

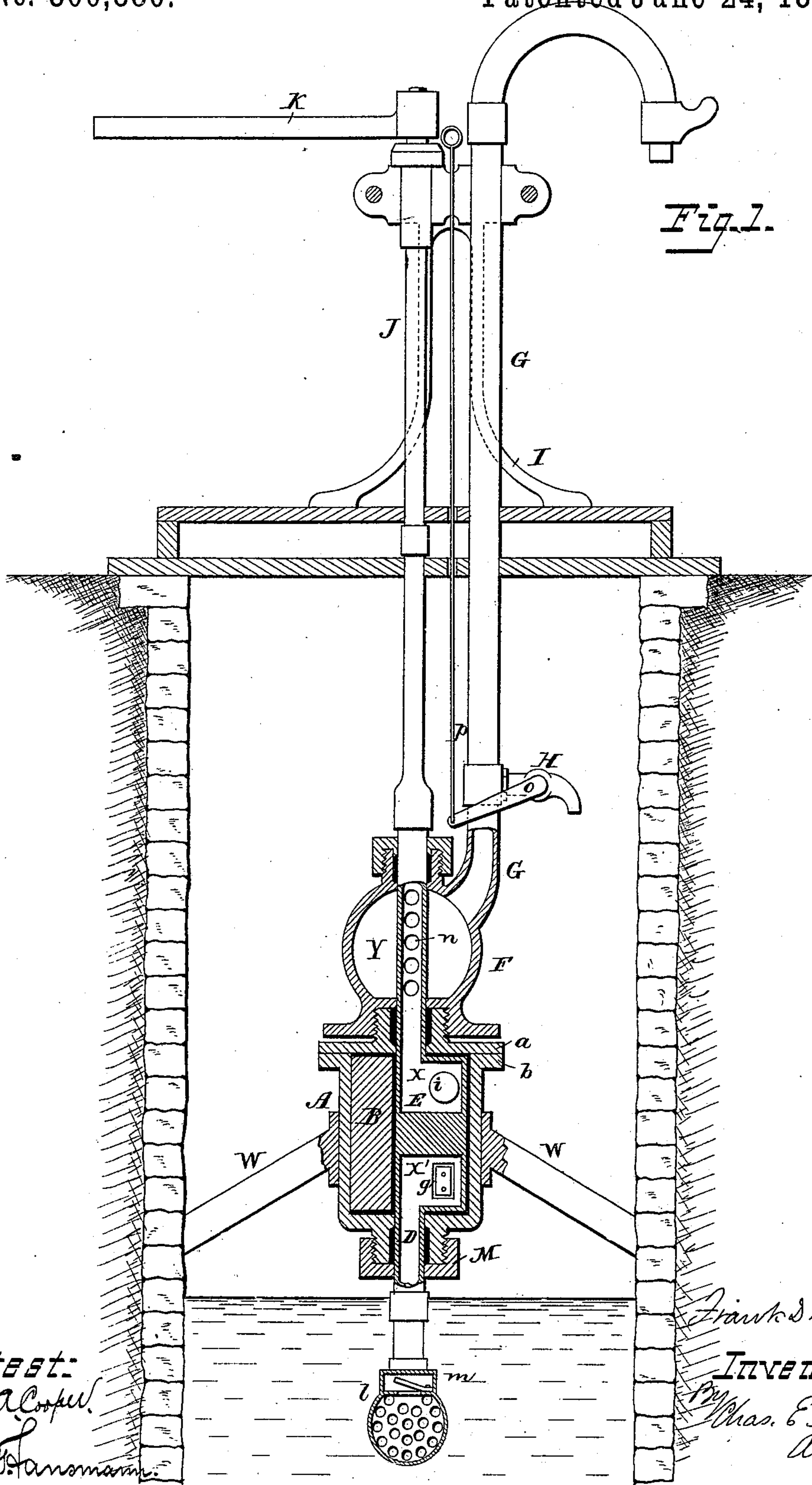
(No Model.)

2 Sheets—Sheet 1.

F. D. MALTBY.
PUMP.

No. 300,880.

Patented June 24, 1884.



Attest:
Court A. Cooper.
A. E. Lammiman.

