G. L. WETZEL.

AUTOMATIC GUN HOSE.

APPLICATION FILED SEPT. 17, 1908.

940,101.

Patented Nov. 16, 1909.

2 SHEETS—SHEET 1.

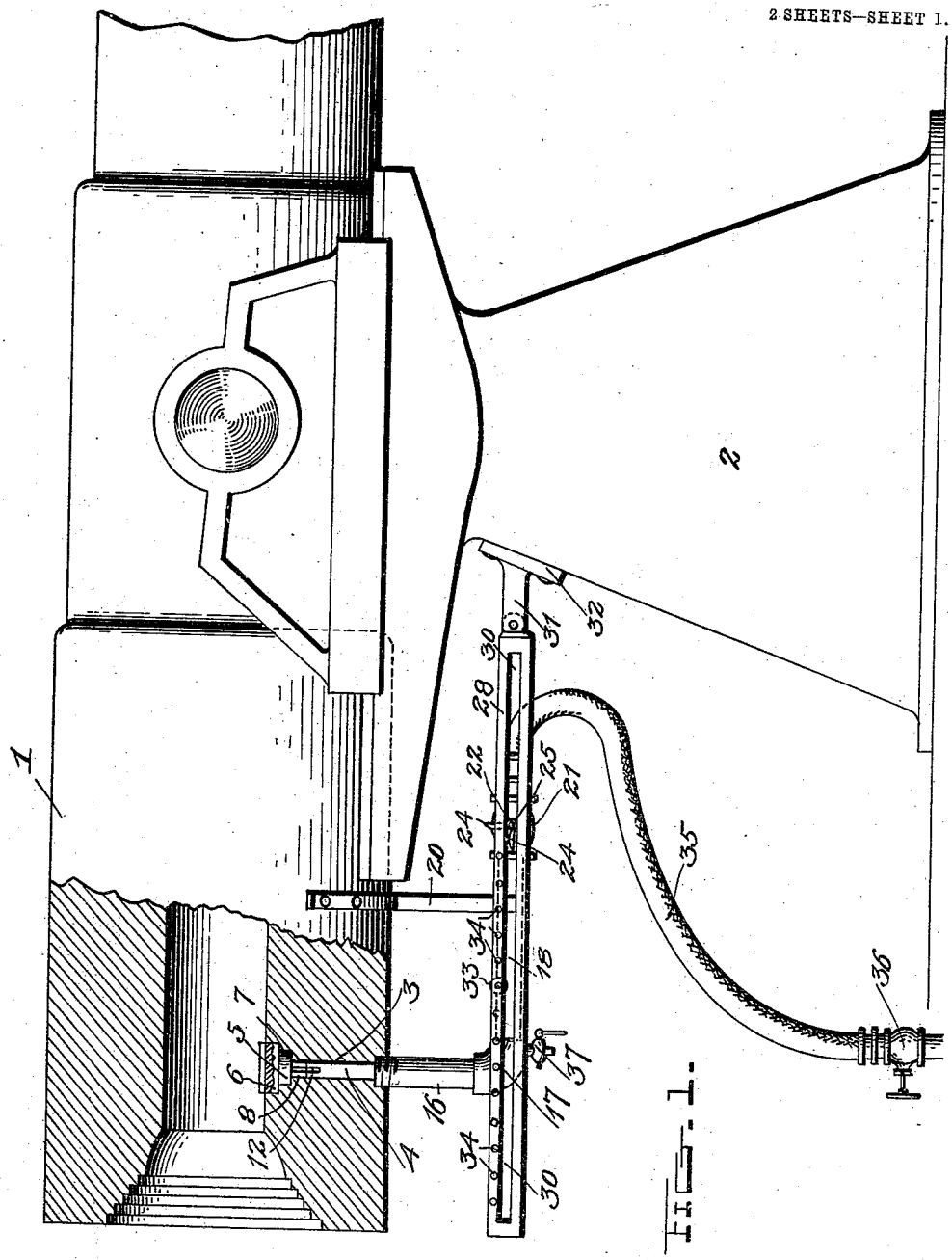


FIG. 1.

