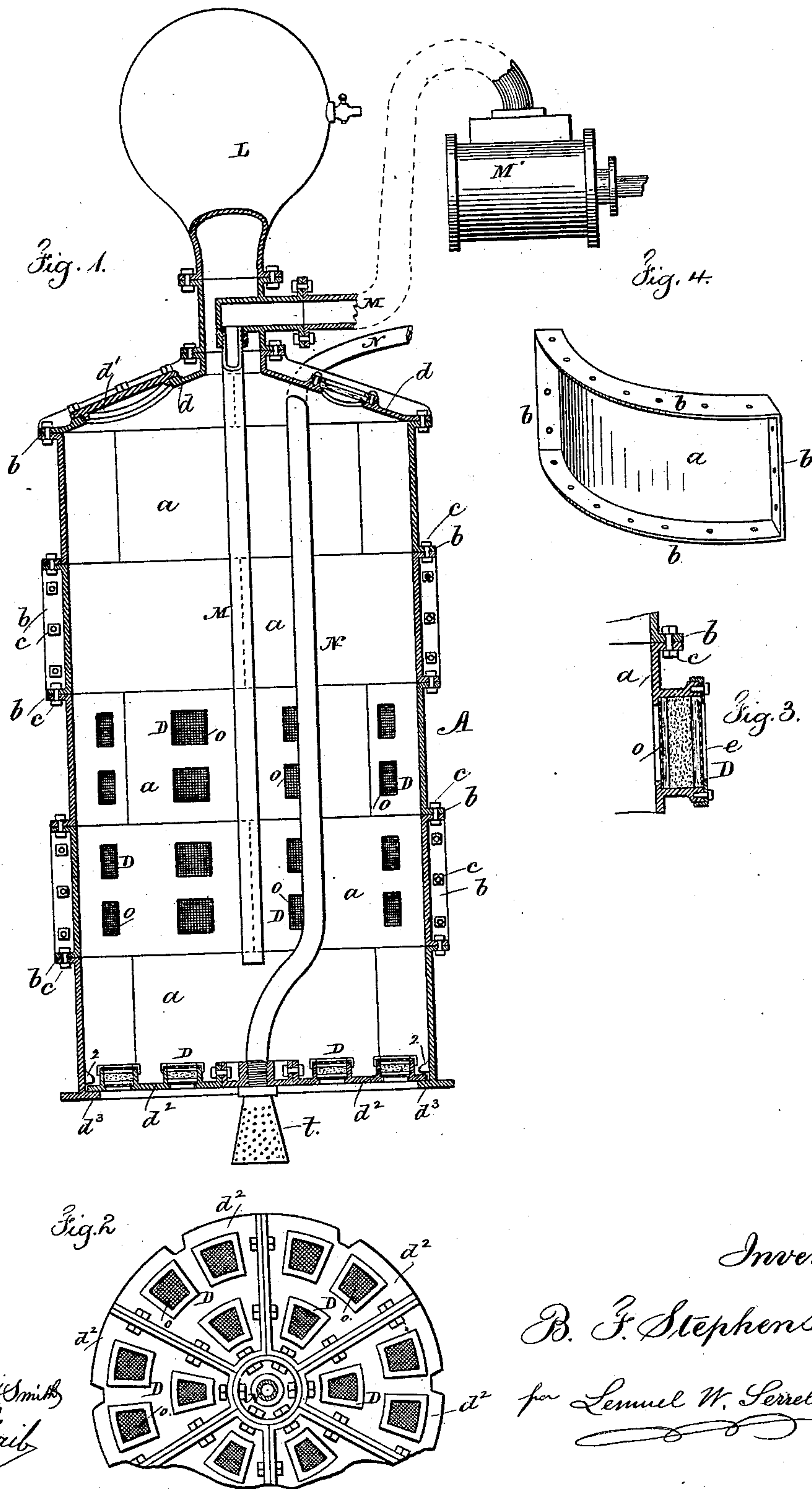


(No Model.)

B. F. STEPHENS.
WELL.

No. 272,596.

Patented Feb. 20, 1883.



Witnesses
Chas. H. Smith
J. Hall

Inventor
B. F. Stephens
for Lemuel W. Ferrell
att'y

UNITED STATES PATENT OFFICE.

BENJAMIN F. STEPHENS, OF BROOKLYN, NEW YORK.

WELL.