Frank D. Maltby
Inventor:
By Chas. E. Foster
Atty.

(No Model.)

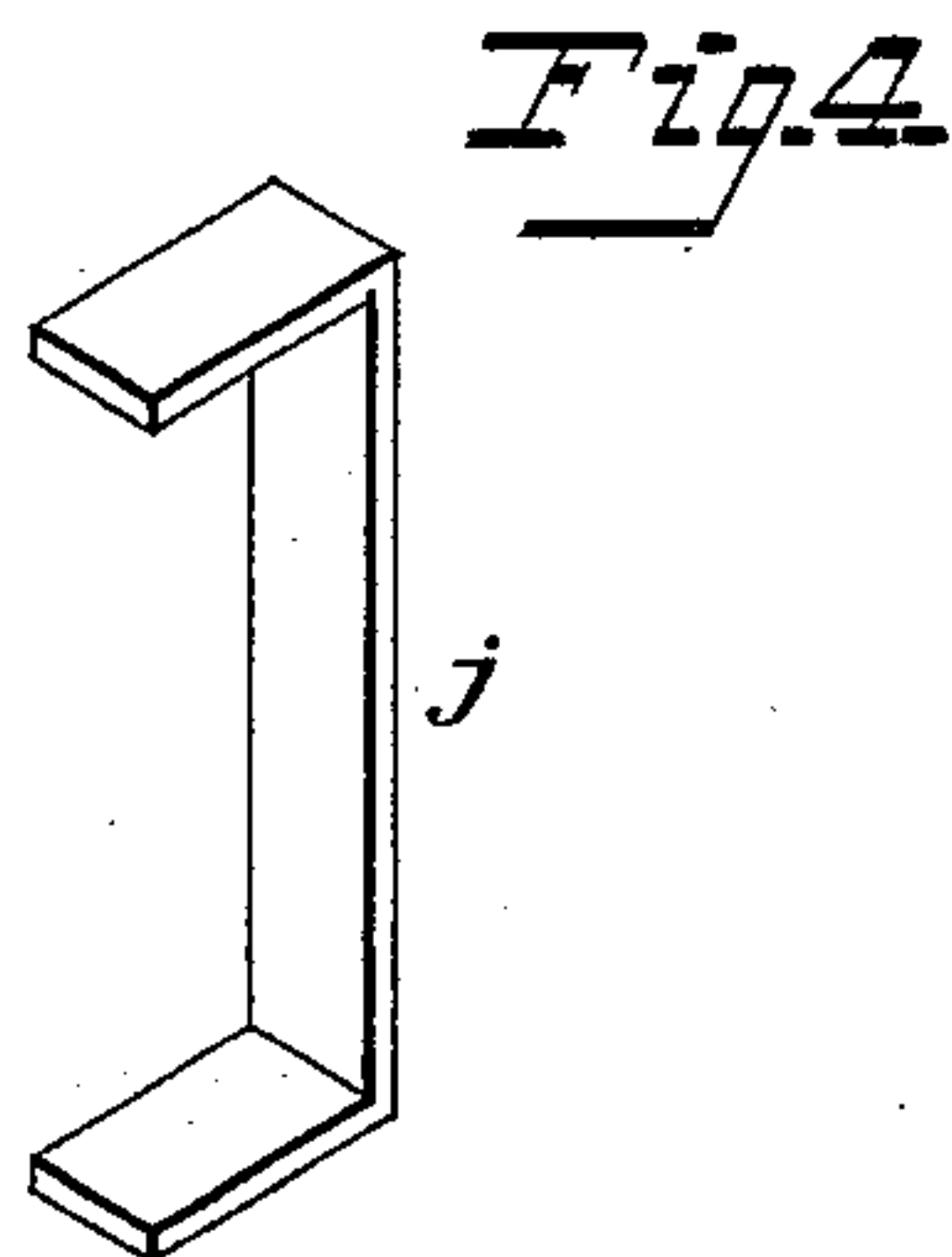
