

J. F. MEIGS & R. P. STOUT.
AMMUNITION LOADING APPARATUS.
APPLICATION FILED MAY 26, 1908.

1,018,067.

Patented Feb. 20, 1912.

3 SHEETS—SHEET 1.

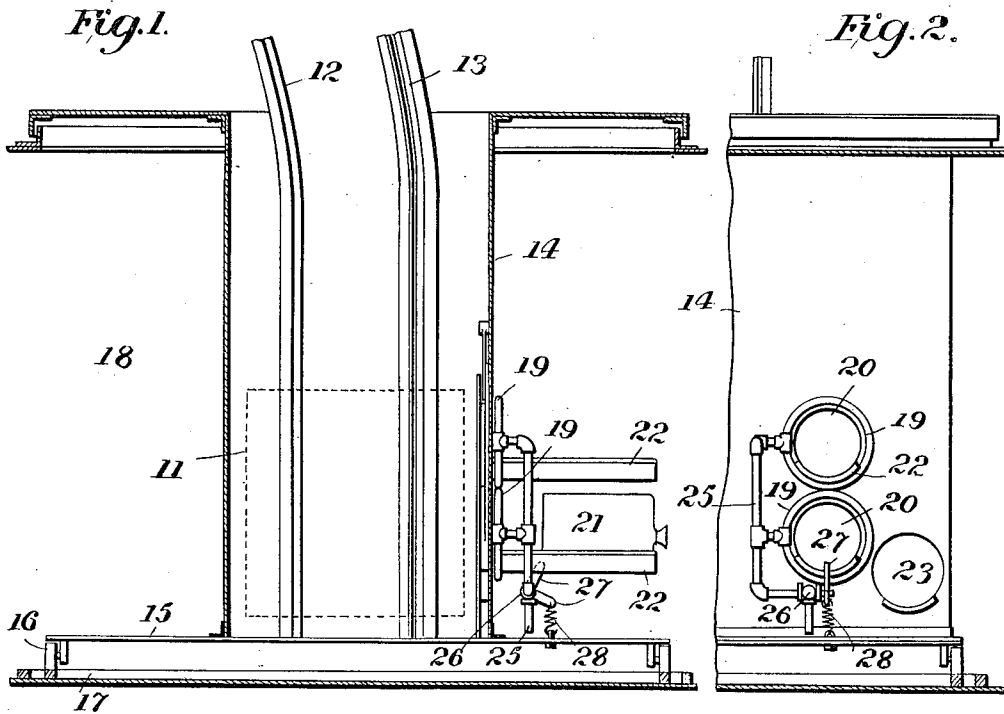


Fig. 3.

Fig. 4.

Fig. 5.

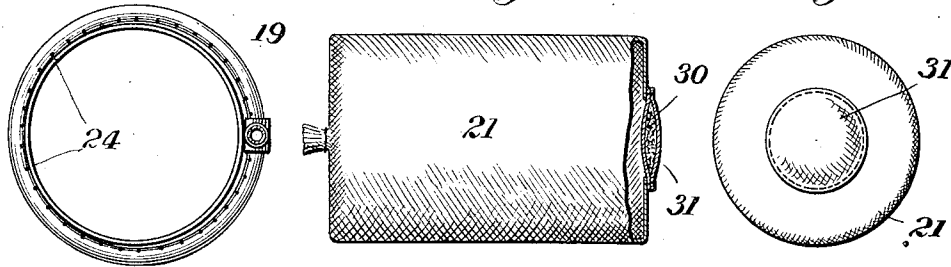
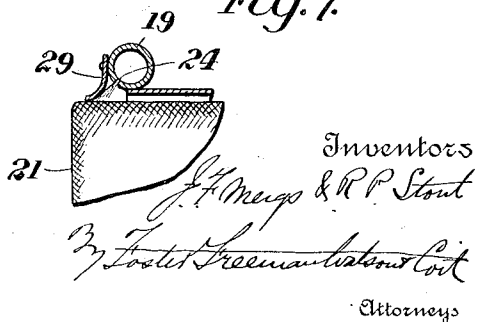
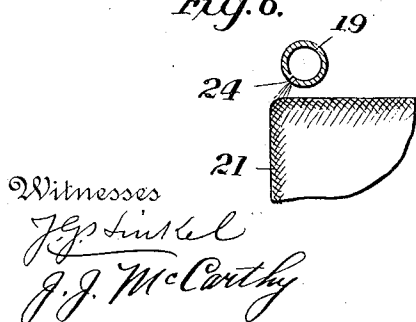


Fig. 6.

Fig. 7.

