

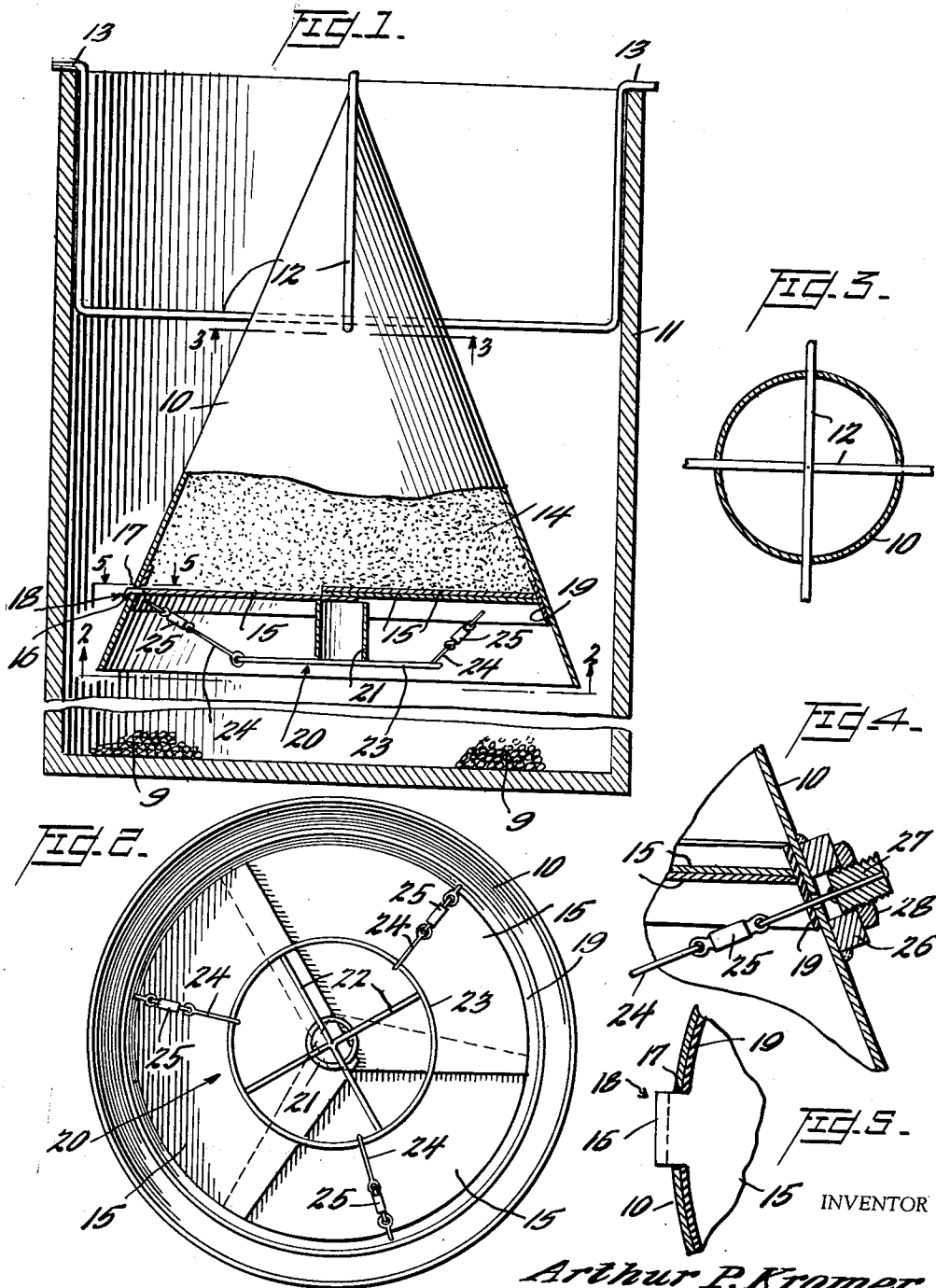
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AUTOMATIC FIRE EXTINGUISHER

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AUTOMATIC FIRE EXTINGUISHER

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1

This invention relates to fire extinguishing apparatus and more particularly to a portable self-contained automatic extinguisher which is removably placed on any container storing inflammable material, such as magnesium chips.

In machining magnesium stock, a large amount of inflammable chips are produced. The temporary storing of this material throughout the shop, until a subsequent salvaging operation can be accomplished, presents a fire hazard in view of the danger of the ignition of these chips. To obviate the possibility of a general conflagration, the chips are stored near each machine in individual steel containers to partially isolate the material in relatively small lots.

