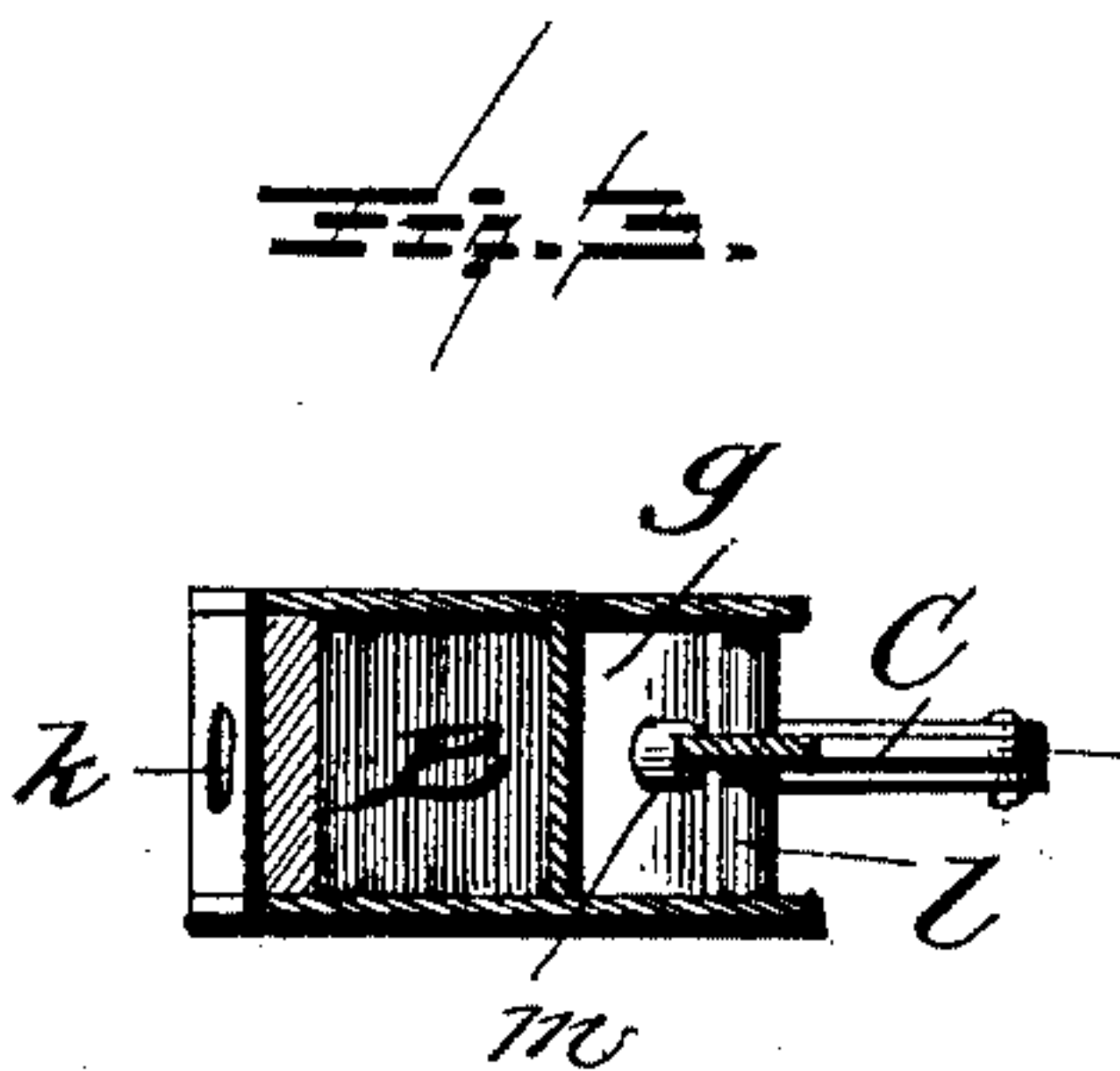
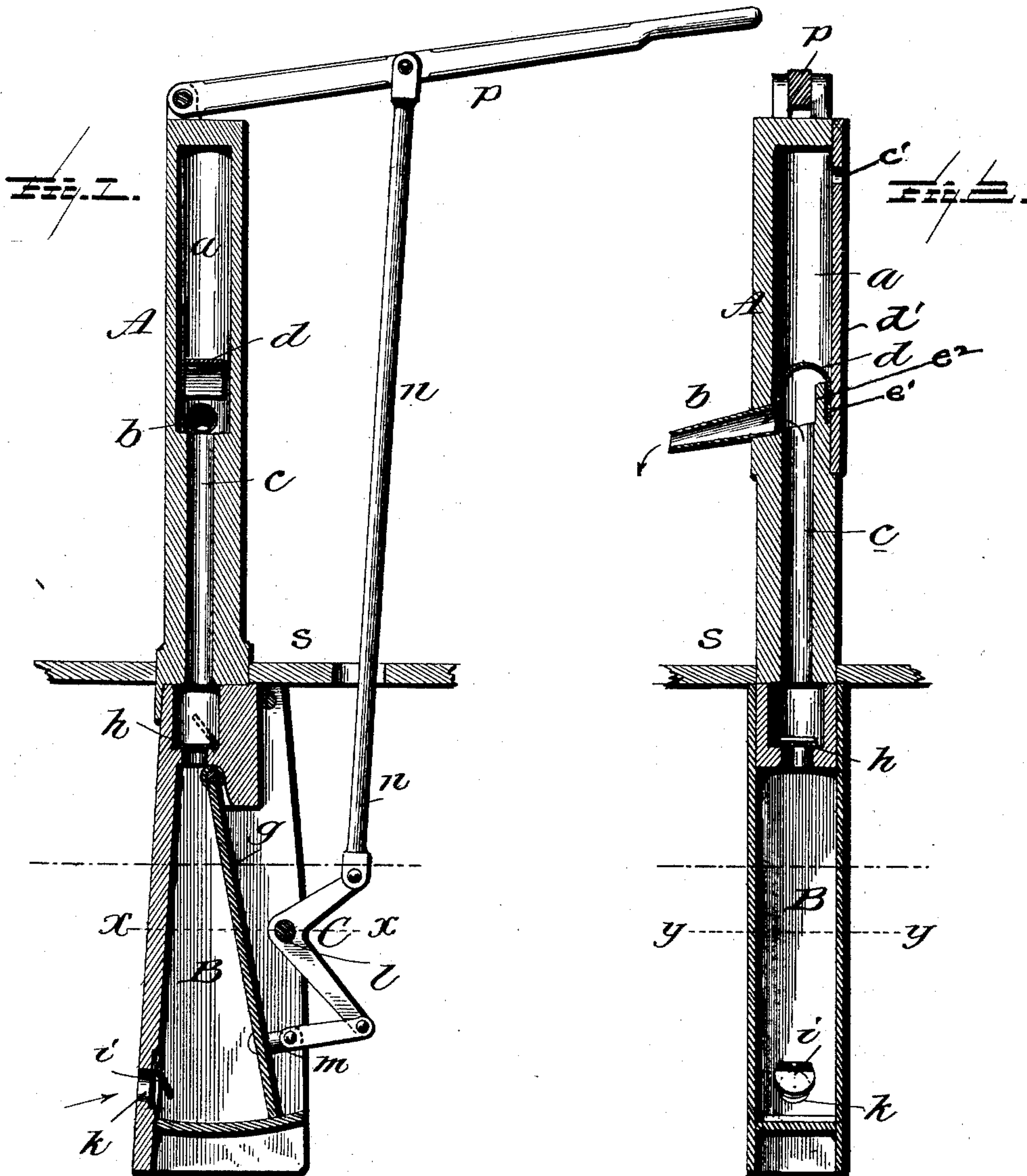


