

No. 633,118.

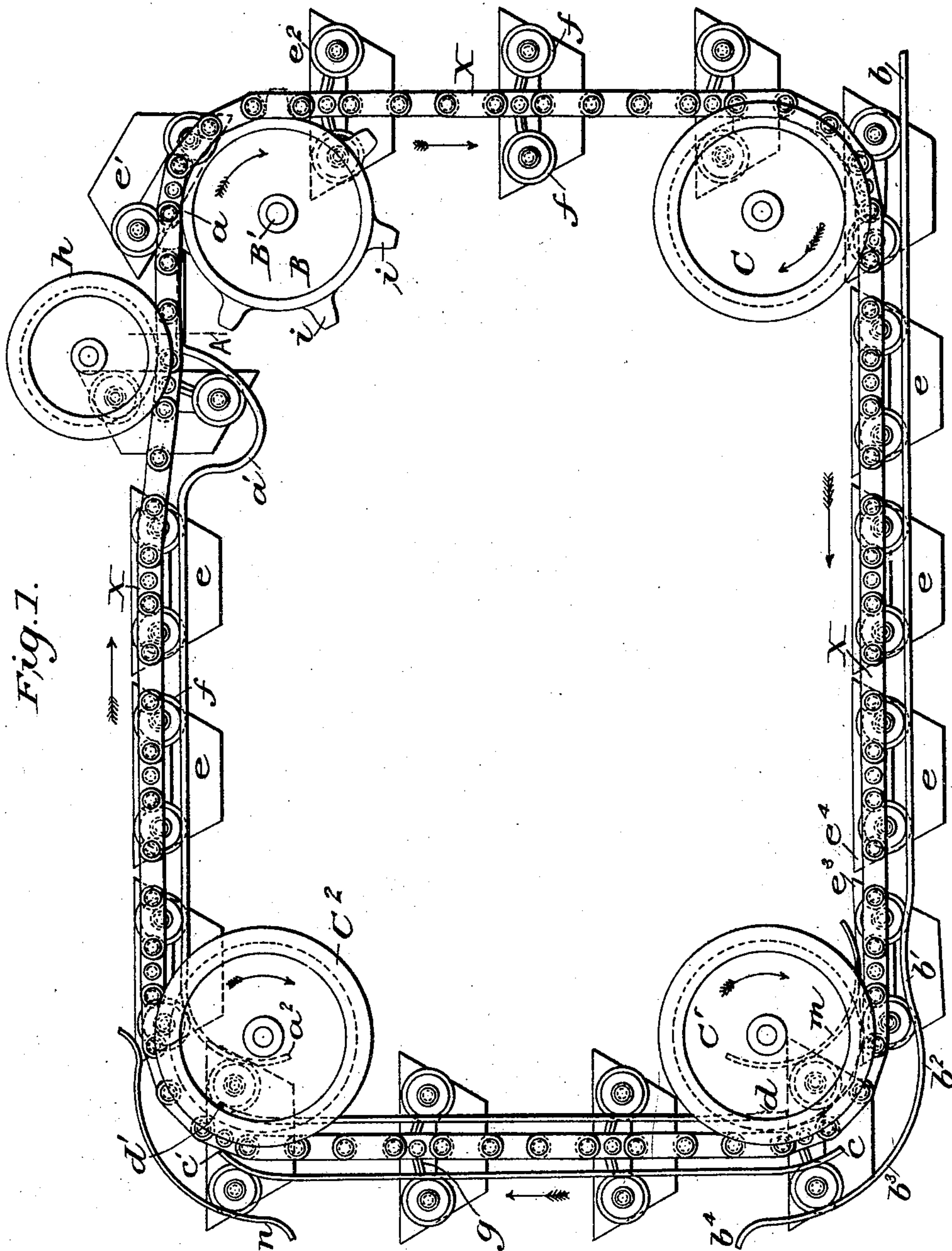
Patented Sept. 19, 1899.

C. A. CASE.
BUCKET CONVEYER.

(Application filed Oct. 27, 1898.)

(No Model.)

5 Sheets—Sheet 1.



Witnesses.

