No. 660,040. Patented Oct. 16, 1900.

J. G. BAKER.

PUMP.

(Application filed Nov. 9, 1898.)

(No Model.)

Fig. 1.

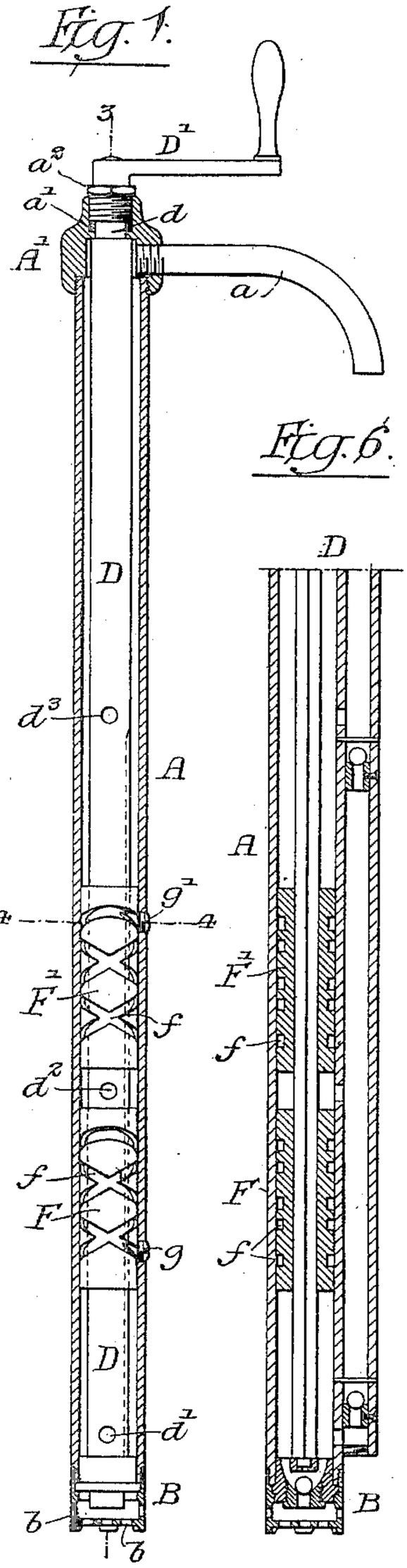


Fig. 6.

Fig. 2.

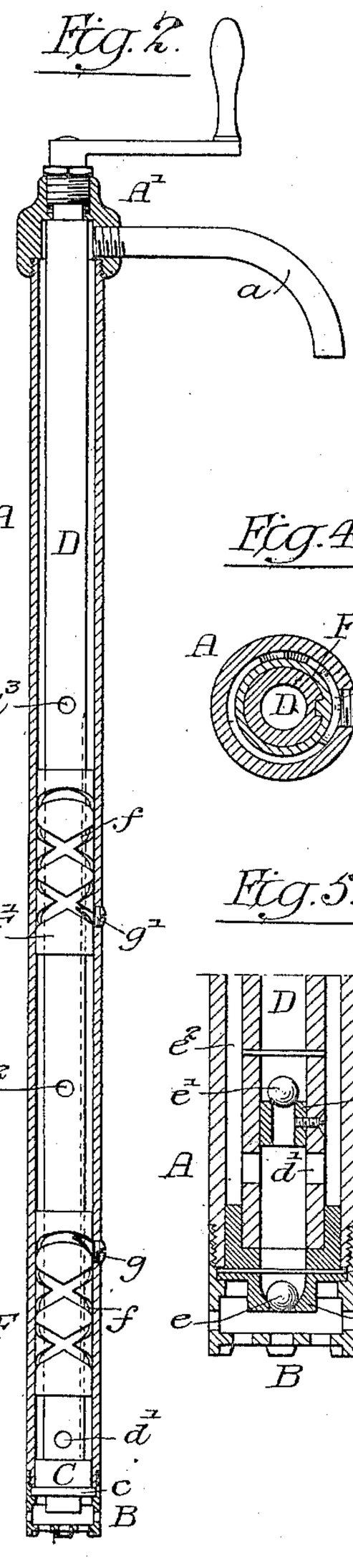
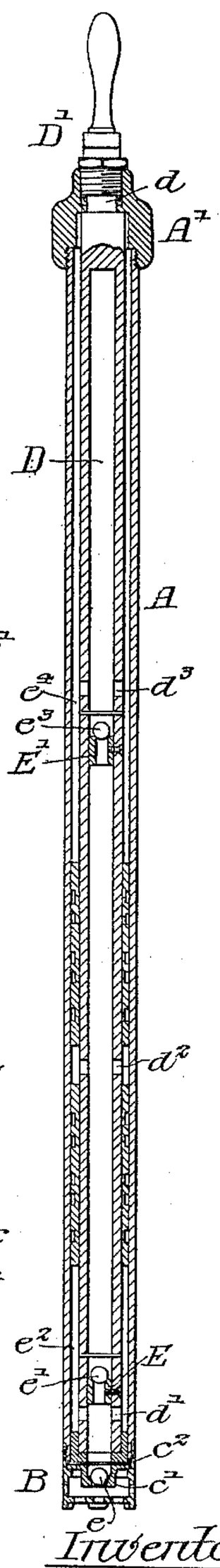


