J. T. FARRAND.

RAISING WATER.

No. 6,192. Patented Mar. 20, 1849.

Fig. 1.

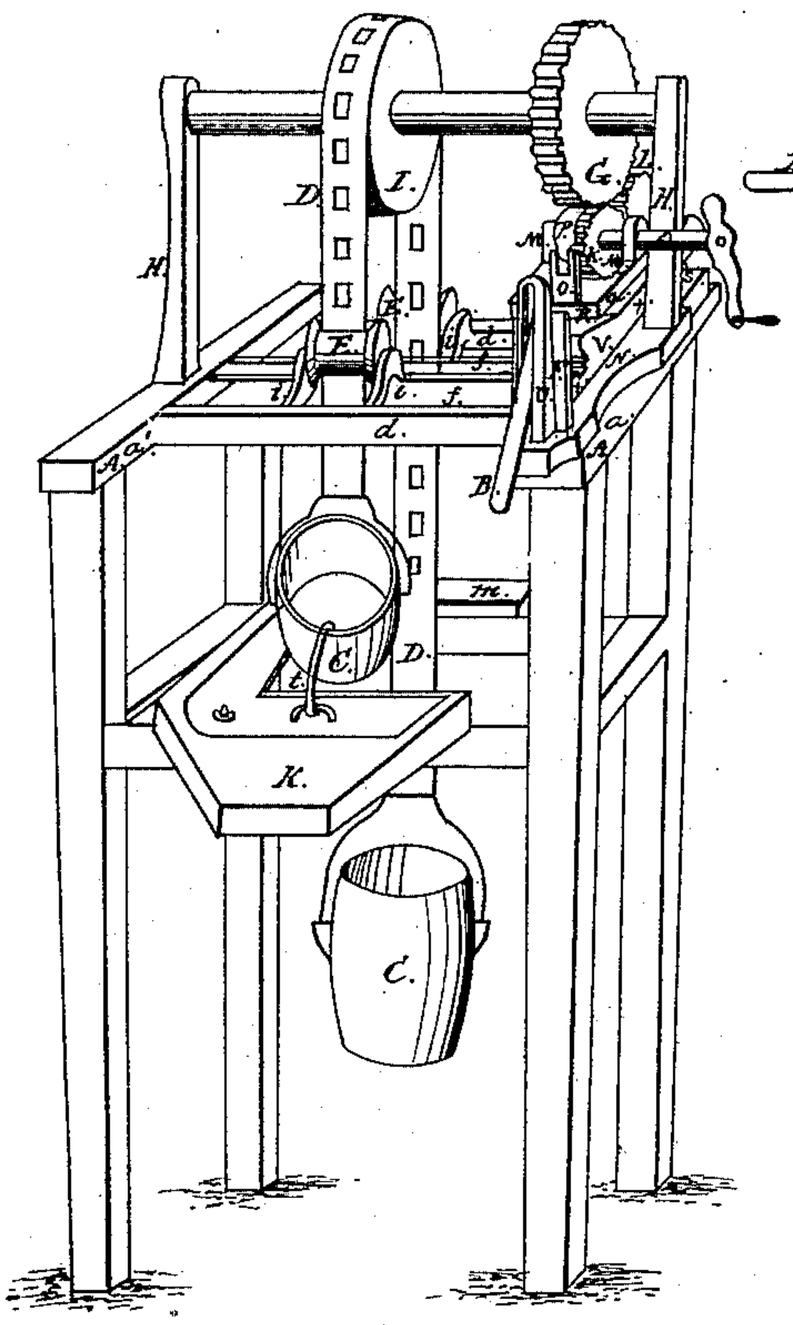


Fig. 2.