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Fig 2

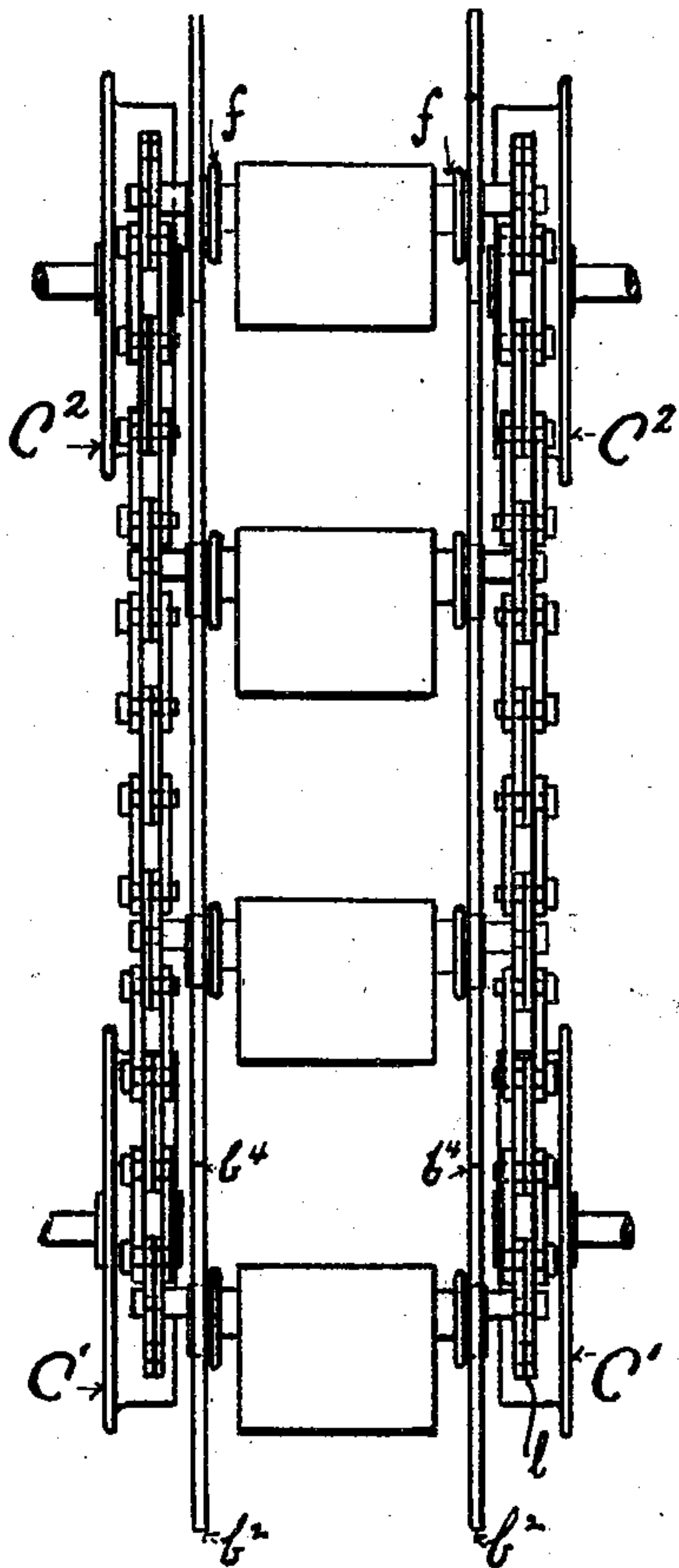
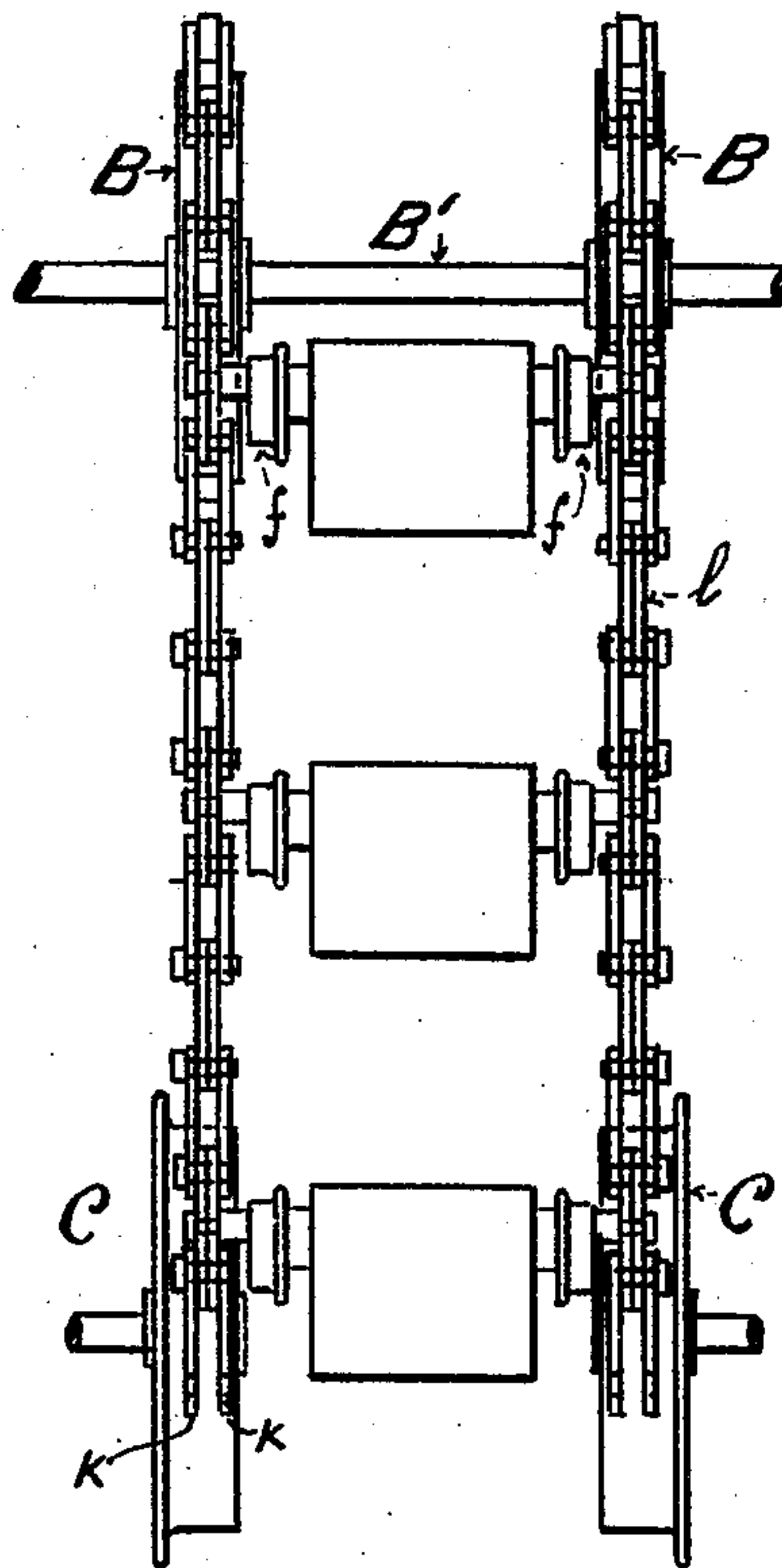


