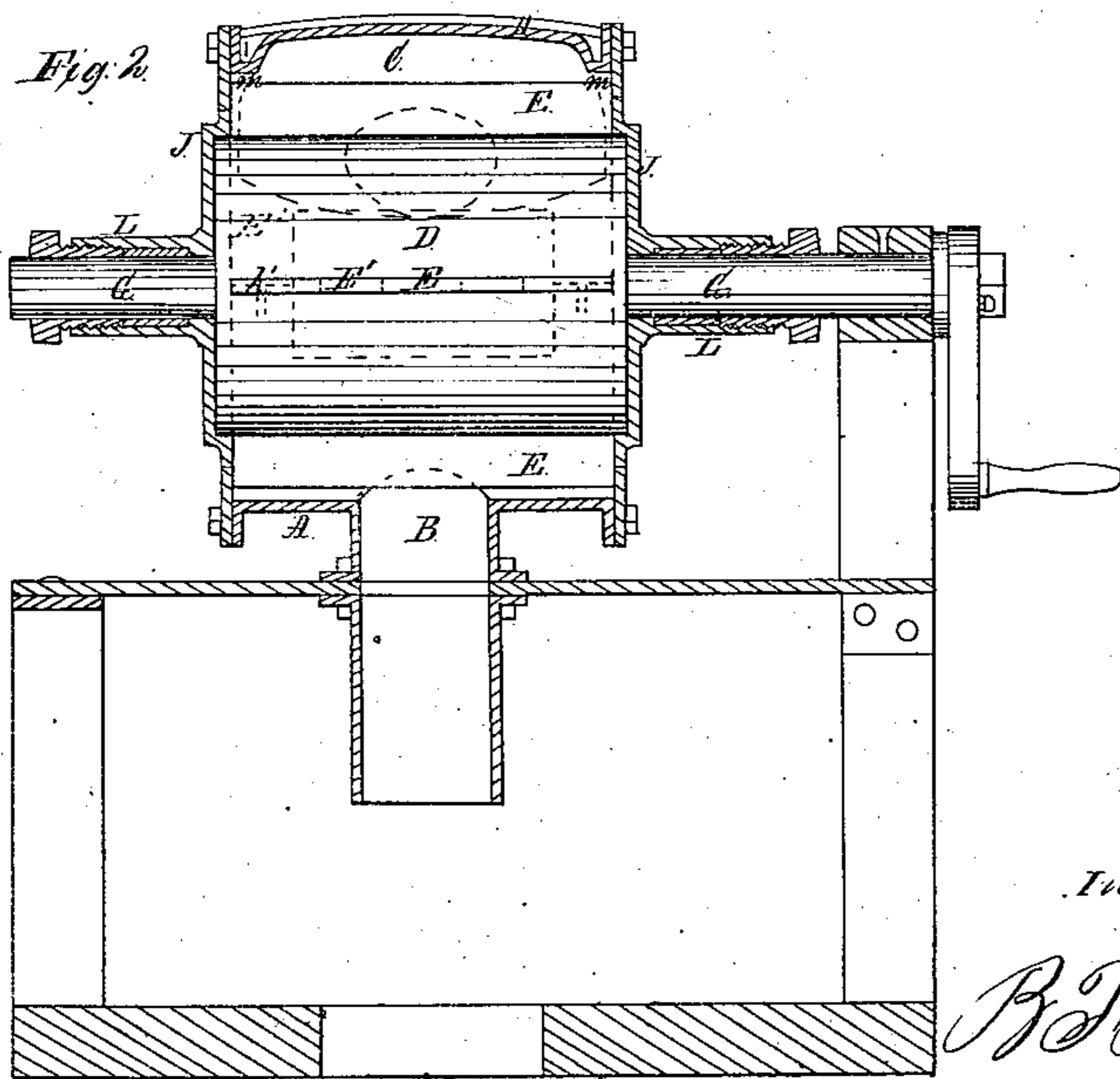
