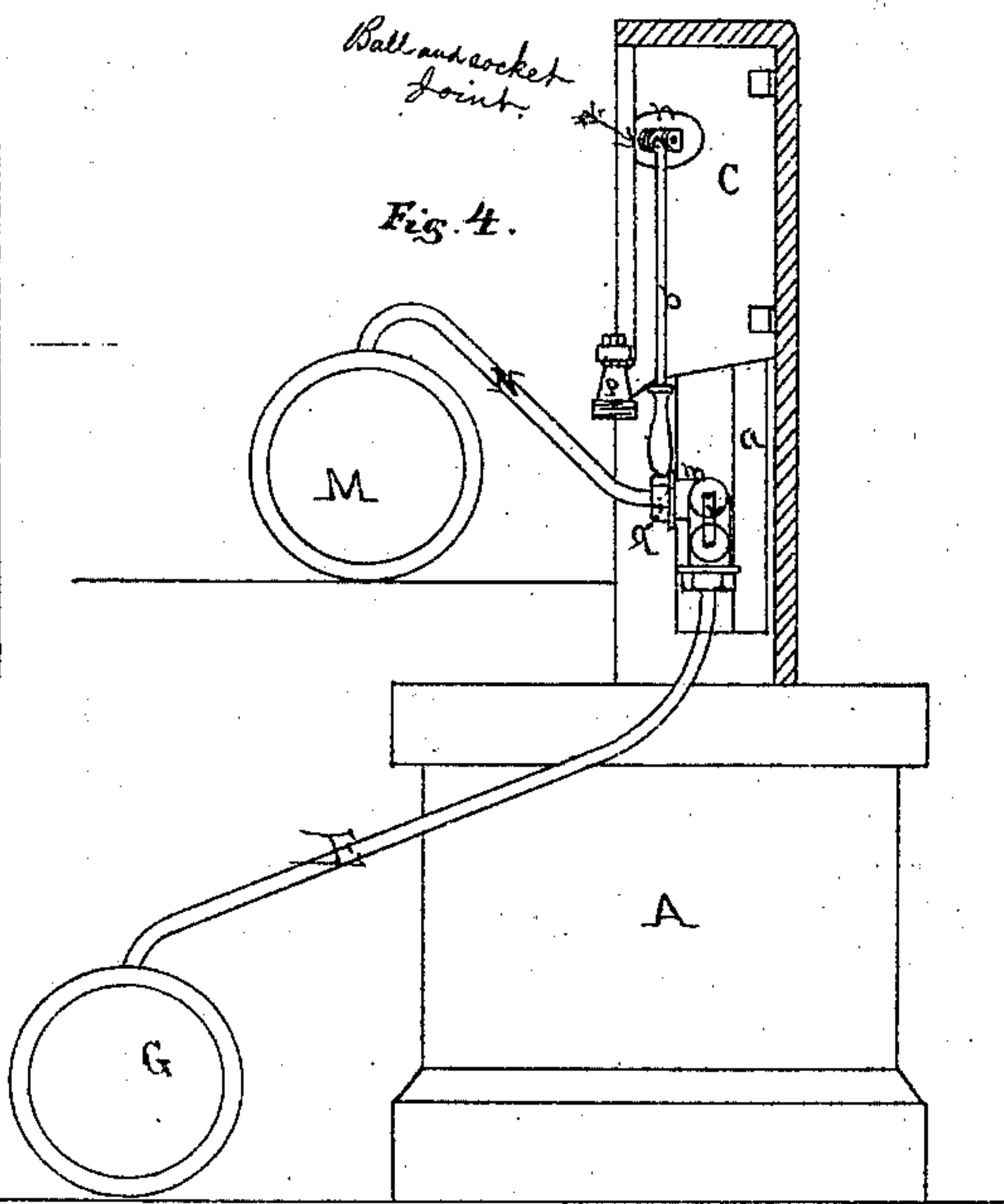
