No. 809,389. PATENTED JAN. 9, 1906.

P. A. MYERS.

PUMP.

APPLICATION FILED JUNE 12, 1905.

2 SHEETS—SHEET 1.

Fig. 2.

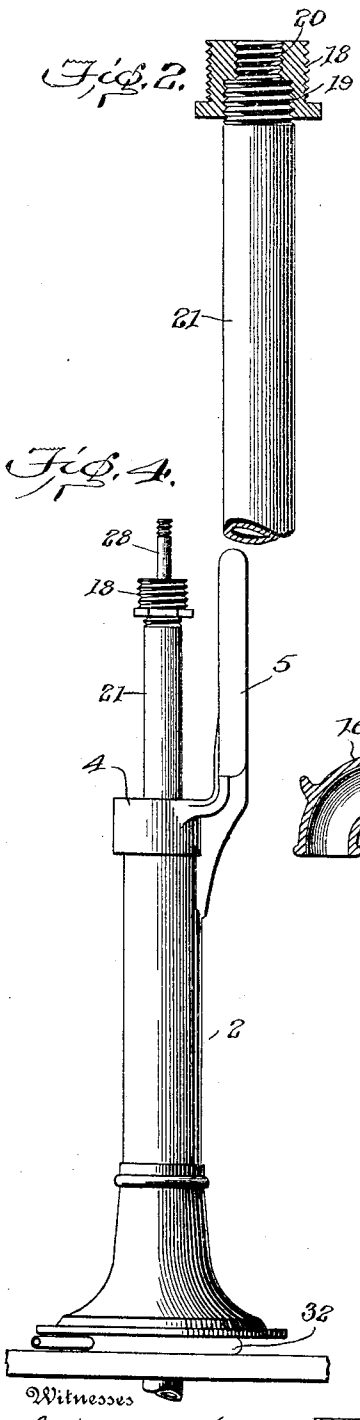


Fig. 4.

Fig. 1.