(No Model.)

C. R. BROWN & W. B. COLLINS.
PUMP.

No. 468,324.

Patented Feb. 9, 1892.



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES R. BROWN AND WILLIAM B. COLLINS, OF WEATHERBY, MISSOURI;
SAID COLLINS ASSIGNOR TO SATORA J. DICE, OF SAME PLACE.

PUMP.

SPECIFICATION forming part of Letters Patent No. 468,324, dated February 9, 1892.

Application filed September 21, 1891. Serial No. 406,325. (No model.)

To all whom it may concern:

Be it known that we, CHARLES R. BROWN and WILLIAM B. COLLINS, of Weatherby, in the county of De Kalb and State of Missouri, have invented certain new and useful Improvements in Pumps, of which the following is a specification.

This invention relates to certain improvements in pumps, particularly to that class known as "submerged pumps" in which the pump barrel or chamber in which the piston or water-forcing mechanism works is located below or partly below the surface of the water in a well, cistern, stream, or source of supply, the water being forced bodily upward through a suitable pipe, tube, or conduit and discharged at the surface of the earth, or at any convenient elevation above the source of supply.

The invention has for its object, primarily, to simplify the construction of the pump, so that it can be made in a compact form, embracing few parts, and occupying but comparatively little space, while it will be capable of forcing and delivering from the supply-source rapidly and with a minimum power a large volume of water.

The invention also has for its objects to dispense with the ordinary cylindrical barrel and plunger or vertically-reciprocating piston, which render a pump expensive and require the services of a skilled mechanic to assemble the parts and set the pump, as the barrel and piston or piston-packing have to be accurately turned and fitted with extreme care to insure the proper working of the pump, while our invention is designed to furnish a pump which may be readily built and set by an ordinary workman, since as the parts are few they can be easily fitted together in proper working condition with but little trouble.

Our invention has for its further object to provide a very desirable pump, the parts of which are not liable to get out of order, and which when injured or worn may be readily replaced.

With these objects in view our invention consists in a pump having its piston-chamber in the form of a box, rectangular in horizontal section and trapezoidal in cross-section in one direction and rectangular in the opposite

cross-section, the box being broader or wider at its base than at its top, and in the combination with the box, shaped as described, of a piston consisting of a flat plate, hinged at its upper end in the upper or narrower part of the box, so as to swing freely at its lower end, this construction insuring the delivery of a large volume of water through the pump.