Fig. 4.

Fig. 5.

Fig. 3.



Witnesses:-
Frank L. A. Graham.
Louis W. F. Whitehead.

Inventor:-
John G. Baker.-
by his Attorneys:-
Howson & Howson

UNITED STATES PATENT OFFICE.

JOHN G. BAKER, OF PHILADELPHIA, PENNSYLVANIA.

PUMP.

SPECIFICATION forming part of Letters Patent No. 660,040, dated October 16, 1900.

Application filed November 9, 1898. Serial No. 695,953. (No model.)

To all whom it may concern:

Be it known that I, JOHN G. BAKER, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Pumps, of which the following is a specification.

My invention relates to certain improvements in pumps of the type used to pump heavy liquids from barrels—such, for instance, as molasses or syrups.

In applying my invention to a barrel a suitable hole is made in the head of the barrel and the body of the pump inserted therein, and by turning the crank the liquid is forced up through the body of the pump to the outlet and into a suitable receptacle.

In the accompanying drawings, Figure 1 is a vertical sectional view showing the plungers of my improved pump in one position. Fig. 2 is a similar view showing the plungers in the opposite position. Fig. 3 is a sectional view on the line 3 3, Fig. 1. Fig. 4 is an enlarged sectional view on the line 4 4, Fig. 1. Fig. 5 is an enlarged sectional view of the lower end of the pump, and Fig. 6 is a view of a modification.

A is the tubular body of the pump, having a head A′ secured to its upper end. Projecting from this head is a tubular extension *a*, bent so that the fluid will readily flow into a suitable receptacle. The lower end of the tubular body is screw-threaded, and adapted to this end is a cap B, having a series of perforations *b*, through which the fluid passes to the pump.

Mounted in the lower end of the pump is a seat-block C, having a flange *c* confined between the end of the body and the cap B. In this seat-block rests the lower end of the tubular stem D. This stem is hollow, open at the bottom and closed at the top. The reduced portion *d* of the stem has its bearing in the cap A′, and to this reduced portion is secured the handle D′ by which it is turned. Packing *a′* is mounted in the head A′ and confined by a follower a^2. The seat-block C has a seat *c′*, on which rests a ball-valve *e*. The upward motion of this ball is limited by a cross-bar c^2.

The tubular stem D has a series of openings *d′* d^2 d^3, through which the fluid can pass as it travels up the pump. Mounted above the lower opening *d′* is a seat-block E, on which rests a ball-valve *e′*. The upward motion of this ball-valve is limited by a cross-bar e^2, and directly below the upper opening d^3 is a seat-block E′, on which rests a ball-valve e^3, the upward motion of which is limited by a bar e^4.