An object of the present invention is to provide a fire extinguisher easily placeable on individual containers and having automatic quick operating characteristics to dispense or dump its fire extinguishing contents upon the ignited material in the container.

In accordance with one embodiment of the invention, a portable conical receptacle containing a fire extinguishing powder is provided with a collapsible closure including overlapping plates pivotally mounted within the lower open mouthed portion of the receptacle. The collapsible plates are held in closed position to retain the fire extinguishing powder within the receptacle by a cylinder resting on a spider plate or ring which is held in position by a plurality of fusible link cables secured to the walls of the receptacle. This receptacle is attached to a pair of substantially U-shaped rods which support the receptacle within a container and over magnesium chips stored therein. Upon ignition of the inflammable chips in the container, the fusible links melt, thus effecting a quick and complete collapse of the support for the powder to dump it on the burning chips to extinguish the fire.

A complete understanding of the invention may be obtained from the following detailed description taken in conjunction with the accompanying drawing in which

Fig. 1 is a front elevation of the receptacle, embodying the invention, shown in fire extinguishing position on a container storing inflammable material;

Fig. 2 is a bottom view of the receptacle per se showing the quickly releasable plate supporting structure;

2

Fig. 3 is a fragmentary cross sectional view taken along line 3—3 of Fig. 1 showing the connection between the receptacle and its supporting means;

Fig. 4 is an enlarged sectional view of the adjustable means including the fusible links for the plate supporting structure; and

Fig. 5 is a sectional view taken along line 5—5 of Fig. 1 showing one of the pivotal connections between a closure plate and the receptacle.

Referring now to the drawing wherein like reference numerals designate the same parts throughout the several views, and more particularly to Fig. 1 wherein a conically shaped receptacle 10 is shown supported within a container 11 storing inflammable material 9 by means of a pair of U-shaped members 12 which have a portion of their ends 13 bent outwardly to engage the edges of the container. The supporting members 12 are secured to the receptacle 10 by passing them through apertures in the upper portion of the receptacle to provide four supports 90° apart.

A fire extinguishing powder or any suitable fire extinguishing substance 14 is contained within the receptacle 10 and supported by a collapsible bottom comprised of a plurality of overlapping plates 15. Each of the plates 15 is pivotally mounted to the sides of the receptacle 10 by passing a bent projection 16 of the plates 15 through a slot 17 in the side of the receptacle 10. The projections 16 are bent approximately 90° and in cooperation with the slot 17 form a hinge 18 (Figs. 1 and 5). Mounted on the inside of the receptacle 10 and in contact with the plates 15 is a rubber gasket 19 which acts as a seal between the sides of the receptacle 10 and the plates 15 to prevent leakage of the fire extinguishing powder 14.

The plates 15 are held in a closed position by means of a supporting unit designated generally by the reference numeral 20. The supporting unit 20 is comprised of an aluminum cylinder 21 which contacts the outermost of the overlapping plates 15 and is held in position by a pair of cross members 22 of an aluminum ring 23.

The ring 23 is held in position by a plurality of cables 24 each of which has a fusible link 25 approximately midway along its length. An externally threaded plug 27 (Fig. 4) is welded to one end of each of the cables 24 and is located in a spacer washer 26 which is welded to the

3

outside of receptacle 10. The plug 27 is threaded into a nut 28 which bears against the spacer washer 26 and serves to adjust the tension of the cable 24 thereby moving the supporting unit 20 upward to support the overlapping plates 15 in a horizontal position (Fig. 1).

To prepare the extinguisher for use, the receptacle 10 is inverted and supported in this position by rods 12. The plates 15 are pivoted about their hinges 18 to open and expose the cavity of the receptacle 10 and the fire extinguishing powder 14 is placed therein. The plates 15 are then brought into an overlapping horizontal closed position. Cylinder 21 of the supporting unit 20 is then positioned between the plates 15 and the cross members 22 of ring 23 and the nuts 28 are moved to adjust the tension on the cables 24 and thus firmly hold the cylinder 21 against the plates 15 to retain them in a closed and horizontal position as shown in Fig. 1.

The receptacle 10 charged with the fire extinguishing powder is then returned to its normal position and placed on a container 11 (Fig. 1) having inflammable material therein. If the material is ignited by spontaneous combustion or any other cause, one or all of the fusible links 25 will melt immediately thereby causing complete collapse of the supporting unit 20 to open the plates 15 and dump the powder 14 over the burning material to extinguish the fire.