SPECIFICATION forming part of Letters Patent No. 272,596, dated February 20, 1833.

Application filed October 9, 1882. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. STEPHENS, of Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Wells, of which the following is a specification.

In many places the water is impregnated with considerable earthy material, that is deposited inside the well and fills it up more or less rapidly, and interferes with the water-supply.

The object of the present invention is to exclude the earthy foreign material, from the well, and to provide for cleaning the filtering material and causing the earthy substances to be washed away from the filters sufficiently to prevent the well being obstructed thereby.

In the drawings, Figure 1 is a vertical section of the well complete. Fig. 2 is a plan of the bottom of the well. Fig. 3 is a section in larger size of one of the filter-pockets, and Fig. 4 shows one of the sections of the well-plates.

The well is composed of a vessel, A, somewhat similar to a boiler, but preferably of cast-iron sections *a a*, having flanges *b* and bolts *c*, by which the sections are bolted together. These flanges are preferably on the outside, and the joints are rendered water-tight by lead, rubber cement, or other packing introduced between the flanges. The sections are to be more or less numerous, according to the size of the well, so as to be convenient in handling.

The top of the well is either flat or dome-shaped, and made of sectoral segments *d*, with flanges, bolted together. There is to be either a removable segment or a man-hole, *d'*, in the top of the well to give access to the interior when necessary.

There are boxes or pockets D opening through the well-plates, and each pocket is provided with gratings *e e*, of wire-cloth, at the outer and inner sides of a filtering material—such as felt at each side of sand, gravel, charcoal, or other similar substance. These filtering-boxes preferably project outwardly; but they may project inwardly, if desired, and it is preferable to introduce stones or coarse gravel around the outside of the well in considerable quantity near these pockets to keep the earthy material from direct contact with the gratings *e*. These

filtering-pockets are to be introduced in the well below the water-line and where they will not receive surface water, and they may all be in the sides of the well or in the bottom, or some in each, and these filtering-pockets are to be sufficiently numerous to allow the required water-supply to pass into the well.

The bottom of the well is made of sectors *d*², bolted together, and there is a flange, *d*³, around the lower end of the vessel A, upon which the bottom rests. There are lugs *h* upon the inside of the vessel A, slightly above the flange, so that the edge of the bottom may rest upon the said flange *d*³, and be below the lugs, so that the bottom is held down, and there are notches in the edges of the bottom, so that the head can be lowered past the lugs and then partially rotated to position.

There is an air-vessel, L, upon the upper part of the well, and a pipe, M, passing into the well and preferably extending to near the bottom, and this pipe M is connected with a pump, and with a reservoir or stand-pipe or a force-pump. Under ordinary circumstances the water will percolate through the filters and remain in the well until drawn up by the pipe M and pump. The filters will keep back solid matter—such as sand, clay, &c.—and hence each filter may in time become more or less coated on the outside with a deposit that will interfere with the free passage of the water. In order to wash out the filters and cleanse them from this sediment, I allow water, under pressure, to pass into the well and to act within the well, or else I apply a force-pump, M', to set up a sufficient water-pressure in the well to produce a powerful flow of water from the well outwardly through the filters to carry away from them the sediment to a sufficient distance to prevent its returning and again obstructing the filters. This, being done periodically, keeps the filters in good order and prevents the obstructions heretofore usually arising in wells where the water contains solid matter in suspension. The air-vessel prevents concussion or injury to the filters by any sudden forcing of the water.

The filters D, in the bottom of the well, are made in a similar manner to those in the sides; but as there is a tendency for sand, mud, and other materials to fill into the water-space below the metal bottom, I introduce a pipe N,

and, if necessary, a strainer, *t*, extending below the bottom and passing up through the head, so that a pump may be applied to this pipe and the sand pumped out with the water whenever necessary for keeping the water-space clean.

I claim as my invention—

1. The combination, with a well having a metal case, of filter-boxes with filtering material and a suction-pipe, and means for forcing water into the case, substantially as set forth, whereby the filters can be cleansed by water forced outwardly through them, substantially as set forth.

2. The combination, with a well formed of a metallic case having a bottom, of filter-boxes and a pipe extending through the bottom for pumping out sand and other foreign matters from the water-space below the well bottom, substantially as set forth.

Signed by me this 3d day of October, A. D. 1882.

BENJ. F. STEPHENS.

Witnesses:

GEO. T. PINCKNEY,
WILLIAM G. MOTT.