Dec. 29, 1925. 1,567,893

F. BARATTA

SAFETY MAGAZINE FOR EXPLOSIVES AND AMMUNITIONS

Filed March 13, 1923

Fig. 1.

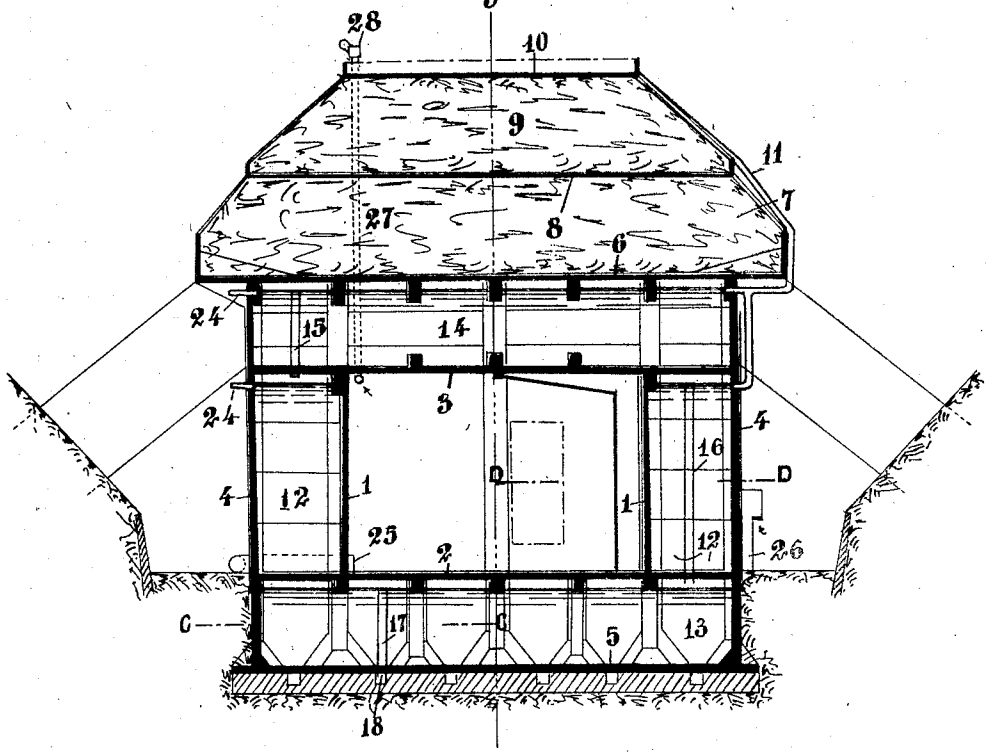
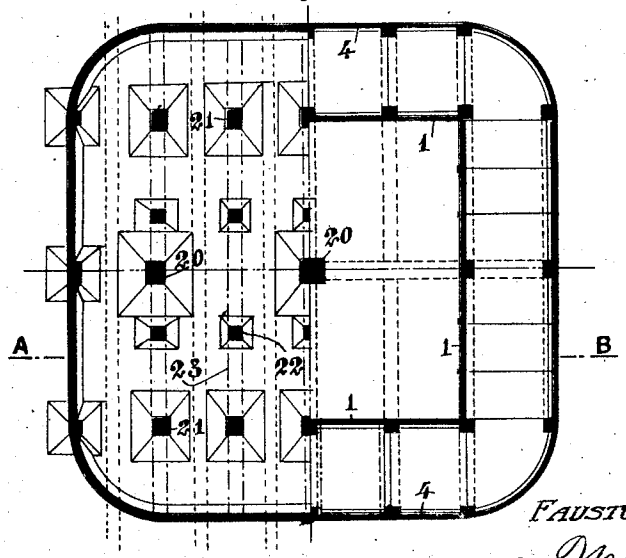


Fig. 2.



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FAUSTO BARATTA, OF SPEZIA, ITALY.

SAFETY MAGAZINE FOR EXPLOSIVES AND AMMUNITIONS.

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To all whom it may concern:

Be it known that I, FAUSTO BARATTA, a subject of the King of Italy, residing at Spezia, in the Kingdom of Italy, have invented certain new and useful Improvements in Safety Magazines for Explosives and Ammunitions, of which the following is a specification.

This invention concerns a safety magazine for explosives and ammunitions, built in such a way as to warrant the best safety either against atmospheric electrical discharges in stormy weather or against the action of shells and bombs thrown from batteries or airplanes.

The design of the magazine has also the object of allowing same to be easily flooded in case of spontaneous combustion of the explosives stored therein and further to limit, as far as possible, the damages in case the magazine should blow up.

The aforesaid objects are secured by means of a magazine consisting substantially of a double-walled room, in reinforced concrete, the intermediate space between the two walls being filled with water.

