by the arrows;

Fig. 13 is a view in front elevation of a modified form of nozzle;

Fig. 14 is a top plan view of said nozzle and attached conduit;

Fig. 15 is a central vertical section through Fig. 14;

Fig. 16 is a vertical section taken on line 16—16 of Fig. 15; and

Fig. 17 is a similar section taken substantially on line 17—17 of Fig. 15.

Referring to the drawings a device is shown comprising a container or receptacle 15. While this might take various forms in the embodiment of the invention illustrated it is shown as a cylindrical tank which will preferably be made of sheet

material such as metal, the same having the cylindrical wall 15*a*, the bottom 15*b* provided with a recess forming bead 15*c* at its outer edge within which the lower end of wall 15*a* is received and secured. Said bottom 15*b* is shown as having a plurality of annular strengthening ribs 15*d* formed therein, said bottom being preferably somewhat resilient. The wall 15*a* has an inturned bead 15*e* at its upper end and the same is shown as having annular grooves 15*f* adjacent its top. A plurality of foot rests 15*h* are secured to the outer side of portion 15*a* of the container, the same being illustrated as made from pieces bent substantially at right angles having their vertical portions fitting against the side of the container and secured thereto in any suitable manner as by spot welding. The outwardly projecting portions of members 15*h* will have their lower surfaces flush with the bottom of bead 15*c*. A flanged cover or lid 16 is provided for the container 15, the same being shown as having a bail handle 16*a* secured at its upper side. Container 15 is shown as having small clip substantially U-shaped brackets 17 secured to opposite sides thereof some distance from its upper end and a bail handle 18 formed of a small rod or wire has its ends secured in brackets 17 and swingable therein, said member 18 having at its center a revoluble grip handle 18*a* of general cylindrical form having slightly tapering end portions. A pump 20 is provided and constructed and arranged to be received within the container 15. While different types of pumps could be used, in the embodiment of the invention illustrated pump 20 is shown of the double acting type. It comprises a cylinder 20*a* having an inlet member 20*b* secured to its bottom, said inlet member having a downwardly directed cup shaped portion across which extends a screen 20*c*. The sides of said cup shaped portion are provided with a plurality of circumferentially arranged notches 20*d*. A pump rod 20*e* is reciprocable within cylinder 20*a* and through a packing gland 20*f* threaded into the top of the cylinder and engaging packing material 20*g* disposed about said rod 20*e*. Packing gland 20*f* is threaded into a top member 20*h* threaded on the cylinder proper 20*a*, said member 20*h* having a laterally extending discharge portion with a discharge passage 20*i* extending therethrough. Rod 20*e* is in the form of a pipe or cylinder and has a piston portion 20*j* at its lower end which is provided with an annular recess in which some packing material 20*k* is disposed adapted to move in close contact with the inner wall of cylinder 20*a*. Portion 20*j* has a vertical passage therethrough enlarged at its upper end to form a valve seat 20*m* on which rests and with which cooperates a ball 20*n*. A stop member 20*o* is secured in rod 20*e* a short distance above valve seat 20*m*. Member 20*o* is pressed inwardly out of the side of rod 20*e* and there is thus formed an opening 20*t* through said rod. In practice there are two of such openings. The inlet member 20*b* is also provided with a passage extending vertically therethrough forming a valve seat with which cooperates a ball 20*p*. A stop member 20*q* extends across cylinder 20*a* a short distance above the seat for ball 20*p*. An operating handle 20*r* is secured to the upper end of rod 20*e*, the same having a transversely extending portion 20*s* extending equal distances at either side of rod 20*e* and it will be noted that portion 20*s* is formed with a chamber communicating with the chamber in rod 20*e*. A discharge hose 21 is secured to the discharge portion 20*i* of member 20*h* of the pump and said hose is of considerable length. Said hose may be secured to said pump in any suitable manner but in the embodiment of the invention illustrated it is shown as secured by a clamping band 22 adapted to be tightened by a screw 23. Said hose is provided with a discharge nozzle 24 having a tube or pipe attached thereto which extends some distance into the hose 21, thus stiffening the end of the hose and enabling it to be used as a handle. A particular kind of discharge nozzle is used of which it will be sufficient to say that the same comprises a movable slide 24*b* having one opening 24*c* through which a full stream of water is adapted to be discharged and having another opening 24*d* adapted to produce a fine spray.

