

G. G. HOWE & S. L. HEYWOOD.

Windlass Water-Elevators.

No. 156,734.

Patented Nov. 10, 1874.

Fig: 1.

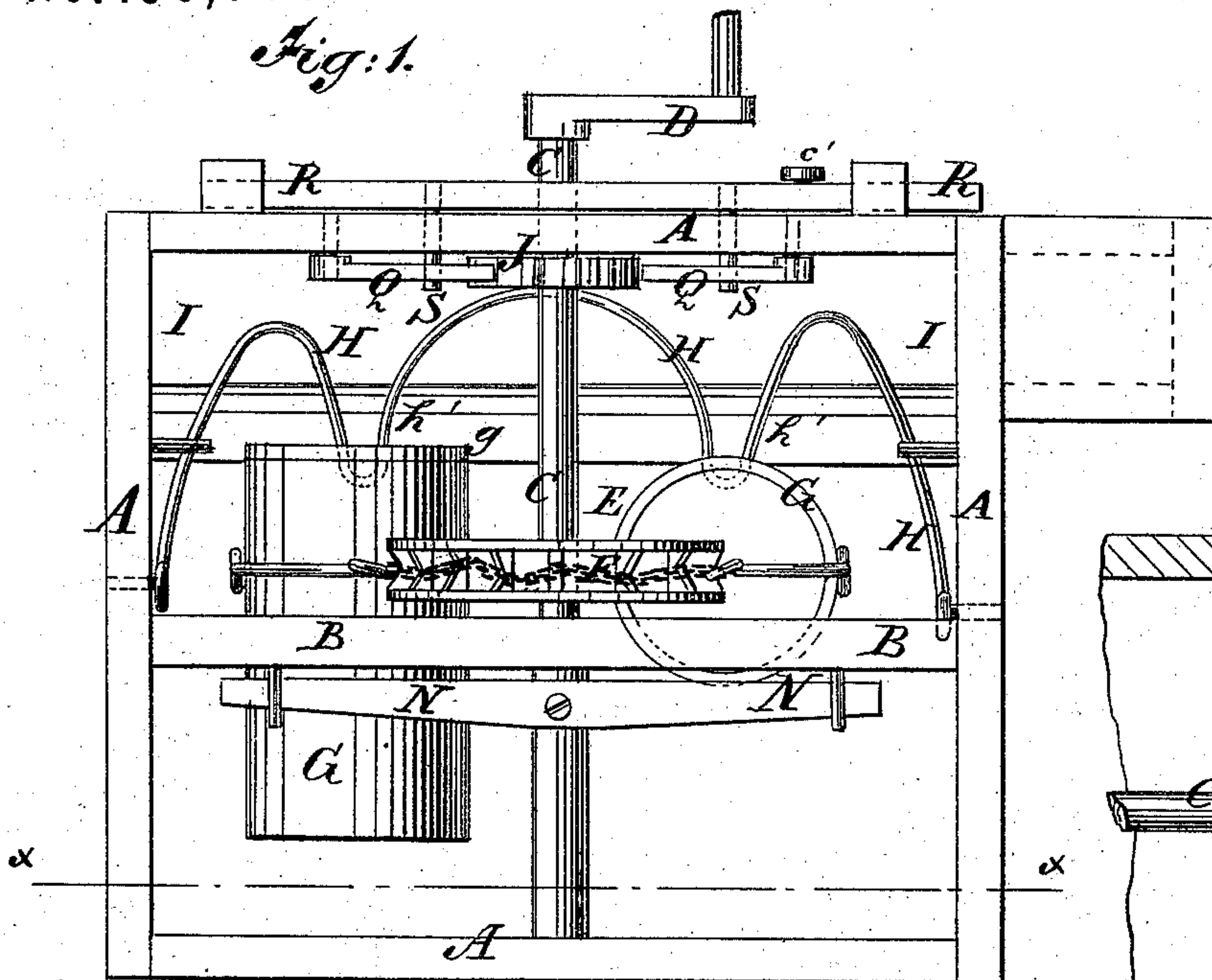


Fig: 3.

