

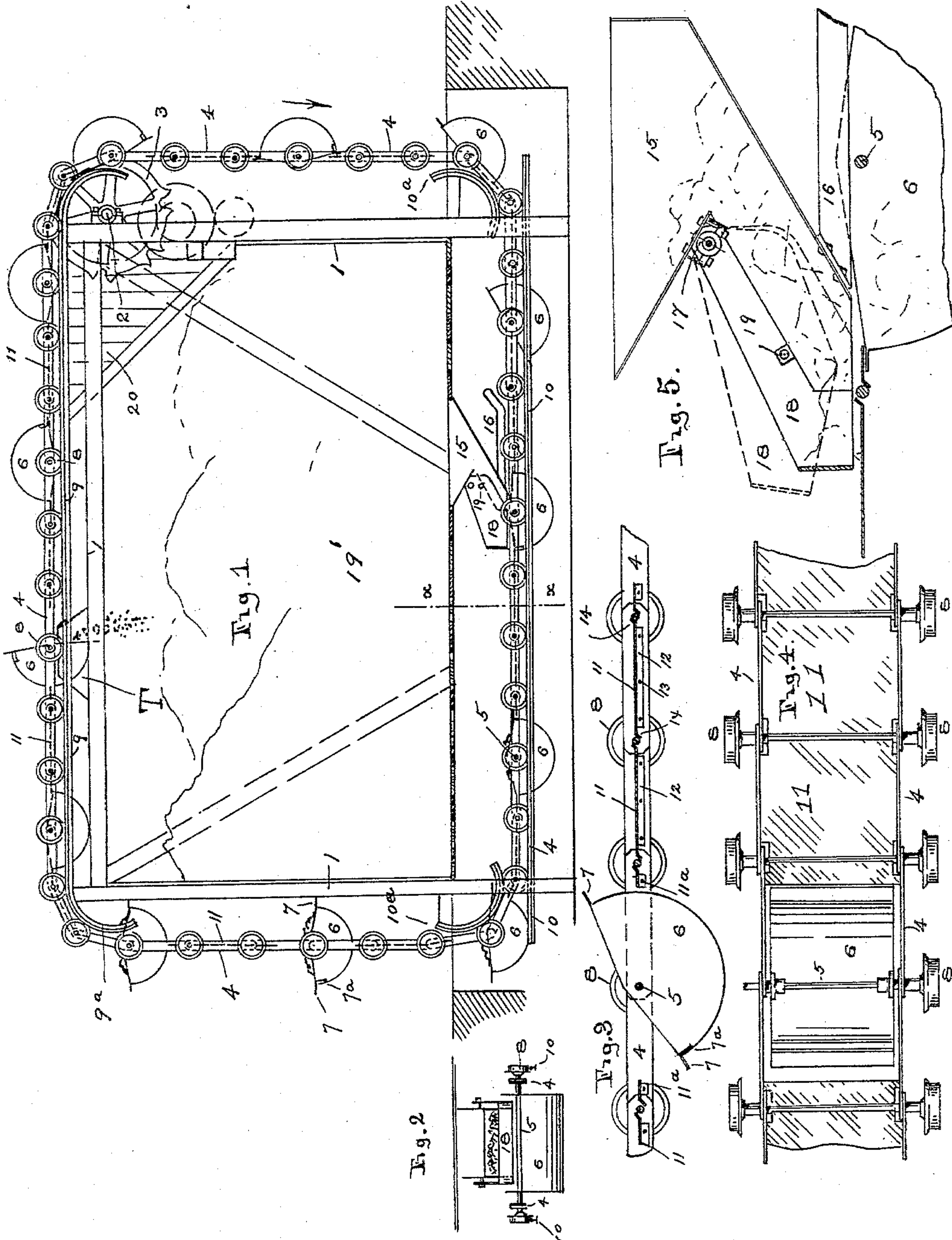
(No Model.)

2 Sheets—Sheet 1.

A. J. FRITH.
BUCKET CONVEYER.

No. 597,844.

Patented Jan. 25, 1898.