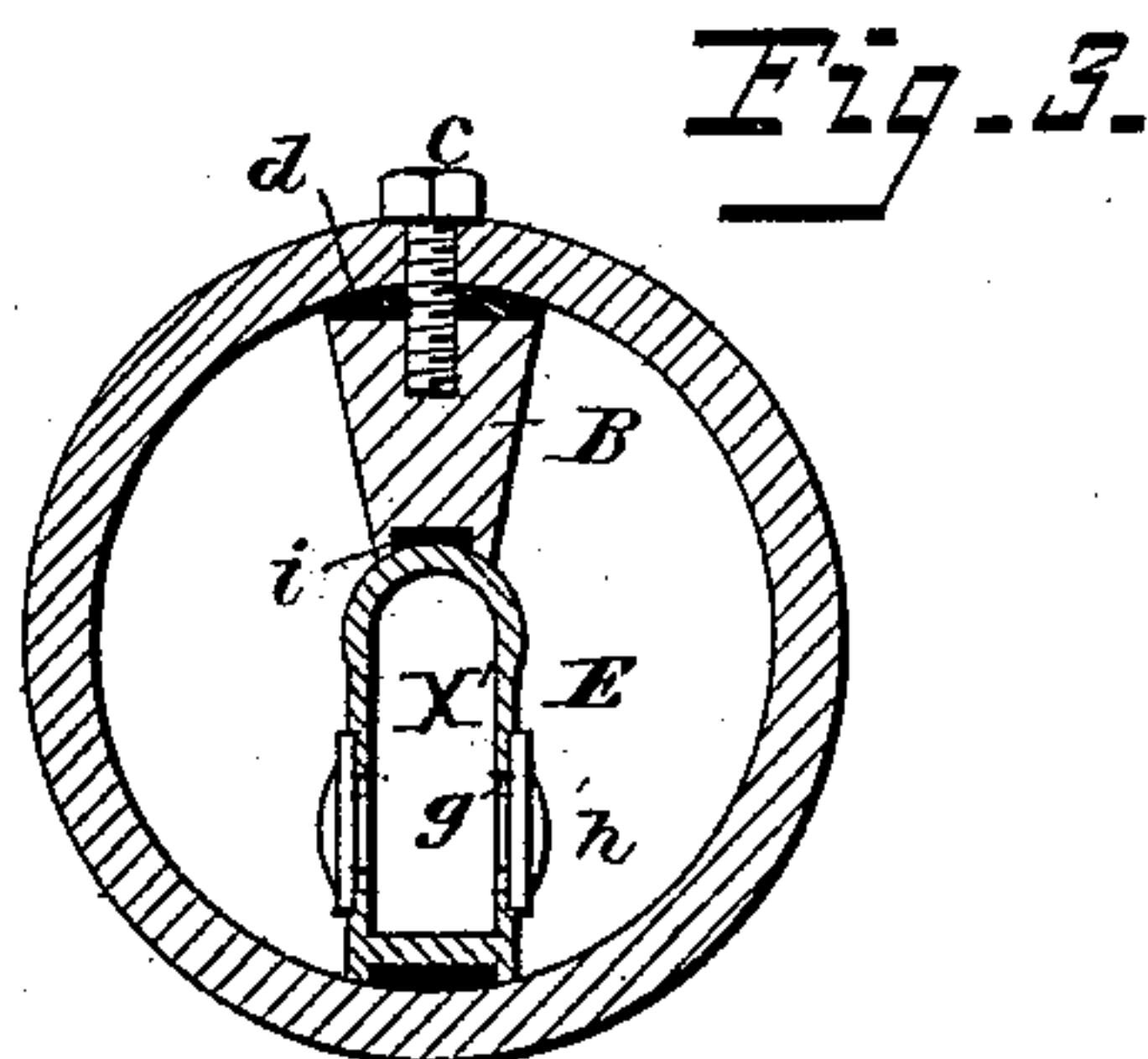
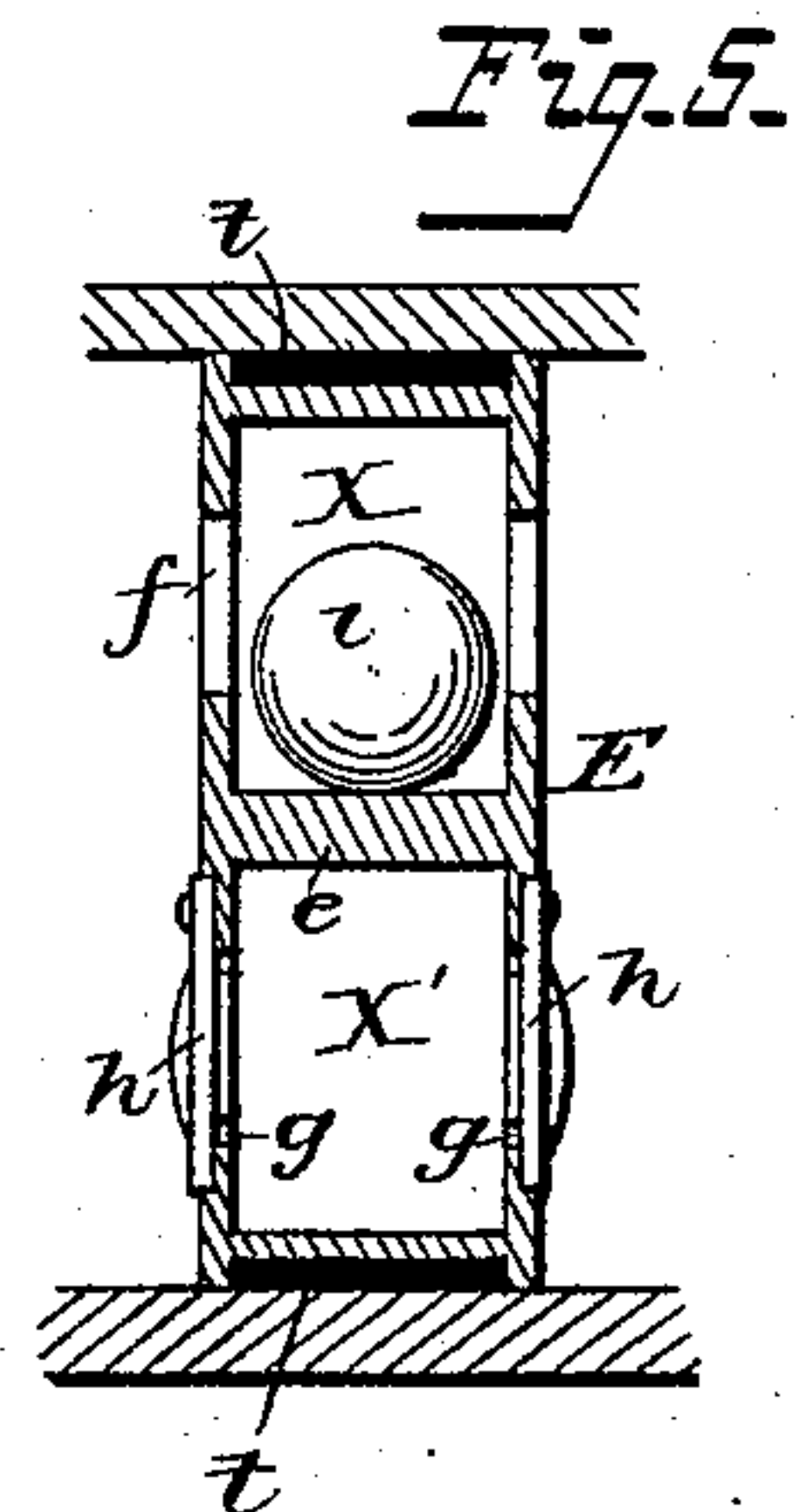
