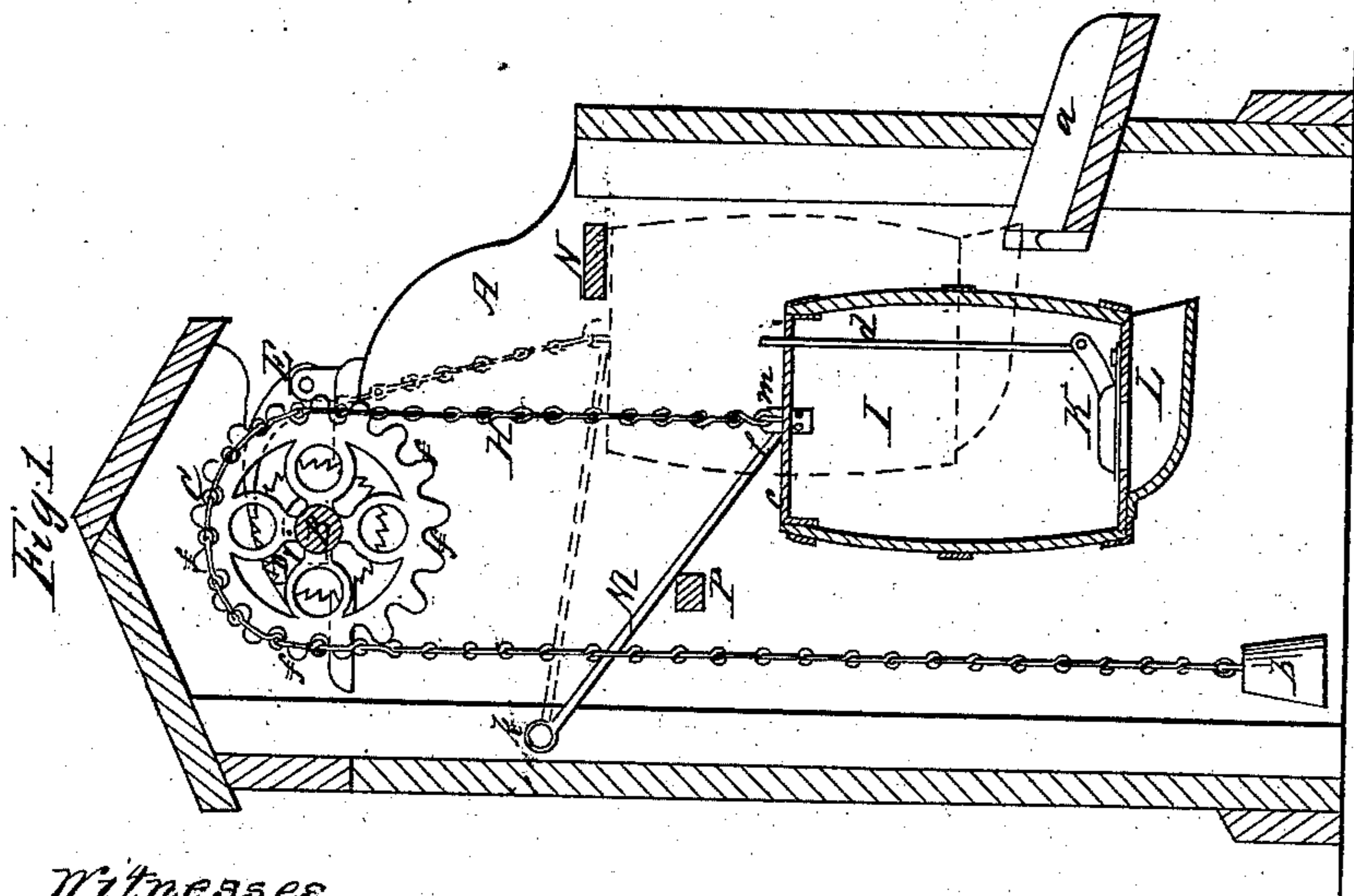
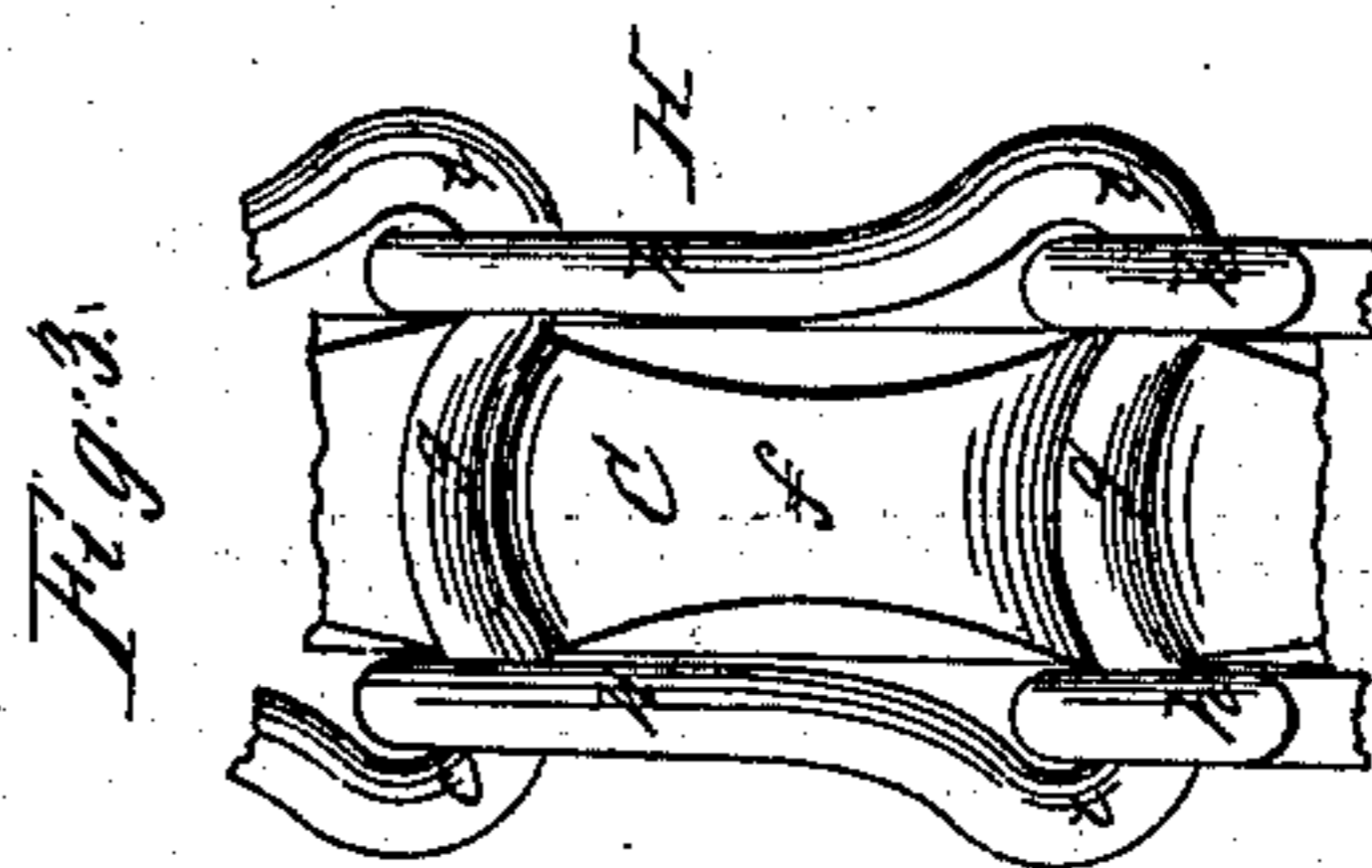
