

No. 629,602.

Patented July 25, 1899.

R. H. POSTLETHWAITE.
ELEVATOR FOR GOLD DREDGERS.

(Application filed Feb. 3, 1898.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 2.

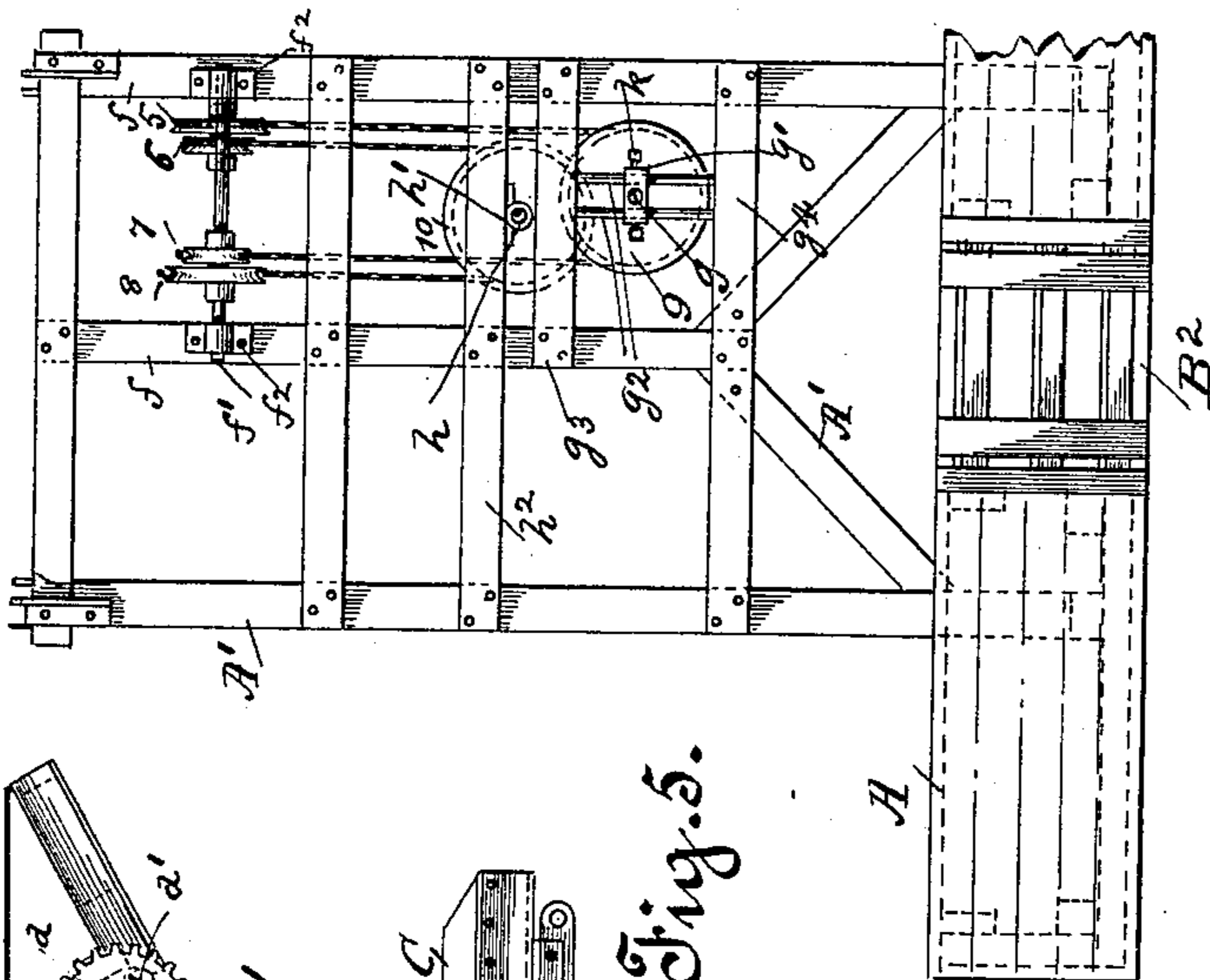


Fig. 5.