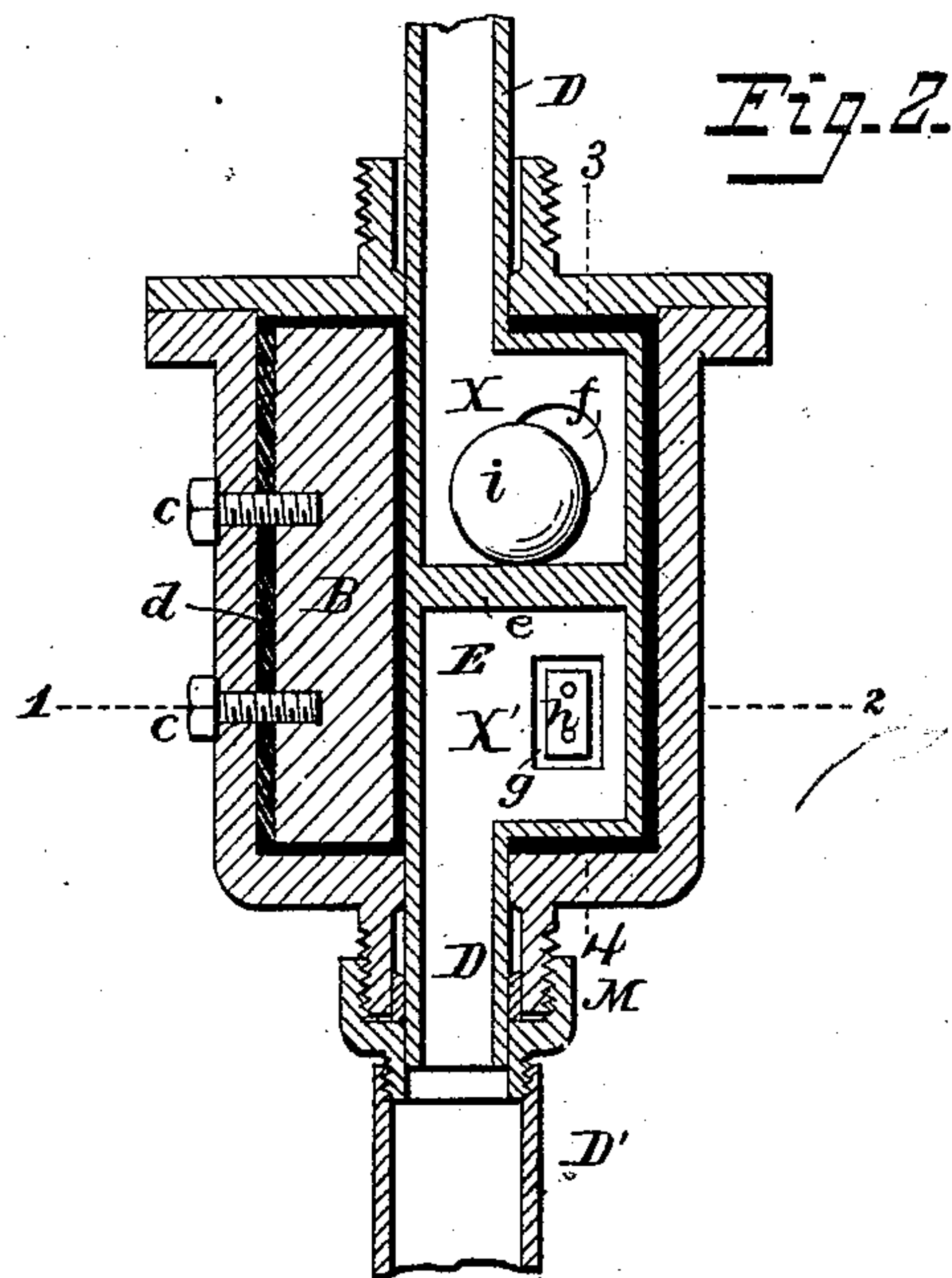
2 Sheets—Sheet 2.

