April 7, 1942. F. SABINI 2,278,949

IRRITANT GAS BOMB DISCHARGE MEANS

Filed Oct. 8, 1940 2 Sheets-Sheet 1

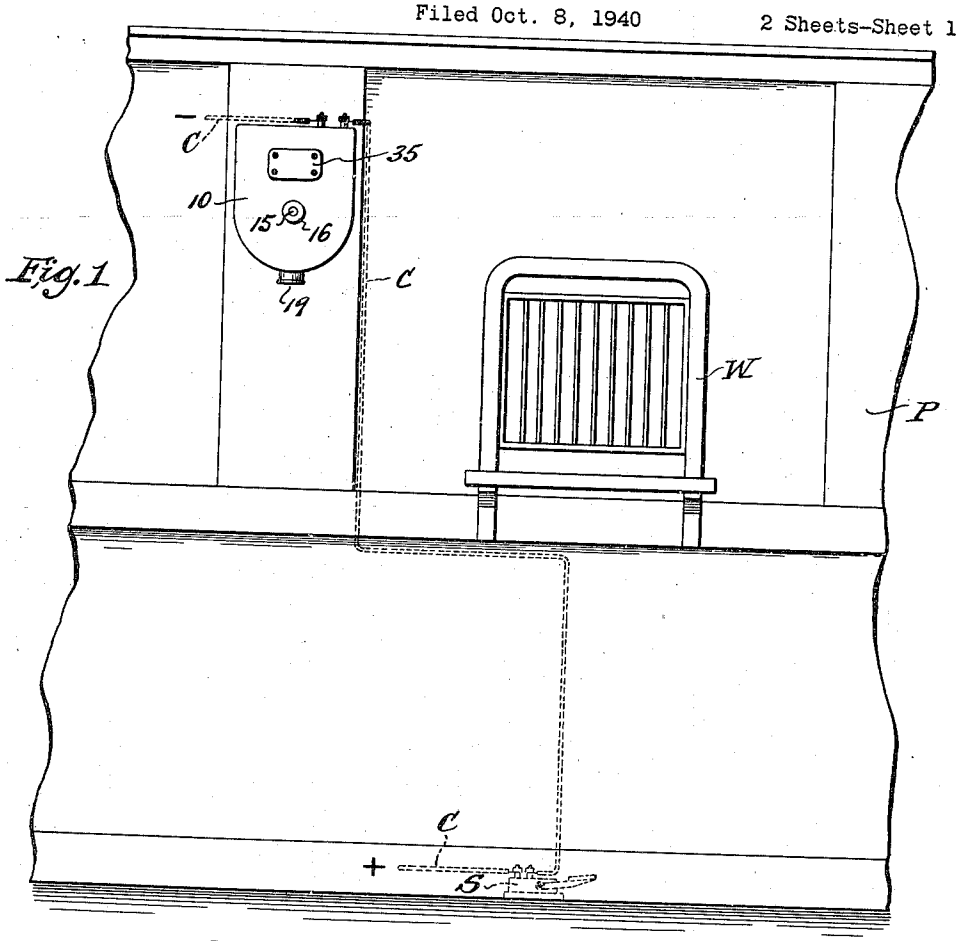


Fig. 1

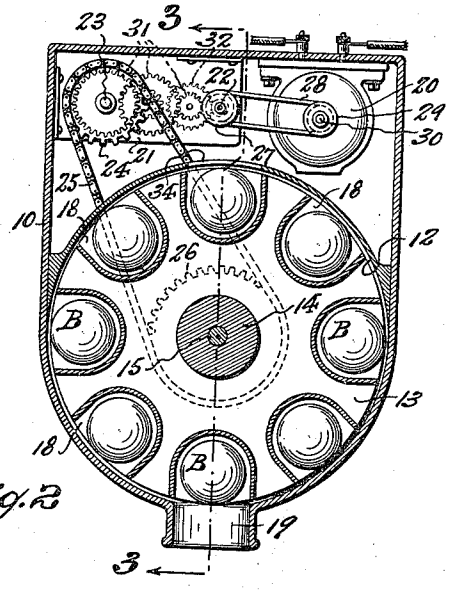


Fig. 2

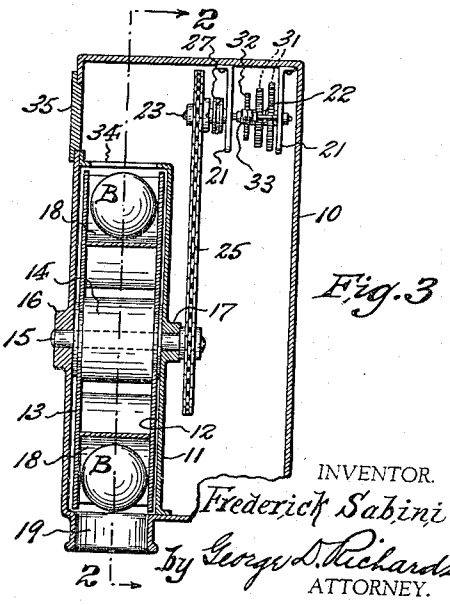


Fig. 3

