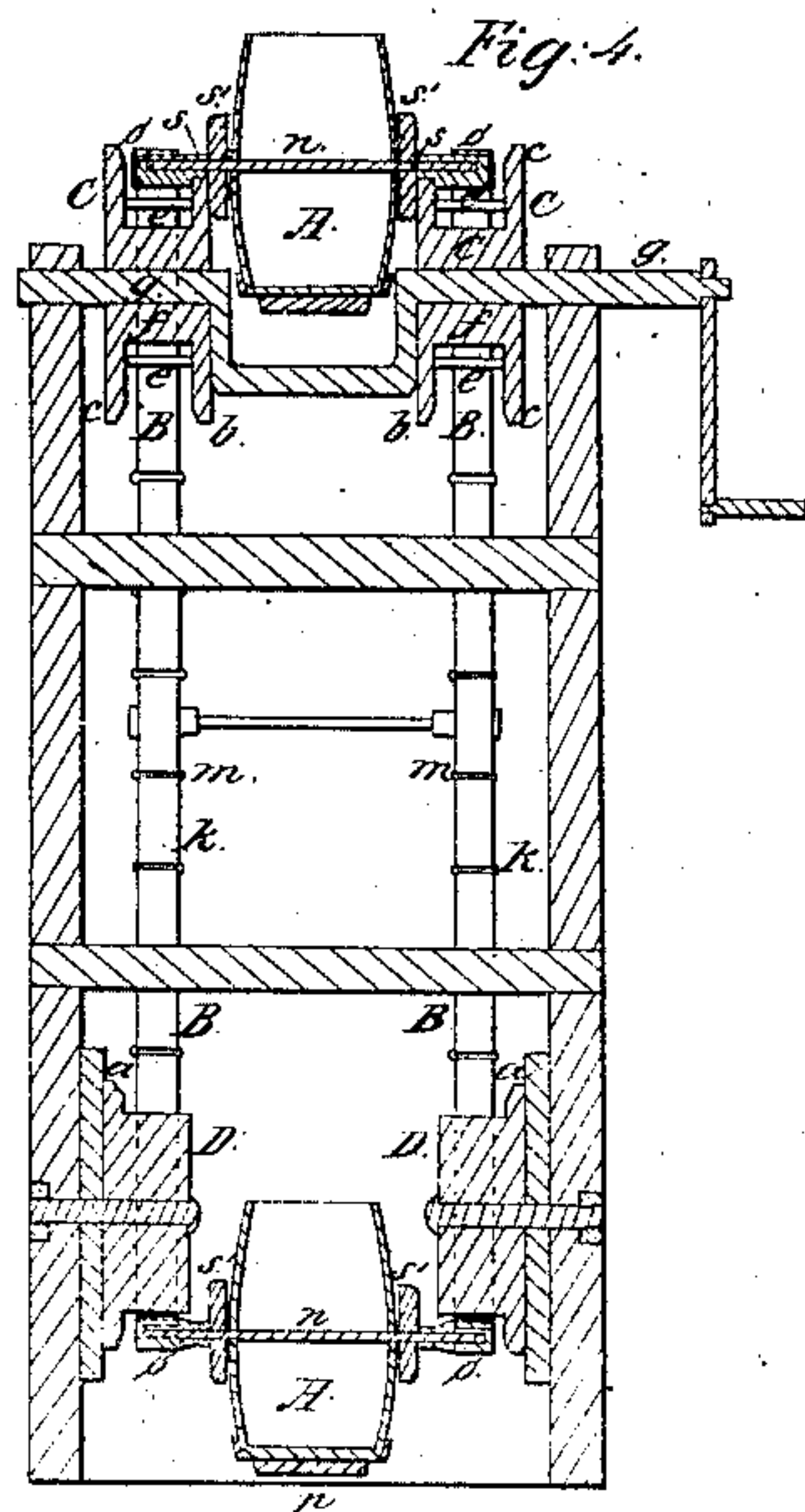