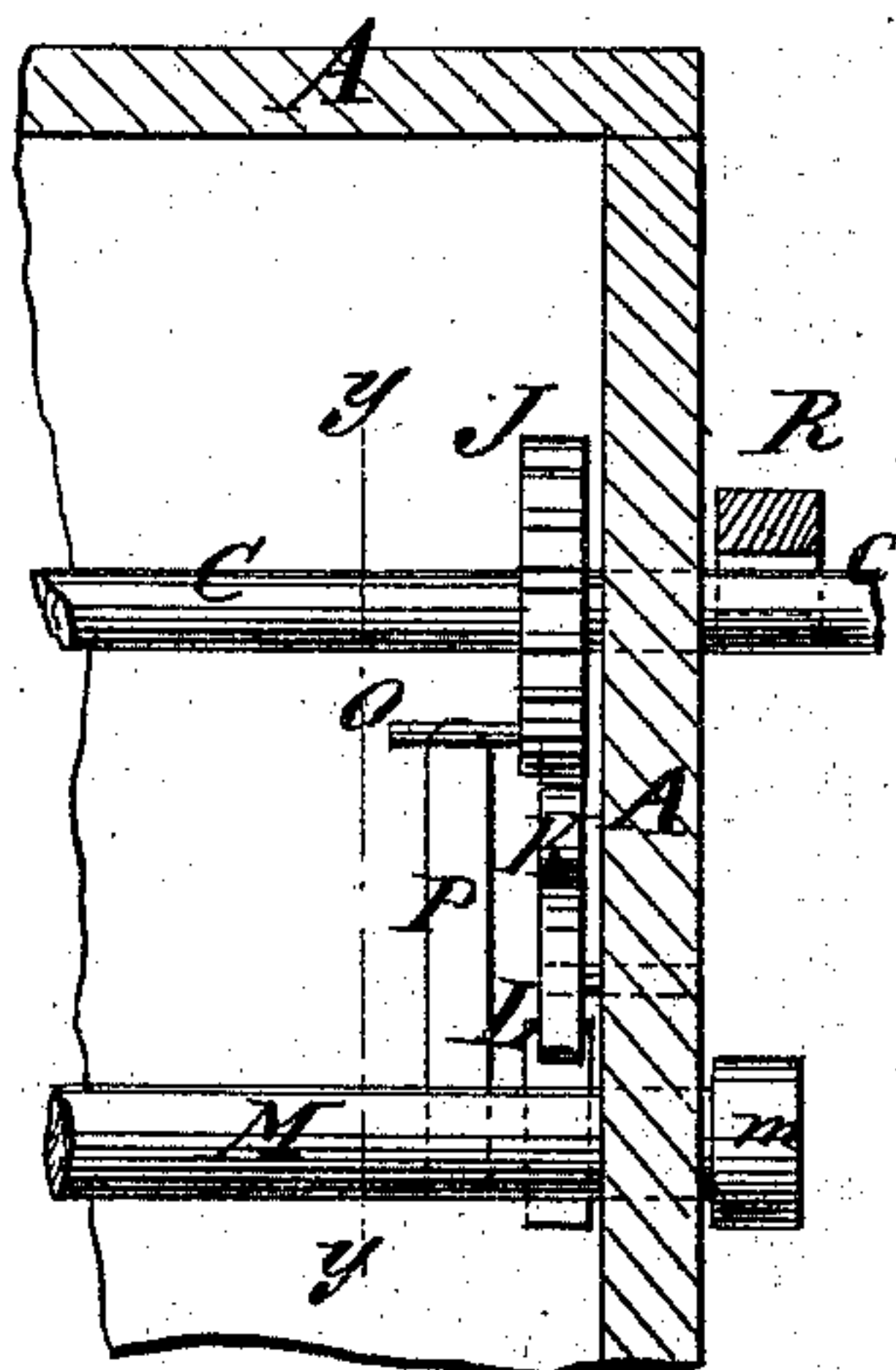
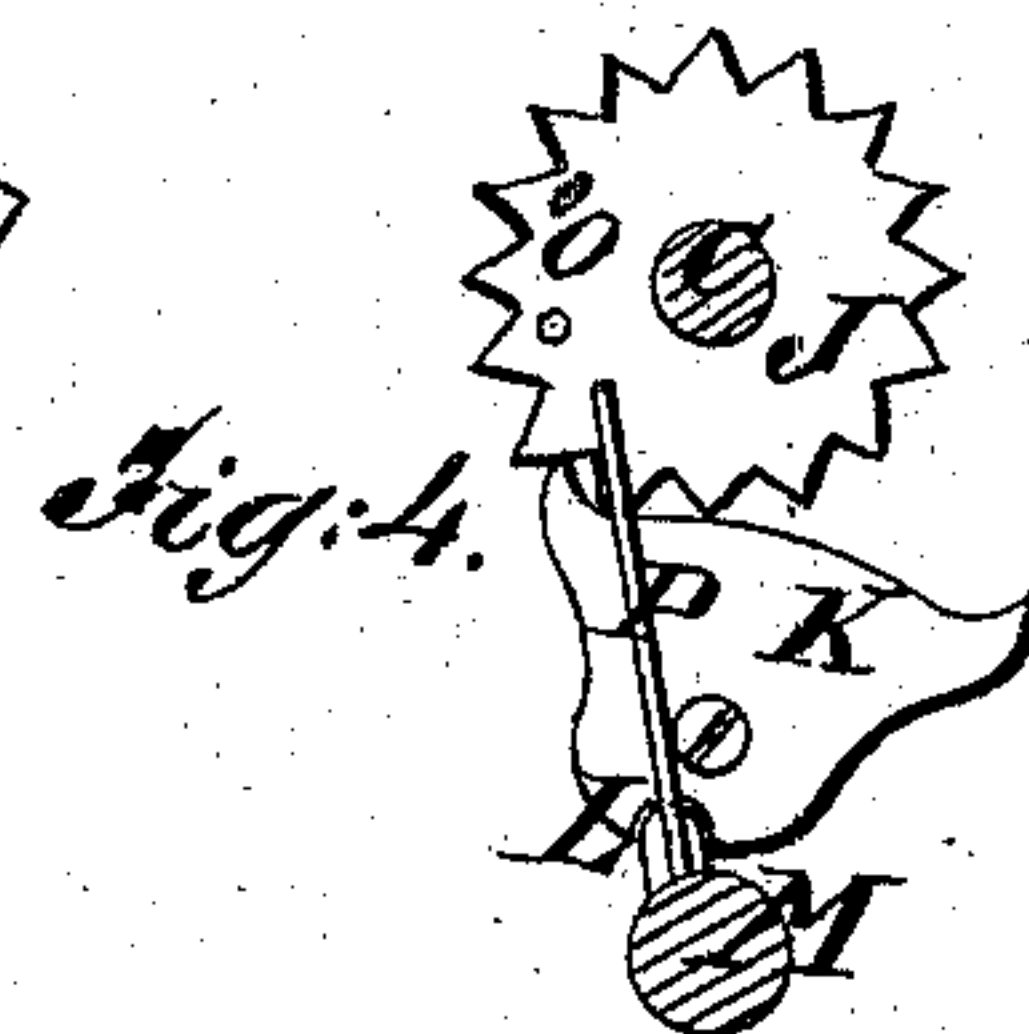