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IRRITANT GAS BOMB DISCHARGE MEANS

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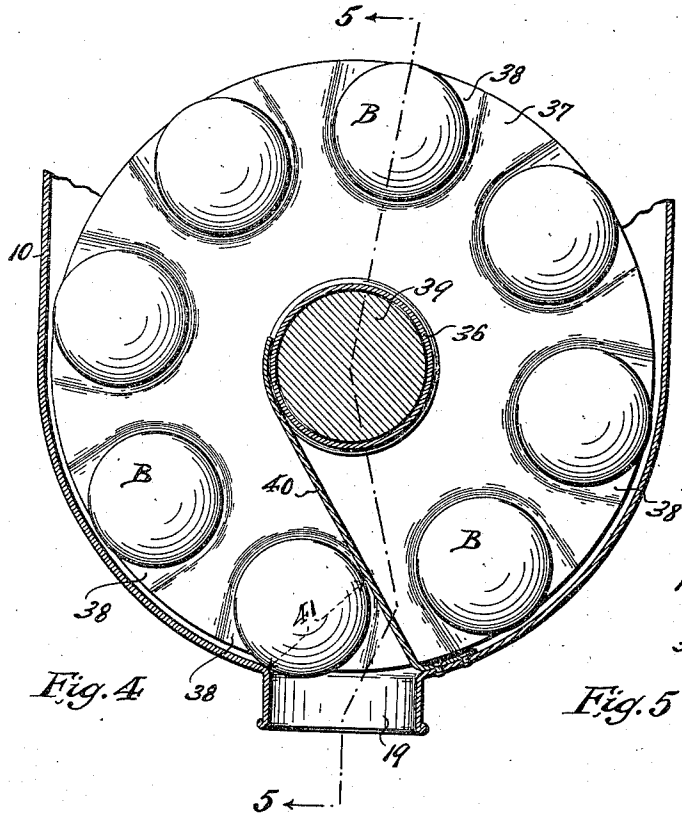


Fig. 4

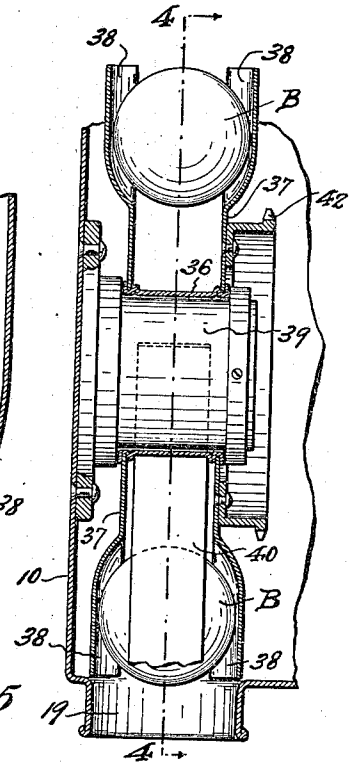


Fig. 5

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IRRITANT GAS BOMB DISCHARGE MEANS