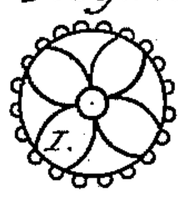
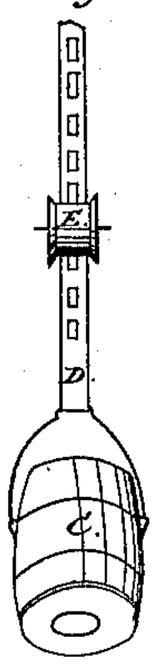


Fig. 3.

Fig. 4.



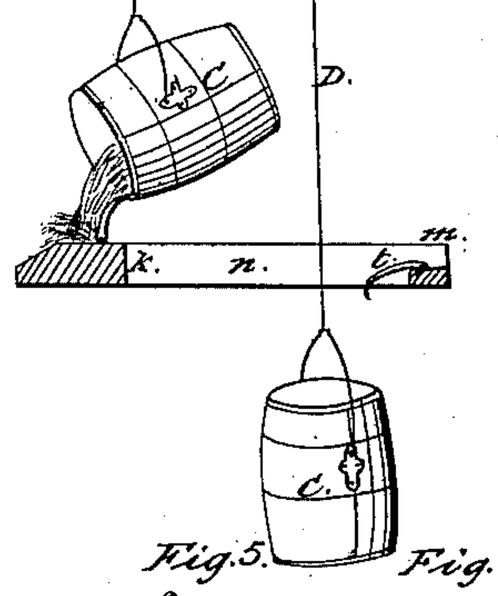


Fig. 5.

Fig. 6.

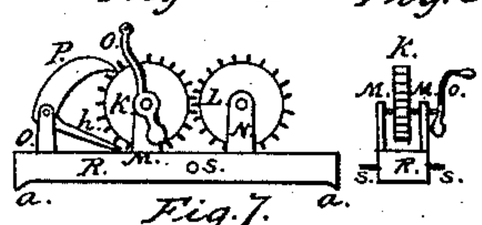


Fig. 7.

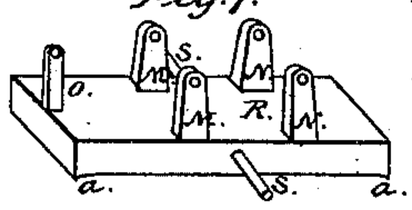


Fig. 8.

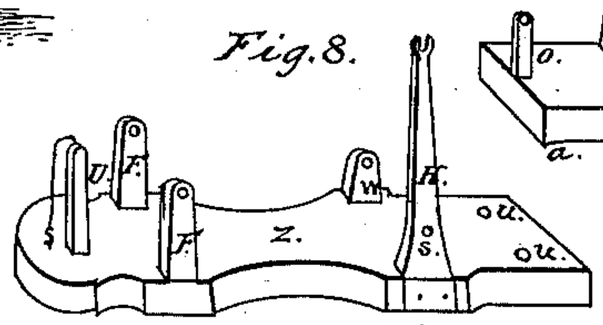


Fig. 9.

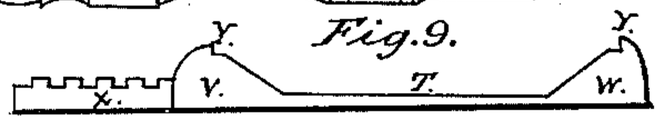
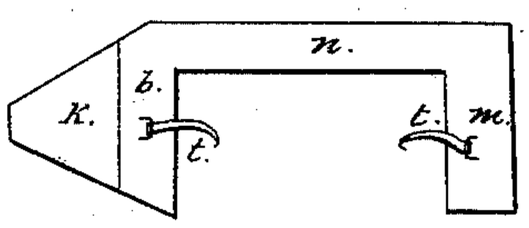


Fig. 10.



UNITED STATES PATENT OFFICE.

JEHIAL T. FARRAND, OF PORT BYRON, NEW YORK.

APPARATUS FOR DRAWING WATER FROM WELLS.

Specification of Letters Patent No. 6,192, dated March 20, 1849.