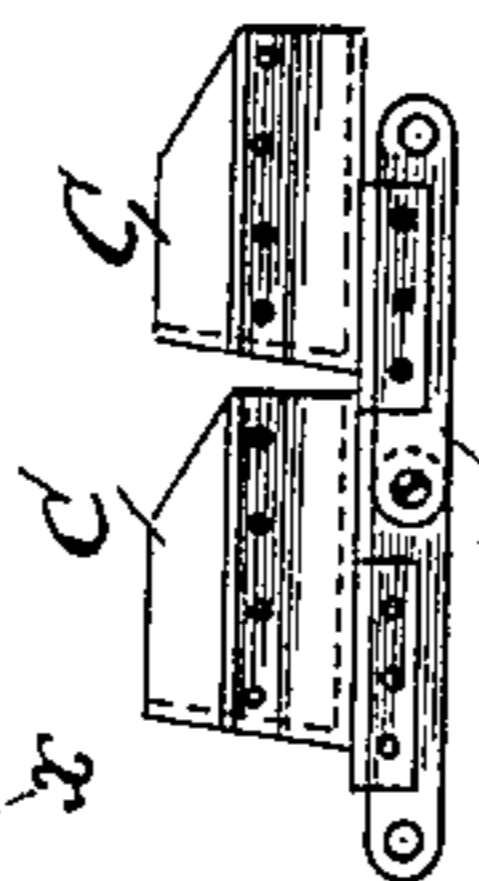


Fig. 1.

