

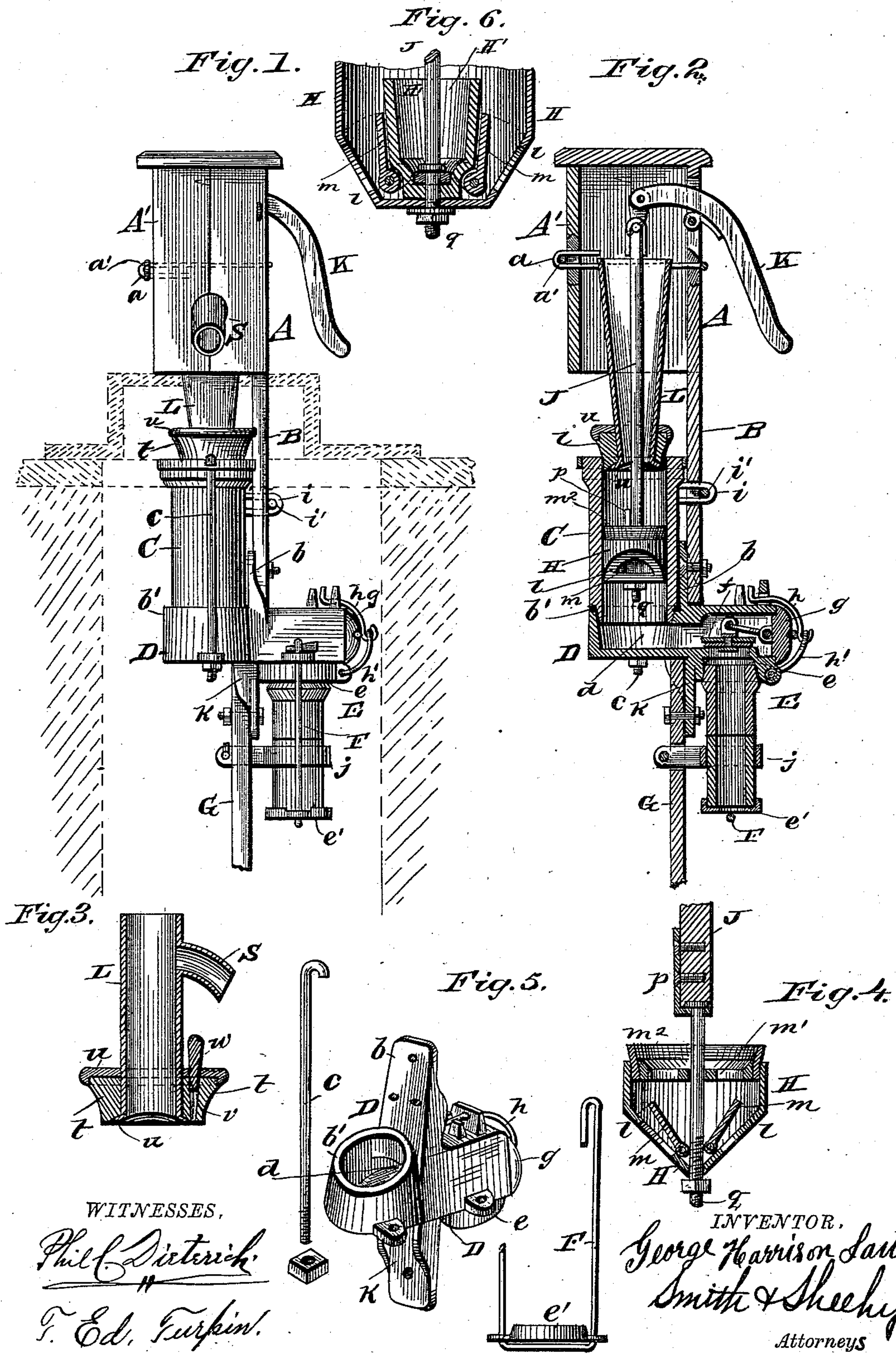
(No Model.)

G. H. LAUB.

PUMP.

No. 379,233.

Patented Mar. 13, 1888.



UNITED STATES PATENT OFFICE.

GEORGE HARRISON LAUB, OF WEST LEBANON, INDIANA.

PUMP.

SPECIFICATION forming part of Letters Patent No. 379,233, dated March 13, 1888.

Application filed April 27, 1887. Serial No. 236,379. (No model.)

To all whom it may concern:

Be it known that I, GEORGE HARRISON LAUB, a citizen of the United States, residing at West Lebanon, in the county of Warren and State of Indiana, have invented certain new and useful Improvements in Pumps; 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 lifting-pumps, which will be fully understood from the following description and claims when taken in connection with the annexed drawings, in which--

Figure 1 is a side elevation of my improved suction or lifting pump sustained in a well, which is represented in section. Fig. 2 is a vertical section through the pump. Fig. 3 is a vertical transverse section through the upper flattened tapering portion of the pump and the cone-packing on the lower end of said tapered portion. Fig. 4 is a vertical section through the pump-bucket and the lower part of the rod therefor. Fig. 5 is a perspective view of the coupling for the two cylinders and the two suspenders, detached from said parts. Fig. 6 is a sectional detail of the pump-bucket, it being a modification showing an upwardly-flaring cupped wedge or box adapted to afford bearings for the flaps *m m* when open or in the act of depressing the bucket.