Fig 3



Witnesses

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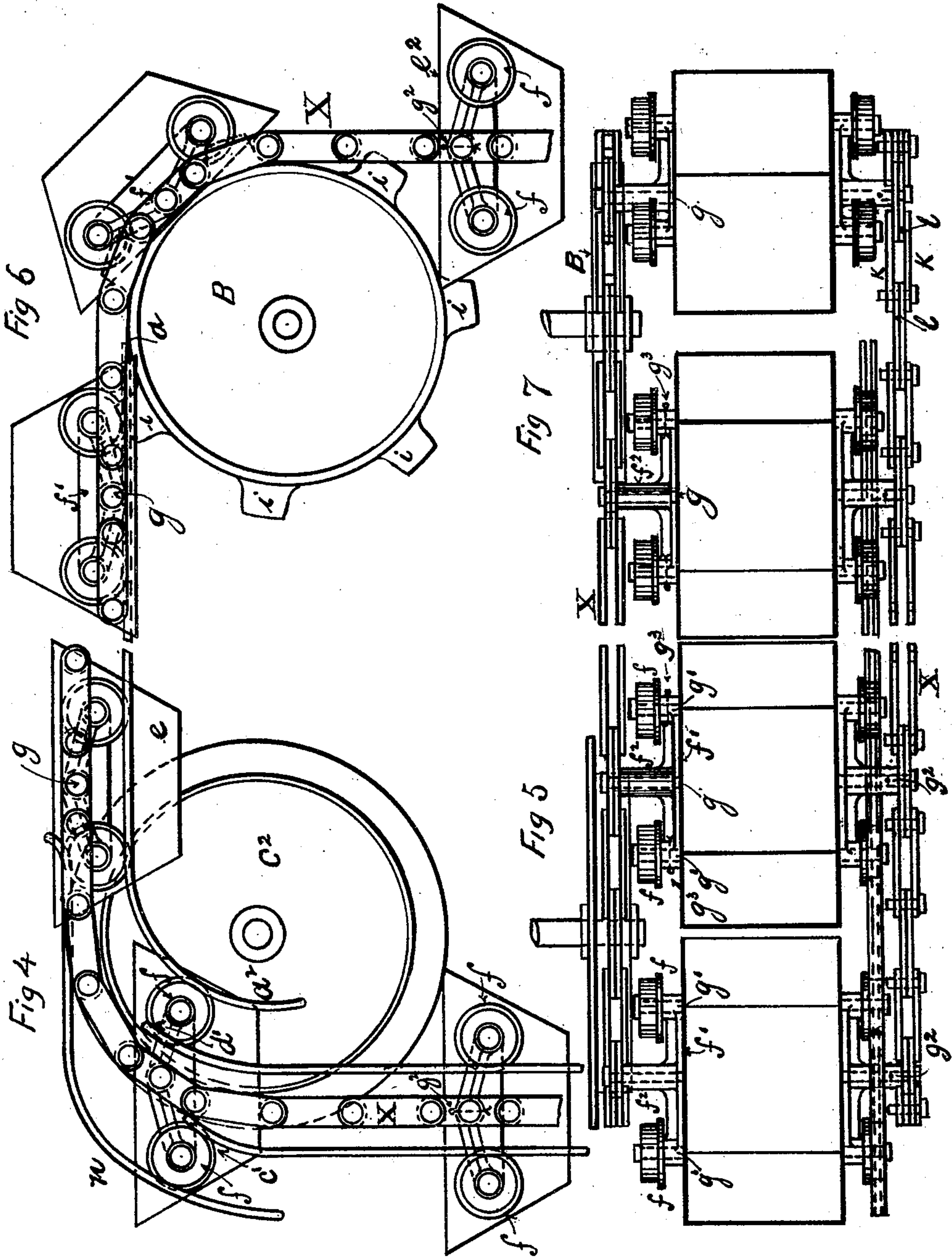
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WITNESSES:

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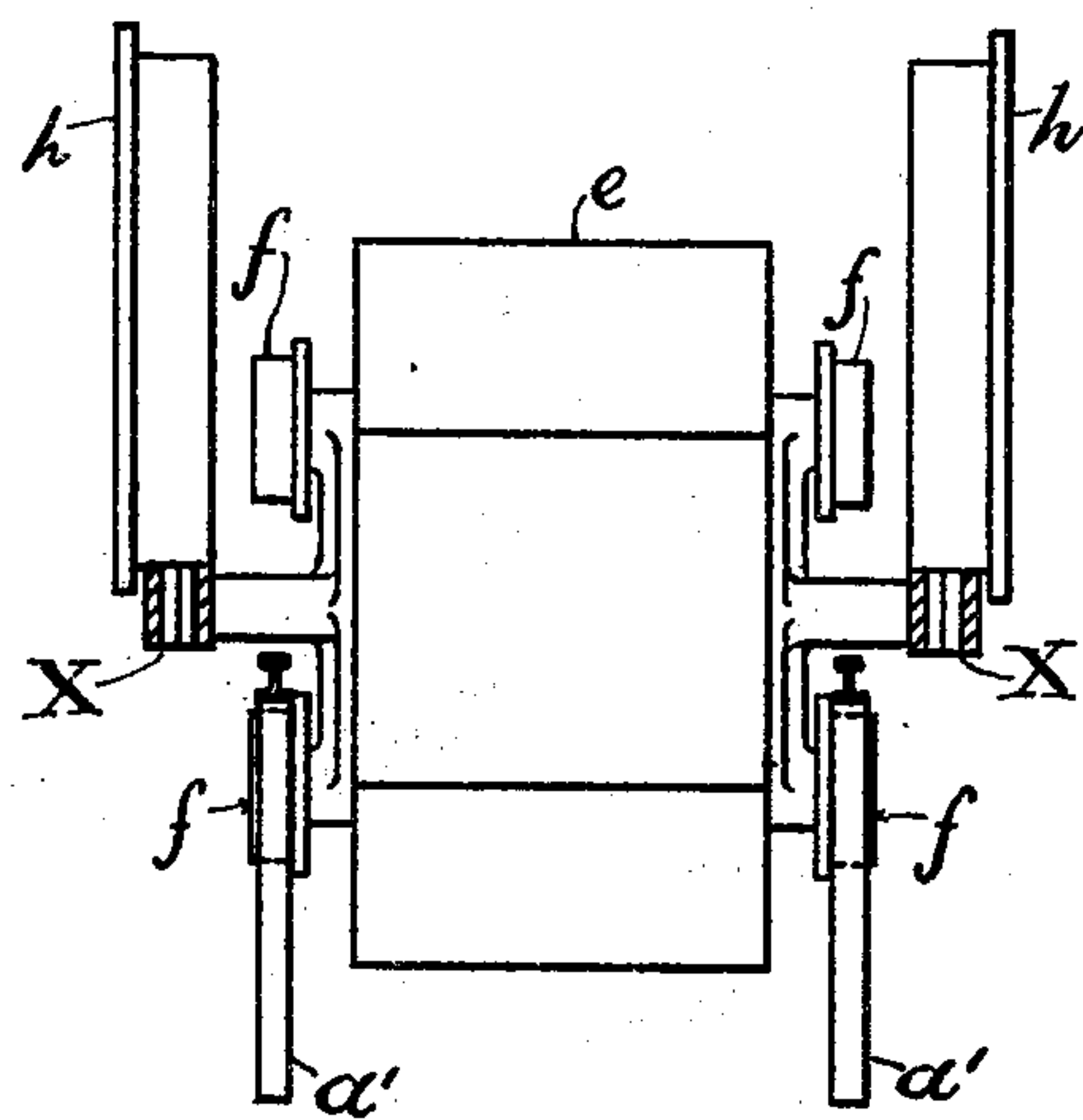
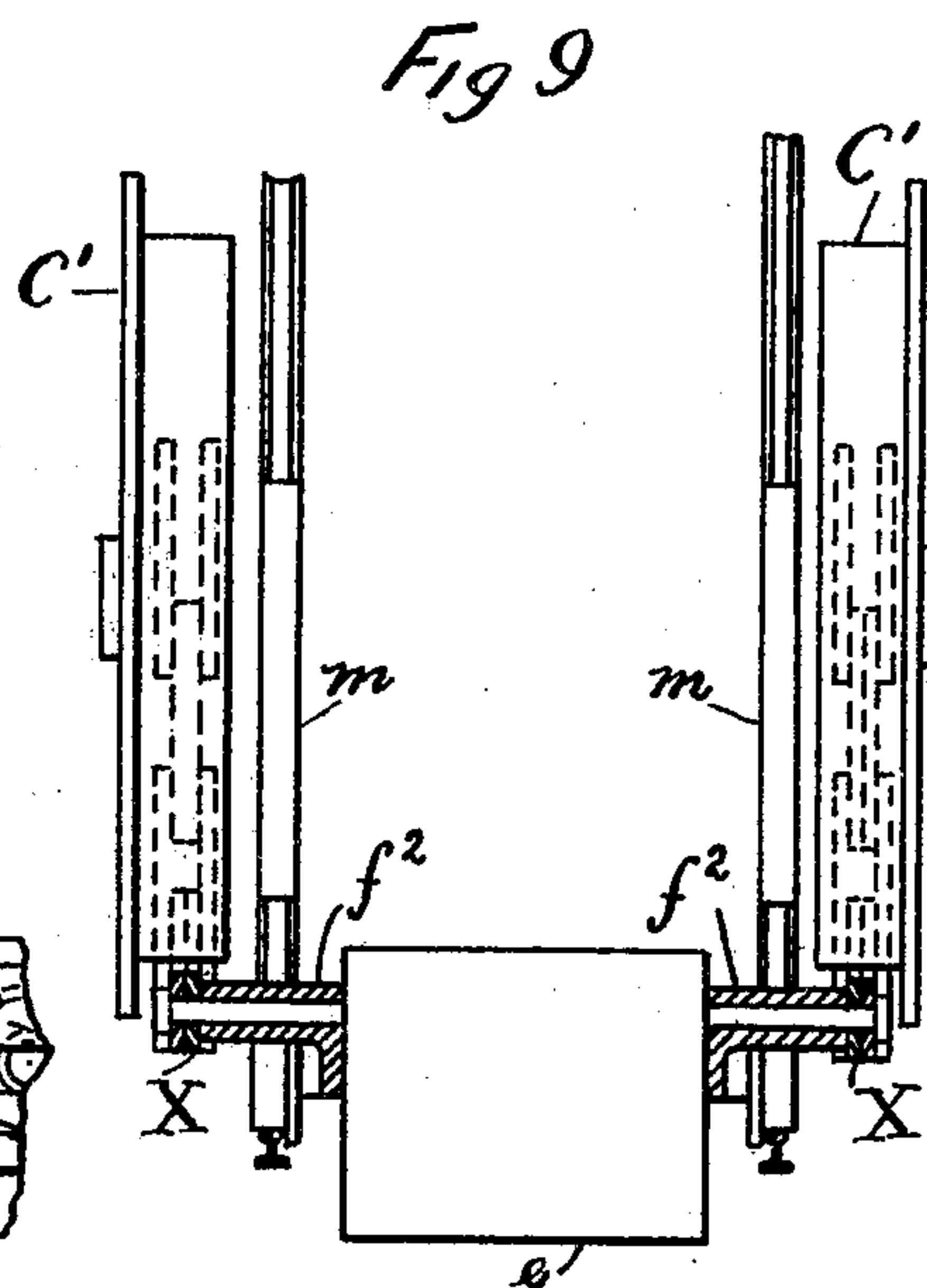
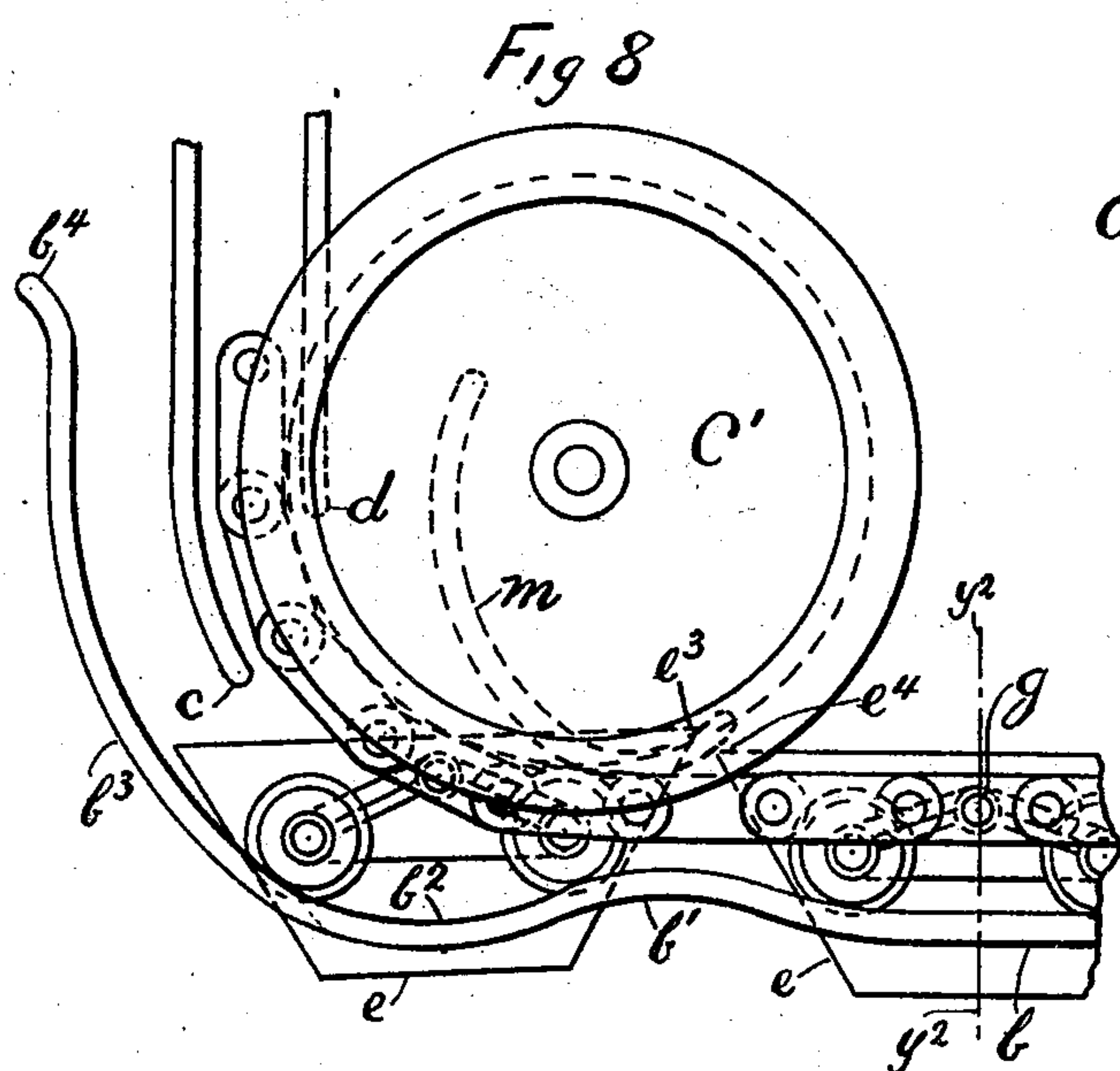
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5 Sheets—Sheet 4.