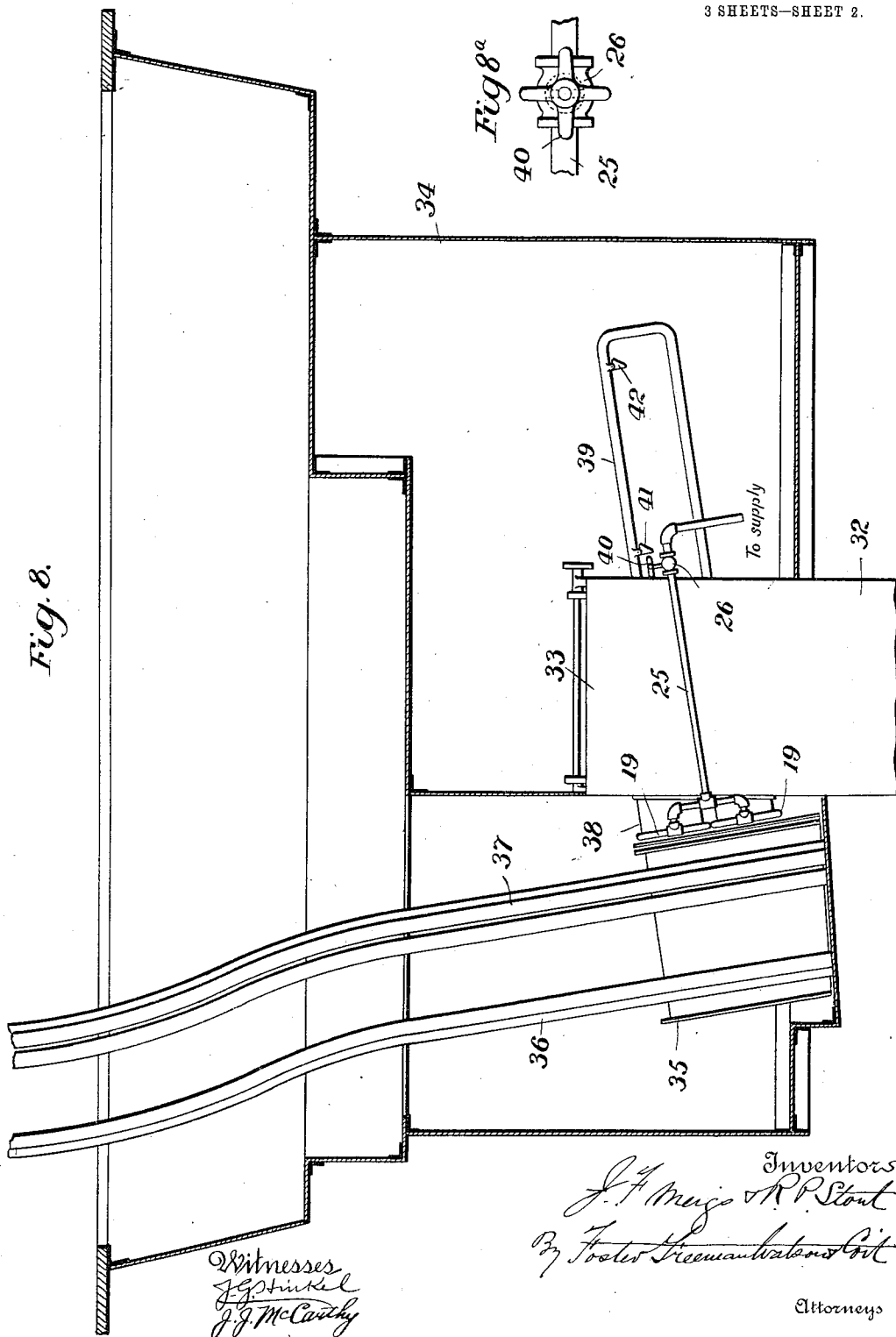


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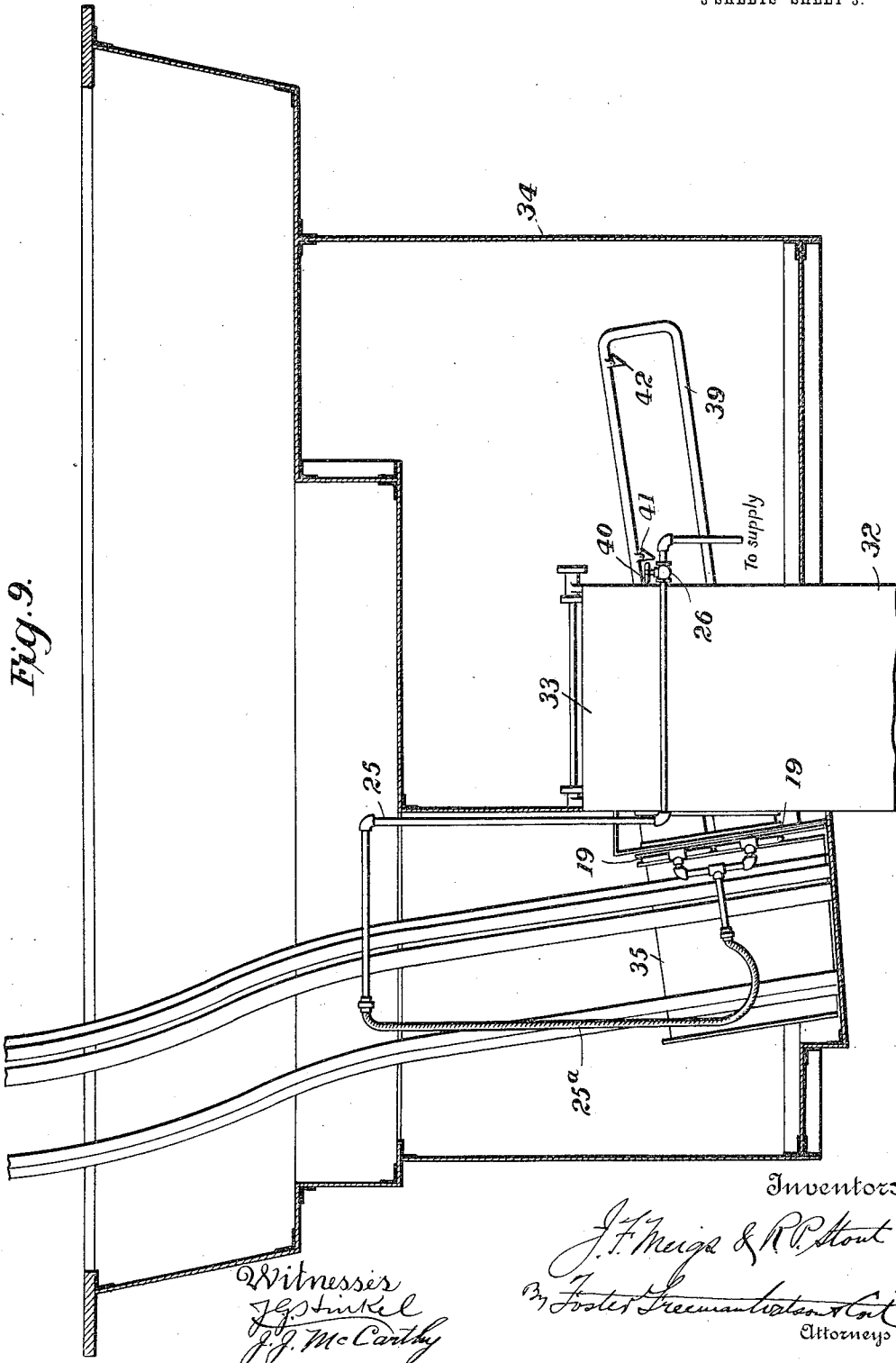


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3 SHEETS—SHEET 3.



UNITED STATES PATENT OFFICE.

JOHN F. MEIGS AND ROBERT P. STOUT, OF SOUTH BETHLEHEM, PENNSYLVANIA,
ASSIGNORS TO BETHLEHEM STEEL COMPANY, OF SOUTH BETHLEHEM, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

AMMUNITION-LOADING APPARATUS.

1,018,067.

Specification of Letters Patent.

Patented Feb. 20, 1912.

Application filed May 26, 1908. Serial No. 435,111.

To all whom it may concern:

Be it known that we, JOHN F. MEIGS and ROBERT P. STOUT, citizens of the United States, and residents of South Bethlehem, Northampton county, State of Pennsylvania, have invented certain new and useful Improvements in Ammunition-Loading Apparatus, of which the following is a specification.

10 The object of the present invention is to provide apparatus which will insure greater safety in the handling of ammunition, and especially in supplying ammunition to guns mounted on naval vessels.

15 The invention may be used in connection with the handling of powder charges generally, and the broader claims hereinafter presented are intended to cover such general use as well as the specific embodiments herein described for the purpose of illustration.

20 In carrying out the invention, we provide means to spray the packages of powder or other explosive material with water or some equivalent substance which will so affect the covering or coating of the explosive as to prevent ready ignition and thus obviate the possibility of accidental explosions from brief contact with sparks or flame, such as may sometimes occur, for instance, in the turret of a vessel.