To all whom it may concern:

Be it known that I, JEHIAL T. FARRAND, of the village of Port Byron, in the county of Cayuga and State of New York, have invented sundry Improvements in my Machine for Drawing Water from Wells and Cisterns, called a "Water-Drawer;" and I do hereby declare that the following is a full and exact description of said invetnion.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation, reference being had to the annexed drawings making a part of this specification in which—

Figure 1 is a perspective view and the other figures from 2 to 10 inclusive are perspective and sectional and side views of different parts as hereinafter referred to, the same letters being used in all of said figures to designate the same parts of said machine, and Fig. 1 being the one in all cases referred to in this specification unless a reference is specially made to one or more of the others by their numbers.

Into the opposite sets of posts of any given well or cistern curb I firmly insert two horizontal sills A^a, $A^{a'}$, at equal distances from the bottom of the curb, and so far from it that the hand crank Q hereinafter described will be located at a convenient distance from the ground for use.

I construct a base Z of cast iron (in No. 1 of my machines of about 14 inches long, $4\frac{1}{2}$ inches wide and $\frac{1}{2}$ inch thick) which I attach firmly by means of screws or loops to the upper side of one of the sills A^a. In Fig. 3 Z represents a side view of said base, and Fig. 8, is a perspective view of the same. To the edge of said base Z nearest the hand crank Q hereinafter described, and at a point about one-third of the distance of the whole length of said base Z from the end thereof I attach by means of screws running into the base Z a flat perpendicular post H, of sufficient height to accommodate the shafts of the wheels hereinafter described. In Figs. 3 and 8, respectively said post is represented by H. On the edge of said base Z immediately opposite the post H, and cast with and forming part of said base Z, I erect another small perpendicular post of sufficient height to accommodate the rear end of the pivot S, hereinafter described. Said post is fully shown in Fig. 8 by *w*. On the base Z at point about three inches from the end thereof farther from the post H, I erect two small perpendicular posts cast with and forming part of said base Z, on the opposite edges of said base, and of sufficient height to accommodate in their tops a shaft or pivot on which the ratchet lever A hereinafter described revolves. Said posts are represented by F, F, and also by the same letters in Fig. 8, and one of them by F, in Fig. 3.

I construct of iron a sliding bar T three inches shorter than the base Z, and about $1\frac{1}{4}$ inches wide and $\frac{1}{4}$ inch in thickness. On the upper side of said sliding bar T, on the end nearest the rachet bar A, hereinafter described when said sliding bar T is placed on the base Z as below described, I construct a number of cogs of a size and shape to match and gear into those in the toothed segment A, below described. The portion of said sliding bar T on which I construct said cogs, I make one quarter of an inch narrower than the rest of said bar. The said sliding bar T, lies upon, and is kept in its place in the center of the base Z (longitudinally) by means of small projections arising from and forming part of said base Z, represented in Fig. 8 by *u*, *u*, and one of them in Fig. 3, by *u*, and its end having the cogs thereon slides between the posts F, F, above mentioned. The only motion said sliding bar T has is longitudinally of said base Z. A section of said sliding bar T is represented by Fig. 9, and in Fig. 3, by T. On the upper side of said sliding bar T, as it rests upon the base Z, and on the end opposite the cogs above described and facing them I construct an inclined plane or wedge W, made with and forming a part of said sliding bar T, and rising from its plane at an angle of about thirty degrees and about one inch high at its greatest elevation, a small notch or depression is made near the top of said inclined plane or wedge W, represented in Figs. 9 and 3, by Y, for the purpose of holding in its place the lower corner of the tumbler R hereinafter described. I also construct on the said sliding bar T, another inclined plane or wedge V, facing the one above described W and in all respects like it, except fronting in the opposite direction. The back or perpendicular of the inclined plane or wedge V, adjoins the cogs heretofore described on the sliding bar T. The distance between the inclined planes or wedges W, and V, is such that the tumbler R hereinafter described will rest when in a hori-

zontal position at the same time on the centers of both of said inclined planes or wedges.