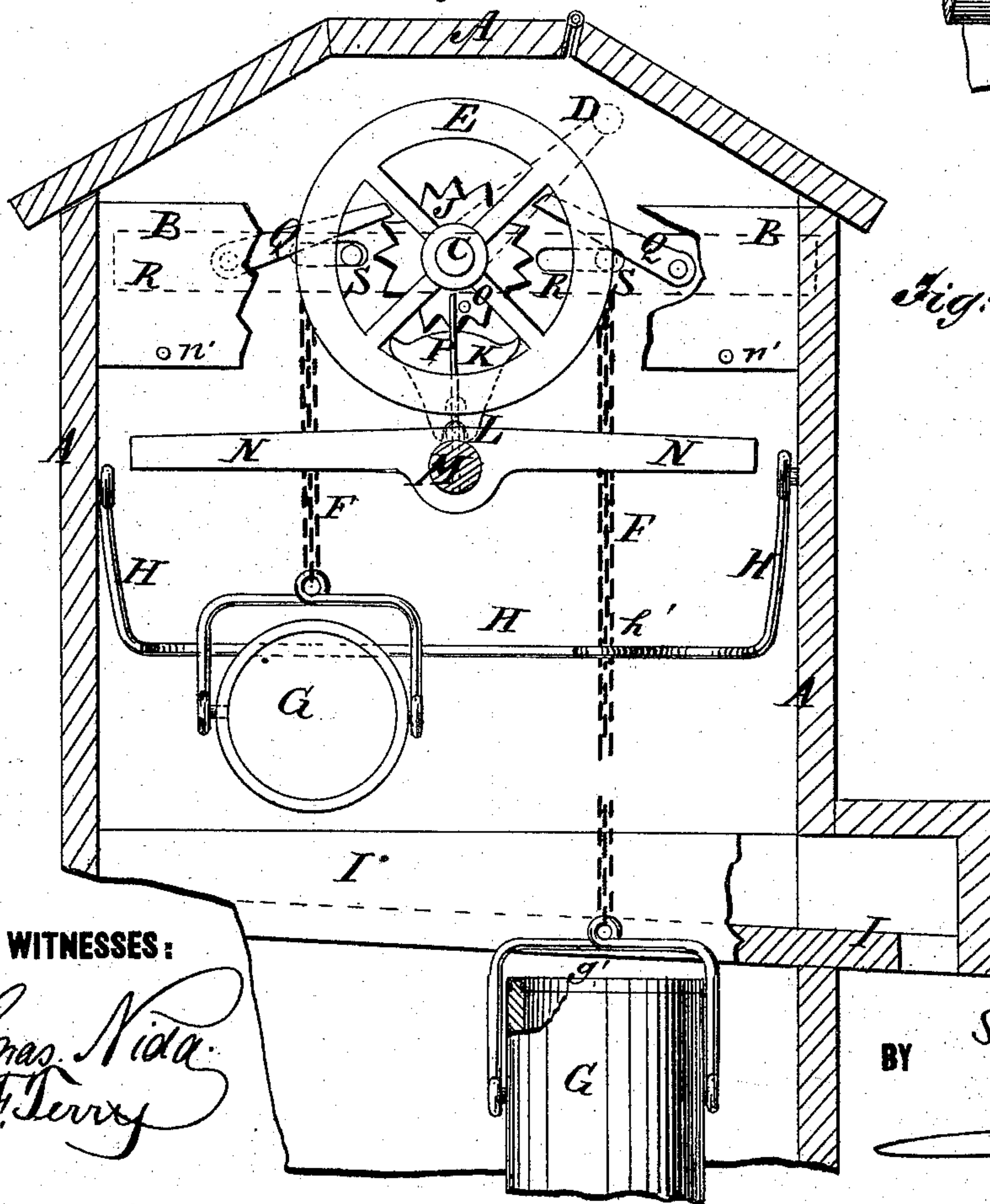


