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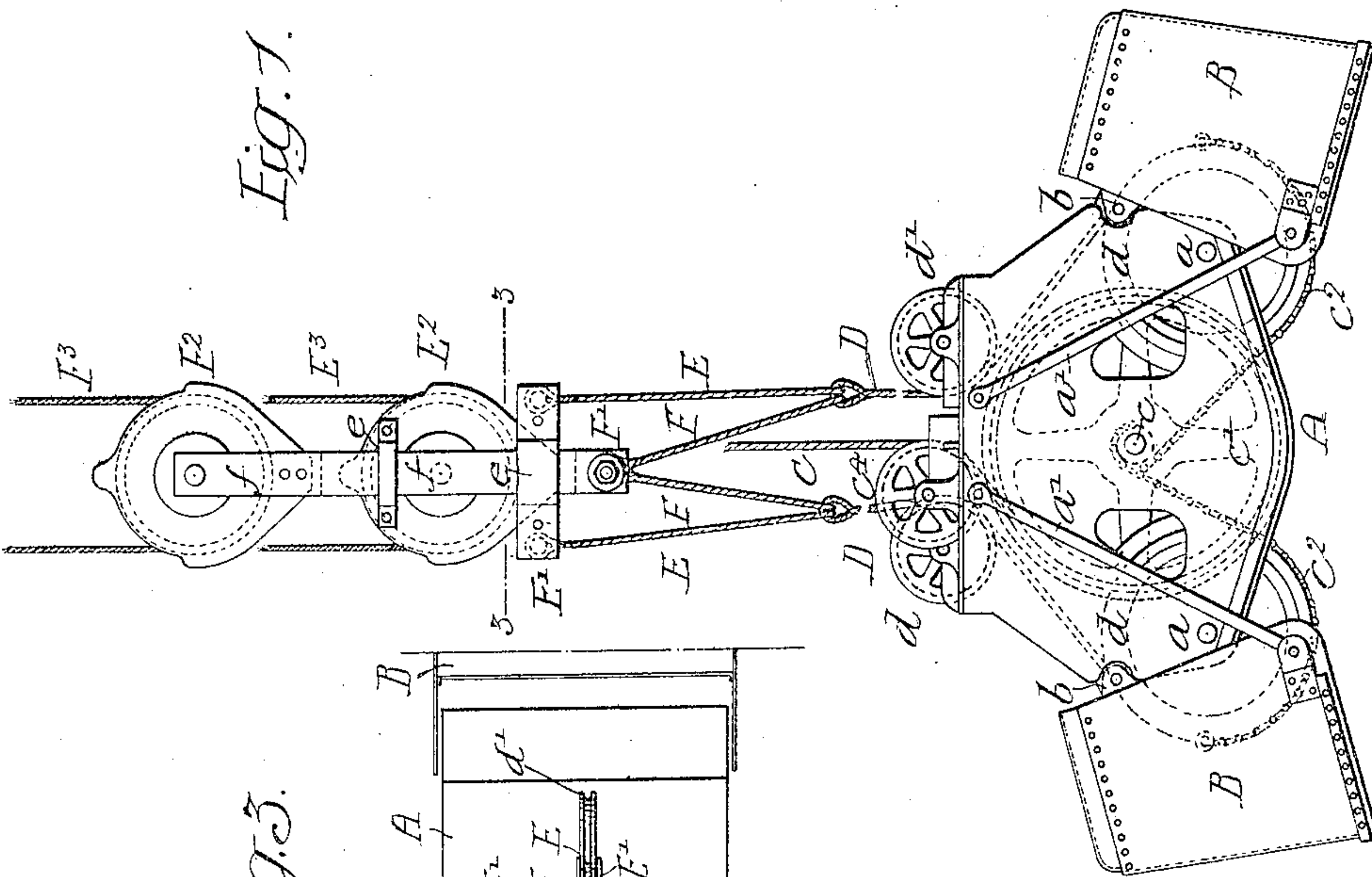
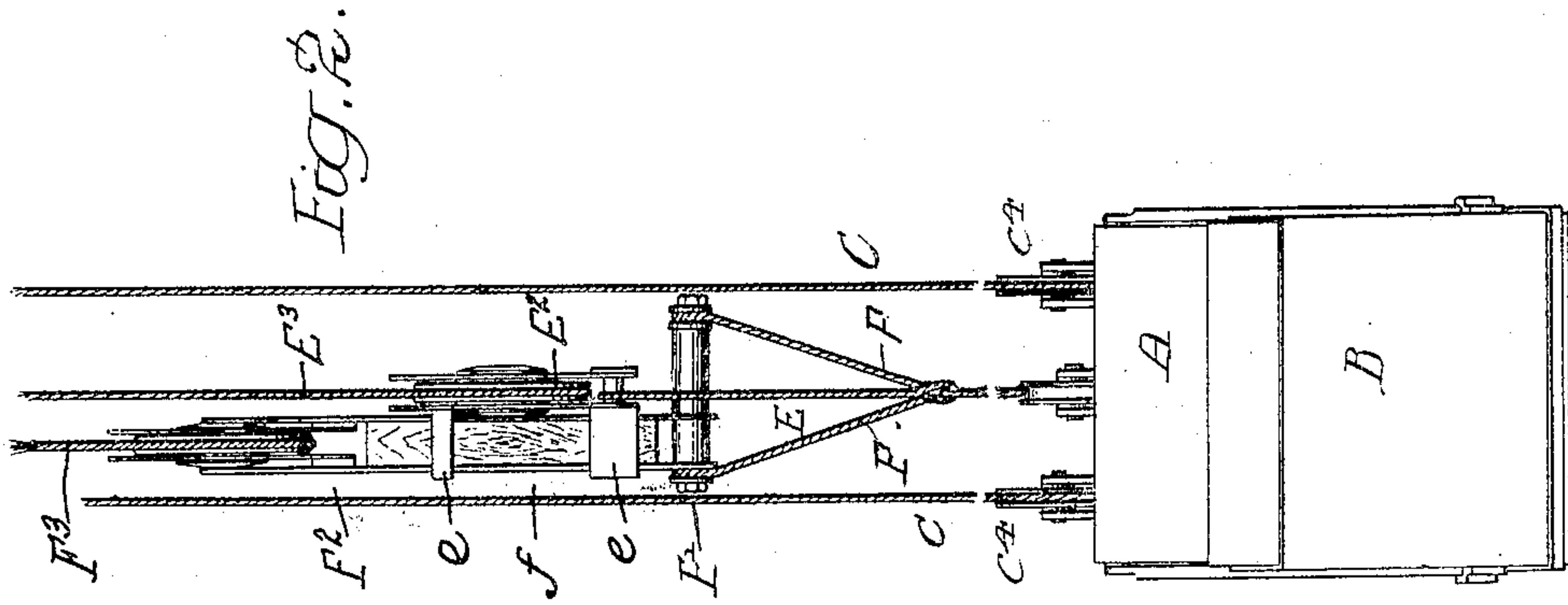
PATENTED DEC. 26, 1905.