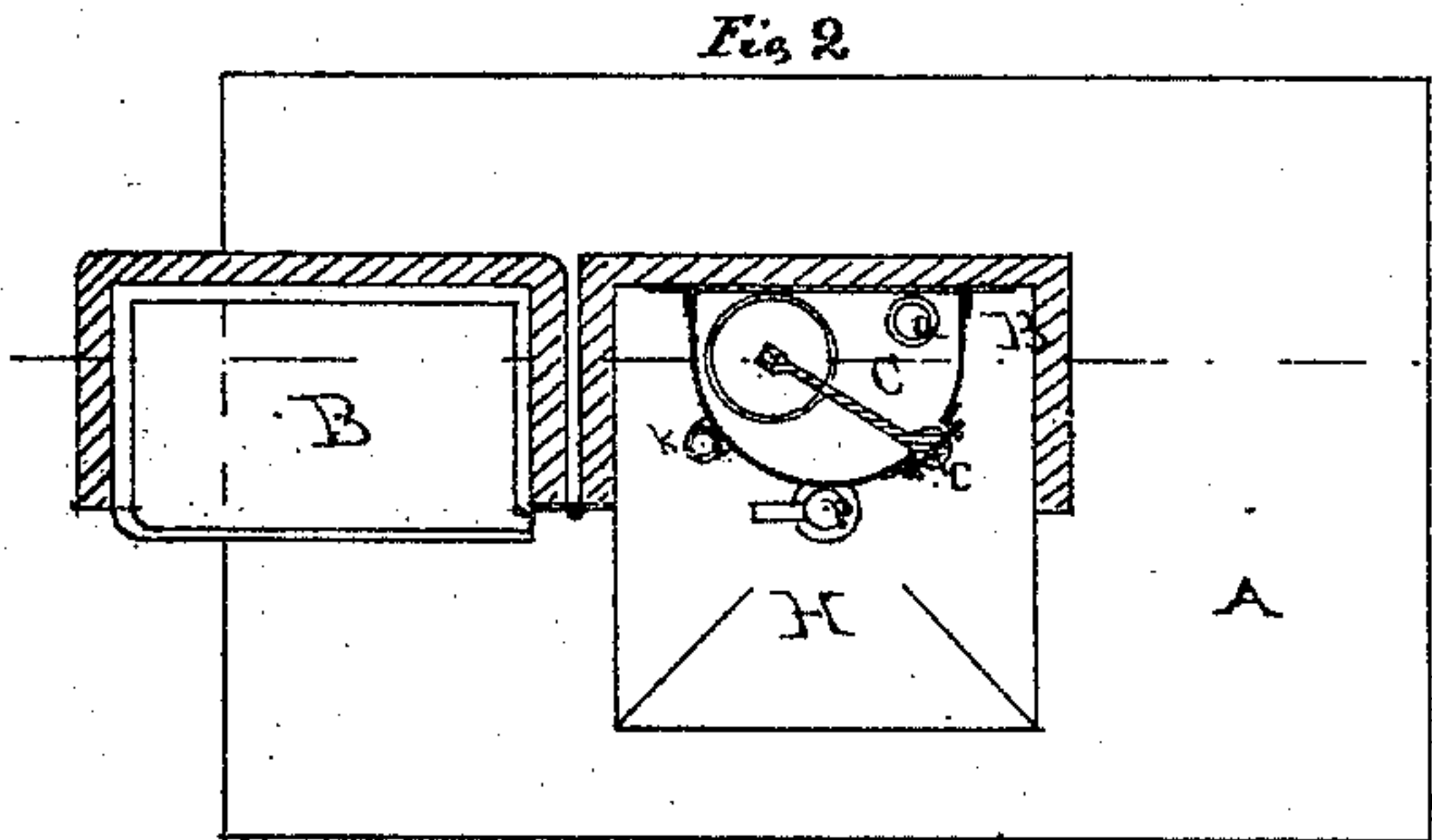