Witnesses

C. H. Griesbauer

Inventor

George L. Wetzel

by A. B. Williamson & Co

Attorneys

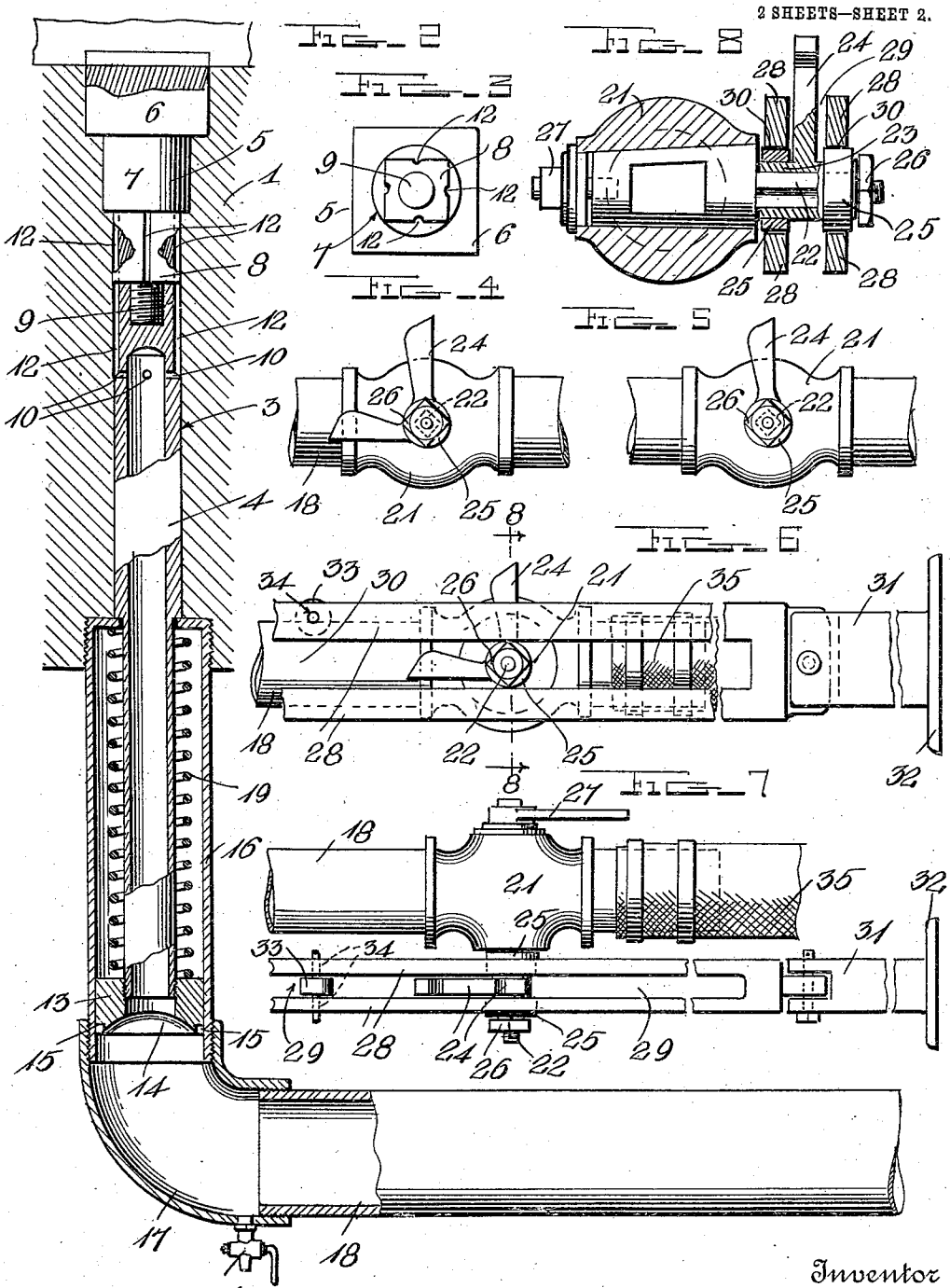
G. L. WETZEL.