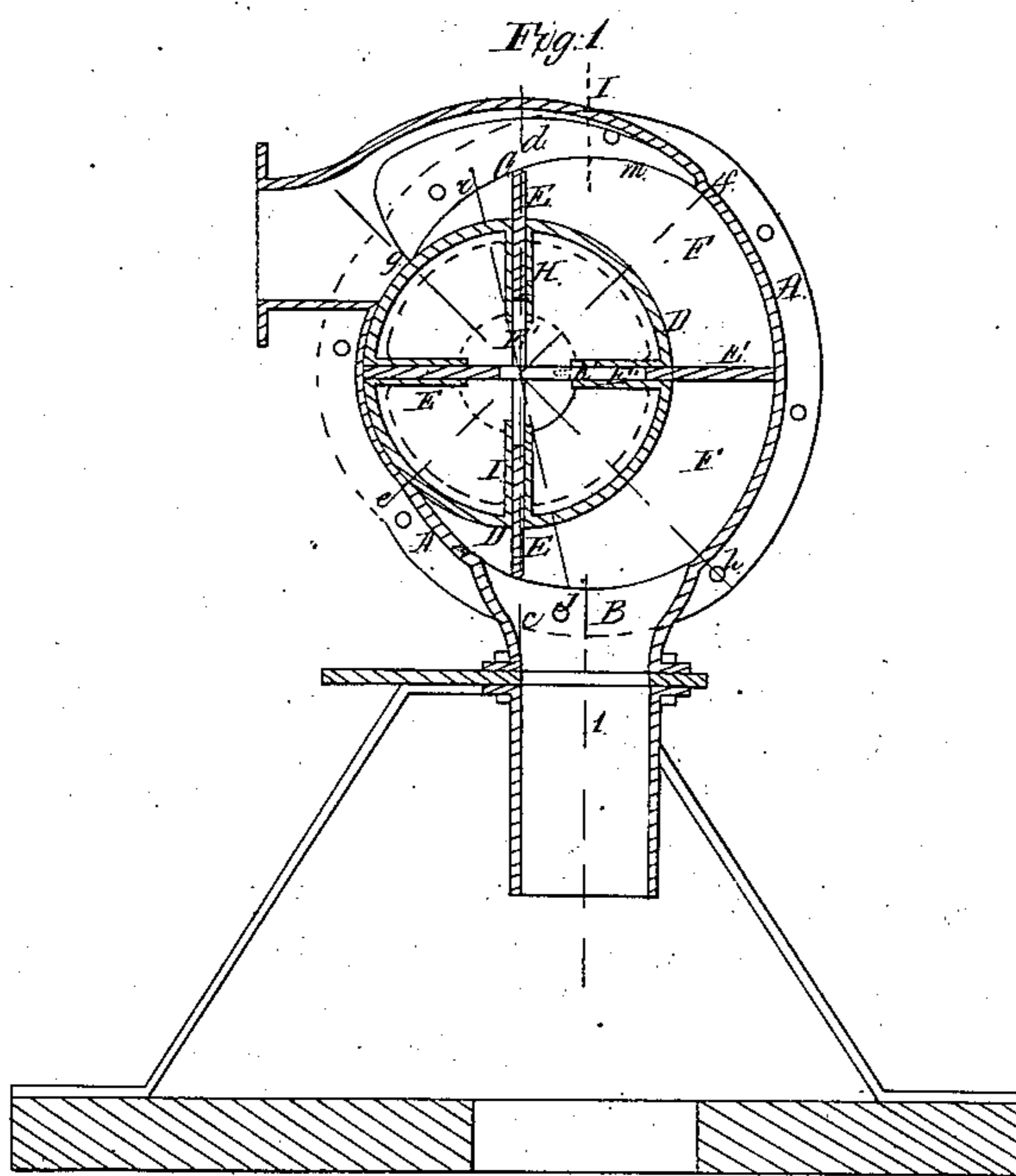