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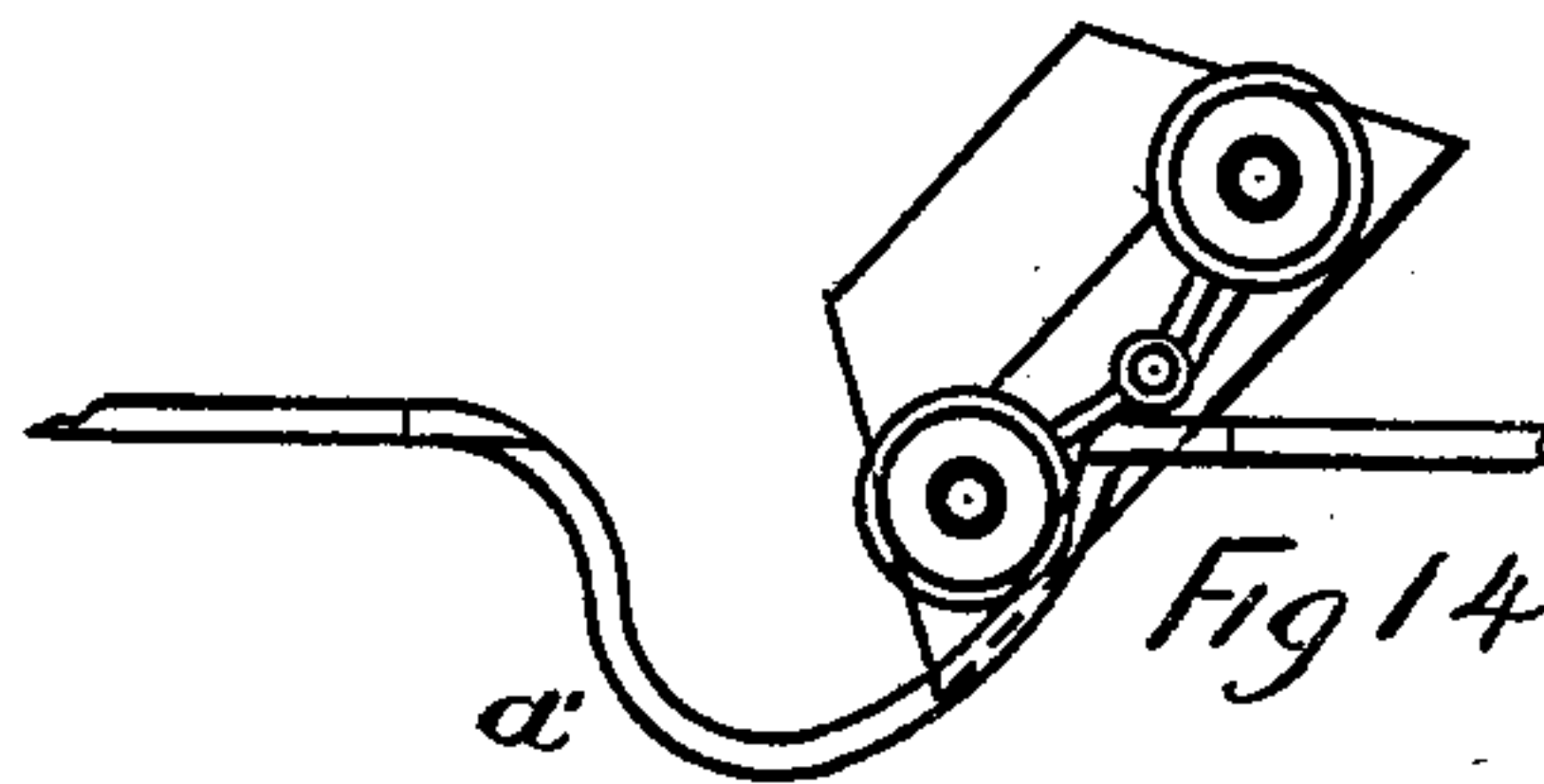
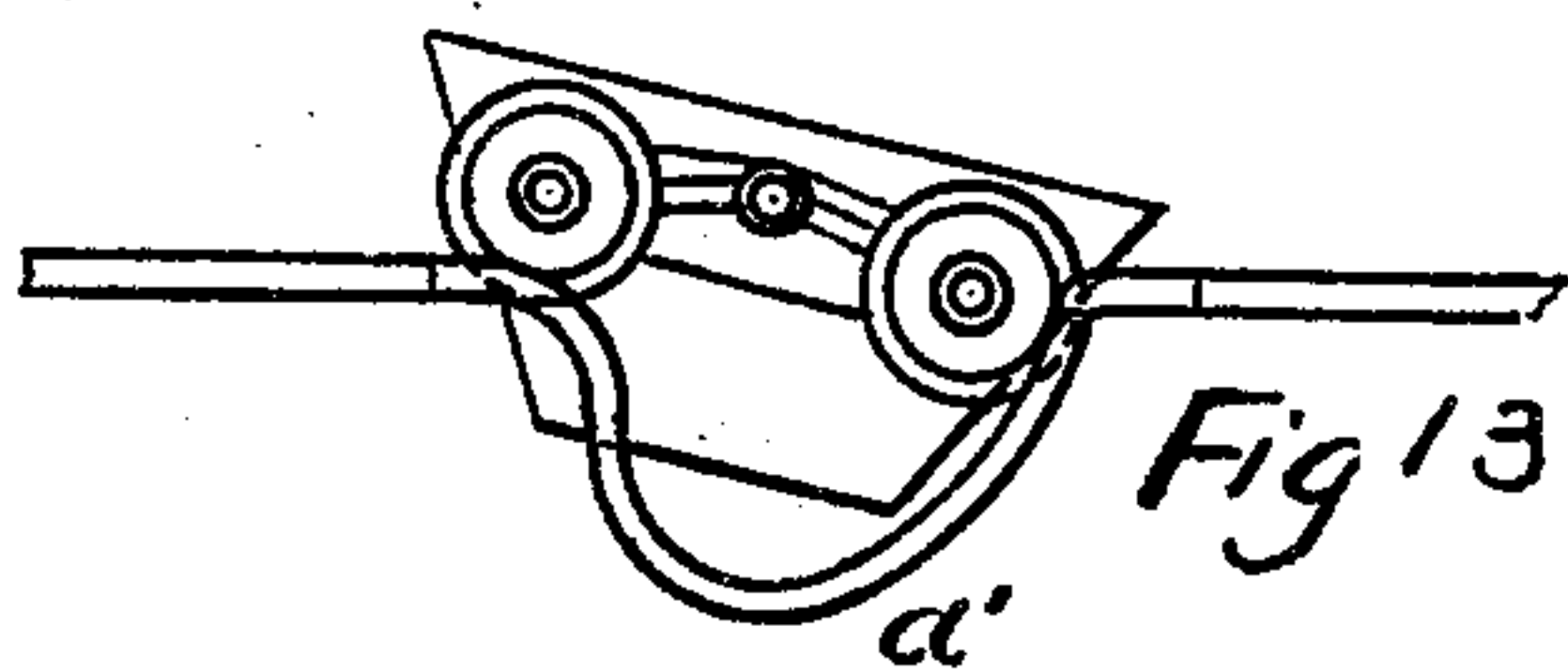
