(No Model.)

R. P. GARSED.

PNEUMATIC PUMP.

No. 487,090. Patented Nov. 29, 1892.

Fig. 1.

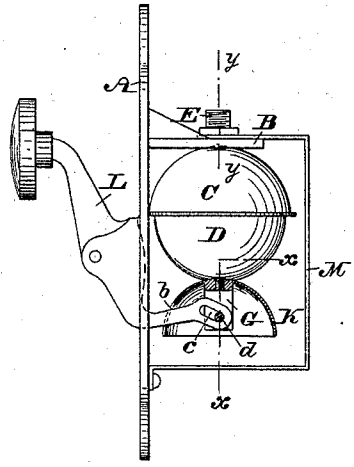


Fig. 5.

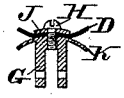


Fig. 6.

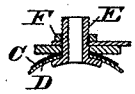


Fig. 2.

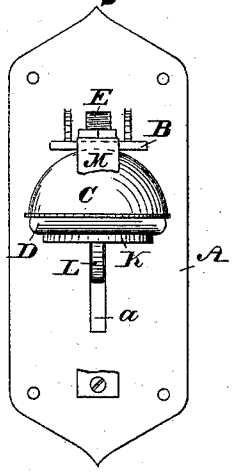


Fig. 3.

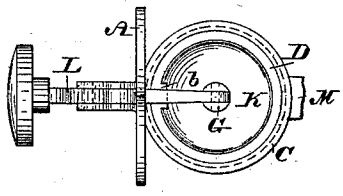
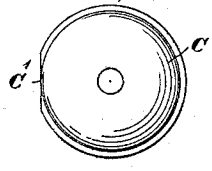


Fig. 4.



WITNESSES:
Th. Rollé.
Jas. F. Kelly.

INVENTOR:
Robert P. Garsed.
BY John A. Diederichs
ATTORNEY.

UNITED STATES PATENT OFFICE.

ROBERT P. GARSED, OF NORRISTOWN, PENNSYLVANIA.

PNEUMATIC PUMP.

SPECIFICATION forming part of Letters Patent No. 487,090, dated November 29, 1892.

Application filed April 6, 1887. Serial No. 233,864. (No model.)

To all whom it may concern:

Be it known that I, ROBERT P. GARSED, a citizen of the United States, residing at Norristown, in the county of Montgomery and State of Pennsylvania, have invented a new and useful Improvement in Pneumatic Pumps, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 represents a partial side elevation and partial vertical section of a pneumatic pump embodying my invention. Fig. 2 represents a side elevation thereof at a right angle to Fig. 1, the parts being in different positions. Fig. 3 represents a bottom plan thereof. Fig. 4 represents a top view of the cup or socket of the pump. Fig. 5 represents a section of a portion in line *x x*, Fig. 1. Fig. 6 represents a section of a portion in line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists of improvements in pneumatic pumps, as hereinafter described and claimed.

Referring to the drawings, A represents a plate, with which is connected an arm B, for supporting a cup or socket C of hemispherical form. Within said socket is fitted a ball D of elastic material, constituting the barrel of the pump, and said ball is secured to the arm B by means of a flanged tube E, which is passed through an opening in the top of the barrel and an opening in the arm B, the flange of the tube being within the ball. The outer end of the tube is threaded and has a nut F, whereby the portion of the barrel around the top opening may be firmly clamped between the arm B and the flange of the tube E, it being noticed that said tube E constitutes the outlet of the barrel.

Connected with the bottom of the barrel is a bifurcation or yoke G, which is secured in position by a screw H and washer J, said screw having its head within the barrel, the washer J being also within the barrel. The screw which is accessible from the top opening of the barrel passes through the washer J and an opening in the bottom of the barrel and enters the top of the yoke G, whereby when the screw is tightened the yoke and barrel are firmly clamped together. Connected with the yoke is a plunger K, of hemispherical form, which, as will be seen, bears against the barrel D, the yoke being within the plunger. If desired, the yoke and plunger may be formed of one piece of metal or other material.

To the plate A is pivoted a lever L, which is of the form of a bell-pull, as the pump is admirably adapted for a pneumatic bell-ringing device. The lower limb of the lever passes through a slot *a* in the plate A and a slot *b* in the plunger K, and the lower end thereof enters the opening of the yoke G, said end having a diagonal slot *c*, through which passes a pin *d*, which is secured to the yoke. The socket C, which is hemispherical, as has been stated, is right-lined at C′ on the periphery contiguous to the plate A, whereby rotation of said socket is prevented.

In order to protect the pump at the rear thereof, there is secured to the plate A and arm B a frame M, which passes around the barrel, socket, and plunger and acts a guard therefor.

The operation of the pump is as follows: The lever L is drawn outwardly similar to a hinged or pivoted bell-pull. This raises the plunger K, thus compressing the barrel and forcibly expelling the air therefrom through the tube E, from whence it is directed to the place of service by a suitable pipe connected with said tube. When the lever is let go, the parts assume their normal position, the plunger descending and the barrel inflating. It will be seen that owing to the slot *c* in the lower end of the lever the plunger moves in a right line against the barrel, and thus compresses the same directly from the center of the bottom thereof, avoiding oblique or irregular contact of the plunger with the barrel. By these means the barrel is uniformly operated and its full effectiveness obtained.

If desired, the yoke G and the slot *c* in the lever L may be dispensed with. In this case the plunger may be made solid and have a slot in one side to receive the lower end of the lever, which is adapted to bear upwardly against the plunger, which latter being connected with the barrel moves in right-lined directions, as in the other construction.

I am aware that it is not new to construct a pneumatic pump with an elastic barrel hav-

ing a right-line movement. Neither is it new to use in connection with a pump a lever having a slot in its end, and such I do not claim; but I am not aware that the particular constructions described and claimed herein, and which aid in forming a device simple in construction, durable in character, and efficient in operation, have ever before been employed in connection with pneumatic pumps.

By forming the socket connection with the arm of the frame in the same line as the direction of the plunger movement the liability of breakage of the connection is greatly lessened, and by passing the discharge pipe or tube through the said socket connection the force or impact of the air which is being discharged against the sides of the socket is greatly reduced, the main current being in line with the opening. It is therefore readily seen that by forming the pump as herein stated its liability to breakage is greatly diminished, thus adding to its durability; at the same time the directions of the current toward the discharge-opening facilitates its efficiency, rendering more easy its operation.

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

A pneumatic pump consisting of the plate A, with arm B, the socket C, with elastic barrel D, having plunger K connected thereto, the tube E, leading from said socket and passing through said arm B, the said plunger having the yoke G attached thereto, and the lever L, pivoted to plate A and having the slot *c* and the pin *d*, said parts being combined substantially as and for the purpose set forth.

R. P. GARSED.

Witnesses:
JOHN A. WIEDERSHEIM,
A. P. JENNINGS.