G. E. TITCOMB.

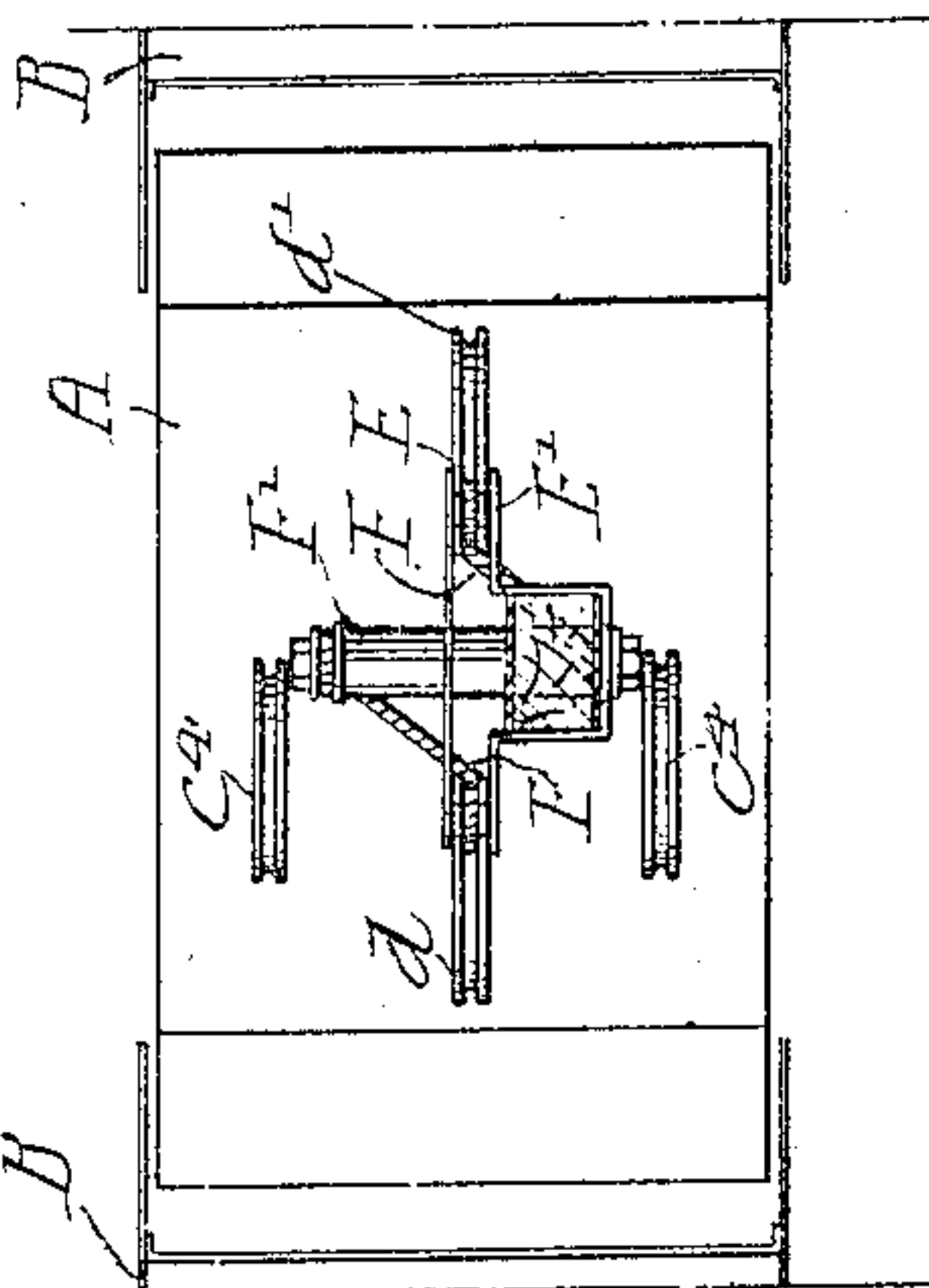
MEANS FOR TURNING HOISTING BUCKETS.

APPLICATION FILED AUG. 17, 1905.