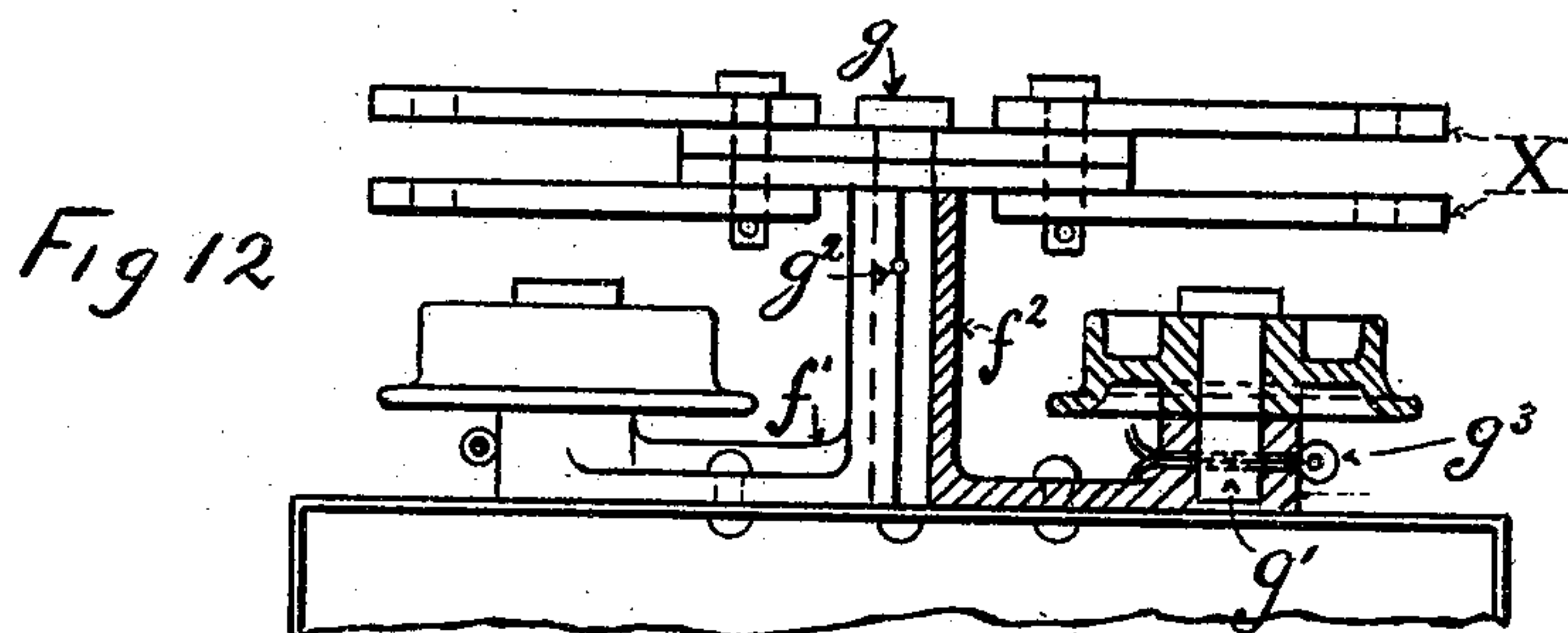
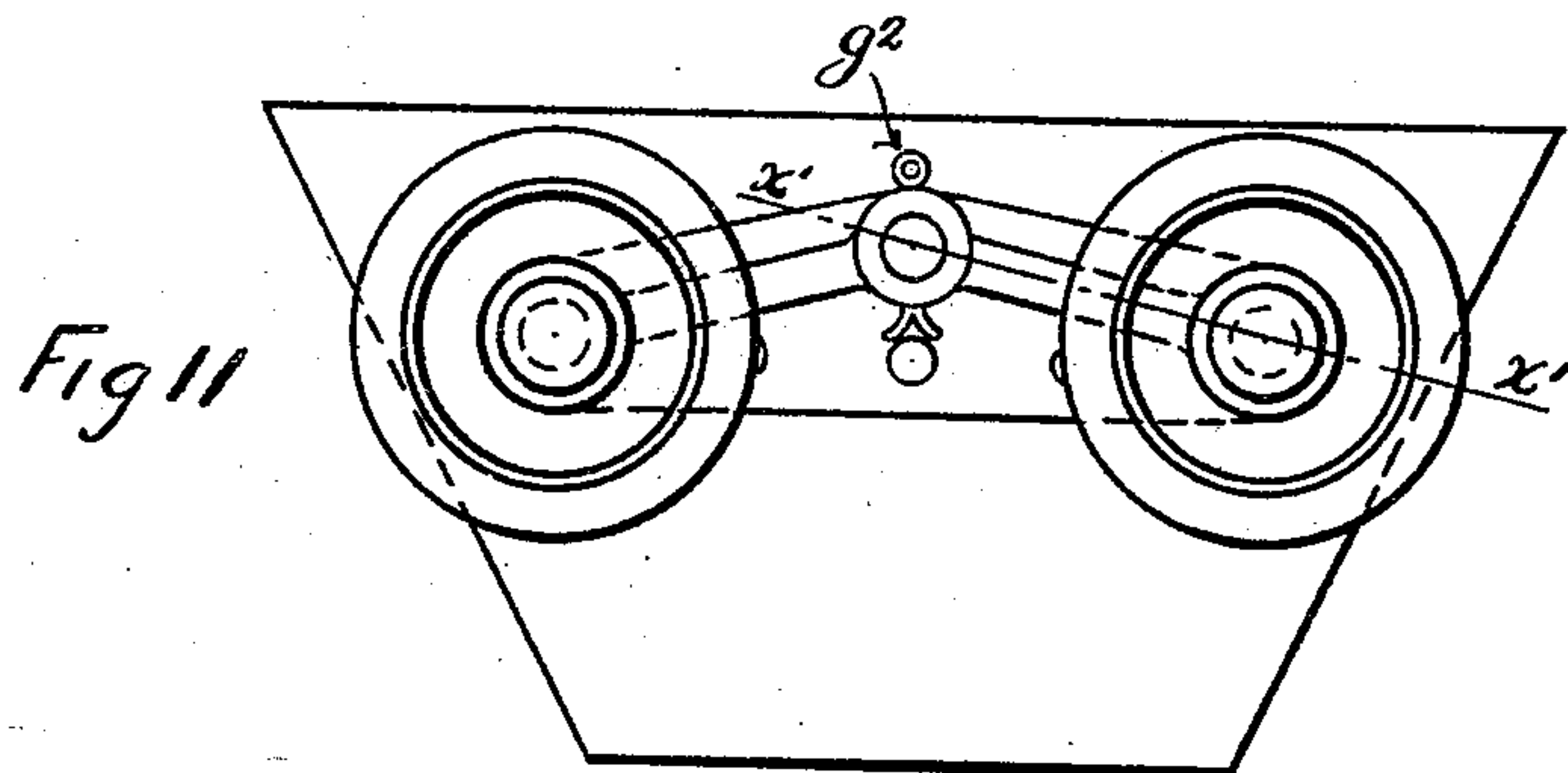
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(Application filed Oct. 27, 1898.)