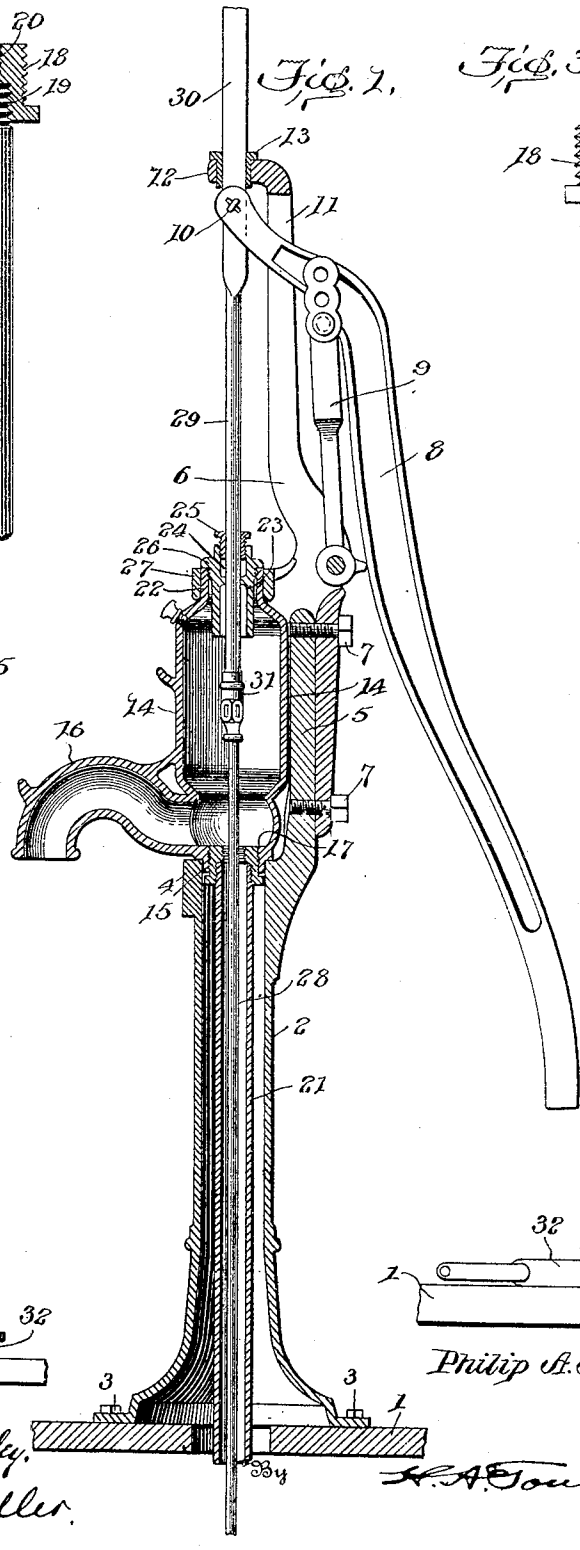
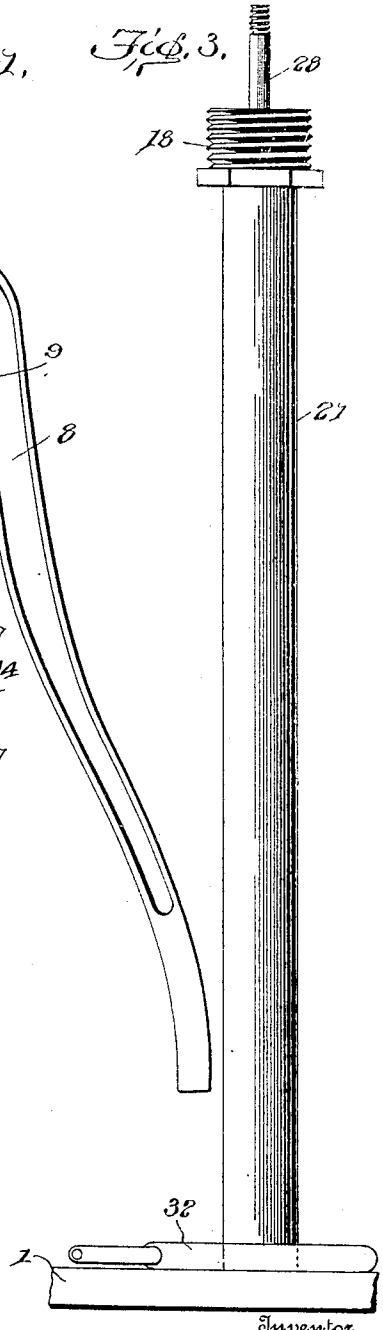


Fig. 3.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 5.

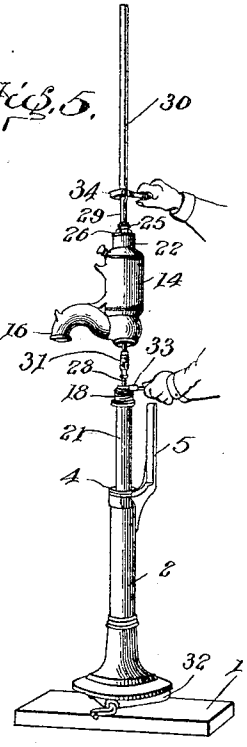


Fig. 6.

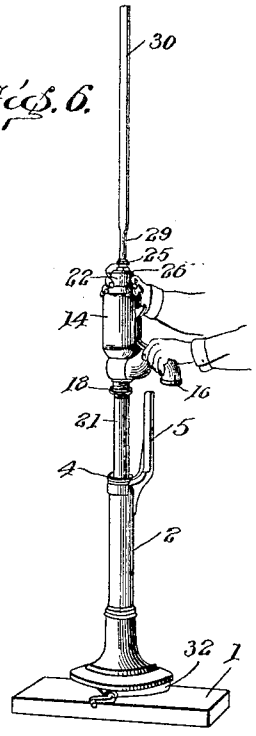


Fig. 7.