Fig: 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE G. HOWE AND SILAS L. HEYWOOD, OF FARIBAULT, MINNESOTA.

IMPROVEMENT IN WINDLASS WATER-ELEVATORS.

Specification forming part of Letters Patent No. **156,734**, dated November 10, 1874; application filed August 10, 1874.

To all whom it may concern:

Be it known that we, GEORGE G. HOWE and SILAS L. HEYWOOD, of Faribault, in the county of Rice and State of Minnesota, have invented a new and useful Improvement in Water-Elevators, of which the following is a specification:

Figure 1 is a top view of our improved water-elevator, shown as applied to a well-curb. Fig. 2 is a vertical section of the same, taken through the line *x x*, Fig. 1. Fig. 3 is a detail vertical section. Fig. 4 is a detail vertical section taken through the line *y y*, Fig. 3.

Similar letters of reference indicate corresponding parts.

Our invention has for its object to furnish an improved apparatus for raising water from wells, cisterns, and other places, which shall be simple in construction, convenient in use, and effective in operation.

The invention consists in the chain-wheel, formed with a double rim, connected by cross-bars, and having alternate high and low ribs or lugs formed upon its sides, and arranged in pairs, to give a zigzag direction to the chain; in the combination of the double pawl, the single tooth, the shaft, and the cross-arm with the ratchet-wheel attached to the shaft that carries the chain-wheel, to cause the said pawl to be shifted by the tilting buckets; in the combination of the pin and the elastic arm with the ratchet-wheel and the shaft that operates the double pawl; in the combination of the slide, the arms, and the pivoted pawls with the ratchet-wheel attached to the chain-wheel shaft; in the combination of the ring-cap with the upper edge or mouth of the buckets, as hereinafter fully described.