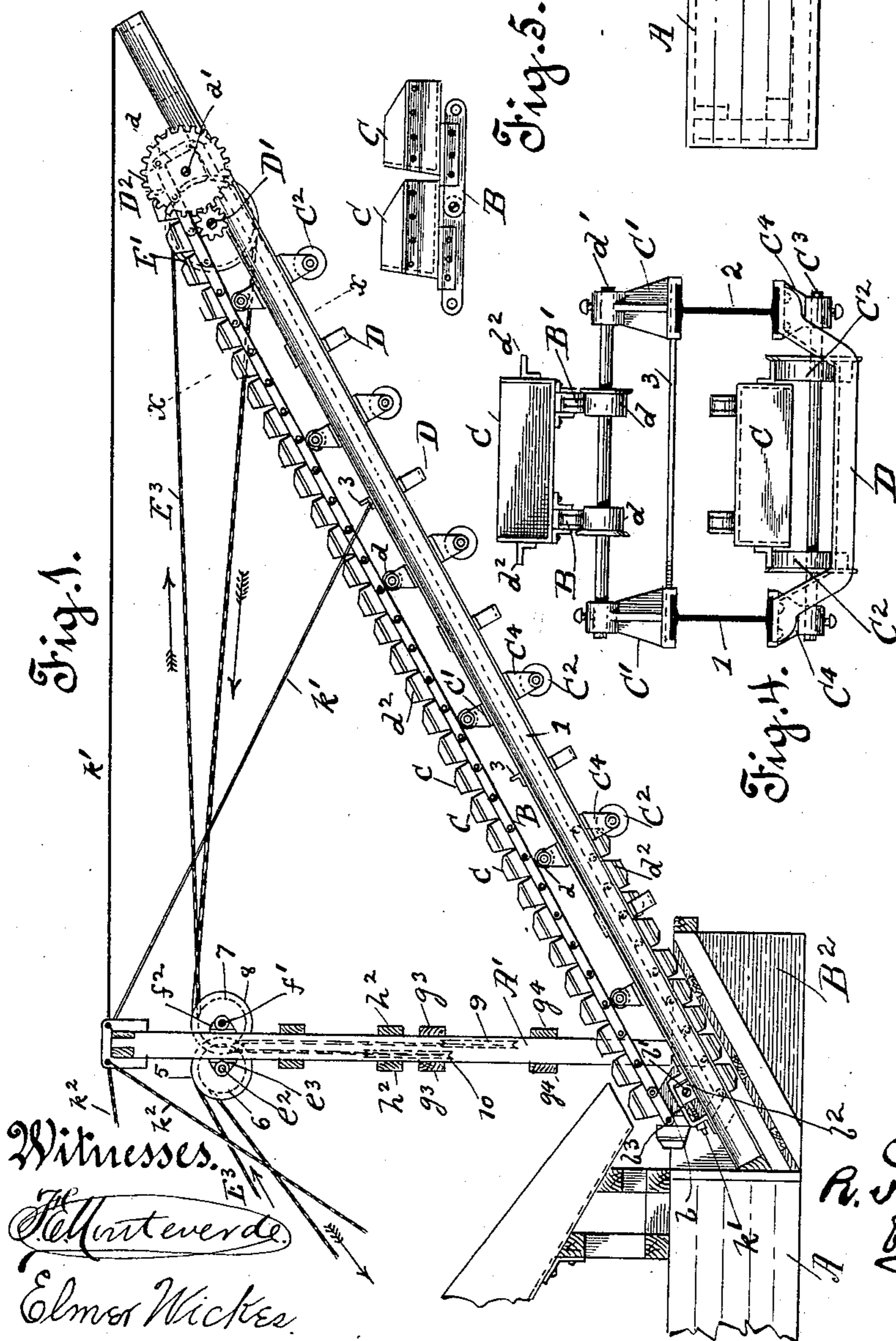


Fig. 4.

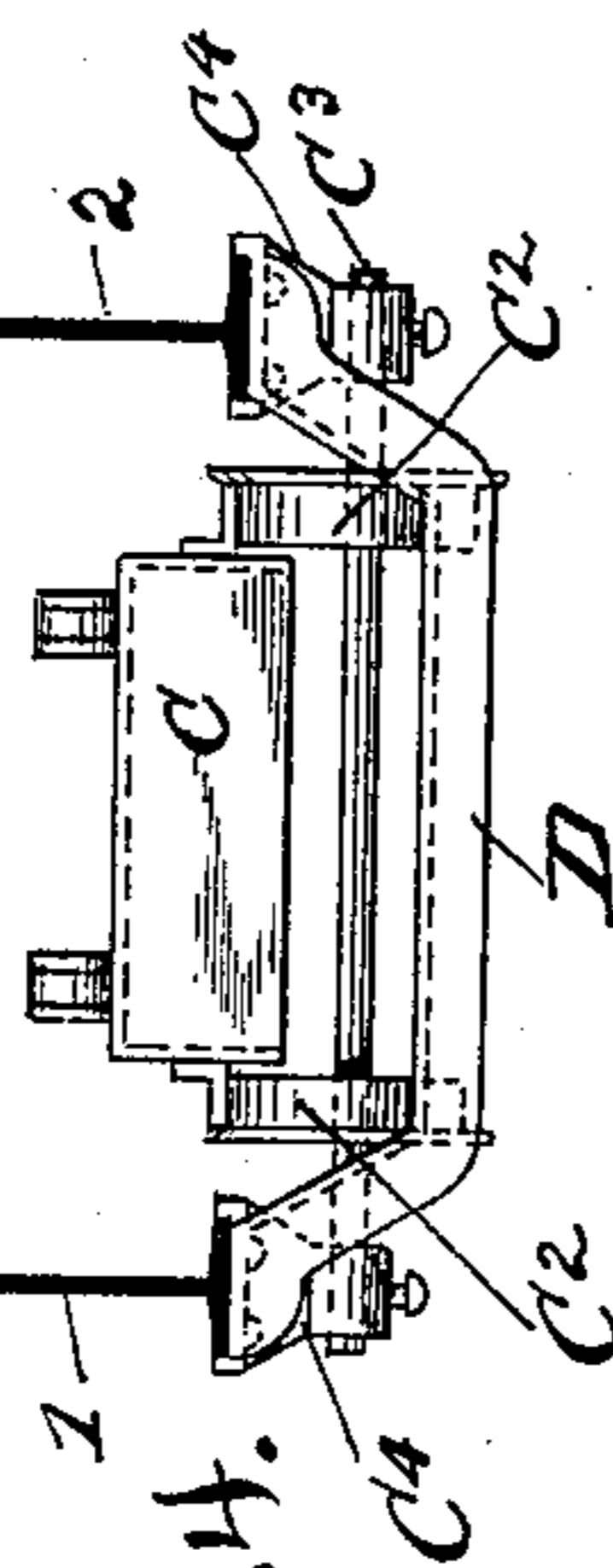
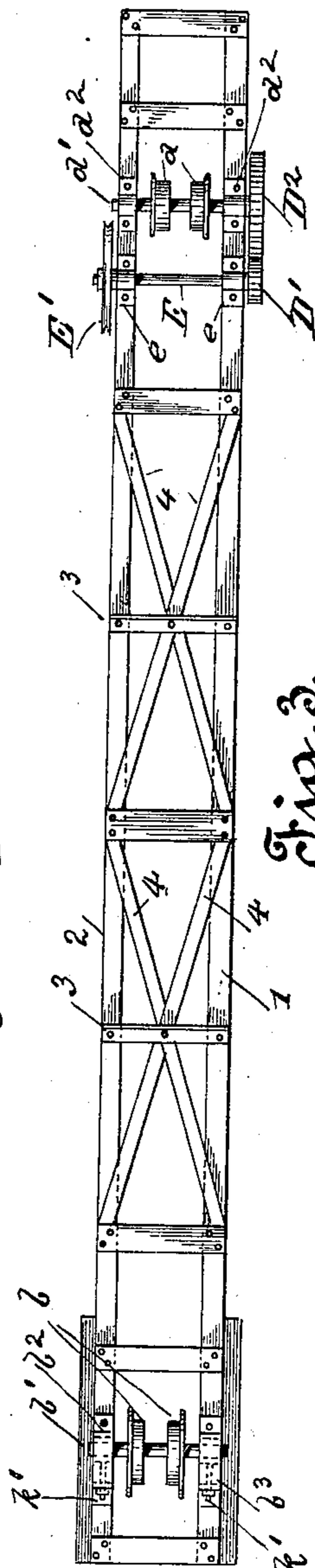