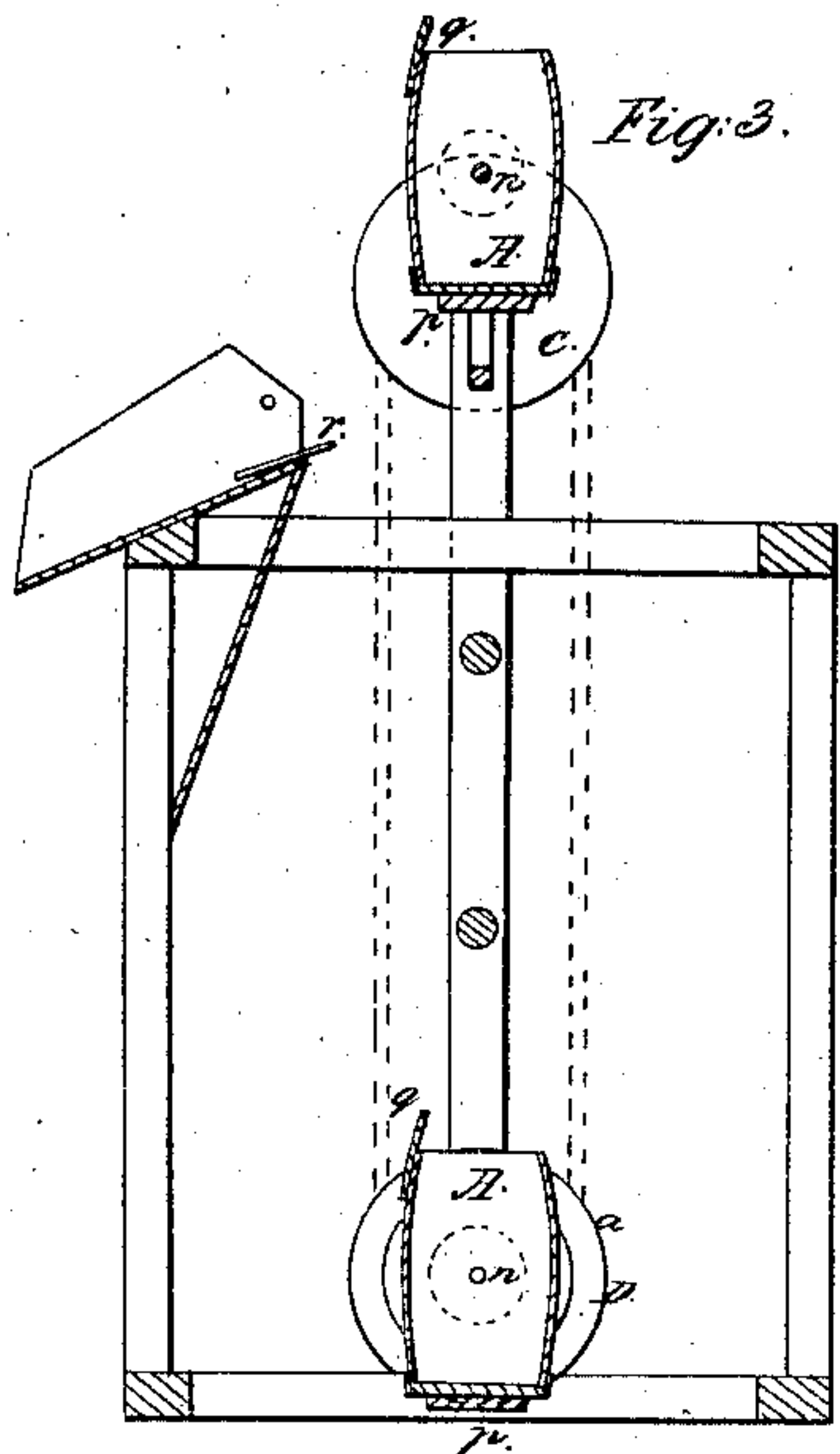