The invention further consists in certain details of construction and arrangement of the several parts of the pump, as will be more fully hereinafter explained and specifically pointed out in the claims.

In the drawings, which form part of this specification, and in which similar letters of reference indicate like parts, Figure 1 represents a vertical sectional view of a pump constructed in accordance with my invention. Fig. 2 represents a similar view taken at right angles; and Fig. 3 represents a sectional plan taken on the lines *xx* and *yy*, respectively, of the preceding figures.

Referring to said drawings, A indicates the upper portion of the pump, or that part which is located above or partly above ground when the pump is in place; and B indicates the pump-chamber in which the water-forcing devices are located.

The part A may be rectangular or cylindrical in cross-section, and built up of boards constructed of a single log or timber properly dressed, bored, or recessed, or of any other suitable material, so as to form a proper conduit for the water from the pump-chamber to a suitable elevation above. The said part A is provided with a rectangular recess or chamber *a* at the top, and with a delivery-spout *b* leading outward from the lower part of said chamber for the discharge of the water. In the lower part of the chamber *a*, also directly over the throat *c* of the pump is located a curved deflector *d*, which directs the water as it is forcibly driven upward to the spout, so as to insure its proper discharge. Access to this deflector is had by means of a removable side *d'* of the upper portion A of the pump, and thus should said deflector become disarranged or dislodged from its support it may be readily rearranged or adjusted by the removal of said side. It will be observed that the deflector is supported in place by having

one of its ends fitted or placed tightly within a recess e' , formed between the lower end of said side piece d' , and an upwardly-projecting part e^2 , as shown. In this way the deflector is readily put into place, and while the pump is in use said deflector will be securely held. If desired a removable screw may be passed through the same to insure its support; but for all practical purposes this has been found unnecessary. The upper part of the chamber a is provided with a vent c' , to permit the escape of air when a surplus of water is forced up, the water passing the deflector into the chamber a , which serves as a reservoir to hold and quickly deliver the surplusage of water through the spout at the back-stroke of the piston.

The pump-chamber B is in the form of a trapezoidal box having its base larger than its upper end and open at one of its oblique vertical sides. The lower end of the upper portion of the pump is connected with the upper or smaller end of the chamber B, being secured thereto by bolts or other suitable devices, and within the upper end of said chamber B is hinged or pivoted the plunger g , which consists of a rectangular plate fitted to oscillate closely between the parallel vertical walls of said chamber, as shown, a space being left between the upper end of the plate and the closed oblique wall of the chamber B for the passage of water upward. The portion of the pump just above the opening is provided with a downwardly-closing valve h to permit the passage of water upward and prevent its return in a downward direction. The oblique vertical wall of the closed side of the chamber B, near its lower end, is provided with an outwardly-closing valve i and an opening k to admit water on the back-stroke of air-piston and prevent its escape through said opening upon the forward stroke, so as to force the water upward.

The letter C indicates a bell-crank lever fulcrumed to a rod l , extending across the box A between the vertical parallel walls thereof. One arm of said lever is pivoted to a stud m on the piston or oscillating plate, and to the other end is pivoted the lower end of a rod n , which extends upward and is pivoted at its upper end to a hand-lever p , which is fulcrumed in bearings in the upper part A of the pump.

The pump is set in a suitable platform S in such manner that the lower part is submerged or partly submerged in the water.

Upon operating the hand-lever the piston or plate will be oscillated, taking water into the chamber B on its back-stroke and discharging it upward on its forward stroke, the valves above mentioned opening and closing, respectively, at the proper times.

It will be seen that as constructed the pump is extremely simple and inexpensive in construction; that it is compact and durable; that it can easily be set or removed; also, that it can readily be taken apart and the parts reassembled when repairs are necessary without the necessity of skilled labor.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the lower trapezoidal chamber, its oscillating plate or piston and inwardly-opening valve, and the devices for operating said plate or piston, of the upper part of the pump, having the removable side piece, and the removable deflector located above the throat in the upper part of the pump and held in place by said side piece, substantially as described.

2. The combination, with the lower trapezoidal chamber, its oscillating plate or piston and inwardly-opening valve, and the devices for operating said plate or piston, of the upper part of the pump, having the upwardly-projecting and recessed portion e^2 , the curved deflector fitting over and supported by said recessed portion, and the removable side piece d' , holding the deflector in place and being provided at or near its upper end with a vent-opening, substantially as described.

3. In a pump of the character described, the combination, with the upper portion A, provided with the chamber a at the top and the throat c at the bottom, of the spout b , located or arranged at the point of intersection of the chamber and throat, a removable curved deflector located within the chamber just above the throat and leaving a space on either side thereof for the passage of water, and the removable side piece d' for securing said deflector in place, substantially as shown, and for the purpose described.

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

CHARLES R. BROWN.
WILLIAM B. COLLINS.

Witnesses:

CORA RHOADS,
S. J. DICE.