WITNESSES:

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INVENTOR

Arthur J. Frith.

(No Model.)

2 Sheets—Sheet 2.

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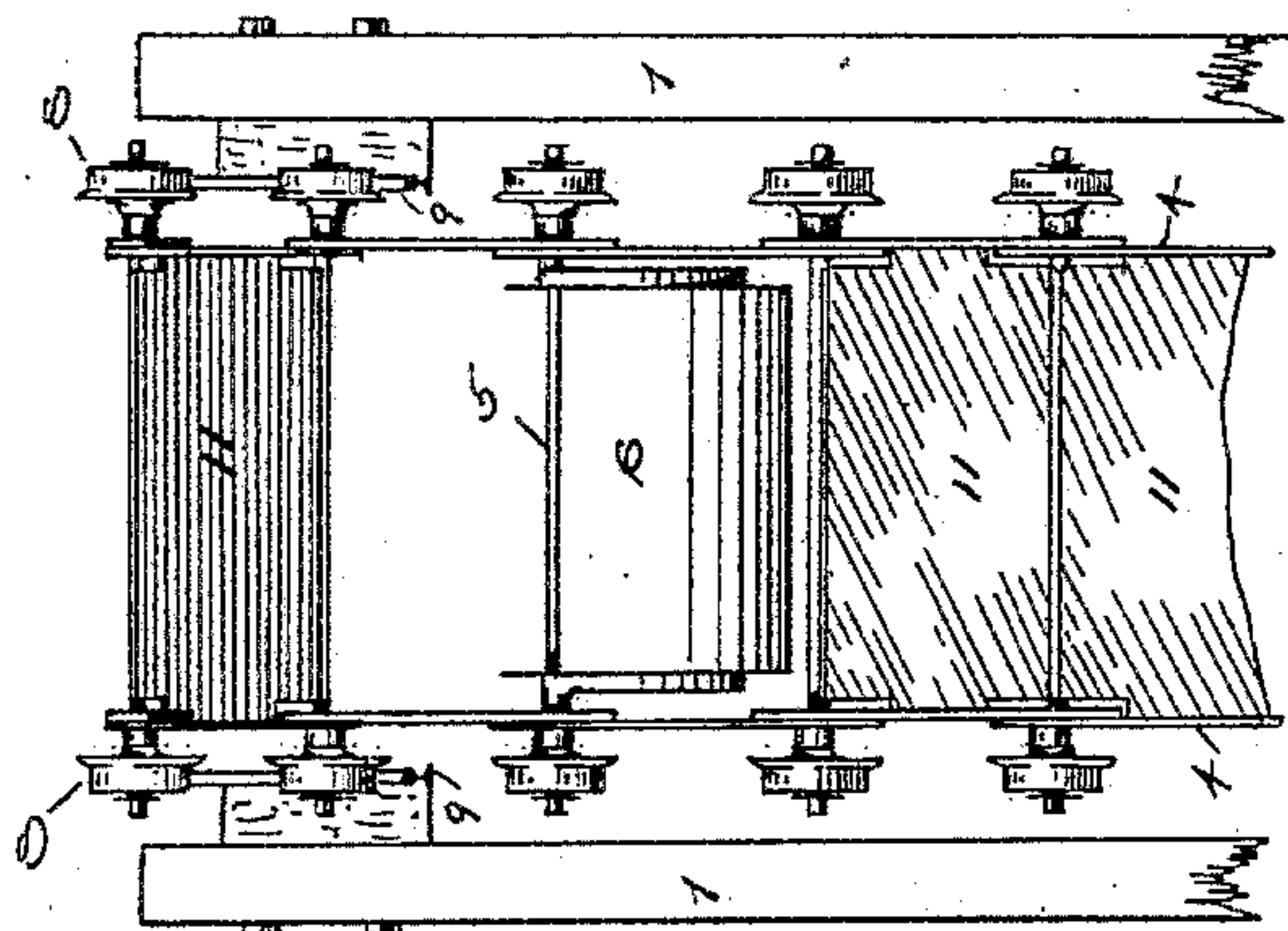


Fig. 7.

