

(No Model.)

2 Sheets—Sheet 1.

R. F. HALL.
AIR PUMP.

No. 534,715.

Patented Feb. 26, 1895.

Fig. 1.

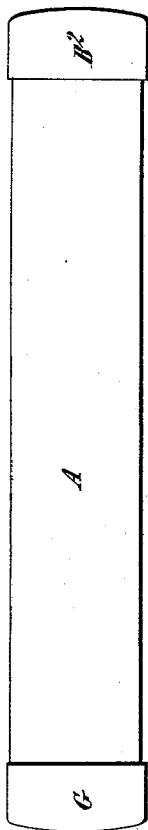


Fig. 2.

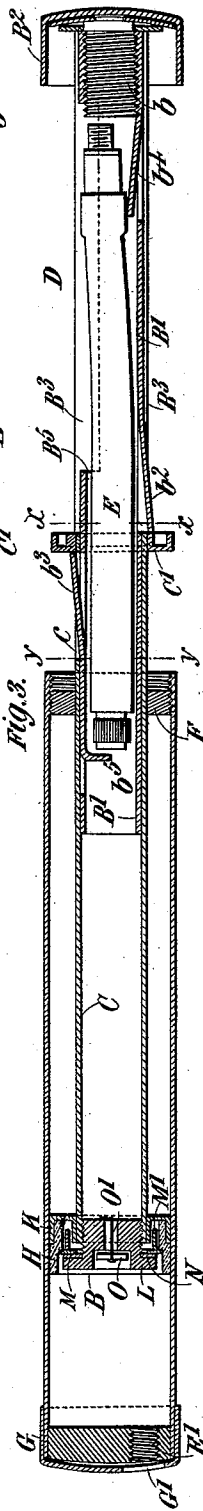
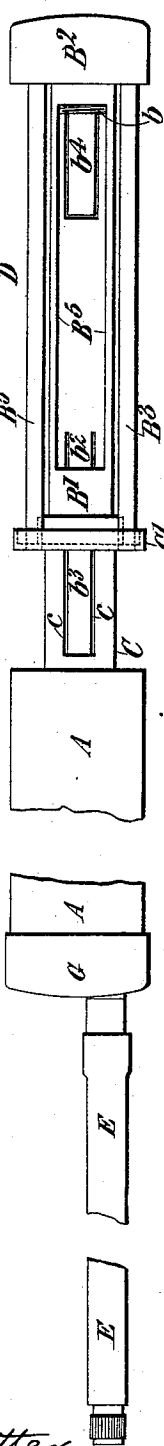


Fig. 4.

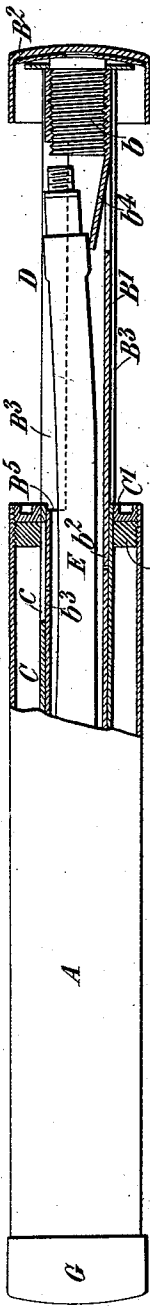


Fig. 5.

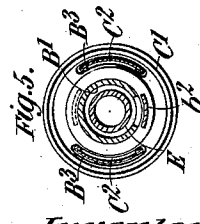


Fig. 6.

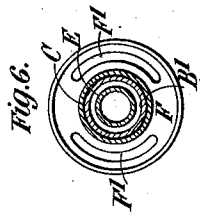


Fig. 7.

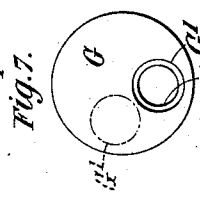


Fig. 8.

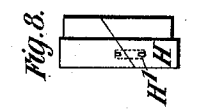


Fig. 9.