The invention will be described in connection with the accompanying drawings, in which,

35 Figure 1 is a sectional view through the ammunition handling room of a naval vessel and the lower portion of the trunk in which an ammunition hoist works; Fig. 2 is a side view of the apparatus shown in Fig. 1; Fig. 3 is a view of one of the sprinkling tubes; Fig. 4 is a side view partly in section of a charge of explosive material adapted for use with our apparatus; Fig. 5 is an end view of the same; Figs. 6 and 7 are sectional views showing in detail the manner of applying the fluid to the ammunition packages; Fig. 8 illustrates a section of the lower portion of a turret showing our invention applied in connection with the means for transferring ammunition from the lower elevator to the upper elevator in what is termed a broken ammunition hoist;

Fig. 8^a is a plan view of the valve wheel or handle shown in Fig. 8 drawn to an enlarged scale; Fig. 9 is a view similar to Fig. 8, illustrating another form of the invention.

Referring to Figs. 1, 2 and 3, 11 indicates an ammunition hoisting car which is adapted to travel on rails or guides 12, 13, in a laterally closed trunk 14. The car and trunk illustrated may be of the kind commonly used in turret ammunition hoists in which case the trunk would be connected to rotate with the turret and provided with a floor 15 supported by rollers 16 on a curved track 17. The space 18 surrounding the trunk is usually termed the handling room or ammunition room and it is separated from the turret by suitable walls and floors, the only means of communication being the openings through which the ammunition is passed into the trunk, which openings should be normally closed.

In Figs. 1 and 2 we have shown perforated annular pipes 19, adjacent to openings 20 in the wall 14 of the trunk through which the powder charges 21 are passed from trays or shelves 22 in the handling room. As shown in Fig. 2 there is a third opening 23, for the projectile, which opening need not be provided with sprinkling means. The annular pipes 19 are provided with a series of suitable openings 24 directed inward and preferably at an angle to the plane of the ring, as shown in Figs. 3, 6 and 7, and they are supplied with water or other suitable fluid through a pipe 25. It will be readily seen that the powder charges will be sprinkled as they are passed into the car, if fluid under pressure be turned into the pipe 25. In the preferred form of our invention the fluid is supplied under pressure constantly and automatic means are provided for turning it on temporarily when a package or sack of ammunition is passing the perforated ring and turning it off automatically when the package has passed the ring. As shown in Figs. 1 and 2, the pipe 25 is provided with a valve 26 of any suitable design which may be opened and closed by an arm 27. The arm 27 is arranged in the path of the powder charges passing over the shelf or tray 22, so that when a charge of

powder is pushed into the car from the tray, it will open the valve and hold it open when the powder is passing the corresponding sprinkling ring 19. The spring 28 is preferably so connected with the arm 27 that it will automatically close the valve 26 as soon as the powder charge 21 has passed the ring 19. The fluid may be sprayed directly on the covering of the powder charge, as illustrated in Fig. 6, or upon a ring of felt or other absorbent material 29 which projects into the path of the powder charge, as illustrated in Fig. 7. The latter arrangement is preferred as the ring 29 will tend to spread the fluid evenly over the powder package and wipe off any surplus fluid.

It will be evident that the sprinkling apparatus illustrated in Figs. 1, 2 and 3 are applicable to either a single or double hoist, or to any other ammunition handling means.

The size of the pipes and of the discharge openings, and the amount of pressure in the pipes, may be so regulated that only sufficient fluid will be discharged to properly moisten the powder packages. The fluid is preferably turned on just before the package reaches the sprinkling ring, so that the forward end of the package will be moistened as it passes the ring.

As shown in Figs. 4 and 5, we preferably protect the priming charge 30 by inclosing it in a cover or casing 31 of oiled silk or other water proof or semi-water proof material.

In Figs. 8 and 8^a the invention is illustrated as applied to the transfer chamber of a double or broken hoist. Referring to these figures, 32 indicates the wall or trunk in which the lower hoist works for conveying the ammunition from the handling room below to the transfer chamber 33 at the upper end of the trunk. The trunk and transfer chamber are carried by the turret, of which the wall or lower portion 34 is shown in section in Fig. 8. An upper hoist car 35 travels on rails or guides 36, 37, from the transfer chamber to the breech of the gun, in the usual manner. The car is illustrated at the lower station with its openings in line with delivery tubes 38 connected with the transfer chamber 33 and surrounding these tubes at their outer ends are sprinkling rings 19 similar to those shown in Figs. 1, 2 and 3 and they are similarly supplied by a pipe 25 carrying fluid under pressure, and controlled by a suitable valve 26. The valve 26 is opened and closed by the movement of the rammer 39 which transfers the powder charges through the tubes 38 from the transfer chamber to the car. Any convenient means may be used to operate the valve by the movement of the rammer. As shown, the projections 41, 42, are in the form of pivoted arms adapted to swing