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5 Claims. (Cl. 109—20)

This invention relates to hold-up and theft prevention systems suitable for installation in banks, commercial and other establishments for the protection of tellers' cages, cashier booths or other locations which are subject to the risk of hold-up and theft; and the invention has reference, more particularly, to protective means operable to discharge an irritant or incapacitating gas. such e. g. as tear gas, into the air in the vicinity of the area desired to be protected.

This invention has for an object to provide novel means for storing adjacent to the area desired to be protected, subject to discharge, a plurality of frangible gas containers or bombs; said means being adapted, when put in operation, to automatically and successively discharge said gas containers or bombs in such manner that the same will be shattered so as to liberate the gas content thereof for rapid dispersion through the atmosphere adjacent to the protected area.

Other objects of this invention, not at this time more particularly enumerated, will be understood from the following detailed description of the same.

Illustrative embodiments of the invention are shown in the accompanying drawings, in which:

Fig. 1 is an exterior or front elevational view of a teller's cage and window showing one form of the novel gas bomb storing and discharge means according to this invention as operatively installed in the vicinity thereof; Fig. 2 is a sectional view of one form of the gas bomb storing and discharge means, said view being taken on line 2—2 in Fig. 3, and Fig. 3 is a transverse vertical sectional view of the same, taken on line 3—3 in Fig. 2. Fig. 4 is a fragmentary sectional view of a modified form of the novel gas bomb storing and discharge means, showing means for mechanically shattering a bomb at the moment of discharge thereof from the device, said view being taken on line 4—4 in Fig. 5; and Fig. 5 is a transverse sectional view of the same, taken on line 5—5 in Fig. 4.

Similar characters of reference are employed in the above described views, to indicate corresponding parts.

Referring first to Figs. 1 to 3 inclusive, in the form thereof therein shown, the gas bomb storing and discharge means comprises a suitably shaped casing 10, the interior of which is suitably subdivided, as by partitioning means 11, to provide a housing chamber 12 within which is rotatably mounted a carrier or drum 13, the hub 14 of which is affixed on a shaft 15 journaled in bearings 16 and 17 with which a wall of the casing 10 and said partitioning means 11 are respectively provided. Said carrier or drum 13 is provided with a plurality of radially disposed circumferentially spaced carrier pockets 18. Said pockets 18 open outwardly from the periphery of said carrier or drum 13. Said casing 10 is provided with a discharge passage or opening 19 into alignment with which the several carrier pockets 18 of the carrier or drum 13 are successively passed when the carrier or drum is rotated. Each carrier pocket 18 is adapted to receive and hold subject to discharge therefrom a gas bomb B, which comprises a suitably shaped and closed hollow casing of frangible material, such e. g. as glass, the interior of which is charged with a content of irritant gas, such as tear gas.

Means for transmitting motion to the carrier or drum 13 is provided whereby the same is rotated so that the carrier pockets 18 are, at a desired predetermined speed, successively moved past the discharge passage or opening 19, thereby permitting the gas bombs B carried in the pockets to successively drop through the discharge passage or opening 19 and out of the casing 10, to fall upon a surface beneath and exteriorly of the casing 10 so as to be broken by impact therewith, and thus liberate their gas content into the surrounding atmosphere. The means for transmitting motion to the drum 10 is subject to wide variation in form. Illustrative of one form of such means, as shown in Figs. 2 and 3 of the drawings, the same comprises an electric motor 20 as a source of power, said motor being suitably mounted within the casing behind the drum housing. Also mounted within the casing 10 behind the drum housing is a transmission means of the speed reduction type. the same being supported between bearing plates 21 affixed to the casing walls. In the illustrative form thereof as shown, the same comprises a drive shaft 22 and a driven shaft 23 journaled in and between said bearing plates 21. Affixed to the driven shaft 23 is a sprocket 24 which drives a chain 25 arranged to run over a driven sprocket 26 which is fixed on the drum shaft 15. Affixed to the drive shaft 22 is a pulley or the like 27 which is driven by a belt or the like 28 from a drive pulley 29 fixed on the motor armature shaft 30. Mounted in connection with the bearing plates 21 between the drive shaft 22 and driven shaft 23 is a reduction gear train 31, including a worm gear 32 which is driven by a worm 33 fixed on the drive shaft 22.