Witnesses:
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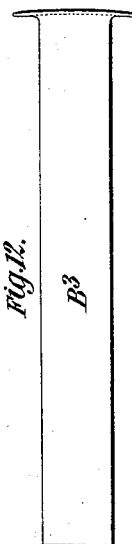
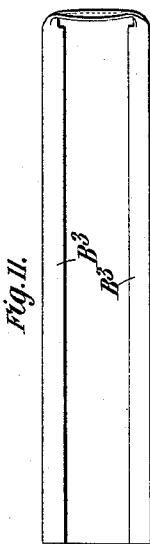
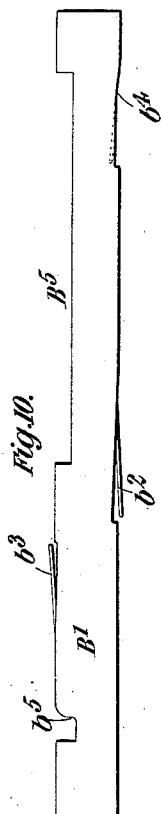
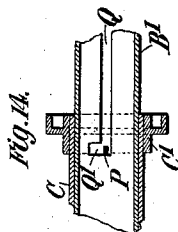
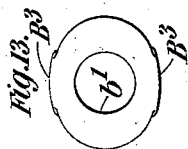
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UNITED STATES PATENT OFFICE.

ROBERT FREDERICK HALL, OF MOSELEY, ENGLAND.

AIR-PUMP.

SPECIFICATION forming part of Letters Patent No. 534,715, dated February 26, 1895.

Application filed October 8, 1894. Serial No. 525,258. (No model.)

To all-whom it may concern:

Be it known that I, ROBERT FREDERICK HALL, managing director of the Cycle Components Manufacturing Company, Limited, a subject of the Queen of Great Britain, residing at Ferndale, Church Road, Moseley, near Birmingham, in the county of Warwick, England, have invented certain new and useful Improvements in Air-Pumps, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to pumps and more especially to such pumps as are used or carried by cyclists for the purpose of inflating pneumatic tires.

According to my invention I provide an improved construction of pump handle which I form in such a manner that when the pump is not required for use the handle can be slid inside the pump barrel and there retained as hereinafter explained, whereby a very compact pump is obtained that can be stowed away into a small compass, and in a very convenient form for packing. The piston rod is made hollow and adapted to receive the delivery pipe when the pump is not in use.

My invention also provides an improved construction of piston or bucket.

In the accompanying drawings which illustrate my invention Figure 1 is a view of the pump closed. Fig. 2 is a view of the pump with the handle extended ready for use. Fig. 3 is a longitudinal central section of the pump with the handle extended, and showing the manner of storing the delivery tube within the handle. Fig. 4 is a part sectional view showing the handle partially closed in. Fig. 5 is a transverse section on the line x, x of Fig. 3. Fig. 6 is a transverse section on the line y, y of Fig. 3. Fig. 7 is an end view of the cap for closing the outlet orifice in the end of the barrel. Fig. 8 is a view of the bucket leather detached. Fig. 9 is a perspective view of a retaining ring for said leather hereinafter described. Fig. 10 is a side view of the inner part of the handle detached. Figs. 11 and 12 are top and side views respectively and Fig. 13 is an end view of the outer part of the handle detached. Fig. 14 shows an alternative method of locking the handle as hereinafter described.

Like letters of reference denote corresponding parts throughout the drawings.

A is the barrel.

B is the piston or bucket.

C is the piston rod.

D is the handle.

E is the delivery pipe for the air.

The piston rod C is made tubular and adapted to receive a tubular rod B' which can slide in the piston rod as hereinafter described. Secured to the outer end of the rod B' is a cap B² which is of such a size as to fit the end of the barrel. The handle of the pump is formed by the aforesaid rod B' and side strips B³ secured inside the aforesaid cap B² and extending parallel to the rod B'. The strips B³ pass through slots C² (see Fig. 5) formed in a ring C' secured to the end of the tubular piston rod C.

b² is a spring tongue, formed by slitting the rod B', for the purpose of engaging the ring C' and locking the handle in the extended position. When it is desired to close up the handle this tongue is pushed inward until it escapes past the edge of the central aperture of the ring C' after which the handle can be pushed into the barrel.

b³ is another spring tongue which engages the ring C' on the opposite side thereof from the tongue b² and serves to prevent the complete withdrawal of the handle from the tube C when in use. If it is desired to remove the handle entirely, this can be done after pushing inward the tongue b³.

c is an opening in the tubular rod C to allow the tongue b³ to operate.

I may provide other modes of locking the handle in the extended position. For example I may fix in the piston rod an inwardly projecting pin P, Fig. 14, adapted to slide in a longitudinal slot Q formed in the rod B'. Said slot is formed with a sharp turn at right angles at the inner end as shown at Q'. When the handle is fully extended, the same is turned slightly to pass the pin P into the circumferential part Q' of the slot and thus effect the locking of the handle. The pin and slot thus form a bayonet joint.