freely in one direction but not adapted to yield in the opposite direction. As the rammer is moved forward the projection 41 turns the star wheel 40 opening the valve 26 which remains open until the projection 42 gives the star wheel a further turn in the same direction, closing the valve. On account of the pivotal connection of the projections 41, 42, they have no effect on the valve when the rammer is moved rearward and hence the valve remains closed until the rammer is again moved forward. In this way the charges of ammunition are sprinkled as they are moved from the transfer chamber to the car and the water or fluid is cut off at all other times.

The apparatus shown in Fig. 9 may be in all respects the same as that shown in Fig. 8, with the single exception that the sprinkling rings 19 are mounted on the car 35 and movable with it, instead of being mounted on the transfer chamber. To supply the fluid a flexible tube or hose 25^a connects the supply pipe 25 with the sprinkling rings.

It will be evident that our invention may be applied to various kinds of mechanism for conveying ammunition in many different ways and that the fluid may be turned on and off either automatically or by hand, the former being of course preferred. It is to be understood, therefore, that the invention is not limited to the several forms herein illustrated and described.

What we claim and desire to secure by Letters Patent is,—

1. The combination with ammunition conveying mechanism, of means for moistening the surface of the ammunition, devices operable in conjunction with said mechanism for turning on and cutting off the supply of fluid to said moistening means, and means for spreading the fluid evenly over the ammunition.
2. The combination with ammunition conveying mechanism, of means for moistening the surface of the ammunition, and automatic devices for turning on and cutting off the supply of fluid to the moistening means.
3. The combination with ammunition conveying mechanism, of a sprinkling ring through which the ammunition must pass, means for supplying a fluid to said sprinkling ring, and means for spreading the fluid over the ammunition.
4. The combination with ammunition conveying mechanism, of a sprinkling ring through which the ammunition must pass, and means adapted and arranged to be operated by the moving ammunition for automatically controlling the supply of fluid to said sprinkling ring.
5. The combination with ammunition conveying mechanism, of a sprinkling ring through which the ammunition passes and which is adapted to moisten the surface of

the ammunition in passing, and means for wiping off surplus fluid from the ammunition.

6. The combination with ammunition conveying mechanism, of a sprinkling ring through which the ammunition passes and which is adapted to moisten the surface of the ammunition in passing, and automatic means for supplying fluid to said sprinkling ring while the ammunition is passing through it, said fluid being cut off at other times.

7. The combination with ammunition conveying mechanism, of a sprinkling ring connected with a source of fluid supply, a valve controlling said supply, and automatic means for opening said valve as a charge of ammunition is passed through said ring and closing the valve after the ammunition has passed.

8. The combination with ammunition conveying mechanism, of a sprinkler for moistening the ammunition, means for supplying fluid to said sprinkler, a valve controlling the said supply, and means controlled by the movement of the ammunition for opening and closing said valves.

9. The combination with ammunition hoisting mechanism including a hoisting car, of means operable in conjunction with said mechanism for sprinkling ammunition while in transit to said car, and means for wiping surplus fluid from the ammunition.

10. The combination with ammunition hoisting mechanism including a hoisting car, of means for sprinkling ammunition while

in transit to said car, said means being automatically controlled by the ammunition moving means.

11. The combination with ammunition hoisting mechanism including a hoisting car, of a rammer for moving the ammunition onto said car, a sprinkler for moistening the ammunition, and a valve for controlling the supply of fluid to said sprinkler, said valve being operated by the rammer.

12. The combination with ammunition hoisting mechanism including a hoisting car, of a rammer for moving the ammunition onto said car, a sprinkler for moistening the ammunition, and a valve for controlling the supply of fluid to said sprinkler, said valve being automatically opened by the forward movement of the rammer.

13. The combination with ammunition hoisting mechanism including a hoisting car, of a rammer for moving the ammunition onto said car, a sprinkler for moistening the ammunition, and a valve for controlling the supply of fluid to said sprinkler, said valve being automatically opened as the rammer begins its forward movement and automatically closed as the rammer completes its forward movement.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN F. MEIGS.

ROBERT P. STOUT.

Witnesses:

EDWIN A. MILLER,

FRANK I. GRIM.