A represents a well curb or frame, to the upper middle part of which are attached the ends of a cross-bar, B. In bearings in the middle part of the cross-bar B revolves the inner end of the shaft C, the forward part of which passes through and revolves in the upper middle part of the front of the curb A, and to its projecting end is attached the crank D, by which the apparatus is operated. To the shaft C, near its inner end, is attached the hub of the wheel E. To the outer ends of the spokes of the wheel E are attached two parallel rims, which are connected by cross-

bars. Upon the inner sides of each of the rims of the wheel E, and directly above the connecting-bars of said rims, are formed alternate high and low inclined lugs or ribs, between the pairs of which the chain F passes, and which prevents the said chain from slipping, by taking hold of its links, and by giving it a zigzag course over said wheel. The chain may receive additional security against slipping by occasionally omitting a cross-bar and pair of lugs, to allow the chain to settle down a little, and thus take a better hold upon the lugs. To each end of the chain F is attached a bucket, G. To the sides of the curb A are pivoted the ends of a wire or rod, H, which is bent in such a way as to form V-shaped projections *h'*, which project into the paths of the buckets as they move upward, so as to enter the mouths of said buckets, and tilt them, discharging their contents into the spout I, attached to the front of the curb A, and one end of which projects through a hole in the side of the curb to conduct the water into a pail or other receiver. To the upper edge or mouth of the buckets G is attached a metallic ring-cap, *g'*, to prevent the mouths of the buckets from being worn by the wire or rod H *h'*, and to cause said buckets to move more readily upon said wire or rod when being tilted. To the crank-shaft C, at the inner side of the front of the curb A, is attached a ratchet-wheel, J. To the front of the curb A is pivoted a double pawl, K, in such a position that either of its jaws may be brought into contact with the ratchet-wheel J, according as it is desired to prevent the shaft C from turning in one or the other direction. In the lower end of the pivoted double pawl K is formed a notch to receive a tooth or projection, L, attached to the shaft M, the ends of which work in bearings in the front and back of the curb A. The forward end of the shaft M projects through the front of the curb A, and has a knob, *m'*, formed upon or attached to it, so that the said shaft may be turned by hand, to shift the pawl K when desired. To the rear part of the shaft M is attached a cross-bar, N, the ends of which project into such positions that as either of the buckets G is tilted by the wire or rod H *h'*, its lower part, as it rises, may strike the cross-

bar N, and turn the shaft M enough to shift the pawl K.

In case the contact of the bucket G with the cross-bar N should not move the shaft M far enough to fully shift the pawl K, the movement may be completed by the pin O, attached to the ratchet-wheel J, and which strikes against an arm, P, attached to the said shaft. The arm P should have rigidity enough to turn the shaft M, and elasticity enough to yield and allow the pin O to pass when the movement of the said shaft has been completed. The movement of the shaft M is limited by the stop-pins *n'*, attached to the cross-bar B, and against which the end parts of the cross-bar N strikes.

Q are two pawls pivoted to the inner side of the front of the curb A upon the opposite sides of the ratchet-wheel J, in such positions that the engaging end of either of them may be lowered into contact with the teeth of said ratchet-wheel. R is a slide, which may be placed upon either the outer or inner side of the front of the curb A, and to which are attached two arms, S, upon which the pawls Q rest, so that by moving the slide R longitudinally, one of the pawls Q will be lowered into and the other raised out of gear with the ratchet-wheel J. When the slide R is placed upon the outer side of the front of the curb A the arms S pass through slots in said front, and when the said slide R is placed within the curb the arms S may project upward or downward to said pawls, according as the slide is arranged below or above the pawls Q. The slide R is operated by means of a knob,

c', attached to it, and the stem of which passes through a slot in the curb A when the said slide is placed within said curb. The pawls Q and their operating device R S may be used in addition to the double pawl K and its operating device, or in their stead, as may be desired.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The chain-wheel E, formed with a double rim, connected by cross-bars, and having alternate high and low ribs or lugs formed upon its sides, and arranged in pairs, to give a zig-zag direction to the chain, substantially as herein shown and described.

2. The combination of the double pawl K, the single tooth L, the shaft M, and the cross-arm N with the ratchet-wheel J, attached to the shaft C, that carries the chain-wheel E, to cause said pawl to be shifted by the tilting buckets G, substantially as herein shown and described.

3. The combination of the pin O and the elastic arm P with the ratchet-wheel J and the shaft M, that operates the double pawl K, substantially as herein shown and described.

4. The combination of the slide R, the arms S, and the pivoted pawls Q with the ratchet-wheel J, attached to the chain-wheel shaft C, substantially as herein shown and described.

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