Fig. 3.



Witnesses.
Elmer Wicker

Inventor.
R. H. Postlethwaite
by *N. A. Acker*
his atty

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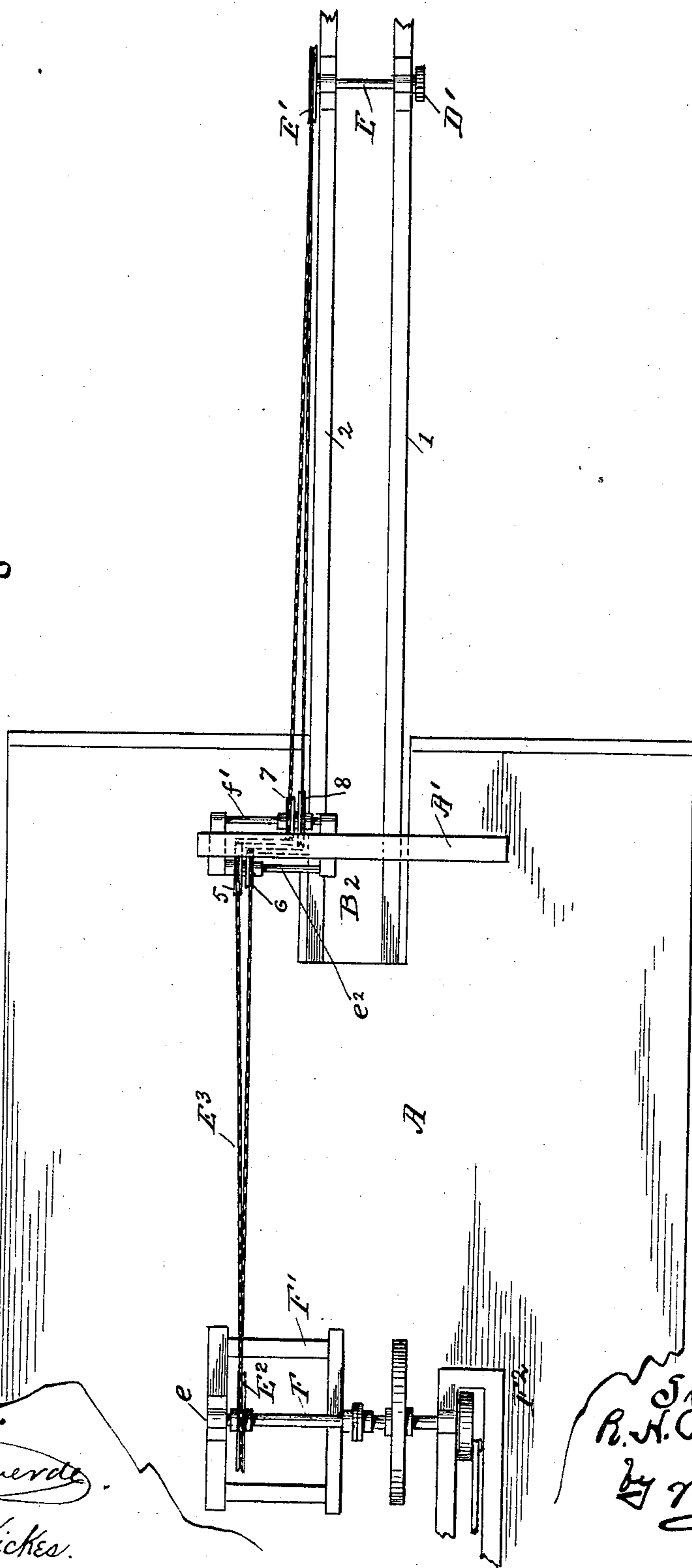
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2 Sheets—Sheet 2.