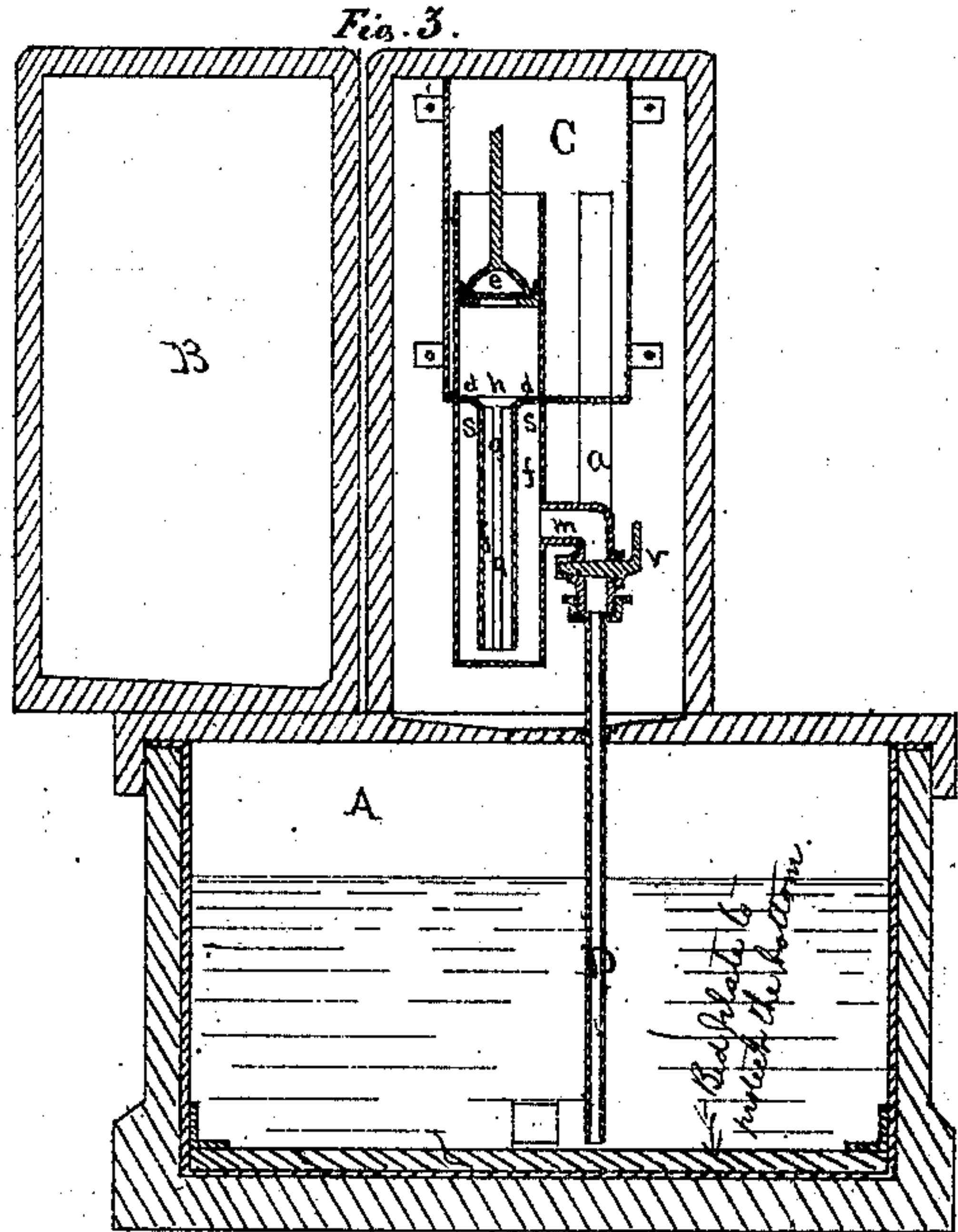