I also construct another bar R (of iron) which I denominate a tumbler of sufficient length to accommodate the two small pinion wheels K, and L, and the dog P, and its post O, hereinafter described. I make said tumbler R about 3 inches wide and $\frac{5}{8}$ inch thick; and across its ends on the side below the pinion wheels I make projections or small inclined planes of a size and shape to match the notches or depressions in the inclined planes or wedges W, and V, at Y.

Fig. 7 is a perspective view of the tumbler R, and Fig. 5 is a sectional view of the same in each of which the projections or small inclined planes above described are represented by *a*, *a*. Said tumbler R, is attached to the post H, by a pivot S, running horizontally from said tumbler R, into said post H, on the front side, and into the top of the small post *w*, hereinbefore mentioned on the back side. On the end of the tumbler R nearest the ratchet lever A, I erect a post O, (cast with and forming part of said tumbler) of a suitable height to accommodate in its top a dog P, to act on the pinion wheel K, below described, as fully shown by O, and P, in Figs. 3, 5, & 7. On the upper side of the tumbler R, I cast two pairs of perpendicular posts forming a part of said tumbler, and about four inches high, and rising from the edges of said tumbler, one pair of said posts is represented in Fig. 1, by M, M, and one of each pair by M, and N, respectively in Figs. 3 and 5, and both of each pair in Fig. 7 by M, M,—N, N, and the transverse section of the tumbler R, represented in Fig. 6, shows one pair M, M. Said pairs of posts are at such a distance from each other longitudinally of the tumbler R that their tops will accommodate the shafts of the pinion wheels K, and L, below described when said pinion wheels are geared into each other, and the pair M, M, is at such a distance from the post O, that the pinion wheel K, turning on a shaft in their tops will play clear of said post O, and give the dog P, in its top room to act on said pinion wheel K.

The pinion wheel K, I cast of about three and a half inches diameter; its shaft Q runs in the tops of the small posts M, M, and on its outer end is a hand crank *o*. To prevent back action of this pinion wheel K, the dog P, is placed in the top of the post O and rests on the pinion wheel K. The dog P, has a finger *h* in Figs. 3 and 5 passing down partly under the pinion wheel K to prevent its falling backward. The pinion wheel L, is cast in all respects like the pinion wheel K, runs on a shaft turning in the tops of the small posts N, N, above described. The two pinion wheels K, and L, are permanently geared into each other. Figs. 3, and 5, represent sectional or front views of said pinion wheels, and the dog P, and its post O, and finger *h*.

The pivot S, which attaches the tumbler R, to the post H, and the small post *w*, in Fig. 8, projects horizontally from the sides of said tumbler R, and at right angles with it at a point half way between the bases of the pairs of posts M, and N, and precisely at the center (longitudinally) of said tumbler R, and passes through an orifice in the post H, represented by S, in Figs. 1, 3, and 8, at such a point in the post H, that when the tumbler R, is in a horizontal position its ends rest on the centers of the inclined planes or wedges W, and V, on the sliding bar T, and the pinion wheels K, and L, are both geared into the large wheel G, which said wheel G, I cast of about nine inches diameter and plays on a shaft turning in the top of the post H, and of another post H′, of equal elevation rising from the other sill $A^{a'}$. When the tumbler R, is in the position last above described, and the pinion wheels K, and L, both gear into the wheel G, the hand crank *o*, on the shaft Q of the pinion wheel K cannot move.

The rachet bar A, in Fig. 3 consists of an arm or lever B, and a section of a wheel with cogs A, of a size and shape to gear into the cogs X, on the sliding bar T. A shaft passes through the vertex of said section of a wheel A, into the tops of posts F, F, above described. The arm or lever B, is made sufficiently long to project over the curb and is steadied and kept to its place by a small post U, framed into the sill A^a, or cast with and forming part of the base Z. The arm B, and section of a wheel A, are cast together and form one piece.