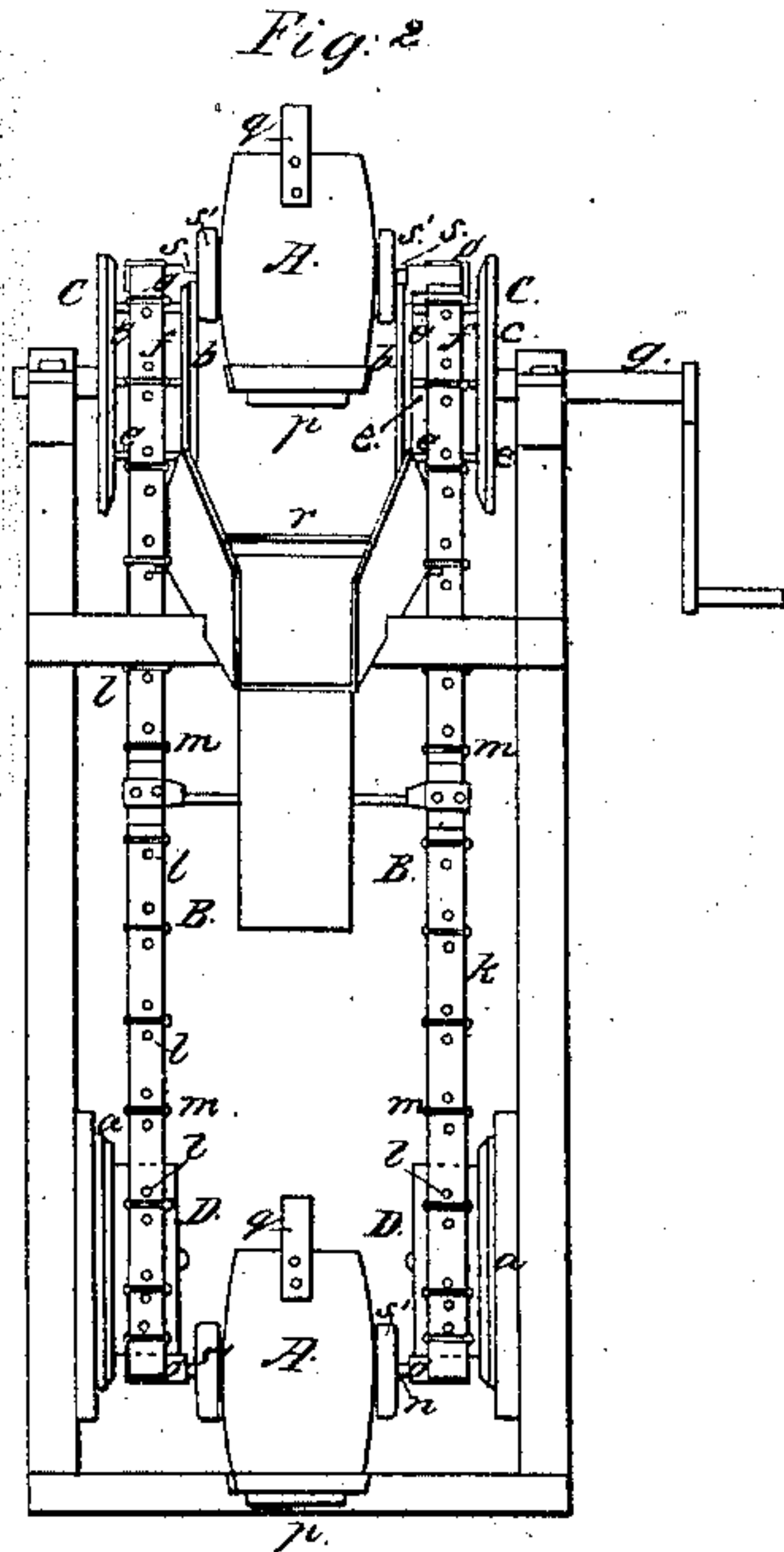