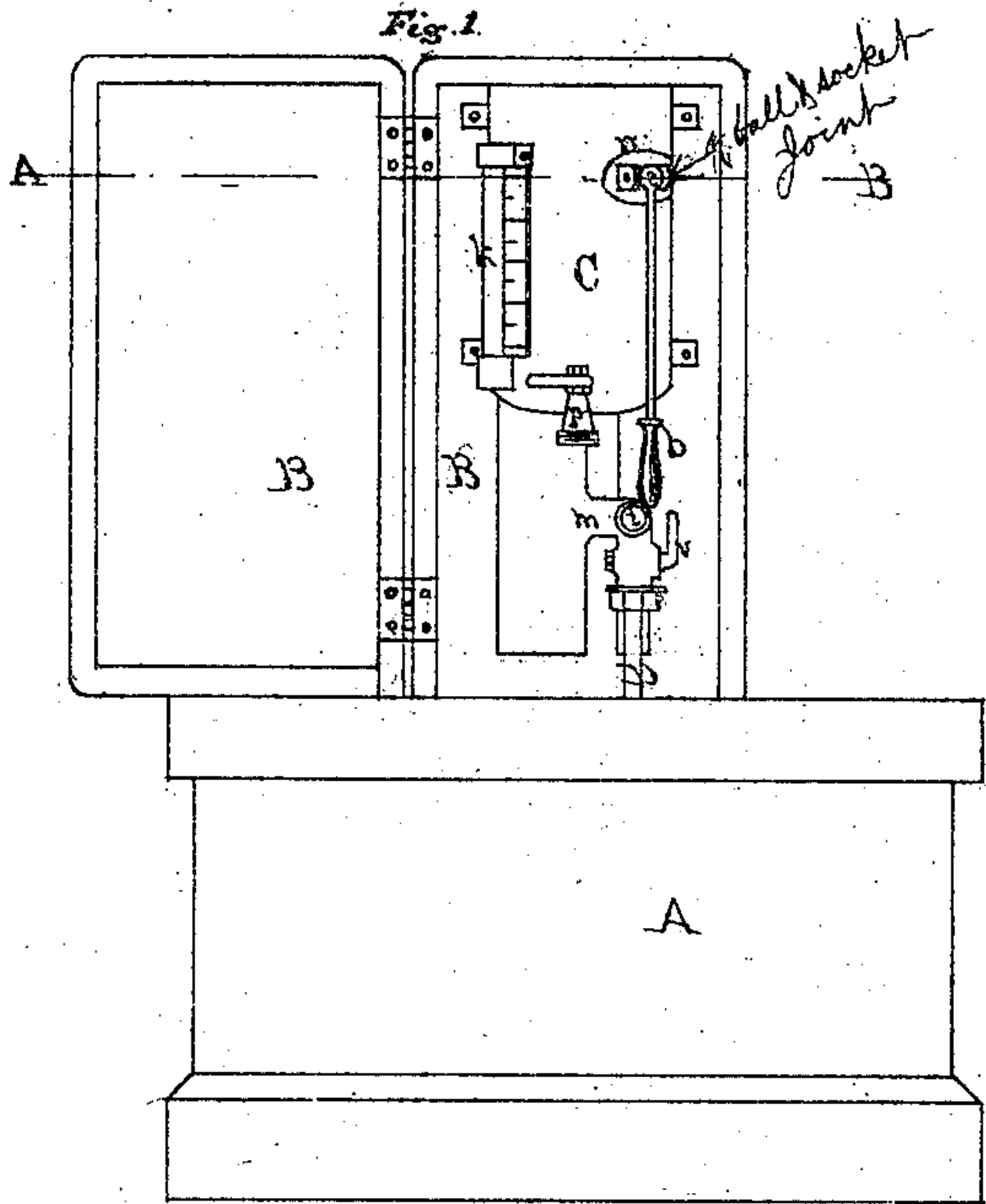


