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FLARE MACHINE

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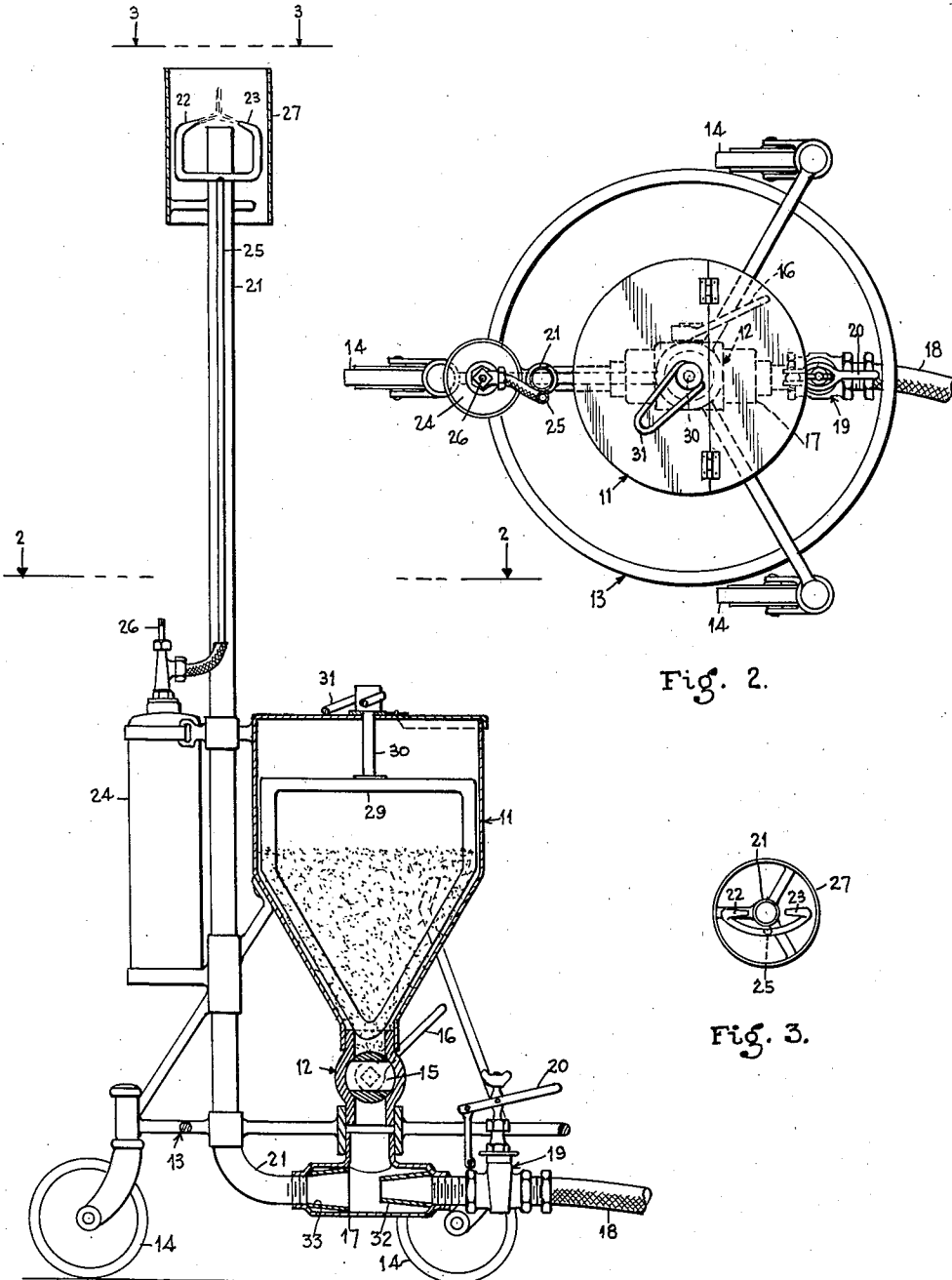


Fig. 2.

Fig. 3.

Fig. 1.

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FLARE MACHINE

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1 Claim. (Cl. 67—32)

This invention relates to special effects equipment, such as is used in motion picture studios to create artificial effects.

The primary object of the invention to be described hereinafter is to provide a machine capable of igniting aluminum dust or other suitable materials to produce a sudden flare or flares simulating lightning. The type of machine embodied in this invention consists of means for blowing combustible material through a flame. In order to make a device of this nature useful, it must first of all be safeguarded against accidental or premature explosions. Secondly, it must be compact and portable and must be easily operated. Accordingly, other objects of this invention are to provide a compact, portable, pneumatically operated machine capable of producing sudden flares and one in which careful attention has been given to the design and arrangement of parts to provide a maximum factor of safety.

The invention also embodies an improved means for igniting the combustible material. In order to obtain a complete combustion, it is necessary to have an extremely hot flame of considerable area so that the material will be ignited and completely combusted as soon as it hits the air. For this purpose, we provide a flat acetylene flame formed by two impinging jets and so arrange the nozzles of the jets that they lay outside the diameter of the exhaust pipe, thus insuring that the air blast will not extinguish the flame. In addition, we surround the jets and the top of the exhaust pipe by a collar, which prevents extraneous air currents from blowing the jet out of position over the top of the exhaust pipe and also stops any lateral spreading or spilling of the flame around the top of the pipe.