Sliding in the space between the casing A and the tubular stem D are two plungers F F′. These plungers turn with but slide on the tubular stem D and are controlled by pivoted blocks *g g′*, mounted on pins secured to the casing A. These pivoted blocks travel in double spiral grooves *f* in the plungers F F′, so that as the stem is turned these plungers not only turn with the stem, but travel first toward each other and then from each other on each side of the central opening d^2 in the tubular stem D. As shown in Figs. 1, 2, and 4, the stem has a longitudinal groove, to which is adapted a key or spline on each plunger. In Fig. 6 I have shown a square stem, and there is a square opening through the plungers, and the stem snugly fits this opening, so that the plunger can turn with but will slide freely on the stem.

The operation of the pump is as follows: The pump being inserted in the barrel the handle D′ is turned, turning the stem D, which carries the plungers F F′. As the plungers move from the position shown in Fig. 2 to that shown in Fig. 1 a certain amount of liquid will be drawn into the lower portion of the pump, and when the plungers move from the position shown in Fig. 1 to that shown in Fig. 2 the entrapped liquid in the pump will be forced through the openings *d′* past the ball-valve *e′* into the center of the stem and out of the openings d^2 to the space between the two plungers F F′. On the next movement of the plungers the fresh liquid will be drawn into the pump and the liquid between the two plungers will be forced through the openings d^2 past the ball-valve e^3 through the openings d^3 into the space between the casing and the tubular stem above the upper plunger, and as the tubular stem is turned the liquid will be forced out of the discharge-pipe *a*. Thus it will be seen that a given quantity of liquid is pumped at each reciprocation of the plungers, and by attaching indicating mechanism to the stem the

amount of liquid in quarts, pints, or gallons may be indicated.

It will be understood that I may substitute for the crank-handle shown any suitable mechanism for turning the stem D, and other valves than the ball-valves may be substituted without departing from the invention, and any suitable clamping device may be used to secure the pump to the barrel.

In some instances the stem D may be solid, and the passages for the liquid may be in the walls of the body A, as shown in Fig. 6.

While my invention is especially adapted for pumping molasses and like heavy liquids, it will be understood that it can be used for pumping any liquid.

I claim as my invention—

1. The combination in a pump, of a casing, a rotatable stem, two plungers mounted within the casing, the two plungers being arranged to slide on but turn with the stem, an inlet-valve at the bottom of the pump, valved passages independent of said plungers communicating with the space between and above the plungers through which the liquid pumped passes successively, a discharge-opening at the top of the pump, and a handle by which the stem is turned, and means for causing the plungers to move toward and from each other as the stem is rotated, substantially as described.

2. The combination in a pump, of a casing, a rotatable tubular stem, two plungers constructed to act between the casing and stem, turning with, but sliding on said stem, means for reciprocating said plungers, passages and valves in the casing and in the stem so arranged that when said stem is rotated, liquid alternately enters the interior of the stem, and the space between said stem and the casing, until it is finally discharged, substantially as described.

3. The combination of a casing, a tubular stem within the casing, two plungers connected to the stem so as to turn with but slide thereon, said plungers having double spiral grooves, projections on the casing adapted to the grooves whereby the plungers are moved toward and from each other as the stem is rotated, openings in the stem communicating with the space between the plungers and with the spaces above and below the plungers, two valves in the stem and an inlet-valve at the base of the pump, substantially as described.

4. The combination of the casing, a check-valve at the lower end of the casing, a tubular stem, means for turning said stem, three openings at given distances apart in the stem, check-valves between the several openings, two plungers adapted to the space between the casing and the stem and adapted to turn with the stem but slide thereon, double spiral grooves in the periphery of each plunger, blocks adapted to the grooves and mounted on the casing so that as the shaft is turned the plungers will be reciprocated, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN G. BAKER.

Witnesses:

WILL. A. BARR,

JOS. H. KLINE.