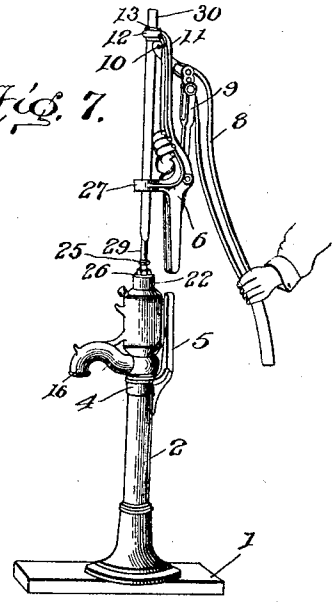
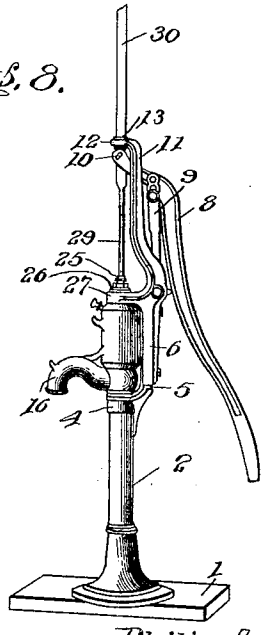


Fig. 8.



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UNITED STATES PATENT OFFICE.

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PUMP.

No. 809,389. Specification of Letters Patent. Patented Jan. 9, 1906.

Application filed June 12, 1905. Serial No. 264,792.

To all whom it may concern:

Be it known that I, PHILIP A. MYERS, a citizen of the United States, residing at Ashland, in the county of Ashland and State of Ohio, have invented certain new and useful Improvements in Pumps, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to pumps, and is in the nature of an improvement upon the construction set forth in my prior Letters Patent, No. 574,441, dated January 5, 1897.

The object of the present invention is to so construct the pump as to greatly facilitate the assembling of the parts during the operation of setting up the pump in working position and also the operation of taking apart or dismantling the same, so that these operations may be readily performed by unskilled labor.

To these and other ends my invention consists in certain novel features, which I will now proceed to describe and will then particularly point out in the claims.

In the accompanying drawings, Figure 1 is a vertical sectional view of a pump embodying my invention in one form. Fig. 2 is a detail view of the pipe, detached, and with the bushing mounted thereon, the construction shown being one in which a medium-sized pipe is employed. Fig. 3 is a view showing the first step in the operation of assembling or setting up the pump. Fig. 4 is a similar view showing the second step. Fig. 5 is a view showing the third step, which consists in the operation of uniting the two sections of the pump-rod. Fig. 6 is a similar view showing the fourth step, which consists in uniting the reservoir head or jug to the pipe or bushing. Fig. 7 illustrates the fifth step, which is the placing in position of the pump handle or lever and its fulcrum; and Fig. 8 is a view showing the completed pump mounted and in position on its supporting-platform.

In the said drawings, 1 indicates the pump-platform or other support on which the pump is mounted, and 2 indicates the base or standard of the pump, adapted to be secured to the platform 1 by bolts 3 or in any other suitable manner. This standard has a hollow cylindric body, terminating at its upper end in an annular supporting-surface 4, above which there extends the laterally-offset extension or bracket 5, to which the combined fulcrum-support and guide 6 is detachably secured by screw-bolts 7, as set forth in my prior Letters Patent, or in any other suitable manner.

8 indicates the handle, which is connected to the fulcrum-support 6 by means of a rocking lever or fulcrum 9 and to the pump-rod by means of the removable pin 10. The fulcrum-support 6 has an upwardly-extending arm 11, terminating at its upper end in a guide 12 for the pump-rod, said guide being preferably in the form of a removable bushing 13.