Referring to the drawings by letter *A A'* designate the two vertically-divided halves which constitute the casing for the upper part of the pump, and which are usually made of wood. These halves are adapted to rest upon the platform at the upper end of the well and to protect the pump from extremes of temperature. The said halves of the casing are preferably secured together by means of dowel-pins, a yoke, *a*, and key-pins *a'*, and provided with a suitable cover, which is removable when desired.

The half *A* of the said casing has depending from and rigidly secured to it a bar, *B*, usually made of wood, which suspends the pump in the well. This bar *B* may be of any desired length, depending in some instances upon the depth of the well.

C designates the pump-cylinder proper, in

which works vertically the pump-bucket; and *D* designates a metallic coupling or foot, which is cast hollow. To a sheath, *b*, of this coupling is rigidly secured the lower end of the depending bar *B*, and into a socket, *b'*, formed in the coupling *D*, is securely seated the lower end of the cylinder *C*, which is packed in said socket and rigidly confined therein by bolts *c* and nuts. The upper hooked ends of the bolts *c* engage with the re-enforced upper flanged end of the cylinder *C*, and the lower ends of said bolts pass through lugs formed on the coupling *D* and receive nuts on their lower ends. The coupling *D* presents interiorly a horizontal water passage, *d*, which communicates with the lower end of the cylinder *C* and also with the upper end of a penstock, *E*. The upper end of this penstock, or the upper section thereof, (if it be composed of more than one section, as shown in Figs. 1 and 2 of the drawings,) is fitted water-tight into a socket, *e*, formed about the inlet-passage for water. The penstock *E* is firmly held to the coupling *D* by means of a long stirrup-shaped rod, which is passed through a perforated and flanged step, *e*, at the lower end of the penstock, through ears formed on the sides of the coupling, and secured by keys, screws, or their equivalents.

At the upper end of the induction water-passage inside of the coupling *D* is a flat valve-seat adapted to a valve, *f*, leathered on its bottom, and connected by ears and a V-shaped link to a cap, *g*, which is adapted to close water-tight the end of the horizontal part of the coupling, and which is removably secured in place thereto by means of hooked fastenings *h h'*, or their equivalents, attached pivotally to ears formed integral with the said coupling. In addition to the bolt-fastening *a c*, for securing the cylinder *C* to the coupling *D*, this cylinder is secured to the depending bar *B* by a staple, *i*, which passes through the latter, and is locked by means of a key, *i'*.

In addition to the stirrup-fastening for the penstock *E*, above described, this penstock is secured to a vertical supporting-bar, *G*, by means of a band, *j*, the perforated ends of which pass through said bar and are secured thereto by a key. This vertical bar *G* is rigidly secured to a sheath, *k*, formed integral with

the coupling D, and this bar is adapted to support the pump upon the bottom of the well when necessary.

H designates a cylindrical hollow pump-bucket, the lower part of which presents two inclined planes, *l l*, which are perforated for the free passage of water during the descending strokes of the bucket. Inside of this bucket, and suitably hinged at its angular lower end, are butterfly-valves *m m*, and above these valves is a spider, *m'*, and an annular or cupped packing, *m''*.

J designates the pump-rod, which may be jointed in the usual manner to the pump-handle K, having its fulcrum in the half A of the pump-casing. The lower end of this rod J has an angular strap, *p*, secured to it, through the lower end of which passes a headed screw, *q*, that passes through the lower angular end of the pump-bucket H, and receives a nut on it. By these means the pump-bucket is rigidly but removably secured to the pump-rod.

L designates an upwardly-flaring cylinder-cap, which is preferably flattened, as shown in the drawings, and which is provided with a discharge-spout, S, leading through the casing A A'. This cylinder-cap or extension may be of any desired length, and it is provided on its lower end with a rigidly attached tapering packing-plug, *t*, confined between flanges *u u*, and fitted water-tight into the upper end of the cylinder.

Vertically through the packing-plug *t* and its upper flange is an aperture, *v*, provided with a removable plug, *w*.

It will be observed that all of the working parts of my improved pump are accessible for the purpose of repair.

Instead of tapering the bottom of the bucket H to a point, as shown in Fig. 4, I horizontally flatten the bottom, as shown in Fig. 6, thus forming an inverted frustum of a cone. Inside of this cone I use an upwardly-flaring

cup, H', adapted to afford bearings for the valves or flaps *m m*, when in the position indicated in said Fig. 6, during the act of depressing the bucket.

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

1. In a lifting-pump, the combination, with a vertical divided casing, of a vertical bar depending therefrom, a hollow coupling secured to this bar, a pump-cylinder secured to said coupling and having a valved bucket in it, a penstock also secured to said coupling, a flap-valve removably applied therein at the upper end of the penstock, and an upwardly-flaring conduit provided with a discharge-spout, all substantially as described.

2. The combination of a hollow coupling provided with sheaths *b k*, a flat valve-seat, a socket for the cylinder C, a socket for the penstock E, a removable cap, a valve linked to this cap, and a suitable fastening for the same, substantially as specified.

3. The combination of the hollow coupling D, the cylinder C, fitted into this coupling, the depending bar B, secured to the coupling and said cylinder, the penstock E, fitted into the coupling, the supporting-bar G, secured to the latter and also to the penstock, the removable cap *g*, and a valve linked to this cap, substantially as specified.

4. The combination of a pump-bucket having inclined flattened and perforated sides *l l*, an upwardly-flaring cup centrally arranged in said bucket, the hinged flap-valves, the packing and spider, and the bucket-rod, all substantially as specified.

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

GEORGE HARRISON LAUB.

Witnesses:

GEO. W. CRONK,
G. W. DONNELLY.