Jacob Edson's and Person Noyes'

118222

Imp^d Pump.

PATENTED AUG 22 1871



Witnesses:

John E. Brown
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Inventors:

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UNITED STATES PATENT OFFICE.

JACOB EDSON, OF BOSTON, AND PERSON NOYES, OF LOWELL, MASSACHUSETTS,
ASSIGNORS TO PERSON NOYES.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. 118,222, dated August 22, 1871; antedated August 18, 1871.

To all whom it may concern:

Be it known that we, JACOB EDSON, of Boston, in the county of Suffolk, and PERSON NOYES, of Lowell, in the county of Middlesex, both in the State of Massachusetts, have invented certain new and useful Improvements in Pumps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 represents a front elevation of our improvement as applied to an oil-tank and cabinet. Fig. 2 represents a transverse section on the dotted line A B of Fig. 1. Fig. 3 represents a vertical sectional elevation; and Fig. 4 an end view, with parts not shown in the other figures.

This invention relates to pumps which have a reciprocating motion, and which are used for raising liquids from a storing-tank below to a receiver or measuring-fountain, or for drawing liquids from casks and emptying the same into the storing-tank, by means of connecting and disconnecting-tubes or pipes and other apparatus hereinafter described. This invention has for its object to furnish and combine in a single instrument a reciprocating lifting-pump, a self-charging pump, and a siphon-pump, capable, by means of connecting-tubes, of being transformed into a siphon, and draw liquid from a cask above the storing-tank into the latter without working the pump, and, by means of other connecting-tubes, of pumping liquid from a cask on the same level with the tank and emptying it into the latter, and of measuring the liquid during the process.

In the said drawing, A represents an ordinary tank used for storing oil, and above this tank a case or cabinet, B, of any common form. In one part of the said case we secure the pump, the upper end of which rises to within a fountain, C, furnished with a return-pipe, *a*, no higher than the pump. The upper pump-box *e* is of common construction, and operates above the lower box by a lever in the usual way; but the lever or handle *b* of the pump is connected to the side of the fountain by a ball-joint and ears projecting from a plate. The ball *c*, being formed at the junction of the lever and the handle, fits a corresponding recess in the plate *n* and the side of the fountain, protruding from both sides, thus forming a convenient connection and nearly closing the aperture through the side of the fountain,

and measurably preventing the passage of oil, which sometimes spurts through the opening around the handle connected by the usual old method. At a suitable distance below the reciprocating upper pump-box is a valve-seat, *d*, and on this is seated a valve, *h*, having a depending balance-rod, *g*, surrounded by a tube, *f*, which extends to near the closed bottom end of the pump-tube. This tube *f* connects with the valve-seat, and is open at both ends. At one side of the pump-tube, and between its lower closed end and the lower valve-seat, is a side inlet, *m*, or connection, formed by a quarter-turn connection, and to the lower end of this is coupled or connected the draught-tube D leading to the storing-tank. At one side of this connection *m* is a side port, *i*, which is closed by a movable cap or plug, *q*. At or near the junction of the connection *m* and the draught-tube a stop-valve, *v*, is convenient for closing the passage between the pump and the storing-tank when pumping or drawing oil from the cask, and prevents the necessity of uncoupling the draught-tube. At one side of the fountain we arrange an indicator and measuring-gauge, K, to show the height and measurement of oil in the fountain. At the front side of the fountain is a faucet, *p*, for drawing off oil into cans or measures.

Our invention is intended for pumping kerosene and similar oils, the nature of which renders it very difficult or quite impossible to construct a pump which will not run down or leak oil so as to require recharging every few hours or less.

The operation of our improved pump is as follows: In pumping oil from the storing-tank with the parts connected, as shown in Figs. 1 and 3, the pump being charged with the liquid, the oil is drawn through the draught-tube D and the open connection *m* into the pump-tube below the lower valve, passing downward below the tube *f*, thence upward through said tube, raising and passing the lower valve to the space below the upper box *e*, and through this over the top of the pump and into the fountain. When the pump ceases to operate the oil soon runs down, which, in ordinary pumps, require recharging, but in this a sufficient quantity of oil to charge the pump is left in the lower part of the pump-tube below the inlet *m* and around the lower portion of the tube *f*. With the pump in the above-de-