(No Model.)

5 Sheets—Sheet 5.



Witnesses
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D. H. Thistle

Inventor
Charles A. Case
By his Attorney
A. de Bonneville

UNITED STATES PATENT OFFICE.

CHARLES A. CASE, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO
GUSTAVUS L. STUEBNER, OF SAME PLACE.

BUCKET CONVEYER.

SPECIFICATION forming part of Letters Patent No. 633,118, dated September 19, 1899.

Application filed October 27, 1898. Serial No. 694,733. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. CASE, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Bucket Conveyers, of which the following is a specification.

This invention relates to improvements in bucket conveyers, and has for its object the production of conveyer-buckets which can be easily turned to empty their contents and operate in conjunction with endless linked drive-chains.

To these ends my bucket conveyer consists of the particular construction and combination of parts, all as hereinafter described, and pointed out in the claims.

In the accompanying drawings like parts are designated by similar letters in the different views.

Figure 1 represents an elevation of my bucket conveyer. Figs. 2 and 3 show partial end views. Fig. 4 shows an elevation, on an enlarged scale, of a portion of upper guide-rails and adjacent guide-sheaves, with a portion of conveyer. Fig. 5 is a fragmentary plan of Fig. 4. Fig. 6 shows an elevation, on an enlarged scale, of sprocket-wheel driver, with a portion of bucket conveyer. Fig. 7 is a fragmentary plan of Fig. 6. Fig. 8 shows an elevation of a portion of lower guide-rails, adjacent guide-sheaves, and conveyer. Fig. 9 shows an end view and fragmentary section of Fig. 8, taken on line $y^2 y^2$ of Fig. 8. Fig. 10 shows a section of conveyer, taken on line A of Fig. 1. Fig. 11 shows an elevation, on an enlarged scale, of one bucket. Fig. 12 represents a plan and fragmentary section of bucket with drive-chain. Figs. 13 and 14 show positions of a bucket during turning when passing over depressions in the track.

Referring to Fig. 1, $a a' a^2$ show an upper horizontal track with a depression at a' and a curve at a^2 . A lower horizontal track is shown from b to b' , where a double curve is formed, the track rising at b' , lowering at b^2 , curving at b^3 , and ascending to b^4 . A vertical run of track is shown from c to c' , the said track terminating in curves at the extremities. A similar track is shown from d to d' . The

buckets are shown at e supported on wheels f , driven by the endless linked drive-chains X, the connections between chains X and buckets e being secured by means of the pins g . The whole system is driven by the sprocket-wheels B on the shaft B', which turns in the direction indicated by arrow, and the conveyer in the directions shown.

