(No Model.)

A. E. GOODSPEED & J. EDSON.

PUMP.

No. 512,611. Patented Jan. 9, 1894.

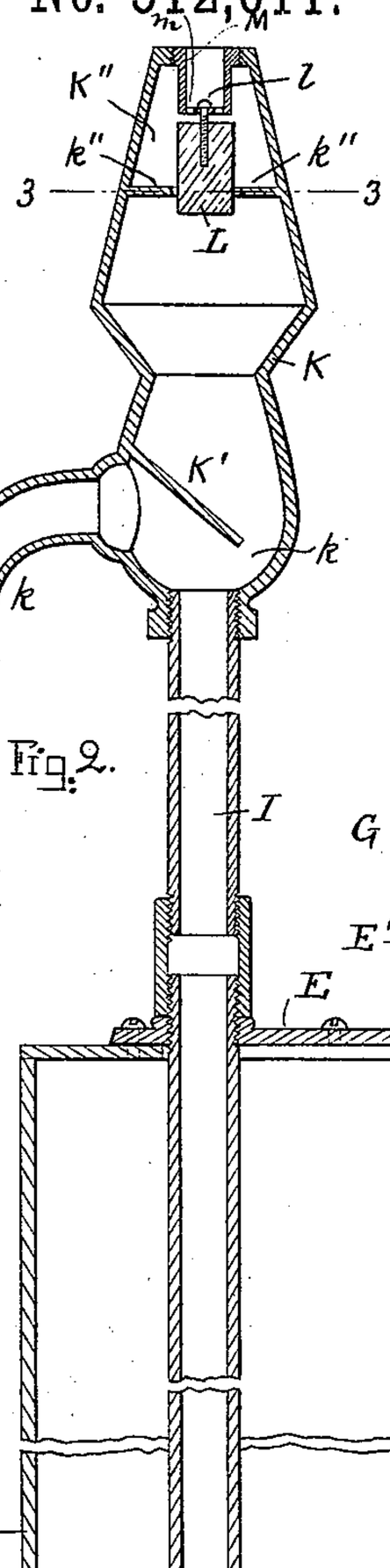

Fig. 2.

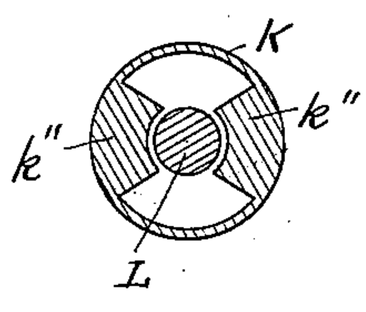

Fig. 3.