F is a ring screwed into the barrel A and forming the end or cover of the same. Said ring is furnished with two curved slots F'

(see Fig. 6) one on each side adapted to receive the wings or strips B³ of the handle. When the handle is closed, the wings B³ pass through the slots F' and enter completely into the barrel. The cap B² can then be pushed on to the end of the barrel as shown in Fig. 1, in which position it neatly closes the end of the barrel and forms a dust tight cover therefor.

For greater compactness when not in use, the delivery tube E is made detachable and of such a size as to be receivable within the hollow rod B' which is slotted at B³ as shown so that the tube E can be passed into the rod. The packed position of the tube E is shown in Figs. 3 and 4.

b⁴ is a spring tongue which raises the end of the tube E and facilitates the withdrawal of the latter. When closing the handle, the end of the tube E will be pushed inward by the thumb or finger, so as to clear the ring F.

b⁵ Fig. 3 is a turned in part of the tube B' which acts as a stop to prevent the tube E from dropping down into the piston rod.

The end of the barrel is furnished with a cap G having an opening G' that matches the opening E' Fig. 3 into which the tube E is screwed. The said openings E' and G' are not central and consequently when the tube E is removed the cap G can be turned round as indicated in Fig. 7 to close the opening and so exclude dust and dirt from the barrel.

I provide the piston with a bucket leather formed from a strip of that material instead of from a disk as heretofore. The strip of leather H Figs. 3 and 8 is curved round to a cylindrical form and its edges are secured together by a small clip H'. The edges are cut on the slant as indicated in Fig. 8 or are made zigzag or otherwise to prevent leakage at the junction. The cylinder of leather so formed is inserted within the rim K of the piston shell and is retained therein by a nut L screwed into the piston rod. Interposed between the nut and the bucket leather is a metal washer M, shown clearly in Fig. 9, having a cylindrical extension M' which fits within the leather. The edge of the washer forces the leather outward and binds the same tightly against the rim or edge of the piston. A rubber or other washer N serves to prevent leakage of air through the piston.

O is the air valve which is of any ordinary or usual construction. It is retained in place by a small hooked wire rod O'.

The leather applied as above described is subject to less unnatural and injurious stress than are ordinary bucket leathers made from flat disks, and is therefore not so liable to perish as rapidly as ordinary bucket-leathers.

What I claim is—

1. In a pump, the combination, with the barrel, of a telescopic piston rod and handle, and means for locking the handle in the extended position, whereby when the handle is unlocked it can be pushed completely into the barrel,

substantially as described for the purpose specified.

2. In a pump, the combination, with the barrel of a telescopic piston rod and handle, and a spring tongue projecting from the handle to engage a part fixed to the piston rod to lock the handle in the extended position, the handle when unlocked being capable of complete insertion into the barrel, substantially as described for the purpose specified.

3. In a pump, the combination, with the barrel, of a telescopic piston rod and handle, means for locking the handle in the extended position, and a cap at the end of the handle which fits on the end of the barrel when the handle is closed, substantially as described for the purpose specified.

4. In a pump, the combination, with the barrel, of a hollow piston rod, a hollow and slotted handle which slides in the piston rod, means for locking the handle in the extended position, and a detachable delivery tube which can be passed through the slot in the handle and stored within the handle, substantially as described, for the purpose specified.

5. In a pump, the combination, with the barrel, of a hollow piston rod, a slotted tube sliding in said rod, means for securing the slotted tube in its extended position, side wings connected to said slotted tube and sliding in slots in a ring secured to the piston rod, a ring secured in the barrel and having slots through which the side wings aforesaid can slide, and a cap fixed to the end of the slotted tube and which fits on the barrel when the handle is pushed completely home, substantially as described.

6. In a pump, the combination, with the barrel of a telescopic piston rod and hollow handle, a detachable delivery tube which is received within the hollow handle when detached, and a cap G to fit the barrel, said cap having a hole to match the delivery orifice E' both holes being out of the center so that when the delivery tube is detached the cap G can be turned slightly and thereby used to close the outlet, substantially as described.

7. The combination with the pump cylinder and rod, of a metallic piston body, a cylinder of leather extending into an annular recess in the said body, a nut securing the leather to the body and a washer M interposed between the leather and the nut, said washer being formed with a cylindrical extension fitting in the annular recess with the leather and a flange that forces the leather outward toward the walls of the pump cylinder, as set forth.

In testimony whereof I have hereunto set my hand this 20th day of September, 1894.

ROBERT FREDERICK HALL.

Witnesses:

HENRY GUY SILK,

BENJAMIN SMALLWOOD,

Both of 39 Waterloo Street, Birmingham, Clerks.