AUTOMATIC GUN HOSE.

APPLICATION FILED SEPT. 17, 1908.

940,101. Patented Nov. 16, 1909.

2 SHEETS—SHEET 2.



Witnesses

C. Allentree

C. H. Griesbauer

Inventor

George L. Wetzel

by A. Bruesondco

Attorneys

UNITED STATES PATENT OFFICE.

GEORGE L. WETZEL, OF BALTIMORE, MARYLAND.

AUTOMATIC GUN-HOSE.

940,101. Specification of Letters Patent. Patented Nov. 16, 1909.

Application filed September 17, 1908. Serial No. 453,507.

To all whom it may concern:

Be it known that I, GEORGE L. WETZEL, a citizen of the United States, residing at Baltimore, in the county of Baltimore City and State of Maryland, have invented certain new and useful Improvements in Automatic Gun-Hose; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in gun hose or cleaning attachments.

The object of the invention is to provide an attachment of this character adapted to be automatically operated after each discharge of the gun whereby all danger of a flareback will be obviated, and all powder prevented from exploding while the breech is open.

A further object is to provide a hose attachment of this character by means of which gas and sulfur fumes will be forced out of the muzzle end of the gun and all particles of burning gauze or powder will be extinguished.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a vertical sectional view of a portion of a gun showing the application of the invention thereto; Fig. 2 is an enlarged detail view of the water-discharging nozzle, its protecting cap, retracting spring, spring casing and the end of the hose or water supply pipe; Fig. 3 is a bottom plan view of the protecting cap and its attaching shank; Fig. 4 is a detail side view of the hose connection showing the valve lever in its double form; Fig. 5 is a similar view showing a single form of the valve lever; Fig. 6 is a side view of the valve operating bar showing in dotted lines the valve lever engaged therewith; Fig. 7 is a plan view of the valve and operating bar; and Fig. 8 is an enlarged cross sectional view of the valve and the operating bar showing the manner in which the bar is supported by and operates the valve.

Referring more particularly to the drawings 1 denotes the gun which is here shown as having the breech block removed. The gun is suitably mounted for recoil upon a carriage, 2. In the lower side of the gun, adjacent to the breech end of the same is formed a passage, 3, in which is arranged a water discharging nozzle, 4. The upper end of the passage 3 is enlarged to receive a nozzle protecting cap, 5, which is constructed of an upper rectangular section, 6, an intermediate circular portion, 7, and a lower squared portion, 8, on the end of which is formed a reduced threaded connecting shank, 9, onto which is adapted to be screwed the upper end of the spray nozzle, 4, which is provided with a threaded socket to receive said shank. The upper end of the passage 3 is recessed as hereinbefore described to accommodate each of the portions or sections of the cap. The upper surface of the section or portion 6 of the cap is formed on the curvature of the gun bore and is adapted to normally lie in flush engagement therewith.

The upper portion of the nozzle is rectangular in cross section to correspond to the shape and size of the lower portion, 8, of the cap and in said upper squared portion of the nozzle adjacent to its upper end is formed a series of discharge ports or spray holes, 10, one of which is preferably arranged in each of the four sides of the nozzle. The holes, 10, communicate with vertically disposed grooves or channels, 12, which extend upwardly in the sides of the upper portion of the nozzle, and the adjacent squared portion, 8, of the cap. The lower half of the nozzle, 4, is reduced, and is preferably circular in form. The lower end of said nozzle is threaded and on the said threaded end is screwed a circular plunger, 13, in the lower side of which is formed a funnel-shaped recess, 14, which communicates with the passage in the plunger into which the lower end of the nozzle is screwed. The lower side of the plunger is provided with wrench-engaging recesses, 15, by means of which a wrench is applied to the plunger to screw the same into engagement with the nozzle.