In the annexed drawing illustrating schematically a practical embodiment of the invention:

Fig. 1 shows a vertical section according to line A—B of Fig. 2 of the powder magazine and of the pit enclosing the same;

Fig. 2 shows on the left half a horizontal section of the magazine according to line C—C and on the right half according to line D—D of Fig. 1.

As shown in the drawing, parallel to the inner vertical walls 1, and the horizontal walls 2 and 3, and at a suitable distance from the latter, are arranged the outer walls 4, 5 and 6. The protection of the magazine against vertically falling shells and bombs includes: a layer of earth 7 on the deck 6, an armoured wall 8 in concrete reinforced preferably with expanded metal, a second layer of earth 9, and upon the latter a second armoured wall 10 forming an open basin designed to collect the rain water, which through a conduit 11 is discharged in the intermediate space comprised between the walls.

The horizontal inside walls 2 and 3 are extended and connected with the outside vertical walls 4 so that the space between the inner walls and the outer ones forms besides the vertical tank 12 also two horizontal tanks 13 and 14, said water tanks being independent one from the other. For the purpose of conferring a certain yieldingness to the system the tanks must not be completely filled with water; the overflow tubes 15, 16 and 17 serve to allow the water to pass respectively from the tank 14 into the tank 12, from the tank 12 into the tank 13 and from the latter to the discharge canals 18 when the water has reached in each tank the allowed level. Besides the inner overflow tubes, each tank or reservoir is provided with an outer outlet pipe 24 for the discharge of the surplus water arriving from the outer basin 10 after the inner tanks have been filled to the desired height.

In the usual circumstances, a shell falling perpendicularly upon the blinded cover of the magazine will hardly be able to pierce without bursting the successive layers of the protective deck, formed in the manner above explained; at any rate, even if the shell bursts only after having crossed the whole blindage, it is obvious that the bursting occurring in the water tank or reservoir 14 will demolish the latter and cause the flooding of the inner chamber, thus preventing the explosion of the ammunitions contained therein.

Similar considerations stand good also in the case of a shell striking against or penetrating into one of the lateral tanks 12.

Lastly, in the case that for any reason whatsoever the magazine should burst, the lateral water reservoirs, as well as the lower reservoirs, will greatly mitigate the effects of the explosion and limit the damages which would thereby arise.

In order to protect the magazine against atmospheric electrical discharges is provided a double metallic network consisting of the iron rods which form the reinforcements of the armoured walls 8 and 10, as well as of the rods of the reinforced concrete walls, said pieces of iron being connected together and earthed by means of wires placed at a suitable distance.

The fitting up of the safety magazine is completed by an automatic alarm signal for detecting whatsoever dangerous increase of temperature in the inner chamber, caused for instance by the spontaneous combusion of the explosives.

In order to protect the materials stored

in the magazine from the dampness due to the surrounding water tanks, the divisional walls 1, 2, 3 are plastered on both sides and made absolutely waterproof; their inner side may be, for instance, lined with hollow bricks and these might be covered with a layer of hydraulic cement or asphalt.

According to circumstances; and the materials at disposal, other means, already known, besides those mentioned above may be adopted in order to preserve the inner chamber from dampness.

The entrance to the magazine is through an iron-concrete passage supplied with a double water-tight door and communicating with the exterior by means of a tunnel crossing the rampart.

From Fig. 2 appears that the whole construction is supported by central columns 20, lateral pillars 21 and little columns 22, on which elements rest beams 23; the number and the dimensions of such elements varying according to the dimensions of the structure and according to the unitary load which they are allowed to support; such load to be reckoned by taking into account both the weight of the structure and of the stored materials and also the effect of the eventual impact of projectiles striking against the ammunition magazine. 25 is a conduit enabling to flood the inner chamber of the magazine in emergency cases.

The pipes 26 and 27 shown in the drawing are designed to ensure a good ventilation within the magazine; 28 is a removable funnel hood to facilitate the ventilation.

Claims—

1. A safety magazine for explosives and ammunitions, comprising a double walled chamber, an outer blindage supported by the upper outer wall of the chamber, a water basin formed in the aforesaid blindage, designed to collect the rain water, and means allowing the communication of said water basin with the intermediate space comprised between the double walls of the chamber.

2. A safety magazine according to claim 1, the outer blindage of which comprises an armoured disk consisting of a layer of earth supported by the upper outer wall of the chamber, a reinforced concrete armour, a second layer of earth resting on said armoured deck and a second wall of reinforced concrete shaped like a water basin and designed to collect the rain water, said water basin constantly communicating by means of pipes with the intermediate space comprised between the double walls of the chamber.

3. A safety magazine according to claim 1, formed of a double walled chamber and of an outer blindage, the double walls being arranged in such a way as to form an upper tank, a lower tank and two side tanks, independent of each other, with conduits allowing the rain water collected in the water basin of the outer blindage to partially fill said tanks, and with special overflow pipes conveying the water outside when the level of said water has reached a determined limit in the tanks.

In testimony whereof I affix my signature this 16th day of February, 1923.

FAUSTO BARATTA.