3 SHEETS—SHEET 1.



*Fig. 3.*



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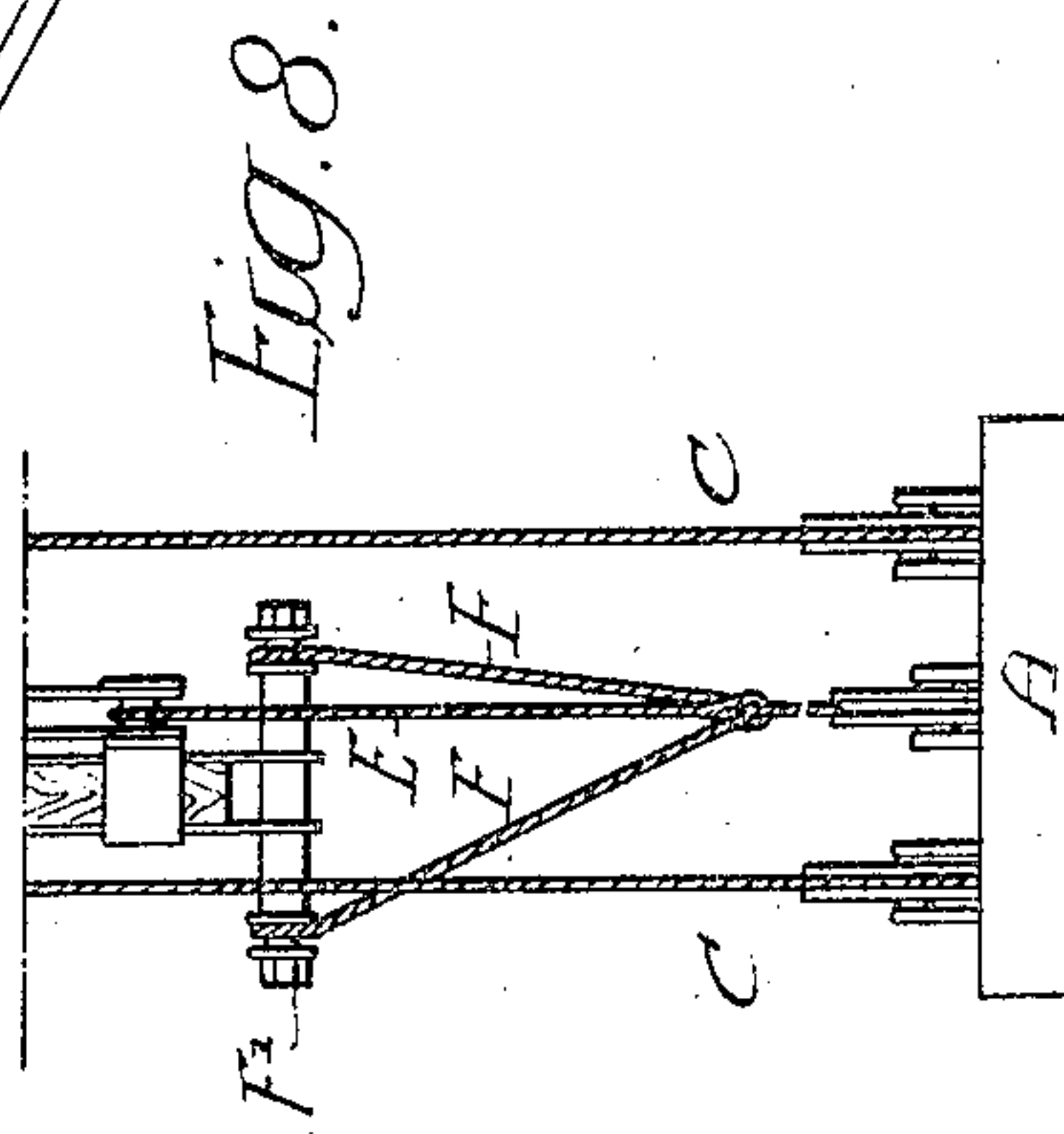
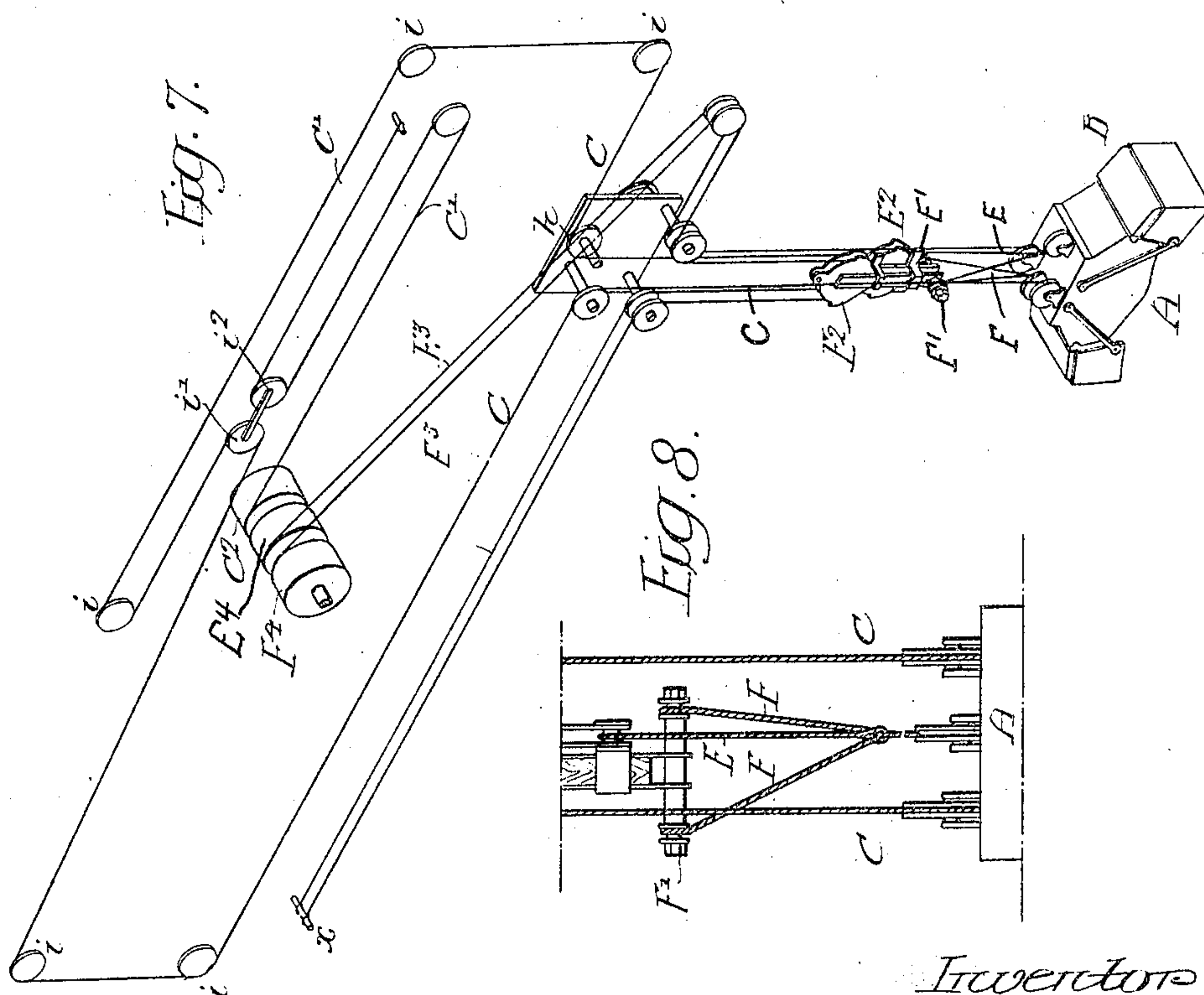