The lower portion of the nozzle projects below the lower side of the gun and is adapted to work in the plunger casing, 16, the upper end of which is threaded and adapted to be screwed into the threaded recess formed in the lower side of the gun, as shown. The lower end of the casing, 16, is also threaded and with said threaded lower end is engaged an elbow, 17, to which is con-

nected a water supply pipe, 18. In the casing, 16, between the plunger and the end of the recess, into which the casing is screwed, is arranged a coiled spring, 19, the tension of which is exerted to hold the closing cap closed in the recess formed therefor.

The supply pipe 18 is held in position and secured to the gun by a hanger, 20, and to the said pipe is connected a controlling valve, 21, the stem, 22, of which projects beyond one side of the valve casing. The stem, 22, is square in cross section and with said stem is engaged an operating sleeve, 23, to which is secured, midway between its ends, an operating lever, 24. The ends of the sleeve which project beyond the opposite sides of the lever, 24, are cylindrical and upon said ends are revolubly mounted anti-frictional rollers, 25, said rollers and sleeves being held in operative position on the stem, 22, by a nut, 26, or a similar fastening device, which is screwed onto the reduced threaded end of the stem, as shown. The opposite end of the valve projects beyond the opposite side of the casing and has secured thereto an emergency lever or handle, 27, whereby the valve may be manually operated.

The lever, 24, may be of double form, as shown in Fig. 4 of the drawings, or in single form as shown in Fig. 5. When constructed in double form, the valve is adapted to be both opened and closed by the operating mechanism hereinafter described, and when constructed in single form, the valve is simply opened by the automatic operating mechanism and is manually closed. The mechanism for operating the valve comprises an operating bar, 28, having formed therein a vertical longitudinally disposed passage, 29, and a horizontal, longitudinally-disposed passage, 30.

The bar is formed in two sections—an outer section in which the passages, 29 and 30, are formed, and an inner section, 31, provided on its inner end with an attaching flange, 32, which is bolted or otherwise secured to the gun carriage. The outer section having the passages, 29 and 30, is hingedly connected at its inner end to the outer end of the inner section, 31, as shown. The outer section of the bar is operatively engaged with the lever, 24, on the valve stem, the arm or arms of said lever engaging with the vertical passages in said bar, while the horizontal passages in said bar engage the rollers, 25, on the sleeve, 23, of the lever. The bar when thus engaged with the anti-frictional rollers, 25, is supported by the valve stem in an operative position. In the upper portion of the vertical slot or passage, 29, between the opposite sides of the bar is revolubly mounted an operating roller, 33, the shaft of which is engaged with one of a series of pairs of bearing apertures, 34, formed in the opposite sides of the bar and communicating with the upper portion of the passage formed therein.

The arrangement of the operating roller is such that it will be engaged by the arms of the single or double form of valve operating lever when the gun recoils after being fired and is again restored to battery by the proper mechanism connected thereto. When the gun recoils or moves backward after being fired, the pipe 18 and valve 21 are, of course, also carried back and the lever 24 on the stem of the valve is brought into engagement with the roller 33 of the operating bar 28, thereby turning said valve to an open position and permitting the water to pass through the supply pipe and to engage the plunger, 13, and to force the latter, together with the spray nozzle and protecting cap upwardly against the tension of the spring, 19, thus raising the cap into the bore of the gun and permitting the upper apertured end of the spray nozzle to project a sufficient distance into the bore of the gun to allow for the discharge of water through the passages formed therein. The operating roller, 33, is adapted to be moved to various positions in the operating bar, thus regulating the amount of opening of the valve, 21, to cause more or less water to pass through the pipe and discharge nozzle into the bore of the gun. When the operating lever, 24, is of double form, the roller, 33, will be brought into engagement with one of the arms thereof to open the same upon the recoil of the gun, and upon the restoration of the gun to its normal position, the opposite arm will be engaged by the roller, and thereby turn the valve to a closed position, cutting off the water supply and permitting the spring, 19, to retract the discharge nozzle and cap to a closed and inoperative position.

The supply pipe has connected to its free end a flexible pipe or hose, 35, in which is arranged a cut-off valve, 36. When the attachment is used in connection with turret guns, the flexible portion of the supply pipe may enter the turret or be connected to a main supply pipe at any suitable point, and when the gun is not in use the water may be entirely cut off therefrom by means of the valve, 36. In the elbow connecting the supply pipe with the spring or plunger casing is arranged a drain cock, 37, whereby the water may be drained from the supply pipe and plunger chamber when the device is not in use.