C, C', and C² represent guide-sheaves for changing the directions of the conveyer, two of each of these guide-sheaves being placed on the same axial line.

Although Fig. 1 shows the disposition of the conveyer-buckets forming, essentially, a rectangle, it is evident that the drivers and guide-sheaves C, C', and C² can be located to form other figures. Only one depression a' is shown in the track, whereas any number can be inserted, suitable means being employed to cover the depressions when it is not required to dump the buckets at the location of the depressions, the guide-rollers at the depressions being raised.

One of the important features of my invention is the dumping device shown at a' , where the depression in the upper track allows the forward wheels of the buckets to descend and enter the same while the buckets are being propelled in the direction shown by the arrows. The forward wheels are virtually pocketed in this depression, while the wheels on the back end of bucket rise as the bucket is turned. Guide-rollers h prevent the linked chains rising at the point of turning. Guide-rails could be substituted for the guide-rollers h . When the linked drive-chains move forward over the depressions in the tracks, the buckets assume positions as shown in Figs. 13 and 14 and as at a' in Fig. 1, and when the wheels return to the straight track beyond the depression the buckets are turned as shown at e' .

An inspection of the bucket in the depression a' clearly shows the means employed to turn the buckets, which is the effect produced by the forward wheels of the bucket impinging on the curve or depression and the pulling of the drive linked chains X, while the said chains are prevented from rising by the guide-rollers h .

Driving sprocket-wheels are shown at B in

Figs. 1, 3, 6, and 7. The wheels are secured to shaft B' and engage the linked drive-chains X by means of the teeth i , working in the spaces inclosed by the outside links k and the ends of the opposite double center links l . When the linked chains carry the buckets on the said sprocket-wheels, they are turned to upright positions, as shown at e^2 . When the buckets are carried under the guide-sheaves C, they still maintain their upright positions and are brought to the lower horizontal run of track in the same upright positions.

At the guide-sheaves C' are shown guide-rails which form a particular part of my invention. These guide-rails and sheaves are shown enlarged in Figs. 8 and 9. The track from b' to b^2 is formed into a double curve, rising at b' above the level of b and dropping below said level at b^2 , turning with an easy sweep at b^3 , and then ascending to b^4 . The double curve is provided to tip the end of the buckets, as e^3 , above the end e^4 of the bucket next adjacent, allowing the ascent of the buckets as they travel upward under the guide-sheaves C'. Without this depression of the double curve the corner e^4 might prevent the corner e^3 from rising when under the sheaves C', because at this point the ends of the buckets, as e^3 and e^4 , approach each other, and the horizontal distance between the buckets is less than when on the straight portion of the track.

The guide-rails at c and b^3 control the positions of one pair of wheels of the buckets, and guide-rails d and m control the other pair of wheels of the buckets, keeping the same upright as they are suspended from the linked drive-chains while being carried under the sheaves C'.

Referring to Figs. 1 and 4, the guide-rails at a^2 and d' control one pair of wheels of the buckets, and the guide-rails at c' and n control the other pair of wheels of the buckets, always maintaining them, as they move over the guide-sheaves C² to the upper horizontal run of track, in upright positions. The guide-rails d d' and c c' guide the buckets between the guide-sheaves C' and C².

Referring to Fig. 11, which shows an elevation of one of the buckets, on an enlarged scale, and Fig. 12, which represents a partial plan and section on line $x' x'$, it will be plainly seen that the wheels f are journaled to the sides of the buckets, an important feature of my invention. A wheel base-casting f' is fastened to the side plates of the buckets, into which are driven the journal-pins g' , on which the wheels f turn. A cotter g^3 secures the pin in place. The long boss f^2 is cast with wheel base-casting f' , into which the pins g are driven and are held by the cotters g^2 , the said pins g securing the buckets to the endless link-chains X. A collar is turned on the pins to prevent the linked drive-chains from getting out of place.

It is evident from an inspection of Figs. 11 and 12 that the linked drive-chains X and the wheels f can be easily detached from the wheel base-castings f' by removing the cotter pins g^2 and g^3 .

Having described my invention, I claim as new—

1. A conveyer comprising buckets with wheels journaled thereto, endless linked drive-chains, and pins securing the buckets to the chains, in combination with tracks containing depressions for turning the buckets, and guide-rollers placed adjacent to said depressions in the tracks, substantially as described.

2. A conveyer comprising buckets with wheels journaled thereto, endless linked drive-chains, and pins securing the buckets to the chains, tracks with depressions, in combination with guide-rails having double curves, and their adjacent guide-sheaves for tipping and righting the buckets, substantially as described.

3. A conveyer comprising buckets, with wheels journaled thereto, endless linked drive-chains, pins securing the buckets to the chains, tracks with depressions and adjacent guide-rollers, in combination with guide-rails, comprising two central vertical sections terminating in curves, independent sharp-curved guide-rails, and horizontal portions of tracks each terminating in a curve at one end, substantially as described.

4. A conveyer comprising buckets with wheels journaled thereto, endless linked drive-chains, pins securing the buckets to the chains, tracks with depressions and their adjacent guide-rollers for turning the buckets, in combination with sprocket drive-wheels, guide-rails and their guide-sheaves, substantially as described.

5. A conveyer comprising buckets with wheel base-castings carrying journals and pins; wheels secured to the journals; linked drive-chains secured to the buckets by means of the pins; in combination with tracks containing depressions, and their adjacent guide-rollers for turning the buckets; guide-rails and their adjacent guide-sheaves; sprocket drive-wheels; straight and curved sections of track, substantially as described.

6. A conveyer comprising buckets e , wheel base-castings f' , journals g' , pins g , wheels f , linked drive-chains X, tracks a , a' , a^2 and b , b' , b^2 b^3 b^4 , guide-rails n , m , c c' , and d d' , sprocket drive-wheels B, guide-sheaves C, C' and C² and guide-rollers h , substantially as described.

Signed at New York city, in the county of New York and State of New York, this 14th day of October, A. D. 1898.

CHARLES A. CASE.

Witnesses:

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M. HUBBE.