When the tumbler R is in a horizontal position, and both pinion wheels K, and L, are geared into the large wheel G, the hand crank *o*, cannot move, as above described; but by raising the arm or lever B, the section of a wheel A, in Fig. 3, revolves in a direction from the tumbler R, and its cogs acting on the cogs X, on the top of the sliding bar T, draws said sliding bar T, toward and farther under it; the inclined plane or wedge W, at the same time acting on the lower corner of the tumbler R, resting on it raises that portion of the tumbler R, on which is placed the pinion wheel L, until said pinion wheel L, is fully in gear with said large wheel G,—at the same time the projection *a*, in Figs. 5 and 7 on the lower end of said tumbler R, falls into the notch Y, in Figs. 3, and 9, in said inclined plane or wedge W,—also at the same time the end of the tumbler R, nearest which is placed the pinion wheel K, resting on the inclined plane or wedge V, passes down said inclined plane or wedge V, as the same is drawn from

under it and the pinion wheel K, is thrown completely out of gear with the large wheel G—the hand crank *o*, will then, of course, move. By lowering the lever or arm B, the inclined plane or wedge V, passes under and raises the end of the tumbler R, over which is placed the pinion wheel K, until the same is thrown into gear with the wheel G, and the projection *a*, in Figs. 5 and 7 falls into the notch Y, in Figs. 3 and 9 in the inclined plane or wedge V, and at the same time the end of the tumbler R, over which is placed the pinion wheel L, passes down the inclined plane or wedge W, as the same is pushed from under it, and said pinion wheel L, is thrown completely out of gear with the large wheel G, and of course the hand crank *o*, can again move, and gives a reversed action to the large wheel G. On the center or the shaft of the wheel G, and directly over the well or opening into the cistern I place a cast iron wheel I, twelve inches in diameter, on the outer edge of which I place square cogs of a size and shape adapted to fit the apertures in a flat square linked chain to sustain the buckets—which chain is marked D, and is more fully shown in Fig. 4. To each end of said chain is attached a bucket with a valved bottom, C, and having on their inner edges small lips of iron, and their bails are hooked into ears fastened to the buckets at their swell.

I frame two pairs of parallel cross sills *d*, *f* and *f*, *d* into the sills A^a, $A^{a'}$, each pair being so located that one of the bucket chains passes between the two cross sills composing that pair—as represented in the drawing one of the bucket chains or one end of the bucket chain passes down between *d*, and *f;* and the other between *f*, and *d*, and each of said cross sills composing a pair are so near together that the bucket, should it by any means pass the hook hereinafter mentioned cannot pass up between them—a small friction wheel E, E, presses lightly against the outer side of each portion of the bucket chain below the wheel I. Said friction wheels E, E, are fastened into cross pieces inserted into the cross sills *d*, *d*, and *f*, *f*, and their object is to steady the buckets.

The trough *k*, I construct with two apartments *m* and *b* connected by a narrow channel *n*, and having a common spout *k*, and to the bottom of each apartment and hanging over the sides of each toward the bucket chains are attached hooks *t*, to catch and fasten onto the lips on the inner edges of the buckets, and hold the tops of the buckets fast, while the continued draft on the bucket chains raises the lower parts of the buckets and tilts their contents into the trough as shown in Figs. 1, and 3.

What I claim as my invention and desire to secure by Letters Patent, is—

The mounting the driving pinion K, and the auxiliary reversing pinion L which is geared thereto, in bearings M, N, rising from the vibrating tumbler R; which tumbler, is combined with, and operated upon by, the inclined planes W and V, rising from the sliding bar T, (through the medium of a lever,) substantially in the manner and for the purpose herein set forth.

Not intending by this claim to limit myself to the exact proportion, and arrangement of parts as herein described and represented, but to vary them as I may deem expedient while I attain the same end by means substantially the same.

JEHIAL T. FARRAND.

Witnesses:
S. GOODSELL,
DAVID GUTCHER.