The bottom member 15*b* of the container 15 has secured thereto a supporting member 26. This member is illustrated as having a flat central portion and said member flares upwardly and outwardly from said central portion, the same having a depending outer rim 26*a*. Member 26 has a plurality of openings 26*b* extending through the flaring part thereof. Said member 26 receives and supports the inlet member 20*b* of pump 20, said inlet member engaging the flaring wall of member 26 so as to be supported some distance above the central bottom portion thereof. A bracket 27 is secured to cylinder 20*a* of the pump, the same being formed by a pair of bands or strips secured together at their ends by screws 28. Bracket 27 extends to one side of cylinder 20*a* and is formed to extend about and clamp the standard of a foot rest member 29, which extends vertically in the container and is of the form shown in Figs. 11 and 12. Said foot rest comprises side portions 29*b* which are of semi-cylindrical form and are in parallel engagement at their upper ends. Said portions diverge downwardly and are then curved to extend toward each other and have lower slightly diverging portions 29*c*, the ends of which are bent substantially at right angles and secured to a segmental plate 29*d* in any suitable manner as by welding. Member 29 makes a very efficient foot rest. The operator can have his foot extending transversely of the plane defined by the outer portions of members 29*b* and both feet can be used on the lower portion 29*d*. One foot could of course, be used and extend transversely of said plane or if desired, one foot could be used extending parallel to said plane and it would then be placed on a segmental plate 29*d* at one side of the portions 29*c*.

A bracket 30 is formed by a band or strip of material, the same having its end portions bent substantially at right angles to form flanges to engage the inner portion of container 15. These flanges will be secured to the container in any suitable manner as by spot welding. Bracket 30 has a bight portion 30*a* formed substantially midway between its ends, which bright portion is semi-cylindrical in part and has short parallel sides. Rod 31 has a portion 31*b* projecting at one side of bight portion 30*a*, which portion forms a handle. The top edge portion of bracket 30 at one side is depressed near the bight portion 30*a* to form a small depression or groove adapted to receive handle portion 31*a* and act as a stop. Bracket 27 projects at one side of cylinder 20*a* and is provided with an open topped recess 27*a* adapted to receive the bight portion 31*a* of rod 31. Another bracket 32 is formed of a strip or band, the same being bent at its ends to form flanges engaging the inner side of the container wall, which flanges will be secured to said wall in any

suitable manner as by spot welding. Bracket **32** also has a bight portion **32***a* midway between its ends, the same having flaring sides, said bight portion being adapted to receive the end of bracket **27**. Cover **16** has secured to its underside a strip or flexible member **33** which has attached to its other end a hook **34**. Hook **34** is engaged through an aperture in one side of bracket **32** so that cover **16** is attached to the container by strip **33**.

In Figs. 13 to 17 a modified form of nozzle **36** is shown. This comprises a head portion **36***a* illustrated as hexagonal in transverse cross section at its forward portion and cylindrical at its rearward portion. Said head is bored adjacent its front end to receive an oscillatable cylindrical plug **36***b* slightly expanded or riveted at its bottom to hold the same in place. Said plug is apertured at its upper end to receive an operating handle **36***c*. Said handle has a downwardly extending front portion movable in a recess **36***d* formed in the top of head **36** and having diverging side portions which form stops for said portion **36***d*. Said head **36***a* is bored and tapped at its rear end and a bore or opening **36***e* extends from the bore in said head forwardly through the same. Plug **36***b* is provided with a transverse bore **36***f* of substantially the same diameter as bore **36***e* and in alignment therewith. Head **36***a* also has a diverging opening **36***g* at its forward end with which aligns a bore **36***h* in plug **36***b*. The bore **36***h* is cylindrical at its rear end but is flattened vertically so as to have a substantially narrow elliptical shape at its front end. A bore **36***i* extends rearwardly through head **36***a* in alignment with the bore **36***h*. Said head **36***a* is shown as threaded upon the end of conduit **24***a*. A ferrule **37** is shown on the hose or conduit **21** adjacent nozzle **36**.

In operation nozzle **36** can be placed in position to discharge either through the bore **36***e* when a full stream will be discharged or it can be placed in position to discharge through the small elliptical end of bore **36***h* when a flat stream or spray will be discharged. The nozzle can be placed in either position by movement of handle **36***c*. When handle **36***c* is in position with its front end against one side of recess **36***d* bore **36***c* will align with bore **36***f* so that the full stream will be discharged. At this time bore **36***i* is out of alignment with bore **36***b*. When the handle is moved so that its forward end is against the other side of recess **36***d* bores **36***e* and **36***f* will be moved out of alignment as shown in Fig. 16 and bores **36***i*, **36***h* and recess **36***d* will be in longitudinal alignment as shown in Fig. 17. The nozzle can thus be quickly changed from one position to another.