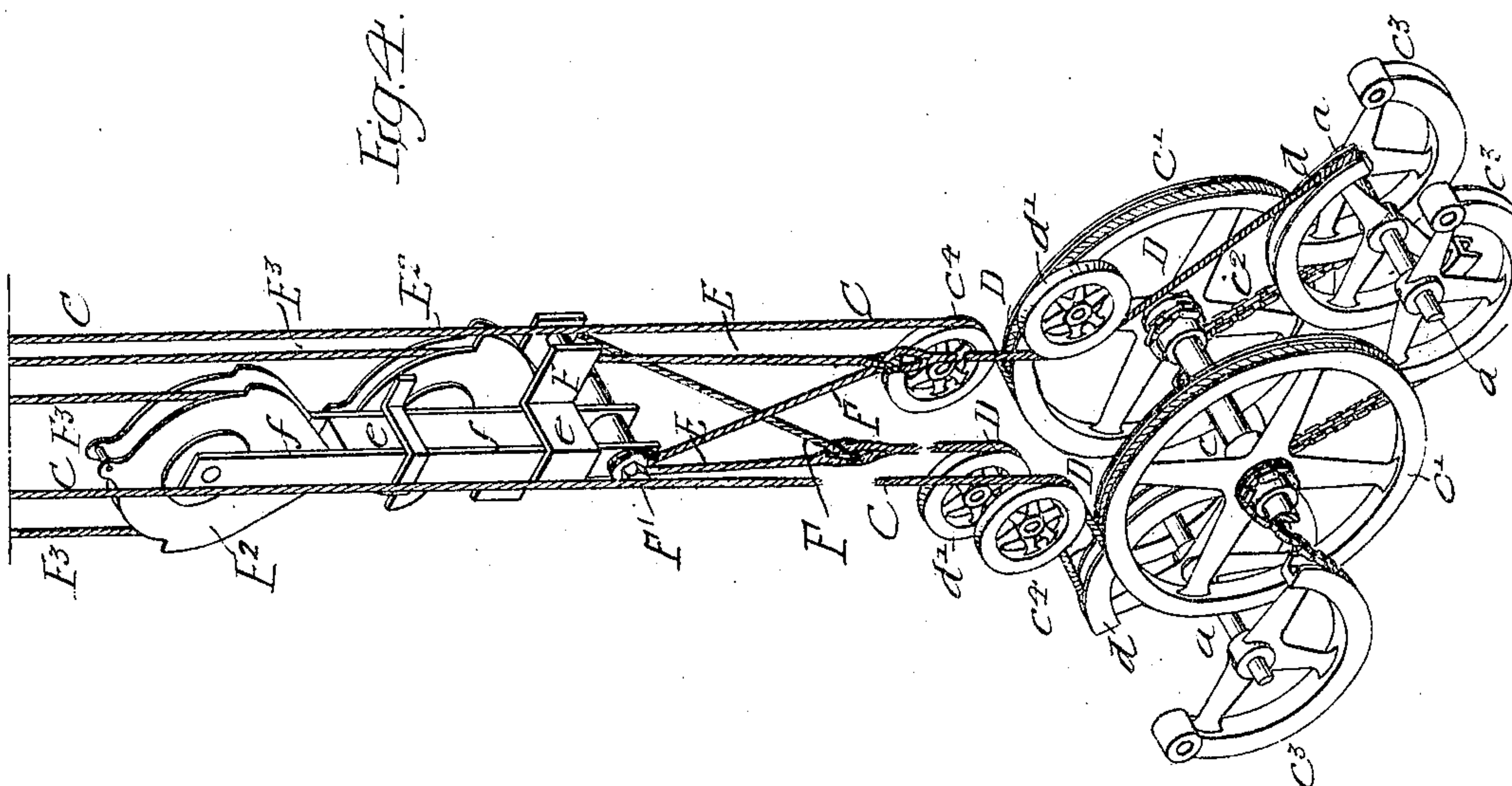
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3 SHEETS—SHEET 2.