F. D. MALTBY.

PUMP.

No. 300,880.

Patented June 24, 1884.



Attest:
A. E. Hansmann.

Frank S. Maltby
Inventor:
By Charles E. Foster
Atty

UNITED STATES PATENT OFFICE.

FRANK D. MALTBY, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF, DE BORDEN WILMOT, AND WELLESLEY W. GAGE, OF SAME PLACE.

PUMP.

SPECIFICATION forming part of Letters Patent No. 300,880, dated June 24, 1884.

Application filed May 9, 1883. (No model.) Patented in Belgium September 18, 1883, No. 62,622, and in England September 20, 1883, No. 4,498.

To all whom it may concern:

Be it known that I, FRANK D. MALTBY, of the city, county, and State of New York, have invented certain Improvements in Pumps, of which the following is a specification.

My invention is a force-pump constructed, as fully described hereinafter, so as to elevate water from wells, &c., by means of operating devices at a considerable distance above the surface of the water.

The invention also consists in certain details of construction fully set forth.

In the drawings, Figure 1 is a sectional elevation showing my improved pump applied to a well. Fig. 2 is a sectional view of the pump, showing a modification. Fig. 3 is a transverse section on the line 1 2, Fig. 2; and Fig. 4, a detached perspective view of the packing. Fig. 5 is a section on the line 1 2, Fig. 2.

A is the pump-cylinder, closed at both ends, the upper end being provided with a detachable cap, *a*, bolted to a flange, *b*, of the cylinder. Within the cylinder is secured a radial abutment, B, which is retained in place by screw-bolts *c*, a packing, *d*, being clamped between the abutment and cylinder, and effectually preventing any leakage. A tubular piston-rod, D, extends through packing-boxes at the ends of the cylinder, and carries a radial piston, E, having two chambers, X X', separated by a central partition, *e*, the walls of the chambers having openings *f* *g*, the lower openings, *g*, being closed by external pendent flap-valves, *h*, and a ball-valve, *i*, within the chamber X, being fitted to seats of the openings *f*, as in the pump patented to Brust and Douglass, March 29, 1881. In the inner edge of the abutment B is a longitudinal channel, *i'*, and in the upper and lower edges are like channels, to which is fitted a packing-strip, *j*, bent to the E shape shown in Fig. 4, thereby packing tightly the joints between the piston-rod and the abutment and between the latter and the cylinder-heads. This construction enables me to use but a single strip of packing for the three joints, avoids difficulty in adjusting, and secures better results than when separate pieces are used. The ends and edge

of the piston have also grooves *t*, adapted to receive a E-shaped packing with like results. Should the packing on the abutment B become worn, the joint may be tightened by putting filler-pieces between the outer edge and the abutment, proper adjustment being secured by means of the screws *c*.

For pumping from deep wells, the case A is secured in a fixed position in the well by braces W, or otherwise, and a chest, *l*, which may contain a check-valve, *m*, may be secured to the lower end of the hollow piston-rod, which may be prolonged to any convenient extent to constitute a suction-pipe. The upper end of the piston-rod is prolonged to extend through a chamber, Y, in a hollow case or dome, F, bolted to or forming part of the cap *a*, and perforations *n* are formed in the piston-rod within the said case.

A pipe, G, leads from the case F to the top of the well, and a cock, H, near the lower end of the pipe is provided with a handle, *o*, and rod *p*, extending to the top of the well, so that the cock may be opened to discharge the water in the pipe and prevent freezing. The upper end of the pipe G is supported by a standard, I, which also supports a rod, J, connected to the upper end of the piston-rod D, and provided with a horizontal operating-lever, K. The rod J is made in sections, so that it may be extended or shortened according to the depth of the well. By oscillating the lever K, the piston is vibrated and water is taken into the pump-cylinder and forced therefrom, but, instead of being discharged at the end of the piston-rod, as in the patented pump before referred to, is received into the chamber Y, and passes thence to the pipe G. This construction permits the pump to be placed at any desired distance below the surface, the horizontal position of the lever K permitting the application of any required force to elevate the water, a considerable force being requisite when the column of water is of any great length.

In some instances it is not desirable to prolong the piston-rod below the cylinder, in which case a stationary tube, D', Fig. 2, may be used, said tube screwing onto a coupling,

M, which screws onto the case, receives the end of the piston-rod, and also serves to confine the packing round the rod D.

I claim—

- 5 1. The combination of the pump-cylinder A, and vibrating radial piston E, and an abutment, B, extending into and secured adjustably within the cylinder, substantially as set forth.
- 10 2. The abutment and piston having edge and end grooves, in combination with a strip of packing bent and fitted to said grooves, as set forth.
- 15 3. The combination of the cylinder A, adapted to be secured vertically in or above the

body of water to be raised, the casing F, and outlet-pipe G, and the hollow perforated piston-rod carrying the chambered and valved piston E, extending through said chamber, and the rod J, connected to the piston-rod, and 20 provided at the upper end with a lateral lever, substantially as set forth.

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

FRANK D. MALTBY.

Witnesses:

ARCHIBALD C. WEEKS,
CHARLES E. FOSTER.