In operation container **15** will have the pump **20** secured therein as shown in Fig. 1. The bracket **27** is disposed as shown, with one end guided loosely in the bight **32***a* so that its other end projects into the bight **30***a*. The recess **27***a* can thus be brought into position so that when the handle of rod **31** is pushed downwardly bight portion **31***a* rotates in a downward direction and engages in recess **27***a*, thus pressing the bracket **27** and pump cylinder downwardly so that the inlet member **20***b* is pushed firmly against supporting member **26**. Bight portion **31***a* is moved somewhat past the vertical and as there is some resiliency in the bottom **15***d* the pump is held firmly in vertical position in the container, rod **31** acting as a locking means. The portion **29***a* of rod **29** also engages the bottom **15***d* of the container. With the pump so disposed the hose **21** can be disposed within the container and the same is preferably coiled as shown in Fig. 1, with the lower coil resting on bracket **30** or **32**, which thus forms a support for the hose. The nozzle end of the hose can be disposed downwardly into the center of the coil as shown in Fig. 1. The pump handle **20***s* at this time extends transversely adjacent the top of the container **15** and substantially parallel to the top of the cover **16** when the latter is in place. The device is designed so that the container **15** can be filled with water which will thus cover the hose and pump. In the use for which the device is designed, namely; that of extinguishing fires caused by incendiary bombs, which usually contain magnesium, it is of the utmost importance that every second possible be saved in the time that the extinguishing operation is commenced. With the container **15** filled with water it is only necessary to seize the same and carry it by means of handle **18** to the place where the fire is burning. Cover **21** can then be quickly removed or thrown off and the operator can pull out the hose **21** very quickly and direct the same toward the fire. The operator will immediately begin to operate pump **20** by reciprocating rod **20***e* by means of the handle **20***s*. Reciprocation of rod **20***e* will on its upstroke, draw water into the cylinder **20***a*, said water passing through the holes **26***b* of member **26** and into the cylinder through screen **20***c* and past valve **20***p* which can be lifted to permit this entry. When rod **20***e* is depressed valve **20***p* will be closed and wall valve **20***n* can rise so that the water is forced into the rod **20***e*. When the rod is again depressed the water will be forced into the rod and will pass through openings **20***t* to the space between said rod and cylinder **20***a* and will pass out through passage **20***i* into the hose. The chamber in the upper portion of rod **20***e* and the chamber handle **20***s* forms an air chamber for the double acting pump. Air will be trapped in said chambers and the air chamber will function as is well known in a manner that is well known in such a pump. When water is first played upon the fire, if it is a magnesium fire the nozzle **24** will have the slide **24***b* disposed so as to produce a spray. Magnesium can be best controlled by playing a fine spray of water thereon. Subsequently the slide **24***b* can be moved to produce a full stream from the nozzle and this can be used on other burning portions. In one specimen used in practice the hose, which was approximately 24 feet long, would discharge a spray about 12 feet in length through the nozzle while a full stream could be thrown 25 feet or more. As described, the water in container **15** can be used very quickly and much time thus saved in getting water onto the fire. After the water in container **15** is used up more water supply may be placed therein if this is convenient, or the pump can be then placed in another water supply. Such a water supply might be a bucket, tank, a household sink or a bathtub. When the operator is operating the pump in the container he can place his feet on the foot rests **15***h*. When the pump is being operated in some other container or water supply the operator will steady the pump by placing his foot on the foot rest **29***a*. Should the inlet member **20***b* be placed down on a flat surface the water can enter through the slots **20***d*.

From the above description it will be seen that I have provided quite a simple and yet very efficient fire extinguishing device adapted for very quick operation. The device, as above stated, is

particularly designed for fighting fires set by incendiary bombs. With the described structure the extinguishing operation can be started very quickly after the fire starts. It is unnecessary to first find or go to a water supply or attach a hose to some faucet or water supply. The device can be quickly carried to the fire and almost instantly placed in operation. This is a great advantage as the first few seconds or minutes are very important in such a fire. The device has the great advantage of being designed so that the pump can either be operated while it is in the container or said pump can be quickly removed and used with a separate water container or supply which might be placed in position while the water in container 15 is being used. The device is compact and durable and easily operated. The same has been amply demonstrated in actual practice and is being commercially made. The same has proven very successful.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the parts, without departing from the scope of applicant's invention, which generally stated, consists in a device capable of carrying out the objects above set forth, in the parts and combinations of parts disclosed and defined in the appended claims.

What is claimed is:

1. A device for extinguishing fires particularly such as caused by incendiary bombs, having in combination, a container adapted normally to hold a supply of water, a manually operable pump disposed in said container having a handle exposed for operating said pump when said container is open, a delivery hose of comparatively great length secured to said pump, a support in said container for said hose disposed some distance below the top of said container, said hose being adapted to be disposed on said support about said pump within said container between said support and the top of said container when the device is not in use whereby the device can be very quickly put into operation when a fire occurs.