Another improvement embodied in our invention consists of a valve of the rotary type arranged to positively open and close a passage from the mixture container into an air blast passage. In conjunction with the valve, we provide an agitator in the mixture container which may be operated to agitate the mixture so that the valve will at all times permit a uniform charge to drop into the blast passage.

Other objects and advantages will become apparent as the description proceeds in conjunction with the drawing, in which:

Figure 1 is a vertical section partly in elevation, showing the arrangement of parts in our invention.

Figure 2 is a view taken on a line 2—2 of Figure 1, and

Figure 3 is a view taken on line 3—3 of Figure 1, showing the burner arrangement.

Briefly stated, our invention comprises means for feeding a combustible mixture into a chamber where the mixture is picked up by an air stream and blown through a flame. The features of the invention will now be described.

Referring to the drawing, and particularly to Figure 1, it will be observed that our invention consists of a container, generally designated 11, said container being tapered and having at the lower end a valve generally designated 12. The container 11 is supported upon a tripod generally designated 13, which in turn is mounted upon wheels or casters 14. The valve 12 is of the rotary type and has a passage 15, which is adapted to open and close the lower end of the container 11 upon proper operation of a handle 16. Connected to the output side of the valve 12 is a mixing chamber 17. Compressed air is supplied to the chamber 17 through a conduit 18 from a source not shown and is controlled by means of a valve 19. The valve 19 is of the quick opening and closing type and is operated by a handle 20 to supply sudden surges of compressed air to the chamber 17. The opposite side of the chamber 17 is connected to a pipe 21, which is turned into an upright position and extends above the container 11 and in practice is carried sufficiently above the height of individuals to insure that no burns may result from the flame. The means for igniting the combustible material as it is forced out the end of the pipe 21 comprises two jets 22 and 23, arranged to impinge and form a flat flame directly over the top of the pipe 21. Suitable gas, such as acetylene, is supplied to the burners 22 and 23 from a source 24 through a pipe 25. A control valve 26 ordinarily is installed to control the flame. Surrounding the burners 22 and 23 and also surrounding the top of the pipe 21 is a collar 27 which is for the purpose of preventing extraneous air currents or wind from blowing the flame out of alignment with the pipe 21. Also, the collar prevents lateral spreading of the flame at the top of the pipe, which might otherwise be caused by explosive combustion. With respect to the burners 22 and 23, it will be noted that the tips of the burners lay outside the diameter of the pipe, so that the air blast which forces the combustible material through the pipe will not extinguish the flame.

In the receptacle 11, we provide means for agitating the mixture contained therein, to insure that there shall be no clogging of the outlet of the receptacle and that the valve 12 will at all times pass a substantially uniform amount of mixture. For this purpose we provide an agitator member 29, adapted to be moveably mounted within the container 11 so as to agitate the material in said container. The member 29 is connected to a small shaft 30 which extends above the cover of the container and the shaft 30 is provided with a pivotally mounted handle 31 which may be used to agitate the member 29.

In operating the device, a suitable mixture, such as aluminum dust, is placed in the container 11. Compressed air is brought to the device through the conduit 18, which may be either a flexible conduit or ordinary pipe. The device is then moved into the location for use and the burners 22 and 23 are ignited and left burning after being properly adjusted. The operation of the device is simple and accurate, inasmuch as it requires but two operations. First, the valve 19 is operated by the handle 20, which admits a blast of air into the chamber 17 and outwardly through the pipe 21. Secondly, the charge of aluminum dust, or any other suitable material, is admitted into the chamber 17 by operating the valve 12 through the handle 16. By properly operating the handle 16, a small flare or a large flare may be obtained as desired. It will be noted that the chamber 17 is provided with a nozzle 32 on the air inlet side and on the opposite side a funnel-shaped member 33 is mounted over the entrance to the pipe 21. As the charge is dropped from the container 11, the air entering from the nozzle 32 picks up the charge and forces it into the member 33 and outwardly and upwardly through the pipe 21. As soon as the mixture hits the flame from the burners 22 and

23, it instantly ignites and, due to the pressure of air in the pipe 21, the flame is forced upwardly with a great brilliancy, depending of course on the type of material used. The flares may be colored, if desired, by placing a proper mixture into the container 11.

Special precaution against accidental or premature explosions has been taken in the design and the arrangement of parts. In this respect, it will be noted that the container 11 is tightly closed with a substantial cover. Also, it will be noted that the valve 15 is of the rotary type, which forms a positive closure to the material container and prevents any backfiring through the valve, when closed, into the explosive material. In addition, the valve 19, being normally open during the time of combustion and being held open until after closure of the valve 12, it is obvious that there is no possibility of flame or molten masses of material dropping down the pipe 21 and entering the mixture container 11.

Although we have shown a specific embodiment of our invention, we are aware that modifications and refinements may be made therein. Accordingly, this disclosure is intended to cover all forms of our invention coming within the scope of the appended claim.

We claim:

In a flare machine of the character described, means for forcing combustible material from the open end of a pipe, a burner arranged over the open end of said pipe for igniting said material, said burner comprising a pair of oppositely disposed nozzles arranged to impinge jets substantially over the center of said open end of pipe, and a sleeve annularly spaced around the open end of said pipe and said jets and extending above and below said open end.

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