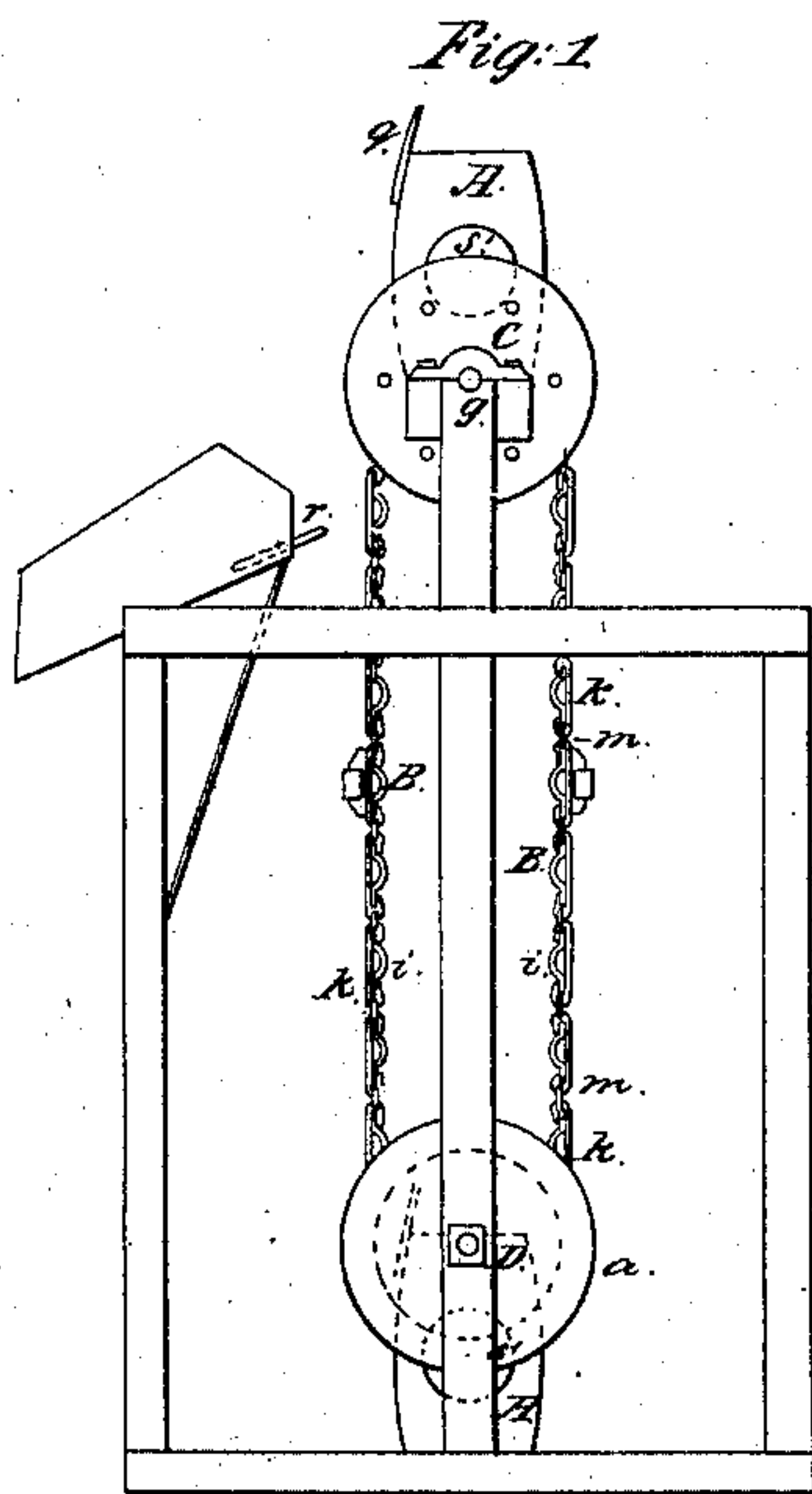