14 indicates the reservoir-head or so-called "jug," which in my present construction is supported upon the upper end of the base or standard 2, having at its lower end a bearing-surface to rest upon the annular bearing-surface 4 at the top of the base or standard and having, preferably, a downward extension 15, which fits within the upper end of the base or standard. This reservoir-head is provided with a suitable discharge-spout 16 and has at its lower end a threaded opening 17 to receive either the pipe extending down into the well or an intermediate bushing. These pipes vary in diameter, and by reason of the employment of this bushing, which is indicated by the reference-numeral 18, the pump may be adapted for connection with pipes of various sizes. The bushing 18 is threaded externally to fit the threaded opening 17 and is provided with a passage therethrough having a portion 19 of relatively large diameter and a portion 20 of relatively small diameter, both suitably threaded. Thus it will be seen that a pipe of large diameter may be screwed directly into the aperture 17 in the lower end of the reservoir-head. Where the pipe is of smaller diameter, the bushing 18 may be screwed into the aperture 17, and said bushing will receive a pipe of medium size in its threaded portion 19, or a pipe of smaller size in its threaded portion 20. In the drawings I have shown a pipe 21 of medium size threaded into the corresponding portion 19 of the bushing. The upper end of the reservoir-head is formed into a reduced neck 22, adapted to fit the supporting-ring, by means of which it is held in position laterally and against upward motion. This neck is internally threaded to receive a sleeve 23, which constitutes the body of the stuffing-box, having a chamber 24 to receive the packing and a threaded gland-nut 25, screwing into the upper end of said chamber. This sleeve and stuffing-box close the upper end

of the reservoir-head except for the passage formed through the same to receive the pump-rod, and said sleeve is provided with a flange 26, which flange is of less diameter than the internal diameter of the ring 27, which encircles the neck of the reservoir-head, said ring being supported from and preferably forming a part of the fulcrum-support 6. Since the said flange is of less diameter than the ring, it is apparent that the ring can be placed in position on the neck 22 or removed therefrom without removing the sleeve or stuffing-box. The pump-rod in pumps of this description comprises three parts—to wit, first, a lower part 28, which may be termed the "connecting-rod" and which extends from the reservoir-head downward through the pipe 21 to the piston or plunger to the pump; second, an intermediate part 29, circular in cross-section and extending through the stuffing-box at the upper end of the reservoir-head, its lower end being united to the part 28 within the reservoir-head, and, third, an upper or windmill-connection part 30, in the form of a flattened bar, passing through the guide 12 and having connected to it either the pump-lever or a part by means of which motion is transmitted to the pump-rod from the windmill. The lower end of the part 30 is integrally connected to the upper end of the intermediate part 29. The connection between the parts 29 and 28 is a separable one, a suitable screw-coupling being shown at 31. Ordinarily the connection between the parts 29 and 30 is also a separable one; but although these two parts of this similar cross-section have heretofore been permanently united by welding or otherwise made in one piece, for reasons hereinafter set forth, it has been necessary to make the intermediate part 29 of a diameter equal to the maximum diameter of the flattened upper part 30 in order that the passage through the stuffing-box should be of sufficient diameter to permit the passage therethrough of the flattened part 30. In the construction which I have devised it will be seen that the intermediate part 29 is of less diameter than the maximum diameter of the flattened part 30, thereby materially reducing the weight and size of the intermediate part and of the stuffing-box and its associated parts, effecting a corresponding reduction in the cost of the structure.

In order to have a thorough understanding of the advantages of my improved construction, I have illustrated and will now proceed to explain the mode of assembing a pump embodying the same.