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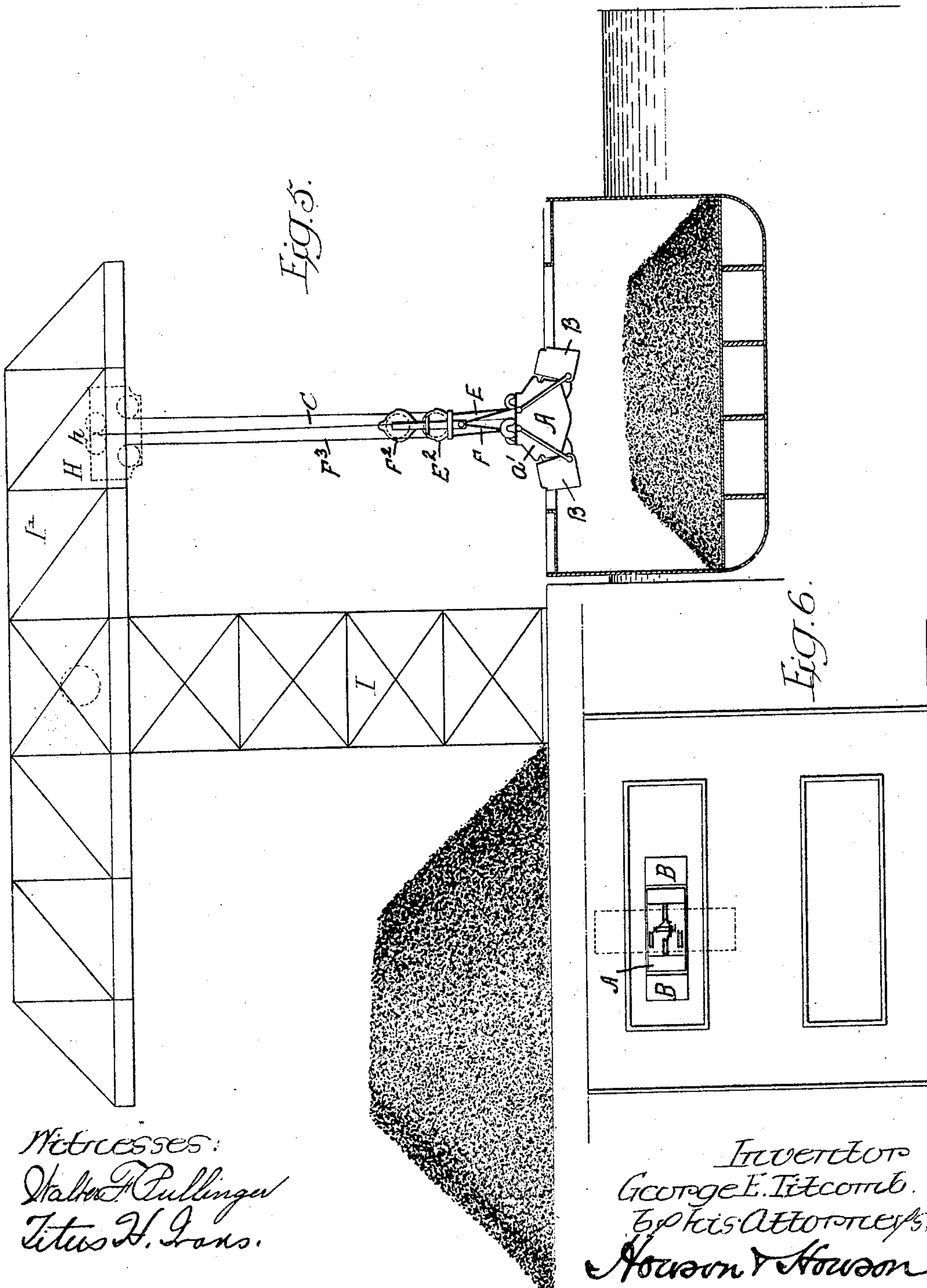
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MEANS FOR TURNING HOISTING BUCKETS.