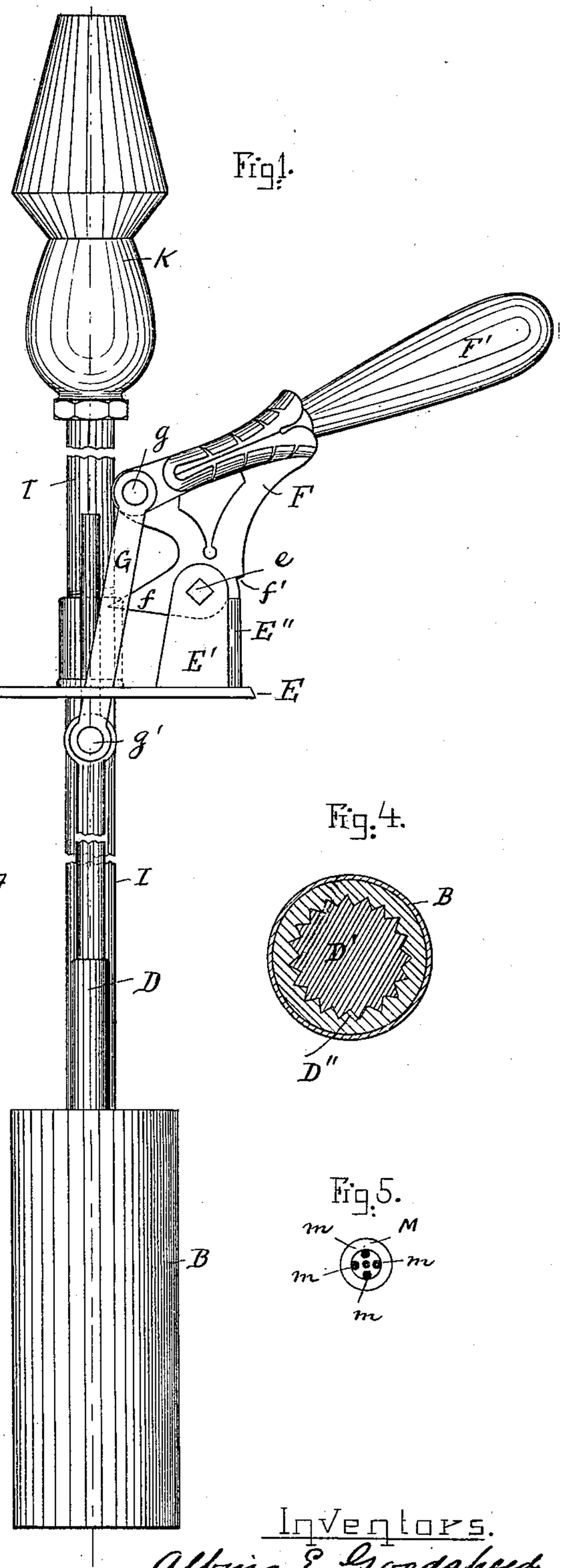

Fig. 1.

Fig. 4.

Fig. 5.

Witnesses.
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UNITED STATES PATENT OFFICE.

ALBINA E. GOODSPEED, OF NEW YORK, N. Y., AND JACOB EDSON, OF BOSTON, MASSACHUSETTS.

PUMP.

SPECIFICATION forming part of Letters Patent No. 512,611, dated January 9, 1894.

Application filed February 8, 1893. Serial No. 461,421. (No model.)

To all whom it may concern:

Be it known that we, ALBINA E. GOODSPEED, residing at New York, in the county and State of New York, and JACOB EDSON, residing at Boston, in the county of Suffolk and State of Massachusetts, citizens of the United States, have jointly invented new and useful Improvements in Pumps, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to improvements in pumps particularly adapted for the purpose of drawing kerosene oil from a tank or cabinet, although it may be equally useful for the purpose of pumping other liquids, and it is carried out as follows, reference being had to the accompanying drawings, wherein—

Figure 1 represents a side elevation of the improved pump. Fig. 2 represents a vertical section of the same showing it as arranged in connection with an oil tank or cabinet. Fig. 3 represents a cross-section on the line 3—3 shown in Fig. 2. Fig. 4 represents a cross-section on the line 4—4 also shown in Fig. 2; and Fig. 5 represents a top view of the perforated valve seat at the upper end of the pressure or equalizing chamber as will hereinafter be more fully shown and described.

A represents the tank or cabinet from which the oil or other liquid is to be pumped. Within said tank is arranged the pump cylinder B which is open at the top and provided at its bottom with a strainer *b* preferably composed of wire gauze, netting or a perforated plate so as to prevent sediment, &c., from being drawn through the pump and its connections. A short distance above the strainer *b* is arranged within the cylinder B a diaphragm C having a central perforation C′ which is adapted to be closed by a suitable weighted valve C″ during the down stroke of the piston as is common in pumps.

D is the piston rod preferably made of cast metal and having its upper end guided in a perforation in the plate E which is secured in a suitable manner to the top or cover of the tank A. In one piece with the lower end of the piston rod D is cast the toothed or serrated head D′ around which is cast a packing D″ of Babbitt or soft metal as shown in Figs. 2 and 4, and by this constuction the Babbitt or soft metal packing is caused to adhere to and from as it were anintegral part of the piston D′.