scribed condition the upper box is set in motion by the usual movement of the handle. The charging oil is first raised into the space above the valve *h* and around the upper and movable box sufficient to charge the pump and make it draw from the tank or from a cask outside of the tank; and this charging oil is always left in the lower part of the pump-tube ready for use when required. In pumping oil from a cask to the storing-tank the draught-tube *D* is disconnected, and a flexible tube, *E*, applied to the lower end of the connection *m* and to a cask, *G*, on the same level with the tank, as clearly shown in Fig. 4. With this arrangement the oil from the cask is pumped up into the fountain and drawn off through the faucet into a pan or sink, *H*, beneath it, and passes through a strainer-covered aperture into the storing-tank, to be pumped up after detaching and making the connections, as shown in Fig. 3. In drawing oil from a cask above the storing-tank, as where the tank is located in the cellar or room below the pump, the cask is placed in about the position of that seen at *M*, in Fig. 4. In this case the draught-tube *D* remains connected, as in Fig. 3, and the cap *q* is removed and one end of a flexible pipe applied to the side port, and the opposite end of said tube inserted in the bung of the cask *M*; the valve *v* is opened, the pump started and worked sufficiently to fill the tubes, when the pump may cease working, and the oil may run from the cask *M* into the tank through the tube *N* and the side port to the pump-tube below the lower valve *h* through the connection *m* and the draught-tube, which together form a perfect siphon. By connecting the upper end of the tube *E* with the side port *i* and closing the stop-valve *v* at the upper end of the draught-pipe *D*, oil may be pumped from a lower cask, *G*, and emptied into the tank through the fountain and the faucet without disturbing the draught-pipe. When the draught-pipe is detached or disconnected it falls a short distance, and would strike the inner lining of the tank, and would be liable to break the lining and cause a leak. To guard against this liability we provide a cushion or bed-plate, *L*, which covers the whole bottom lining of the tank and protects it from any injury of the falling disconnected draught-pipe inserted in any part of the tank.

We have referred to the side inlet *m* between the lower valve-seat and the lower closed end of the pump-tube. Above this side inlet, and surrounding the tube *f*, we provide a vacuum-chamber, *S*, which serves the same purpose of an air-chamber below the piston in an ordinary pump; and beside this it enables us to employ a smaller draught-tube, and consequently to work the pump more rapidly. It insures a uniform and regular draught and flow of oil through and from the pump into the fountain, leaving the oil unagitated against the surface of the measuring-gauge and around the upper end of the return-tube. This vacuum-chamber *S*, being necessa-

rily always filled with air, exerts an assisting influence when starting the pump, or aids the charging oil in the lower part of the pump-tube in drawing the oil from the tank. The bed-plate *L*, before referred to, is not intended as a mere fender to prevent the detached draught-tube; but this bed-plate serves another and a very important purpose, which is as follows: After the tank has been several times filled with kerosene oil, and as many times emptied or partially emptied of its contents, a considerable quantity of sticky, pasty, sedimentary substance will be found upon the bottom. To remove this sedimentary deposit from the bottom of the tank, after the oil is pumped out, we are obliged to use both a scraper and a shovel or similar instrument, which, if used with the utmost care, are liable to injure the bottom lining. This bed-plate *L*, covering the entire surface of the bottom of the tank, receives the deposit before mentioned, which may be removed from the bed-plate without injury to the tank-lining. This bed-plate also serves a third purpose of protecting the whole of the bottom lining, and not merely that portion under the draught-tube; and this is important, as it is necessary at times to remove the pump from one part of the tank to another—sometimes a short distance, and at other times nearly the whole length or width of the tank; and such a removal of the pump is generally made to accommodate some counter, desk, or fixture in the store, or to bring the pump on the opposite side of some partition or wall, the tank being in the cellar; and this obviates the necessity of moving the tank, which, if full, would first have to be emptied of its contents, involving considerable labor and delay. Thus it will be seen that the bed-plate *L* serves a threefold purpose, and is of considerable advantage in connection with the pump.

In this case we make no claim for the storing-tank, or the case or cabinet above the tank, or for a standing fountain, or an indicator therewith connected, such parts being embraced in the former patent or patents to PERSON NOYES; but

We claim as our invention—

1. A self-charging pump, substantially as described, consisting of an outer pump-tube, an inner tube, *f*, valve-seat *d*, and valve *h*, and provided with a connection or inlet, *m*, having a side port, *i*, a cap, *q*, a draught-pipe, *D*, an upper box, *e*, and an operating-lever, all combined, arranged, and operating substantially in the manner and for the purpose set forth.

2. The combination of all the parts, viz., the pump and the cabinet *B*, the fountain *C*, return-tube *a*, the gauge *k*, faucet *p*, sink *H*, flexible tube *E* or *N*, bed-plate *L*, and tank *A*, all arranged to effect the objects herein set forth.

JACOB EDSON.

PERSON NOYES.

Witnesses:

JOHN E. CRANE,

CHAS. HUNT.