Referring first to Fig. 3, it will be seen that the pipe 2 is there shown as extended above the platform 1 to an extent somewhat greater than its final position when the pump is finally assembled. The lower section 28 of the pump-rod is shown in position in the pipe and extending above the same some distance, and the bushing 18, which is being employed in this case, is shown as mounted on the upper end of the pipe, all of these parts being supported in position by means of a clamp or vise 32, which grips the pipe where it emerges above the platform and resting on said platform supports the pipe in its elevated position. Fig. 4 shows the next step in the assembling of the pump, which consists in placing over the parts already in position the base or standard 2. Prior to the next step, which is illustrated in Fig. 5, the reservoir-head, with its stuffing-box in position, has the upper section of the pump-rod, comprising the parts 29 and 30, applied to it by introducing the round intermediate part 29 into said reservoir-head from above, passing the same down through the stuffing-box. The pump-rod is pushed through the reservoir-head until the lower end of the part 29 thereof protrudes beyond the lower end of the reservoir-head. With the parts in this condition the upper section of the pump-rod and the reservoir-head are then brought into position above the parts already in place, and the ends of the sections of the pump-rod are united by the coupling 31. This operation may be readily performed in the manner indicated by gripping the lower section 28 of the pump-rod by means of a pipe-wrench 33, while the upper flat part 30 of the pump-rod may be gripped by an ordinary monkey-wrench 34 or by any other suitable tool. After the operation shown in Fig. 5 is completed the fourth operation (shown in Fig. 6) is next proceeded with, which consists in lowering the reservoir-head upon the pump-rod until its threaded lower end engages the upper end of the pipe 21, or in the present instance the bushing 18 thereon, to which the reservoir-head is then firmly united by rotating it so as to screw it firmly into position. The clamp or vise 32 may then be removed, so that the standard may be lowered onto the platform, and the reservoir-head, pipe, and pump-rod may be lowered so as to rest upon the standard, being supported by the engagement and seating of the reservoir-head with and on the upper end of the standard, as shown in Fig. 7. Said Fig. 7 also shows the final step of assembling the parts, which consists in slipping the fulcrum-support 6, with its guide 12, over the upper end of the pump-rod, with the handle 8 and fulcrum 9 connected thereto, the same being brought into position with the ring 27 around the neck 22 of the reservoir-head and the guide 12 embracing the flattened upper part 30 of the pump-rod. The parts are secured in this position by means of the screw-bolts 7, which fasten the fulcrum-support to the extension 5, and the handle 8 is connected to the pump-rod by the pin 10 in case the pump is to be operated by hand-power. The assembling and mounting of the pump is then complete, as shown in Fig. 8. The dismantling or taking down of the pump may be readily effected by

a reversal of the series of operations just described.

From a consideration of the foregoing description it will be seen that the pump can be readily assembled by unskilled labor. The reservoir-head and its stuffing-box are treated as a unitary element of the structure, not requiring separation during the operation, and can be placed in position on the upper section of the pump-rod before said upper section is united to the lower section of said rod. This insertion of the upper pump-rod section through the stuffing-box of the reservoir-head is accomplished by introducing the round end thereof through the stuffing-box, and said round end may be of relatively small size, since the upper flattened part 30 does not need to pass through the stuffing-box. In pumps of this type as heretofore constructed either a joint or separable connection between the parts 30 and 29 has been required, as shown in my prior Letters Patent hereinbefore specified, or when said parts 29 and 30 have been made in one piece by welding them together it has been necessary, as hereinbefore stated, to make the part 29 of the same diameter as the maximum diameter of the part 30. This has been necessary, because when the flange 26 of the stuffing-box is of greater diameter than the interior of the supporting-ring 27 it has been necessary to unite the reservoir-head and fulcrum-support before passing the upper section of the pump-rod through the reservoir-head and stuffing-box, and as it is not practicable to assemble all of the parts before connecting the two sections of the pump-rod it is practically necessary to first unite the pump-rod sections and then slip the reservoir-head and fulcrum-support down over the upper end of the pump-rod, thus requiring a stuffing-box opening of a size sufficient to permit the passage of the relatively flat wide upper section 30 of the pump-rod. By making the flange 26 of the stuffing-box of less diameter than the interior of the supporting-ring 27, utilizing this ring only for lateral support of the upper end of the reservoir-head, which is supported vertically entirely by the engagement of its lower end with the upper end of the standard, I am enabled to employ a pump-rod having its upper section, comprising the parts 29 and 30, in a single piece with the part 29 of any desired diameter less than the maximum diameter of the part 30, thus providing for a relatively small and inexpensive stuffing-box, and I am also enabled to assemble the pump in working position with the parts so grouped that they are readily and conveniently handled and in an order such as to simplify and expedite the operation.