E′ is a forked bracket cast in one piece with the plate E and plate E″ is a rear side or stop projection thereon as shown in Figs. 1 and 2. At *e* on said bracket E′ is pivoted the metal lever F to which is secured preferably a wooden handle F′ as shown. The lever F is provided with two projections *f*, *f*′, which serve as stops against the bracket projection E″ at the termini of the stroke of the piston during the pumping operation. To the forward end of the lever F is pivoted at *g* the links G, G, the lower ends of which are pivoted at *g*′ to the piston rod D as shown in Figs. 1 and 2.

From the lower end of the pump B, just above the diaphragm C leads a short pipe *h* which is connected to an elbow *h*′ having arranged within it, a ball valve H which is adapted to close against the end of the pipe *h* during the upward stroke of the piston and to be forced against a stop pin *h*″ during the downward stroke of said piston.

I is the stand or force pipe leading from the elbow *h*′ to the lower end of the delivery or pressure equalizing chamber K which has a spout or outlet *k* on one side as shown in Fig. 2.

Within the lower portion of the chamber K is arranged an inclined wall K′ the lower end of which terminates a short distance from the opposite wall of the said chamber K leaving a space or channel *k*′ at this place through which the liquid that is not immediately forced out through the spout *k* is caused to flow up into the upper portion of said chamber K. The inclined wall K′ extends entirely over the upper delivery end of the stand-pipe I and terminates a little beyond one side of the upper stand pipe opening so as to cause an even flow of the liquid from said chamber K during the pumping operation.

k″, *k*″, are guides in the upper end of the chamber K for the floatable valve L preferably made of cork and suspended from the perforated valve seat M by means of a headed pin or screw *l* which passes loosely through a central perforation in the said valve seat. *m*, *m*, are the perforations in the bottom of said valve seat M as shown in Figs. 2 and 5. The

said valve seat M is made in the form of a cup which is screwed into the upper end of the chamber K as shown in Fig. 2.

K″ is an air chamber in the upper end of the chamber K above the guides *k″*, *k″*, and the air within it serves as an elastic cushion for the purpose of equalizing the flow of the liquid in case the latter should rise sufficiently within the chamber K to cause the valve L to close by its buoyancy against the seat M thus preventing the liquid from being forced out through the valve seat openings.

In the operation of the pump, a reciprocating motion is imparted to the piston D′, D″ by the manipulation of the handle F′ and lever F causing an alternate opening and closing movement of the valves C″, H by which the liquid is drawn from within the tank or cabinet A and forced up through the pipe I, into chamber K and out through the spout *k*. During such pumping operation a portion of the liquid is forced above the inclined wall K′ thus acting as a hydrostatic head for the purpose of equalizing the flow of the liquid through the spout *k*.

Having thus fully described the nature, construction, and operation of our invention, we wish to secure by Letters Patent and claim—

1. In combination the pump cylinder B having inlet and outlet valves as described with the reciprocating piston rod D, having a notched or serrated head D′ and surrounding Babbitt or soft metal packing D″ substantially as and for the purpose set forth.

2. The combination with a pump cylinder B, a piston working therein, and lever mechanism for reciprocating the piston, of a standpipe I, having a valved connection at its lower end with the pump cylinder, and provided at its upper end with an equalizing chamber K, a perforated cup-shaped valve seat M secured in the upper end of the equalizing chamber, internal guides *k″* fixed in the chamber beneath the cup-shaped valve, and a floating valve L guided by said guides, and provided with a pin *l*, having a head, and loosely passing through the perforated lower end of the cup-shaped valve, substantially as and for the purposes described.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, on this 19th day of January, A. D. 1893.

ALBINA E. GOODSPEED.
JACOB EDSON.

Witnesses:
ALBAN ANDRÉN,
ALICE A. PERKINS.