In use the bomb storing and discharging

means is mounted adjacent to the area desired to be protected at a suitable elevation above floor level. For example, as shown in Fig. 1, if the area to be protected is the vicinity of the window W of a bank teller's or cashier's cage or booth, the casing 10 is affixed to the exterior face of the wall or partition P thereof adjacent to the window W, and the motor 20 is connected in an electrical control circuit C which preferably includes a concealed switch, such e. g. as a foot actuatable normally open switch S located within the cage or booth so as to be conveniently accessible to the occupant for operation when occasion requires. It will be obvious that in the event of attempted hold-up or theft the teller or cashier may close the switch S thus starting the motor 20. The operating motor will simultaneously transmit through the transmission mechanism motion to the drum 13 so that the latter will rotate at desired speed and successively liberate its content of bombs B. Each liberated bomb as it falls to the floor, will be shattered by impact therewith, and will thus discharge its gas content into the surrounding atmosphere adjacent to the teller's or cashier's window W, so as to quickly incapacitate the person or persons attempting the hold-up and theft.

It will be obvious that a number of the bomb storing and discharging devices may be located at different points in the whole area desired to be protected and may be connected with either individual control circuits or a common control circuit or combined control and alarm circuit or circuits.

Any suitable means may be provided to give access to the carrier or drum 13 for refilling the same with bombs B. For example, the drum housing may be provided with an opening or hatch 34 adjacent the top side of the drum through which bombs B may be dropped into the carrier pockets 18 as the same are moved into registration therewith; and access may be gained to said opening or hatch 34 through an opening in the front wall of the casing 10, which is normally closed by a removable cover plate, door or the like 35.

In Figs. 4 and 5 of the drawings, there is shown a somewhat modified form of the rotary drum type of bomb storing and discharging means, wherein the drum may be made of sheet metal, and in conjunction with which and the discharge passage 19 of the casing 10 is provided means whereby a bomb may be mechanically broken or shattered at the moment of discharge thereof through the passage 19, rather than by subsequent impact with a surface to which it falls after discharge through said passage. The device in this modified form admits of location thereof at low levels, and thus obviates necessity of limiting location thereof to points sufficiently elevated to assure a distance of drop calculated to assure shattering of the bomb by impact ensuing upon a fall thereof. In this modified form of construction, the drum comprises a hollow hub 36 upon which is fixed a pair of laterally spaced side plates 37. Opposed marginal portions are pressed to provide outwardly open carrier pocket sections 38 circumferentially spaced around the drum periphery. Mounted on a wall of the casing 10, above its discharge passage 19, is a journal member 39 upon which the drum is rotatably supported, so that, upon rotation, its carrier pocket sections 38 will be successively moved past and into registration with the discharge passage 19. It will be observed that an annular open passage is provided to intersect the drum and its carrier pocket sections. Affixed to said casing 10, to rise through said intersecting passage from the far side of the discharge passage 19 (considering the direction of rotation of the drum) is a breaker abutment strip or tongue 40, the same being inclined in opposition to the direction of rotation of the drum. This breaker abutment strip or tongue 40, as thus disposed above and across the discharge passage 19, and so as to lie in the path of movement of the bombs B carried in the carrier pocket sections 38, provides at the approach side of the discharge passage 19, a restricted passage 41 of less width than the diameter of a bomb B. As a consequence of this arrangement, as a bomb B is carried around by the drum and approaches the discharge passage 19, the bomb under impulsion by the drum will be squeezed between the boundaries of said passage 41, whereby the exerted pressure will fracture the bomb as it is liberated through the discharge passage 19, and consequently its gas content will be immediately dispersed through the surrounding atmosphere. Affixed to one of the drum side plates 37 is a sprocket wheel 42 to receive operating power transmission for rotating the drum, said power transmission being, illustratively, similar to that already set forth in connection with the hereinabove first described embodiment of this invention.