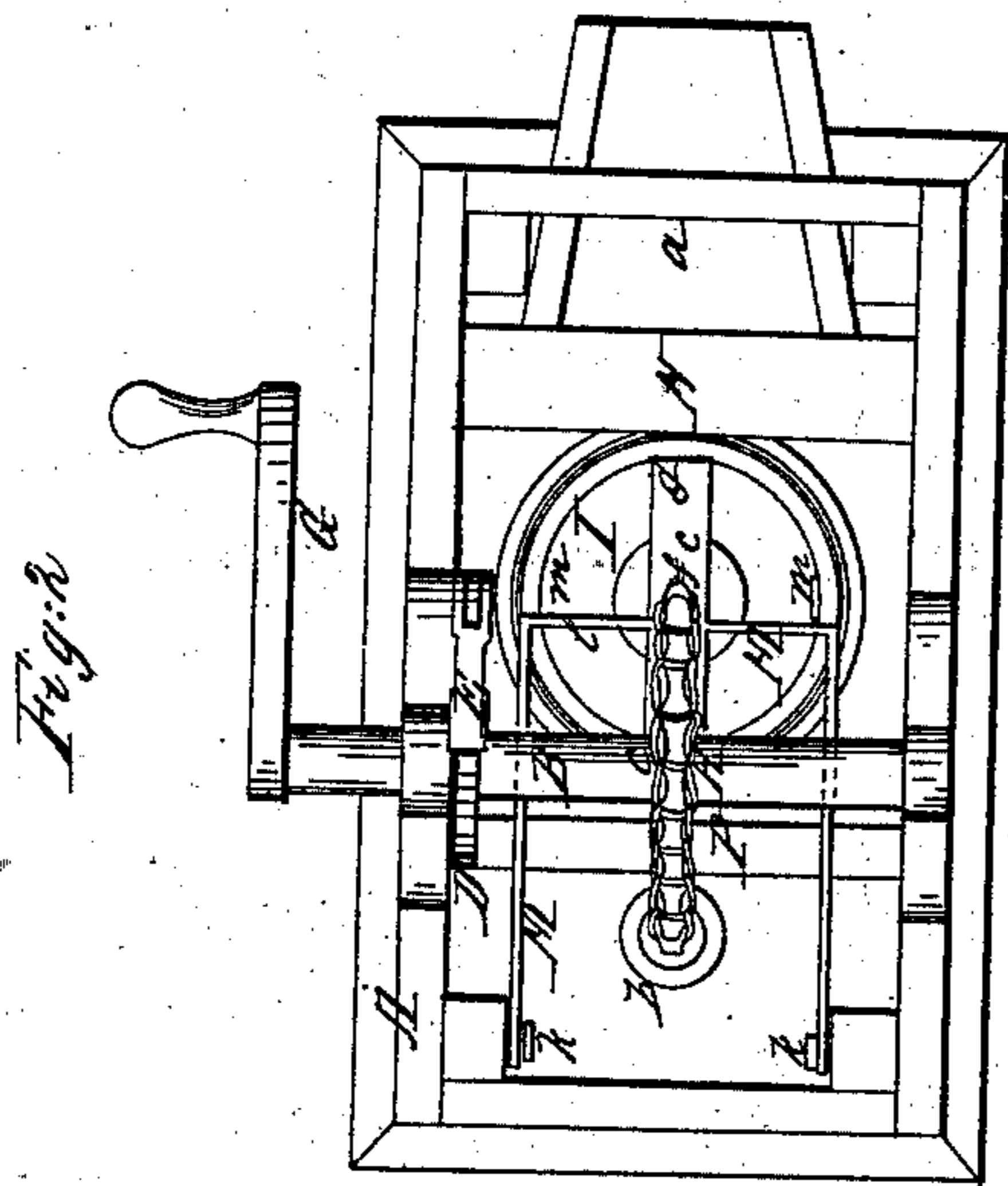