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3 SHEETS—SHEET 3.





# UNITED STATES PATENT OFFICE.

GEORGE E. TITCOMB, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO  
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## MEANS FOR TURNING HOISTING-BUCKETS.

No 808,493.

Specification of Letters Patent.

Patented Dec. 26, 1905.

Application filed August 17, 1905. Serial No. 274,612.

*To all whom it may concern:*

Be it known that I, GEORGE E. TITCOMB, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain  
5 Improvements in Means for Turning Hoisting-Buckets, of which the following is a specification.

The object of my invention is to provide means whereby a hoisting-bucket can be  
10 turned by simply manipulating the ropes by which it is suspended, so that the bucket can be lowered, for instance, through a hatchway of a vessel and turned under the deck to receive a load and to be again turned so that  
15 it can be withdrawn through the hatchway, as fully described hereinafter, reference being had to the accompanying drawings, in which—

Figure 1 is a side view of a hoisting-bucket, illustrating my invention. Fig. 2 is an end  
20 view of Fig. 1. Fig. 3 is a sectional plan view on the line 3 3, Fig. 1. Fig. 4 is a diagrammatic perspective view showing the reeving of the ropes at the bucket. Fig. 5 is  
25 a side view of a derrick, showing the application of my invention, a vessel being illustrated in section. Fig. 6 is a plan view of part of the vessel shown in Fig. 5. Fig. 7 is  
30 a view showing the reeving of the ropes on the derrick illustrated in Fig. 5, and Fig. 8 is a view of a modification.

A is the body of a hoisting-bucket of the clam-shell type, having jaws B B hung thereto, so as to swing in under the load. In the  
35 present instance the jaws are hung on pivots *b b*, carried by segments on shafts *a*, mounted on the body A. The jaws B B are also connected to the body A by rods *a' a'*.

*c* is a shaft having rope-wheels *c' c'* thereon, and the hubs of these wheels act as drums  
40 for the closing-chains *c<sup>2</sup> c<sup>2</sup>*, which are secured to segments *c<sup>3</sup>* on the shafts *a*.

C C are the closing-ropes, which are secured to the wheels *c'* and pass partly around  
45 said wheels and are guided by sheaves *c<sup>4</sup> c<sup>4</sup>* on the body portion A of the bucket.

D is the opening-rope, which is attached to segments *d* on the shafts *a* and pass around  
50 guide-sheaves *d'* on the body A.

When the ropes D are under tension and the ropes C slack, the jaws B of the bucket

will open, and when the ropes C are under tension and the ropes D are slack the jaws will close.

The above simply describes one form of  
55 bucket to which my invention may be applied.

In the present instance the closing-ropes C are, in fact, the two ends of a single closing-rope. The rope passes up from the bucket  
60 and over sheaves *h h* on a trolley H, arranged to travel on rails on the bridge I' of the crane I, Fig. 5. The rope C passes around suitable sheaves *i* on the bridge, and in a loop of the rope is a sheave *i'*, connected to a sheave  
65 *i<sup>2</sup>*, around which passes the rope C', which is fixed at one end and passes to the rope-drum C<sup>2</sup>.

In order to turn the bucket, I provide two sets of opening-ropes E E and F F, both con-  
70 nected to or forming continuations of the opening-ropes D D of the bucket. The ropes E E are attached, respectively, to the ends of the ropes D D and to a cross-bar E', carried by a sheave E<sup>2</sup>, around which passes one of  
75 the holding-ropes E<sup>3</sup>. The ropes E E lead straight from the bucket to the cross-bar E', holding the bucket in the position shown in Fig. 1. The ropes F F are also each attached  
80 to a rope D, as shown in Figs. 1 and 4, and are secured to a cross-bar F', which is arranged at right angles to the cross-bar E', one rope being attached to one end of the bar  
85 and the other rope to the opposite end of the bar. The bar F' is attached to one end of a frame *f*, arranged to slide in guides *e* on the  
90 sheave E<sup>2</sup> and on the bar E'. A sheave F<sup>2</sup> is attached to the upper end of the frame *f*, and the turning-rope F<sup>3</sup> passes around this sheave.