Although the invention has been described with reference to a particular embodiment, it is to be understood that various modifications may be made without departing from the spirit and scope of the invention.

What is claimed is:

1. In a fire extinguisher, a receptacle for a fire extinguishing substance, means for supporting the receptacle over inflammable material, a plural part collapsible closure at an end of the receptacle for supporting the fire extinguishing substance, and fusible means secured to the receptacle and the closure for retaining the closure in closed position and for collapsing it into a plurality of parts when the inflammable material ignites.

2. In a fire extinguisher, a portable receptacle for a fire extinguishing substance, means for supporting the portable receptacle over stored combustible material, a collapsible closure at an end of the receptacle for supporting the fire extinguishing substance, means secured to the receptacle to maintain the closure in a closed position to retain the said substance within the receptacle, and heat responsive means to release said supporting means to completely collapse the end closure and dispense the extinguishing substance upon ignition of said combustible material.

3. In a fire extinguisher, a conical receptacle having only one open end, a plurality of overlapping plates at the said open end of the receptacle for closing the opening and supporting a fire extinguishing powder within the receptacle, means for supporting the overlapping plates in closed position, and fusible means for rendering the supporting means ineffective to completely collapse and release the plates to dump the powder when there is a substantial increase in the temperature of the surrounding air.

4. In a fire extinguisher, a receptacle for containing a fire extinguishing material, a plurality of overlapping plates pivotally mounted to the sides of the receptacle, supporting means secured to the sides of said receptacle for holding the plates in a closed position, said supporting means

4

comprising a ring with reinforcing cross members, a cylinder removably mounted on the intersection of said cross members and perpendicular to the upper surface of said ring, said cylinder maintaining the plates in a horizontal position, and a fusible link joining said ring and receptacle for releasing and effecting collapse of the overlapping plates upon a substantial increase in the temperature of the surrounding air.

5. In a fire extinguisher for a container storing inflammable material, a receptacle for containing a fire extinguishing powder and having an open end to facilitate the gravity discharge of said powder, means to support the receptacle within a container storing inflammable material, a plurality of overlapping plates pivotally secured to the side of the receptacle and for closing the open end thereof, a supporting means to hold the plates in closed position, said supporting means comprising a ring having reinforcing cross members, a cylinder mounted upright on said cross members, said cylinder supporting said plates, a plurality of means connecting the receptacle and the ring, and a fusible link in each of said means to release said plate supporting means upon combustion of the inflammable material.

6. In a portable fire extinguisher, a receptacle for containing a fire extinguishing powder, means to support said receptacle on a container having a combustible material therein, a plurality of plates pivotally mounted to the lower portion of the receptacle, means to maintain said plates in a horizontal closed position, said maintaining means comprising a ring having cross members, a cylinder mounted on said cross members and substantially perpendicular to said ring, a plurality of cables secured at one end to the ring and at the other end to the receptacle, a plurality of adjusting means to move the cables and hold the overlapping plates in closed horizontal position, and fusible means in each of said cables to automatically release said cables, ring, cylinder and plates to dispense the powder over the combustible material when ignited.

7. In a fire extinguisher for a container storing inflammable material, a receptacle for containing a fire extinguishing powder, a plurality of overlapping plates pivotally mounted to form a bottom closure for the receptacle, supporting means for holding the plates in closed relationship, and a plurality of heat responsive elements secured to the receptacle and engaging the supporting means, any one of which will effect a complete collapse of the overlapping plates upon a substantial increase in temperature.

8. In a receptacle containing a fire extinguishing substance, a plurality of overlapping plates for supporting the fire extinguishing substance and having one of their ends pivotally secured to the sides of the receptacle and having their other ends terminating at a focal point centrally of the receptacle, a member for supporting said ends of the plates in closed position at said focal point, and a plurality of fusible linkages secured to the receptacle for supporting said member at said focal point and for releasing said member and effecting collapse of the overlapping plates upon combustion of the inflammable material.

9. In a receptacle containing a fire extinguishing substance, means for supporting said receptacle within a container for combustible material, a plurality of triangular shaped overlapping plates for supporting said substance and pivotally mounted to the receptacle and having their

5

apexes terminating at a focal point centrally of the receptacle, an element for supporting said plates in horizontal position at said focal point, a plurality of fusible means for supporting said element at said focal point and for releasing said element and effecting collapse of the overlapping plates upon a substantial increase in the temperature of the surrounding air.

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6

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