

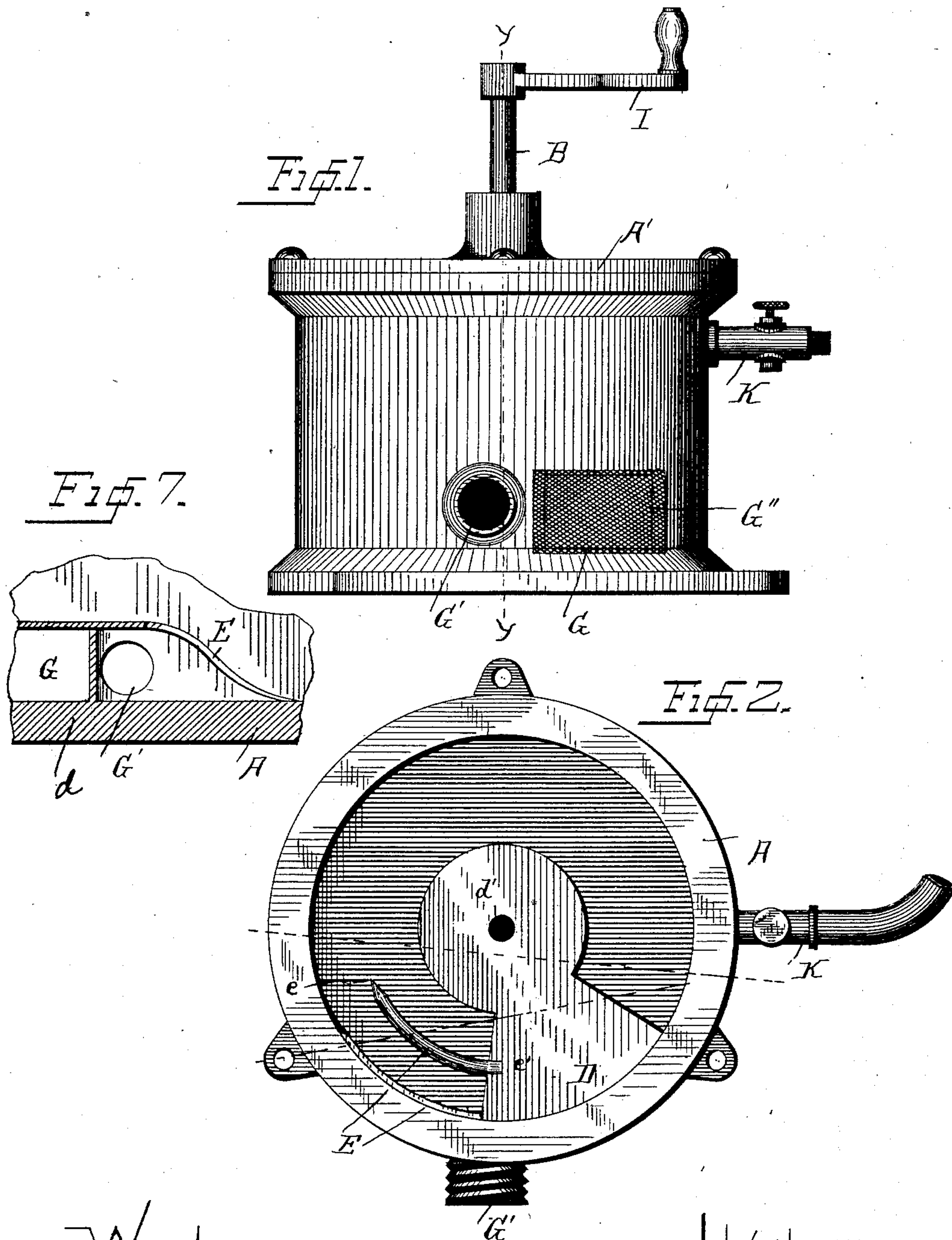
(No Model.)

2 Sheets—Sheet 1.

J. RAAB.
PUMP.

No. 363,677.

Patented May 24, 1887.