It is obvious that modifications of the structure chosen for the purpose of illustrating my invention may be made without departing from the principle thereof. For instance, although I have illustrated my invention as applied to a pump in which the handle is pivoted to the pump-rod and connected to the fulcrum-support by a rocking lever or fulcrum, the invention is equally applicable to pumps of this class in which the handle is pivoted on the fulcrum-support and provided with a gear-segment meshing with a rack on the pump-rod. A pump of this last-mentioned type is set forth in a prior application filed by me January 21, 1905, Serial No. 242,060. I therefore do not wish to be understood as limiting myself strictly to the precise details of construction hereinbefore described, and shown in the accompanying drawings.

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

1. A pump comprising a standard, a fulcrum-support detachably connected therewith and having a supporting-ring, a reservoir-head removably supported at its lower end on the standard and having at its upper end a reduced portion or neck to fit within said ring, and a stuffing-box carried by said neck and having a diameter less than the internal diameter of the ring, a pipe detachably connected to the lower end of the reservoir-head, and a pump-rod comprising two separable sections, the upper section being unitary and comprising a lower part circular in cross-section, fitting the stuffing-box, and adapted for connection with the lower section of the pump-rod, and an upper part in the form of a flattened bar of a maximum diameter greater than the lower part and adapted for connection with a windmill, and a pump-handle carried by said fulcrum-support, substantially as described.

2. A pump comprising a standard, a fulcrum-support detachably connected therewith and having a supporting-ring and pump-rod guide, a reservoir-head removably supported at its lower end on the standard and having at its upper end a reduced portion or neck to fit within said ring, and a stuffing-box carried by said neck and having a diameter less than the internal diameter of the ring, a pipe detachably connected to the lower end of the reservoir-head, and a pump-rod comprising two separable sections, the upper section being unitary and comprising a lower part circular in cross-section, fitting the stuffing-box, and adapted for connection with the lower section of the pump-rod, and an upper part in the form of a flattened bar of a maximum diameter greater than the lower part, fitting the guide, and adapted for connection with a windmill, and a pump-handle carried by said fulcrum-support, substantially as described.

3. In a pump of the character described, the combination, with a standard having a supporting-seat at the upper end of its body, of a fulcrum-support detachably connected with said standard and provided with a supporting-

ring, a reservoir-head supported vertically in the standard-seat at its lower end and having a reduced neck at its upper end which fits and is laterally supported by the ring, said neck carrying a stuffing-box, of a diameter such as to pass freely through said ring, substantially as described.

4. In a pump of the character described, the combination, with a standard and a reservoir-head removably supported thereon and provided with a stuffing-box, of a detachable fulcrum-support having a ring fitting over the upper end of the reservoir-head and its stuffing-box, said ring being of greater diameter than the upper end of the reservoir-head and stuffing-box, so as to be freely removable by an upward motion relatively thereto, and a pump-rod section having a round lower part adapted to pass through the stuffing-box, and a flattened upper part, the maximum diameter of which is greater than that of the lower part, substantially as described.

5. In a pump of the character described, the combination, with a reservoir-head internally threaded at its lower end, of a bushing externally threaded to fit the internal thread of the reservoir-head, and having a passage therethrough with threaded portions of different diameters, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

PHILIP A. MYERS.

Witnesses:
F. O. HAMILTON,
JNO. C. FREUTZ.