Fig. 6.



Witnesses.
Elmer Wicker.

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R. H. Postlethwaite
by *N. A. Carter*
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UNITED STATES PATENT OFFICE.

ROBERT H. POSTLETHWAITE, OF SAN FRANCISCO, CALIFORNIA.

ELEVATOR FOR GOLD-DREDGERS.

SPECIFICATION forming part of Letters Patent No. 629,602, dated July 25, 1899.

Application filed February 3, 1898. Serial No. 668,964. (No model.)

To all whom it may concern:

Be it known that I, ROBERT H. POSTLETHWAITE, a subject of the Queen of Great Britain, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Elevators for Gold-Dredgers; and I do hereby declare that the following is a full, clear, and exact description thereof.

This invention relates to certain new and useful improvements in elevators for use in connection with that class of dredgers known as gold-dredgers; and it consists in the arrangement of parts and details of construction, as will be hereinafter fully set forth in the drawings, and described and pointed out in the specification.

The invention resides mainly in the mechanism for driving the endless-chain bucket-carrier of the elevator, which is so arranged that the chain carrier is driven through the medium of a single or endless cable operated from the platform, boat, or dredge, the object being to form a direct connection between the drive drum or sheave and the endless-chain bucket-carrier, so as to dispense with the use of counter-shafting in the transmission of power when the drive drum or sheave is out of alinement with the elevator, although the invention also consists in certain details in the construction whereby the endless-chain bucket-carrier is prevented from sagging as carried around or below the ladder.

In order to fully understand the invention, reference must be had to the accompanying sheets of drawings, forming a part of this application, wherein—

Figure 1 is a side view in elevation of the elevator, showing a portion of the dredge boat, float, or platform. Fig. 2 is a rear end view of the boat, platform, or float with the elevator removed. Fig. 3 is a top plan view of the ladder over which the endless-chain bucket-carrier works. Fig. 4 is a cross-sectional end view taken on line *x x*, Fig. 1. Fig. 5 is a detail side view showing a portion of the endless-chain carrier with buckets attached thereto, and Fig. 6 is a plan view illustrating the running of the cable from the drive drum or sheave to the drive-shaft for the endless-chain carrier.

The letter A is used to indicate a boat, platform, or float, at or near the discharge end of which is secured a vertical sheave-frame A', composed of suitable uprights and cross-pieces, Fig. 2. This sheave-frame supports a series of sheaves or pulleys (hereinafter described) over which runs the cable for driving the endless-chain carrier.