It will be understood that various changes could be made in the above described constructions, and that other widely different embodiments of this invention could be made without departing from the scope thereof as defined in the following claims. It is therefore intended that all matter contained in the foregoing description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. For a hold-up and theft prevention system or the like, a device for storing and discharging a plurality of frangible bombs containing an irritant gas, said device comprising a casing, a rotary drum mounted within said casing, said drum having circumferentially spaced outwardly open radial pockets to carry said bombs, said casing having a wall conforming at least to the underside peripheral portions of the drum and disposed to lie contiguous thereto, said wall having a discharge passage through which the bombs may drop from the drum pockets as the latter move into alignment therewith, and electric motor driven transmission means within said casing for actuating said drum, a normally open electric control circuit serving said motor including means remote from the casing to close said circuit as occasion may require, and means adjacent to the discharge passage for shattering a bomb about to be released therethrough.

2. For a hold-up and theft prevention system or the like, a device for storing and discharging frangible bombs containing an irritant gas, said device comprising a casing having a discharge passage through which bombs may be released and dropped, a rotary drum having circumferentially spaced outwardly open radial pockets to carry said bombs, said drum being mounted within said casing so that rotation thereof successively moves its pockets into alignment with said discharge passage whereby the bombs are successively released for discharge therethrough, means to produce operative rotation of said

drum, and means adjacent to the discharge passage for shattering a bomb about to be released therethrough.

3. For a hold-up and theft prevention system or the like, a device for storing frangible bombs containing an irritant gas, said device having a discharge passage through which the bombs may be released, means to move the stored bombs successively to said discharge passage, and means adjacent to the discharge passage for shattering a bomb about to be released therethrough.

4. For a hold-up and theft prevention system or the like, a device for storing and discharging frangible bombs containing an irritant gas, said device comprising a casing having a discharge passage through which the bombs may be released, a rotary drum having circumferentially spaced outwardly open radial pockets to carry said bombs, said drum being mounted within said casing so that rotation thereof successively moves its pockets into alignment with said discharge passage, whereby the bombs are successively released for discharge therethrough, means to produce operative rotation of said drum, said drum having an annular passage intersecting its bomb carrying pockets, and a breaker means affixed to said casing to incline over said discharge passage so as to enter the annular passage of said drum, whereby bombs carried into engagement therewith are subjected to shattering compression substantially at the moment of their discharge through said discharge passage.

5. For a hold-up and theft prevention system or the like, a device for storing and discharging a plurality of frangible bombs containing an irritant gas, said device comprising a casing, a rotary drum mounted within said casing, said drum having circumferentially spaced outwardly open radial pockets to carry said bombs, said casing having a wall conforming at least to the underside peripheral portions of the drum and disposed to lie contiguous thereto, said wall having a discharge passage through which the bombs may drop from the drum pockets as the latter move into alignment therewith, electric motor driven transmission means within said casing for actuating said drum, a normally open electric control circuit serving said motor including means remote from the casing to close said circuit as occasion may require, said drum having an annular passage intersecting its bomb carrying pockets, and a breaker means affixed to said casing to incline over said discharge passage so as to enter the annular passage of the drum, whereby bombs carried into engagement therewith are subjected to shattering compression substantially at the moment of their discharge through said discharge passage.

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