Bignall & Osgood Windlass Water Elevator

N^o 39,611.

Patented Aug. 18, 1863.



Witnesses

J. Fraser
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Inventors:

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UNITED STATES PATENT OFFICE.

MOSES C. BIGNALL, OF SENECA FALLS, AND R. F. OSGOOD, OF ROCHESTER,
NEW YORK, ASSIGNORS TO DOWNS & CO., OF SAME PLACE.

IMPROVEMENT IN WATER-ELEVATORS.

Specification forming part of Letters Patent No. 39,611, dated August 18, 1863.

To all whom it may concern:

Be it known that we, M. C. BIGNALL, of Seneca Falls, in the county of Seneca and State of New York, and R. F. OSGOOD, of Rochester, county of Monroe, and State aforesaid, have invented certain new and useful Improvements in Apparatus for Drawing Water from Wells; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1 is a central vertical section of our improved machine; Fig. 2, a plan of the same with the cover or roof of the curb removed; Fig. 3, a detached view on an enlarged scale, exhibiting more particularly the form and construction of the chain by which the bucket is raised, and its relative connection with the forks of the elevating-wheel.

Like letters of reference indicate corresponding parts in all the figures.

Our improved machine is of that class in which the bucket is provided with a valve in its bottom, and a spout beneath by which the water is discharged automatically into the spout of the curb.

In general construction of principal parts our apparatus does not differ essentially from other machines for the same purpose. The curb A has a spout, *a*, and at the suitable position a shaft, B, provided with a central elevating-wheel, C, and a ratchet-wheel, D, into which catches a pawl, E, in the usual manner, and it is also provided at one extremity with a winch, G, by which the machine is actuated. Over the elevating-wheel passes a chain, H, having secured to its forward end the bucket I, and at the rear end a counter-balance weight, *b*, as usual. The chain is attached to the bucket preferably by means of a straight central strip, *c*, Figs. 1 and 2, of suitable size, which also serves as the guide of the valve-stem *d*, projecting up through it to the proper height, and jointed at its bottom to the projecting lever-bearing of the valve K. Beneath the valve is a port made in the bottom of the bucket, opening into the bucket-spout L. The curb is provided at the proper position with a cross-board, N, for the projecting end of the valve-stem *d* to strike against and open the valve to discharge the water.