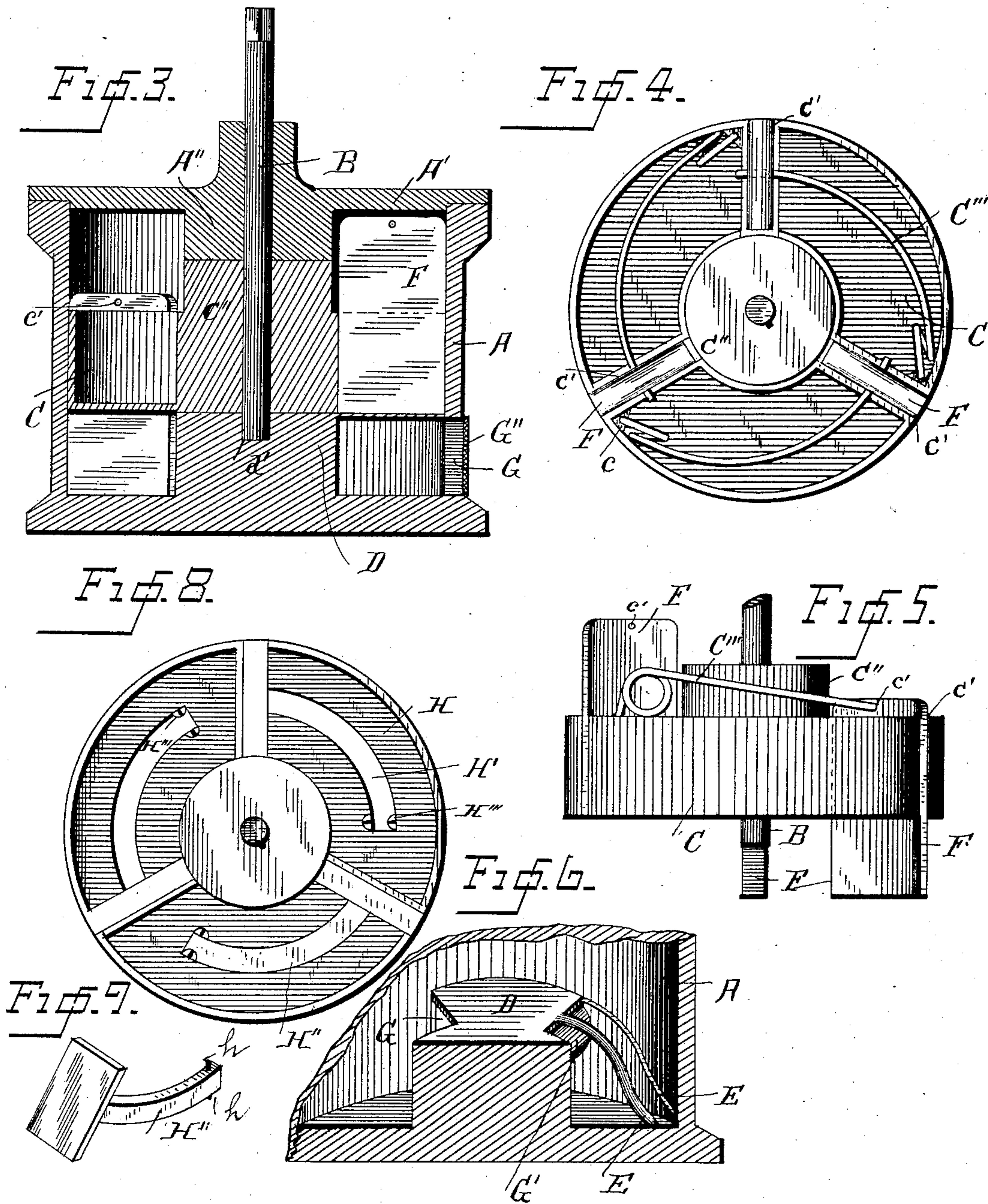
WITNESSES.
W. H. Jones
C. M. Meile

INVENTOR.
Joseph Raab
per O. E. Duff
Atty.

2 Sheets—Sheet 2.

No. 363,677.

Patented May 24, 1887.



INVENTOR

W. A. Jones,
C. M. Webb.

Joseph Raab
per O. E. Duffy
Atty.