2. A device for extinguishing fires particularly such as caused by incendiary bombs having in combination, a container adapted normally to hold a supply of water, a manually operable pump disposed in said container having a handle exposed for operating said pump when said container is open and movable to position below the top of said container while in inoperative position, a delivery hose of comparatively great length secured to said pump, a support in said container for said hose disposed below the top of said container, said hose being adapted to be disposed on said support about said pump within said container between said support and the top of said container when the device is not in use whereby said pump can be operated while in said container to discharge the water in said container and means for removably securing said pump in said container whereby said pump can be instantly released and moved out of said container to operate in another supply of liquid.

3. A device for extinguishing fires, particularly such as caused by incendiary bombs, having in combination, a container adapted to hold water, a pump having a cylinder disposed vertically within said container and having an operating handle, a bracket secured to said cylinder, a second bracket secured to the wall of said container, a member movably mounted in said second bracket and movable to position to engage said first mentioned bracket and lock said pump in position in said container whereby said pump can be operated while in said container or be quickly released and moved out of said container to be used with a separate supply of liquid.

4. The structure set forth in claim 3, said pump having a delivery hose thereon of comparatively great length, said hose being adapted to be coiled within said container about said pump, said second bracket acting as a support for said hose.

5. A device for extinguishing fires particularly such as caused by incendiary bombs having in combination, a container adapted normally to contain water, a removable cover for said container, a double acting pump disposed within said container having a cylinder extending vertically in said container, a piston rod reciprocable in said cylinder having a handle member at its top extending transversely thereof, said handle extending parallel to and adjacent said cover so as to be available for operation when said cover is removed, a bracket carried on said cylinder and means carried by the wall of said container for engaging said bracket to hold said pump firmly within said container, said means being quickly releasable so that said pump may be removed from said container and used with a separate water supply.

6. A device for extinguishing fires, particularly such as caused by incendiary bombs having in combination, a receptacle having a resilient bottom, a pump disposed within said receptacle at the bottom of said cylinder, an inlet member carried on the bottom of said cylinder, a supporting member carried on the bottom of said container and upstanding therefrom, said inlet member being receivable in said supporting member and held from lateral movement thereby, a bracket on said cylinder, a second bracket on the wall of said receptacle, a crank carried in said second bracket and movable to position to engage said bracket on said cylinder and hold said cylinder downwardly in place with said inlet member pressed against said supporting member whereby said pump is resiliently held in position.

7. A device for extinguishing fires particularly such as caused by incendiary bombs, having in combination, a container adapted normally to hold a supply of water, a pump disposed within said container, having a cylinder extending vertically therein, a bracket formed of a band secured to the wall of said container and having a bight portion with parallel sides formed between the ends thereof, a clamping rod journalled in said sides and having a bight portion therebetween, a second bracket secured to said cylinder having a portion disposed in said first mentioned bight and having a recess in its upper side, said bight portion of said rod being movable into said recess to press downwardly on said bracket and cylinder and hold said pump firmly in position in said cylinder.

8. The structure set forth in claim 7, said bracket on said cylinder extending to one side thereof, and a guide bracket secured to the wall of said container having a recess formed therein into which said bracket extends.

9. A device for extinguishing fires particularly such as caused by incendiary bombs having in combination, a container adapted normally to hold a supply of water, a cover for said container, flexible means securing said cover to said container, a plurality of foot rests on said container

at the bottom thereof and projecting outwardly therefrom, a pump removably held within said container having an operating handle exposed for operation when said cover is removed so that said pump may be operated while within said container and movable to inoperative position within said container, a holding bracket for said pump within said container, a long delivery hose secured to said pump, said hose being constructed and arranged to be disposed within said container about said pump above and supported on said bracket and between said bracket and the top of said container.

10. A device for extinguishing fires particularly such as caused by incendiary bombs having in combination, a receptacle, a pump disposed within said receptacle having a cylinder extending vertically therein, a bracket on said cylinder, a second bracket on the wall of said receptacle, a crank carried in said second bracket and movable to position to engage said bracket on said cylinder and hold said cylinder locked in place with its lower end against the bottom of said container whereby said pump is held firmly in said receptacle and may be operated therein to discharge the water from said receptacle and said pump may be quickly released and removed from said receptacle to operate with a separate water supply.

11. The structure set forth in claim 10 and means at the bottom of said receptacle for preventing lateral movement of said pump cylinder.

12. A device for extinguishing fires having in combination, a container adapted normally to hold a supply of water, a manually operable pump disposed in said container and comprising a cylinder, means for releasably holding said pump within said container and including a bracket secured to the wall of said container some distance below the top thereof, a hose of comparatively great length secured to said pump, said hose being disposable about said cylinder within said container supported on said bracket between the same and the top of said container.

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