B. F. Taber,

Rotary Pump,

N^o 33,550.

Patented Oct. 22, 1861.



Witnesses:
James A. Allen
W. H. Fortush

Inventor.
B. F. Taber

UNITED STATES PATENT OFFICE.

BENJAMIN F. TABER, OF BUFFALO, NEW YORK.

IMPROVEMENT IN ROTARY PUMPS.

Specification forming part of Letters Patent No. 33,550, dated October 22, 1861.

To all whom it may concern:

Be it known that I, BENJAMIN F. TABER, of the city of Buffalo, county of Erie, and State of New York, have invented a certain new and useful Improvement in Rotary Pumps; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and the letters of reference marked thereon, in which—

Figure I is a vertical transverse section. Fig. II is a vertical longitudinal section upon the lines *l l* and *c d*.

Letters of like name and kind refer to like parts in each of the figures.

A represents the inclosing case or shell, having a suction-orifice B at the bottom and a discharge-orifice C at the side.

D represents a valve-cylinder through or in which the valves E work. Its diameter is about three-fourths the diameter of the shell. In determining the form of the shell and the position of the valve-cylinder within it a perpendicular line *c d* is drawn through the center of the valve-cylinder. Two other lines *e f* and *g h* are also drawn through the center at angles of forty-five degrees to the line *c d*, dividing the valve-cylinder into four equal parts. A part of the shell on the side of the discharge-orifice is the quadrant of a circle concentric with the valve-cylinder and of equal radius. The valve-cylinder revolves in close contact with this part of the shell, forming an abutment which causes the discharge of the liquid being pumped. The shell directly opposite is also the quadrant of a circle concentric with the valve-cylinder, but of greater radius, (as before mentioned,) forming the suction-space F. The curves connecting the extremities of the quadrants are such that any line drawn through the center of the valve-cylinder and terminating in them, as *i j*, will be equal to a diameter drawn through the same center and terminating in the quadrants, thus making all diameters of the shell which pass through the center of the valve-cylinder of equal length.

The suction-orifice B opens into the shell at the bottom between the quadrants, but expands upon one side to the commencement of the greater quadrant. The discharge-orifice C commences at the opposite end of the

greater quadrant at the longitudinal center of the case and quickly expands to nearly its full length and extends to the commencement of the lesser quadrant or abutment.

G represents the shafts or journals upon which the valve-cylinder revolves. They are connected to the valve-cylinder at each end by the arms H, leaving the interior of the valve-cylinder entirely open.

E represents the valves, they being equal in length to any diameter of the shell drawn through the center of the valve-cylinder. Longitudinal slots are made in the valve-cylinder, through which the valves work at right angles to each other. At the sides of each slot are flanges I, projecting inwardly and causing the valves to move steadily and without binding. Such portions of the valves as during their revolution are outside of the valve-cylinder are made solid, and these solid parts are connected together by the arms E', so as to allow them to work past or through each other. By dividing each valve into two parts by separating the arms in the center, as shown at *k'*, the centrifugal force will cause them to revolve in contact with the shell, even though they may have become too short by wear upon their ends.

J represents the case-heads, through which the shafts G work water-tight by means of the stuffing-boxes L.

Motion is given to the valve-cylinder by means of a crank or pulley placed upon the end of the shaft G. The valve-cylinder revolves in close contact with the shell upon one side of the suction-orifice and the ends of the valves upon the other, thus causing a suction which will draw the liquid into the shell. As the valves pass around they will carry the liquid before them and discharge it through the orifice C. The greater and less quadrants being concentric with each other and with the valve-cylinder, it is evident that while the valves are moving over them they (the valves) will remain stationary in the valve-cylinder. It is during this part of their revolution that the valves do their work both of drawing in and discharging the liquid. As they pass these quadrants their action upon the liquid ceases, so that while the eccentric part of the case is pushing in the end of the valve which has completed its work

and pushing out the lower end to be ready for its work, there is no strain on the valves, so that the friction of the valves in the valve-cylinder is greatly diminished.

The discharge-orifice does not extend the whole length of the shell; (as before mentioned,) a narrow bearing being left at each end, as shown at *m*, which retains the true form of the eccentric part, and being sufficient (on account of the slight strain upon the valves at this time) to move them into place as they successively come around.

The peculiar form of the discharge-orifice and its location with that of the suction-orifice between the quadrants with the working of the valves in the valve-cylinder prevent my pump from clogging or choking up when used for pumping panners' liquor, which con-

tains bark or any other liquid containing foreign solid substances.

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

1. The formation of the shell with the concentric parts *e g* and *f h* and eccentric parts *e h* and *g f*, as and for the purposes described.

2. So constructing and arranging the valves, valve-cylinder, and shell as that the valves will not be subjected to a transverse movement while doing their work, for the purposes and substantially as set forth.

B. F. TABER.

Witnesses:

JAMES A. ALLEN,
W. H. FORBUSH.