UNITED STATES PATENT OFFICE.

JOSEPH RAAB, OF DAYTON, OHIO.

PUMP.

SPECIFICATION forming part of Letters Patent No. 363,677, dated May 24, 1867.

Application filed January 5, 1887. Serial No. 223,472. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH RAAB, of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful
5 Improvements in Lift and Force Pumps; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same,
10 reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates to force-pumps, and has for its object to produce a pump that shall
15 be simple and durable in construction and not likely to get out of repair. The pump, being submerged in a well or located in any desired place, will, as the crank-handle is rotated, force a stream or streams of water or
20 elevate it or them to a tank, or be utilized for sprinkling, extinguishing fires, or any such like purposes.

With these ends in view my invention consists in the combination and construction of
25 parts, hereinafter fully described, and then specifically pointed out in the claim.

In the accompanying drawings, Figure 1 is a side elevation of the pump complete. Fig. 2 is a plan view with the piston-head removed.
30 Fig. 3 is a section on the line *y y*, Fig. 1, showing one piston raised on the platform and the others down on the bottom. Fig. 4 is a plan view of the piston-head removed from the casing or pump. Fig. 5 is a side elevation of the same with one piston up and the others
35 down. Fig. 6 is a sectional perspective view showing the guideways to elevate the pistons to the platform. Fig. 7 is a sectional detail showing the guideways. Fig. 8 is a plan view
40 showing a modified form of the piston-head. Fig. 9 is a detail of the piston of same.

Similar letters indicate like parts in all the figures.

A is the casing or pump proper, having a
45 removable top, A', through which passes the shaft B. This shaft also passes through the piston-head C and projects a short distance beyond the head, in order to give it a proper bearing in the step *d'* of the elevated platform
50 D. This platform D supports the piston-head C, and is made sufficiently high from the bot-

tom of the casing A to form an inlet for the water and to give the pistons F their proper fall as they pass around the pump, ride up the
guideways E, and fall on the opposite side of
55 the platform D. This central guideway is preferably made of a piece of metal (bent in the form shown in Figs. 2, 6, and 7) and secured to the top of the platform D, as at *e'*,
60 by soldering or in any suitable manner. It then curves downward and outward from the platform D until it gradually leaves off in the bottom, as shown at *e* in Fig. 7.

Opposite the central guideway formed by a
projection from the casing or pump is another
65 guideway E, which is curved as the central guideway, and also assists in the elevation of the pistons F. The central guideway E is directly in the center of the passage of the
70 pistons F, so that as the pistons pass around they will travel up the said guideway E, ride over the platform D, and fall upon reaching the side opposite said guideway E, where they
75 proceed on around in their course, passing up and over the guideways and platform as the piston-head C is rotated, as will be hereinafter more fully described.

G' is the inlet; G'', a wire screen, which keeps out all dirt and foreign matter. The
80 water flowing in through the opening is taken around by the pistons F as they make a circuit of the pump, and forced out through the outlet G'. The outlet is arranged so that a
85 hose or pipe may be attached to convey the water to any desired place.

Near the top of the casing, and above the
piston-head, is placed an outlet, K, which may be used the same as outlet G'. As the piston-head C is in operation considerable water
90 passes through the slots C', and by having an outlet above them I am enabled to force two streams at the same time. When it is desired, either outlet may be closed. The upper outlet,
95 being of smaller dimensions and not being supplied with the same volume of water, will give the lesser stream.

Between the inlet and outlet, and directly
under the platform D, there is a partition, *d*,
forming a wall, which divides these two points,
as will be seen in Fig. 7. This partition ex-
100 tends from the rounded portion of the platform D to the wall of the casing A. The piston-

head C is made as shown in Figs. 4 and 5—
i. e., rounded—with three slots, C', at equal dis-
tance one from the other, extending from the
central hub, C'', to the outer edge of the head.