In a well B², cut in the discharge end of the boat, platform, or float A, is secured the lower end of the elevator-ladder, over which the endless-chain carrier works. This ladder is arranged at an angle to the boat, platform, or dredge, and it consists of the side pieces 1 2, cross-pieces 3, and braces 4. Near the upper end of the ladder are placed the square rolls *a*, mounted upon the shaft *a'*, working in bearing *a*², secured to the side pieces 1 2, and near the bottom of the ladder the hexagon-shaped rolls *b*, mounted upon the shaft *b'*, working in bearings *b*², placed within guides *b*³, secured to the side pieces of the said ladder, Fig. 3. Over these rolls travels the endless-chain carrier, consisting of two endless chains B B', composed of a series of links, which carry the buckets C, attached thereto. The chains composing the endless-chain carrier between the rolls *b* and rolls *a* rest upon and are supported by the rolls *d*, mounted upon the cross-shafts *d'*, secured in bearings of the brackets C', upwardly projecting from the side pieces 1 2. By means of these supporting-rolls the endless-chain carrier is prevented from sagging as the buckets, with their load, are conveyed upward toward the rolls *a*. The contents of the buckets are discharged as the said buckets move over the square rolls *a*. Each bucket is provided with side flanges *d*², which as the endless-chain carrier travels downwardly between rolls *a* and *b* rest upon the rolls C², mounted upon the cross-shaft C³, secured within bearings of the brackets C⁴, depending from the side pieces 1 2 of the ladder. The side flanges of the buckets, resting upon the rolls C², serve as a support and prevent the chain carrier from sagging downward as carried beneath the ladder. In order that the buckets C may clear the under cross-braces D of the ladder, the said cross-braces are curved downwardly, so as to give clearance for the buckets. The endless-chain carrier is

driven by the rotation of the square rolls a , motion being imparted to the shaft a' , carrying the rolls, by means of the pinion D' , which meshes with the gear D^2 , secured to the shaft a' . Pinion D' is attached to one end of cross-shaft E , working in bearing e , secured to the side pieces 1 2, to the opposite end of which shaft is affixed the sheave E' . Motion is imparted to this sheave from the drive-sheave E^2 , located upon the boat, platform, or float, Fig. 6, by means of the single cable E^3 .

The drive-sheave E^2 is mounted upon the shaft F , working in bearing e , secured to frame F' , attached to the boat, platform, or float A . This shaft F is driven from any suitable engine F^2 . Owing to the location of the rotary screen or grizzly and the collecting-tables usually used in connection with this class of machines it is impossible to place the drive-sheave E^2 without considerable difficulty and crowding of other machinery in line with the sheave E' . When out of alinement, as in the present case, it is usual to transmit motion to the sheave E' by means of cross shafting and belting. However, in view of the hard usage to which this class of machinery is exposed, considerable lost motion is occasioned by the use of cross shafting and belting—so much so that it is nearly impossible to transmit a regular movement. To avoid this, I propose to transmit motion from the drive-sheave to the sheave E' to operate the endless-chain carrier by means of a single cable E^3 . In order to successfully transmit power by a single cable, a series of sheaves is placed within the sheave-frame A' to place the cable E^3 in alinement with the drive-sheave E^2 and sheave E' .

Upon the cross-shaft e^2 , working in bearings e^3 , secured to uprights f of the sheave-frame, are secured the sheaves 5 6, and upon the cross-shaft f' , working in bearings f^2 , are secured the sheaves 7 8. Sheaves 5 6 are placed toward the outside of the sheave-frame and sheaves 7 8 toward the center thereof. The cross-shafts $e^2 f'$ being arranged parallel, the said sheaves will revolve in a longitudinal plane. A distance below the said sheaves is located the idler or adjustable sheave 9, which is mounted upon the shaft g , which works in the slide-boxes g' , adjustably secured upon vertical rods g^2 , held between cross-pieces $g^3 g^4$ of the sheave-frame. Above the shaft g is arranged the shaft h , which works in bearing h' , secured to the cross-pieces h^2 . Upon this shaft is mounted the sheave 10, which sheave and the sheave 9 stand at a right angle to the sheaves 5 6 7 8. Sheaves 5 6 stand approximately in alinement with the drive-sheave E^2 and sheaves 7 8 in approximate alinement with sheave E' .