Having thus described my invention, what I claim as new and desire to secure by Letters-Patent, is:

1. A gun hose comprising a water supply pipe, a discharge nozzle, a valve arranged in said pipe, means whereby said nozzle is projected into the bore by the pressure of the water in said pipe when said valve is opened,

and means to automatically operate said valve.

2. A gun hose comprising a water supply pipe, a valve controlling the supply therethrough, a discharge nozzle, a protecting cap connected to and operated by said nozzle, a spring retracted nozzle-operating plunger adapted to be acted upon by the pressure of water in said supply pipe, and means operated by the recoil of the gun to automatically operate said valve whereby the water is automatically discharged into the bore of the gun.

3. A gun hose comprising a water supply pipe, a discharge nozzle operated by the pressure of water in said pipe to project the same to an operative position for the discharge of water into the bore of the gun, a retracting spring adapted to retract said nozzle to its normal position, and a protecting cap for the nozzle arranged to be automatically operated by the movement of said nozzle.

4. A gun hose comprising a water supply pipe, a discharge nozzle adapted to be projected to an operative position by the pressure of water in said pipe, an operating bar, a controlling valve having a sliding engagement with said bar, and means adjustable in said bar to open said valve upon the recoil of the gun and to close the valve upon the restoration of the gun to its normal position.

5. A gun hose comprising a water supply pipe, a spray nozzle operatively mounted in the gun and adapted to be projected to a position for discharging water into the bore of the gun by the pressure of the water in said supply pipe, a plunger on said nozzle to receive the pressure of the water in the supply pipe, a retracting spring engaged with said plunger to retract said discharge nozzle, a protecting cap secured to the upper end of the spray nozzle and adapted to automatically open and close the passage in the gun through which the nozzle projects, an operating bar, a controlling valve arranged in said supply pipe, and having a sliding engagement with said operating bar, and means adjustable in said bar to operate the valve.

6. A gun hose comprising a water supply pipe, a valve arranged in said pipe, said valve having a stem projecting from opposite sides of the valve casing, an emergency handle arranged at one end of the valve stem, an operating lever arranged on the opposite end of the stem, bearing sleeves arranged on the opposite sides of said lever, an operating bar having formed therein a vertical longitudinally disposed passage to receive the ends of said operating lever, and a horizontal longitudinally disposed passage, anti-frictional rollers arranged on the sleeves of said lever to engage said horizontal passage in said operating bar whereby the latter is supported on the valve stem, and means adjustable in said operating bar to engage said lever and thereby operate said valve upon the recoil and restoration of the gun.

7. A gun hose comprising a water supply pipe, a plunger casing connected to one end thereof, and to one side of the gun, a spray nozzle, a plunger secured to the lower end of said nozzle and adapted to work in said plunger casing, a retracting spring to engage said plunger, and to restore and hold the discharge nozzle in an inoperative position, said nozzle being projected by the pressure of water in said supply pipe, a protecting cap secured to the upper end of said nozzle, and a controlling valve in said pipe, said valve being automatically operated by the recoil and restoration of the gun after firing.

8. A gun hose comprising a water supply pipe, a flexible hose connection secured to one end of said pipe, a cut-off valve in said hose connection, a controlling valve in said pipe, a plunger casing connected to the opposite end of said pipe, and to the gun, a plunger arranged in said casing, a discharge nozzle connected to said plunger, a spring in said casing to retract said plunger and nozzle, a protecting cap operated by said nozzle, an operating bar comprising an inner fixed section and an outer section hingedly connected to said fixed section and adapted to engage the stem of said controlling valve, and valve operating rollers adapted to be adjustably mounted in said operating bar to engage said valve lever upon the recoil or restoration of the gun, whereby the valve is automatically opened and closed.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GEORGE L. WETZEL.

Witnesses:
GEO. M. JOHNSON,
BENJ. U. KOLLER.