5 The pistons F move up and down in these slots
as the head C revolves.

Between the slots C' the piston-head is hol-
low, thus making it lighter and the more easily
operated. In one corner of each of the hollow
10 places of the piston-head C, directly against
the wall of the piston-slide, is secured, in a
small lug, c, a wire spring, C'', which extends
from the lugs c through small holes c' in the
pistons F, and adapted to force the pistons
15 down as they pass up and over the platform
D. Extending through the piston-head C is
the shaft B, which is rigidly secured to said
head. This shaft extends slightly beyond the
bottom of the piston-head and rests in the step
20 d' in the rounded portion of the platform D.
I have shown in Figs. 8 and 9 a modified form
of piston-head.

The piston-head is made substantially as that
before described, but with this exception, that
25 in the heads I form the semicircular slots H'',
terminating in the radial slots e'. At the rear
end of the slots H'', I form ears or lugs H''',
the purpose of which is to receive the projec-
tions h h, formed on the curved portion of the
30 piston-head, whereby the same is pivotally
secured, thereby allowing the pistons to rise
and fall, or have a vertical movement in the
radial slots e', and it will then be seen that
when the piston-head is rotated the pistons
35 will travel up the guideways E and over the
platform D, and fall, in the manner before de-
scribed.

The entire pump is placed together and op-
erated in the following manner: The piston-
40 head C is placed in the casing (or pump proper)
A, resting on the elevated platform D, the ex-
tended portion of shaft B resting in the step
d'. The top or cover A' is then placed over
the shaft B, said top having on its inner side
45 a hub, A'', which rests on the top of the piston-
head C. The top or cover A' is then secured
firmly to the casing A. The piston-head C is
held securely from any vertical movement.
The shaft B extends the desired distance up-
50 ward and has on its end the crank I. The pump
may be submerged in water or located in any
desired place. The water flowing in through
inlet G, the shaft B is then rotated, which will
cause the piston-head C to revolve. The pis-
55 tons F will pass along the bottom until they
reach the inclined guideways E, up which they
travel to the platform D, over said platform,
falling on the opposite side in front of the in-
let G, where they will force the water around

and through the outlet G'. They continue to 60
force the water until they have passed up the in-
clined guideways E, the following piston hav-
ing by this time taken the place of the pre-
ceding one, and so on around. As the piston-
head C is rotated the pistons F will continue 65
to force the water around and out.

I am aware of the following patents: To
Houghton, No. 153,566, which shows a cylin-
der arranged horizontally and in which is a
revolving disk, and divided centrally and hav- 70
ing means to draw water, and ejecting the
same by blades fitted in longitudinal slots, and
adapted to slide laterally in said slots, provided
with cams to pass the cut-offs. The patent to
Le Blair, No. 155,455, which simply shows a 75
series of buckets moving about a circular chan-
nel, below a horizontal wheel which moves
them, the channel at one side descending to a
cavity, into which the water flows. Said buck-
ets are contrived so as to be raised off the bottom 80
of the channel after passing an exit, and then
lodged on a wheel, which carries said buckets
until they return to the point where they take
water again, when they are tripped and fall
again to the bottom of the channel. Patent 85
No. 224,331, to J. F. Gelletly, shows a cylinder
having a cam-race. A shaft passes through the
cylinder and is secured to a disk adapted to
be revolved. Stuffing-boxes are placed on a
disk, through which pass rods carrying pistons, 90
and their upper ends are secured to disks
adapted to engage with a cam-race. Patent
to Upham, No. 160,974, shows simply a hori-
zontal cylinder in which are pistons adapted
to fall into and out of slots formed in a central 95
portion. I therefore do not desire to claim,
broadly, any of the means above described,
and

What I do claim, and desire to secure by
Letters Patent, is—

In a cylindrical force-pump having a re- 100
movable cover, a base having a platform there-
on, and inclined guideways, a piston-head
supported on said platform and provided with
radial slots adapted to receive pistons having 105
vertical movement therein, and having their
upper portion secured to springs and adapted
to travel up said guideways, and means for
rotating said piston-head, inlet G, and cover-
ing G'', and outlets G' and K, all substantially 110
as set forth, and for the purposes described.

In testimony that I claim the foregoing as
my own I affix my signature in presence of two
witnesses.

JOSEPH RAAB.

Witnesses:

FERD. SCHNEIDER,
CHARLES S. CLARK.