The drive-cable runs from drive-sheave E^2 over sheave 5, thence downward and under sheave 9, up and over small sheave 7, and outward over sheave E' , and back over large sheave 8, downward under sheave 10, thence upward and over small sheave 6, and from said sheave to the drive-sheave. It will thus

be observed that the motion of the drive-sheave is imparted to the sheave E' (out of alinement therewith) to drive the endless-chain carrier by means of a single endless cable.

In case it becomes necessary to tighten or loosen the drive-cable for any cause whatever—as, for instance, to permit of the ladder being raised or lowered—it is only necessary to loosen the set-screw k and lower or raise the idler or adjustable sheave 9.

The bearings b^2 may be raised or lowered in the guides b^3 in order to loosen or tighten the endless-chain carriers by simply screwing the screw-bolts k' , Fig. 1, in or out of the guides b^3 .

The ladder is held in proper position by means of the cables or tie-rods k' , which lead from the sheave-frame A' , while the said sheave-frame is held steady by the cables or tie-rods k^2 , which connect with the boat, platform, or float.

By means of the runway or chute K the coarse or base material is conveyed from the rotary screen (not shown) and discharged into the buckets C as the said buckets are carried over the rolls b by the travel of the endless-chain carrier. As before stated, the buckets empty as carried over the rolls a at the upper end of the ladder, so as to discharge upon an embankment or suitable place of deposit.

Having thus described the invention, what I claim as new, and desire to secure protection in by Letters Patent, is—

1. The combination with a platform and an endless carrier or elevator movably mounted, of a sheave E' for imparting motion to the elevator, a drive drum or sheave on said platform out of alinement with said sheave E' , a substantially upright sheave-frame on the platform, a series of sheaves working in bearings on said frame, one of said sheaves of the series being adjustable toward and from the others and a single cable for transmitting power from the drive-sheave to the sheave E' working on said sheaves and on the series of sheaves in said frame, substantially as and for the purpose set forth.

2. The combination with a movably-mounted endless carrier, of a sheave E' for imparting motion thereto, a drive-sheave E^2 out of alinement with and whose axle is substantially parallel with the axle of the sheave E' , a sheave-frame between said sheaves, sheaves 9 and 10 one of which is vertically adjustable mounted on said frame with their axles at an angle to the axles of sheaves E' and E^2 , sheaves 5, 6, 7 and 8 mounted on said frame with their axles substantially parallel with the axles of the sheaves E' and E^2 , and a single endless cable passing over said sheaves substantially as shown and described and for the purpose set forth.

3. The combination with the ladder, of the rolls secured at the lower and upper ends thereof, the endless carrier working over said

rolls, mechanism for driving said carrier, a series of supporting-rolls for the carrier mounted upon shafts located in brackets secured to and upwardly projecting from the ladder, a series of brackets secured to and depending from the ladder, cross-shafts supported by said brackets, rollers mounted upon said shafts, a series of buckets attached to the endless carrier, each bucket being provided with side flanges which rest upon the rolls suspended below the ladder as the carrier moves thereunder.

4. The combination of the ladder, an endless carrier working thereon comprising a series of buckets each provided with side flanges, supporting-rollers for the carrier

mounted on the ladder upon which rollers said side flanges rest, and drive means.

5. The combination with a support, of an endless carrier thereon having a series of buckets each having in addition to the carrier a fixed supporting-surface, a series of rollers for supporting the under run of buckets and with which the said supporting-surfaces engage, and means for driving the carrier.

In testimony whereof I affix my signature, in presence of two witnesses, this 8th day of January, 1898.

ROBERT H. POSTLETHWAITE.

Witnesses:

N. A. ACKER,

LEE D. CRAIG.