In most water-elevators the bucket is mere-

ly raised vertically to the proper height, and the water is discharged by the automatic action of the valve. As the chain is attached over the center of the bucket the latter is not only subject to the vibrations, but also, particularly, to a turning motion that frequently carries its spout away from the central line of the curb-spout, so that a portion of the water is lost within the curb, thus freezing in cold weather and causing much trouble. We avoid these difficulties by holding the bucket against any vibratory or turning movement when raised, so as to discharge its water directly into the curb-spout without loss, and also in raising the spout of the bucket over that of the curb, instead of opposite, alone, as herein-after described.

To accomplish this, our invention consists of an inclined lever or bar having a right angled-bearing against which the top of the bucket strikes in rising and is held steadily in place, and is thrown forward to discharge its water.

The forks or projections *ff* of the elevating-wheel are of ordinary shape. In the old arrangement each link of the chain is made wide and straight at the base, or that portion which fits transversely into the depressions between the forks, and the sides of the links that extend from this base are narrowed gradually in a straight line to their extremities, which are attached to the base of the next succeeding link. Thus the opening of the link must be made larger than the fork over which it fits. This looseness of the connection of the links with the forks allows a considerable turning motion to the bucket, which cannot be avoided in such an arrangement.

In our improvement we make the base *g* of the link of the same length as the old, but curved rather than straight, as shown in Fig. 3, and instead of narrowing the sides *h h* in a straight line, as above described, we bend them acutely inward at the turn, thus making bearings *ii* for the attachment of the next link, and forming the sides so as to be parallel or nearly so with each other, and fitting closely nearly the whole length to the sides of the forks, so that the bucket cannot turn. By the curved form of the base *g*, the sides of the links are stiffened and braced and kept from bending laterally in either direction. The sides of the links, by fitting closely to the

forks, thus have a tendency to keep the chain from turning or twisting and consequently to bring the bucket up in the proper position. To secure this result still more fully, and to attain other advantages hereinafter described, we use the following arrangement: At a suitable position in the rear of and above the bucket is jointed to the curb, in any suitable manner, as at *k k*, an inclined lever or bar, *M*, extending forward and downward, and provided at its lower end with a right-angled bearing or cross-head, *l*, whose length is somewhat greater than the diameter of the bucket. In the drawings, the lever or bar is represented as merely an iron rod whose end and sides are bent into rectangular shape, but, if desired, instead of this, it might be cast with the cross-head in front, and with a single shank forked or dividing into two parts in the rear, to form bearings, with the chain *H* passing between them. The bearing or cross-head *l* is situated nearly over the center of the bucket, so that the latter will strike it as it rises. On each side of the top of the bucket, in the proper position for the cross-head to rest against as it comes up, is secured a lug or shoulder, *m*, or its equivalent, substantially as represented in Figs. 1 and 2. The lever or bar *M* is prevented from falling too low by a cross-piece, *P*, or any other convenient arrangement. When the bucket comes up, its top strikes the bearing or cross-head *l*, which rests against the shoulders *m m*, and rises with it. As the lever or bar is raised from its inclined position and approaches a horizontal one, it carries the bucket forward into the position indicated by red lines in Fig. 1, the cross-head holding firmly against the lugs or shoulders, and sustaining the bucket in the proper position for discharging its water without the possibility

of its turning either way in the slightest degree. By thus resting its weight against the cross-head the bucket is also kept from vibrating either forward or backward, or from right to left. In addition to this, the action of throwing the bucket forward, as it rises, by means of the cross-head, carries its spout *L* directly over the curb-spout, instead of only opposite it, as in the ordinary arrangement, thus insuring the discharge of the water therein without any portion being lost, and obviating much trouble in cold weather by the freezing of the waste water within and around the curb. When fully raised, the bucket also always rests in a vertical position, instead of inclining backward, as in some devices, and thus allows all the water therein to discharge perfectly.

This device is very simple, cheap, and effective, and obviates several difficulties that have heretofore been experienced in machines of this class.

What we claim as our invention, and desire to secure Letters Patent, is—

The inclined lever or bar *M*, provided with the cross-head *l*, resting over the top of the bucket and striking against the lugs *m m*, or their equivalent, on opposite sides thereof, the whole arranged, combined, and operating substantially as and for the purpose herein specified.

In witness whereof we have hereunto signed our names in the presence two subscribing witness.

M. C. BIGNALL.
R. F. OSGOOD.

Witnesses:

J. L. RE QUA,
J. FRASER.