The two ropes E<sup>3</sup> and F<sup>3</sup> in the present in-  
95 stance are secured at one end to a fixed point *x*, Fig. 7, and pass around sheaves on the trolley H to the bucket, then around sheaves to the drums E<sup>4</sup> and F<sup>4</sup>; but this reeving of the ropes may be modified without departing  
100 from my invention.

It will be noticed in referring to Figs. 5 and 6 that the hatchways of vessels carrying coal and similar material are narrow, owing to the transverse deck-beams, and usually a small  
100 bucket is used; but by providing means for turning the bucket after it has passed through



the hatchway a much larger bucket can be used than heretofore, and the material under the decks can be more readily reached than when the ordinary bucket is used.

5 The operation of my improved bucket is as follows: When the bucket is lowered into the hold of a vessel, for instance, as in Figs. 5 and 6, the ropes E<sup>3</sup>, E, and D are under tension and the ropes F<sup>3</sup> F and the closing-ropes C  
10 are slack. After the bucket has passed through the hatchway in the deck the drums are so manipulated that the ropes F<sup>3</sup> and F and D are under tension and the other ropes are slack, and as the ropes F F are twisted a  
15 half-turn they will turn the bucket a half-turn, as shown by dotted lines in Fig. 6, putting a twist in the slack ropes E E. The jaws of the bucket can then close upon the material under the deck, and when the bucket is  
20 closed the bucket can be turned to its first position by placing the ropes E E under tension and allowing the ropes F F to become slack. Thus the bucket will turn so that it can be withdrawn through the hatchway.

25 My invention can be applied to any form of bucket having a closing-rope and opening-ropes.

In Fig. 8 I have shown the cross-bar F' shifted to one side of a center line through the  
30 bucket, and central with the frame to which it is connected in this instance one of the closing-ropes acts as a stop to limit the turning of the bucket in one direction by the bar coming in contact with it.

35 I claim as my invention—

1. The combination of a hoisting-bucket, three sets of ropes leading from the hoisting mechanism to the bucket, one rope being a  
40 closing-rope and another a holding or opening rope and the third a holding, opening and turning rope, and means connecting the latter rope to the bucket so that when said rope is under tension, the bucket will be turned, substantially as described.

45 2. The combination of a hoisting-bucket, of three sets of ropes leading from the hoisting mechanism to the bucket, one rope being a closing-rope, and the other ropes being opening and holding ropes, connections between  
50 each of said latter ropes and the bucket, one of said connections being twisted, so that when one rope is under tension, the bucket will hang in one position and when the other

rope is under tension, the bucket will turn, substantially as described. 55

3. The combination of a hoisting-bucket, two cross-bars, one arranged at an angle to the other and one mounted above the other, a sheave attached to each cross-bar, an opening and holding rope passing around each  
60 sheave and leading to the hoisting mechanism, one cross-bar having straight connections with the hoisting-bucket and the other bar having twisted connections with the bucket so that when one holding-rope is under  
65 tension, the bucket will be in one position and when the other holding-rope is under tension, the bucket will be turned, substantially as described.

4. The combination of a hoisting-bucket, 70 having a body portion and pivoted jaws, ropes arranged to close the jaws and ropes for opening the jaws, two cross-bars, one arranged at right angles to the other and each connected to the opening-ropes, with means  
75 for placing tension on either of the cross-bars, so as to turn the bucket from one position to the other, substantially as described.

5. The combination of a hoisting-bucket, having a body portion and pivoted jaws, a  
80 rope arranged to close the jaws, and ropes connected to the jaws to open the same, two cross-bars, one arranged at an angle to the other, two ropes leading from each opening-rope; one rope of each set attached to an end  
85 of one bar and the other rope attached to an end of the other bar, with means for placing tension on either cross-bar so as to turn the bucket from one position to the other, substantially as described. 90

6. The combination of a hoisting-bucket, two cross-bars one arranged at an angle to the other, two sets of ropes leading from the cross-bars to the bucket, one of said sets of ropes being twisted, closing-ropes leading from the  
95 bucket and in the path of one of the cross-bars so as to limit the rotary movement of the bucket, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of  
100 two subscribing witnesses.

GEORGE E. TITCOMB.

Witnesses:

E. R. LOUGHERY,  
JOS. H. KLEIN.