*J. Dearborn,*

*Chain Pump.*

*N<sup>o</sup> 44,789.*

*Patented Oct. 25, 1864.*



*Witnesses:*  
*Frederick Curtis*  
*W. P. Hale Jr*

*Inventor:*  
*Jonathan Dearborn*  
*by his attorney*  
*R. H. Wiley*



# UNITED STATES PATENT OFFICE.

JONATHAN DEARBORN, OF SEABROOK, NEW HAMPSHIRE.

## IMPROVEMENT IN WATER-ELEVATORS.

Specification forming part of Letters Patent No. 44,789, dated October 25, 1864.

*To all whom it may concern:*

Be it known that I, JONATHAN DEARBORN, of Seabrook, in the county of Rockingham and State of New Hampshire, have invented an Improved Apparatus for Elevating Water from a Well or elsewhere; and I do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a side view, Fig. 2 a front elevation, Fig. 3 a longitudinal section, and Fig. 4 a transverse section, of it.

In the drawings, A A denote a series of buckets, each of which is placed between two endless chains, B B. To each of the said chains there are two supporting-wheels, C D, the chain working around them or being extended about them, as shown in the drawings. The lower of the wheels—viz., D—of each chain is circular, and has a flange, *a*. The upper wheel, C, is made of two circular disks, *b c*, united by a series of cross-bars, *e e e*, &c., and a hub, *f*. The two upper wheels are applied on a shaft, *g*, and one of them has a notch, *s*, in its periphery, such notch being for the reception of the bucket-supports, to be hereinafter explained. Each link of the chain is made of a strip of metal bent in the form in longitudinal section, as shown in Fig. 5—viz., so as to have two eyes and an arch or curved brace extending from and arranged with respect to a straight portion, *k*, in manner as shown in said Fig. 5. Rivets *l l* go through the link near the extremity of the arch or brace, and serve to hold the adjacent parts in place.

In constructing the chain each link is connected to two others by two hinges or auxiliary links, *m m*. The distance between each two next adjacent cross bars of the wheel C should be about equal to the length of each link of the chain, and there should be a recess or space between each two connecting-bars sufficient to receive the arch or brace of a link, while the said link may be supported by such bars.

The object of the brace or arch is to prevent the link from being bent while it may be passing around or working against the lower wheel, D, which is circular on its operative periphery.

Each bucket is connected to the two chains by means of a round rod, *n*, which goes

through the bucket and has its ends inserted in two boxes, *o o*, affixed to the two chains. Furthermore, each bucket is loaded on its lower end by a weight, *p*, affixed thereto, the same being to cause the bucket to assume an upright position immediately after having been tipped or turned over so as to cause its contents to be discharged into a spout or chute, E.

For the purpose of tipping the bucket such bucket is provided with an arm, *q*, which extends up from it in manner as shown in the drawings. It operates with a tripper or cranked shaft, *r*, which projects from the spout or chute. While the bucket is being raised upward the arm will be caught by the tripper, which will so act on it as to turn the bucket in a manner to cause its contents to be discharged from the bucket and into the chute. On revolving the shaft of the sprocket-wheels C C such wheels will be put in motion simultaneously, and will move the chains in such a manner as to cause one or more of the buckets to be raised up while the other or others may be descending, and if the lower wheels are placed in water such water will be raised by the buckets up to and discharged into the spout or chute.

On each bucket-rod *n* there are two sinkers, wheels, or weights, *s' s'*, which are arranged on opposite sides of the bucket and so as to come between it and the sprocket wheels while the bucket may be passing them. The object of these rotary sinkers (which freely rotate on the rod is not only to keep the bucket from contact with the wheels and getting clogged by any matter which may get between the bucket and either of the wheels, but to sink the chain well in the notch while it may be passing underneath the lower wheel, D. Furthermore, these weights often enable the said lower wheel to be dispensed with.

I do not claim a water-elevator consisting of a series of buckets, one or more endless chains, and one or more supporting-wheels; nor do I claim the tripper and the arm as applied to the chute and the bucket to operate in manner as hereinbefore described.

What I do claim is—

1. The improved chain and its sprocket-wheel as constructed in manner and to operate as specified, the chain under such construction having an arch or curved brace to

each link, as explained, and the wheel being made with recesses or spaces between its chain-link bearings and for the reception of such arches or braces of such links, as described.

2. The combination of the circular wheel D with the chain constructed with arches or braces to its links, and with the sprocket-wheel made so as to support the links at their junctions, and with recesses or spaces for receiving the link-arches in manner as specified.

3. The application of each bucket to the

chains by means of a rod running through the bucket and supported in bearings applied to the chains, as described.

4. The arrangement and combination of the sinkers s s with the bucket, the chains, the bucket-rods, and the sprocket-wheels, as described.

JONATHAN DEARBORN.

Witnesses:

R. H. EDDY;

F. P. HALE, Jr.