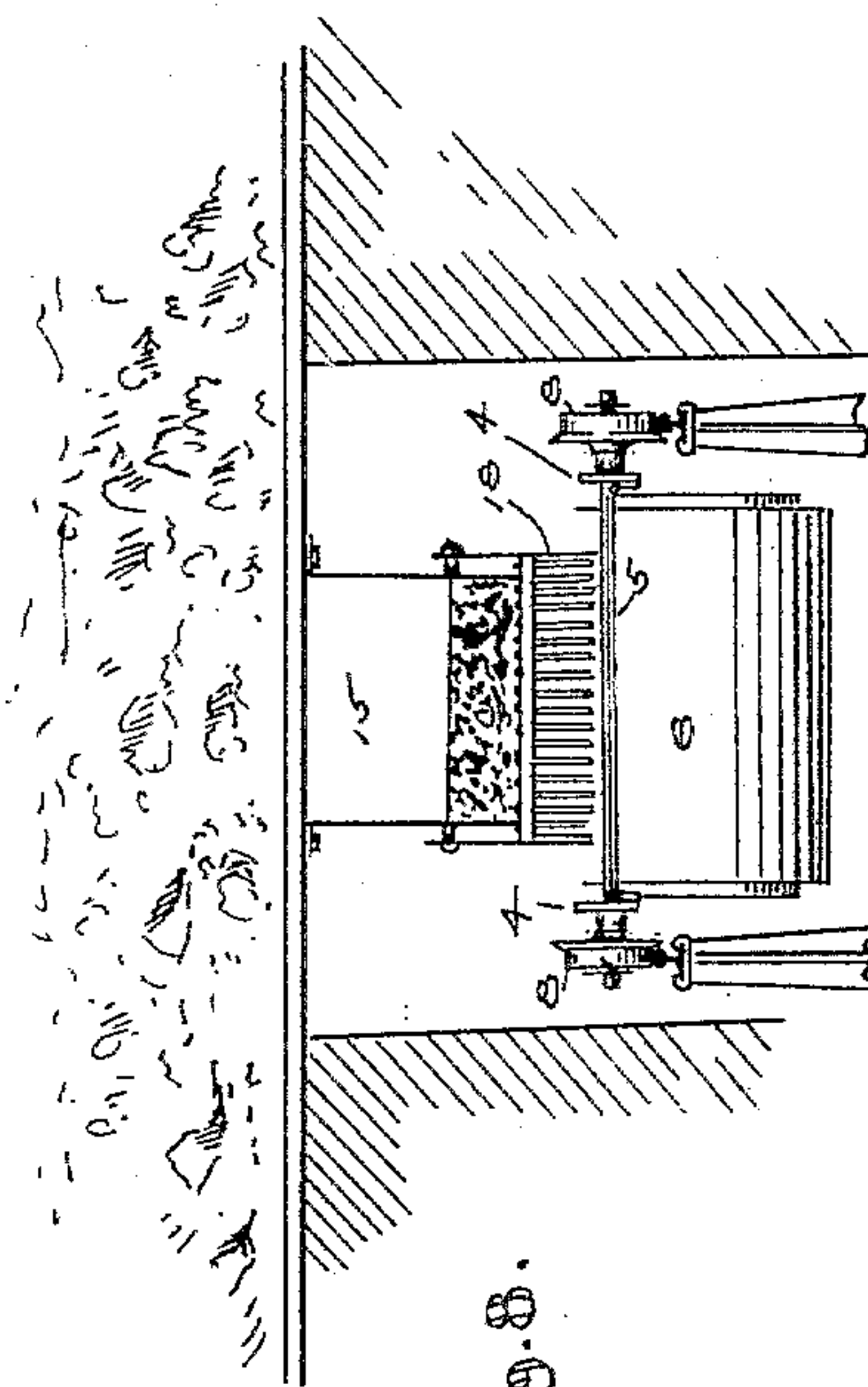


Fig. 8.

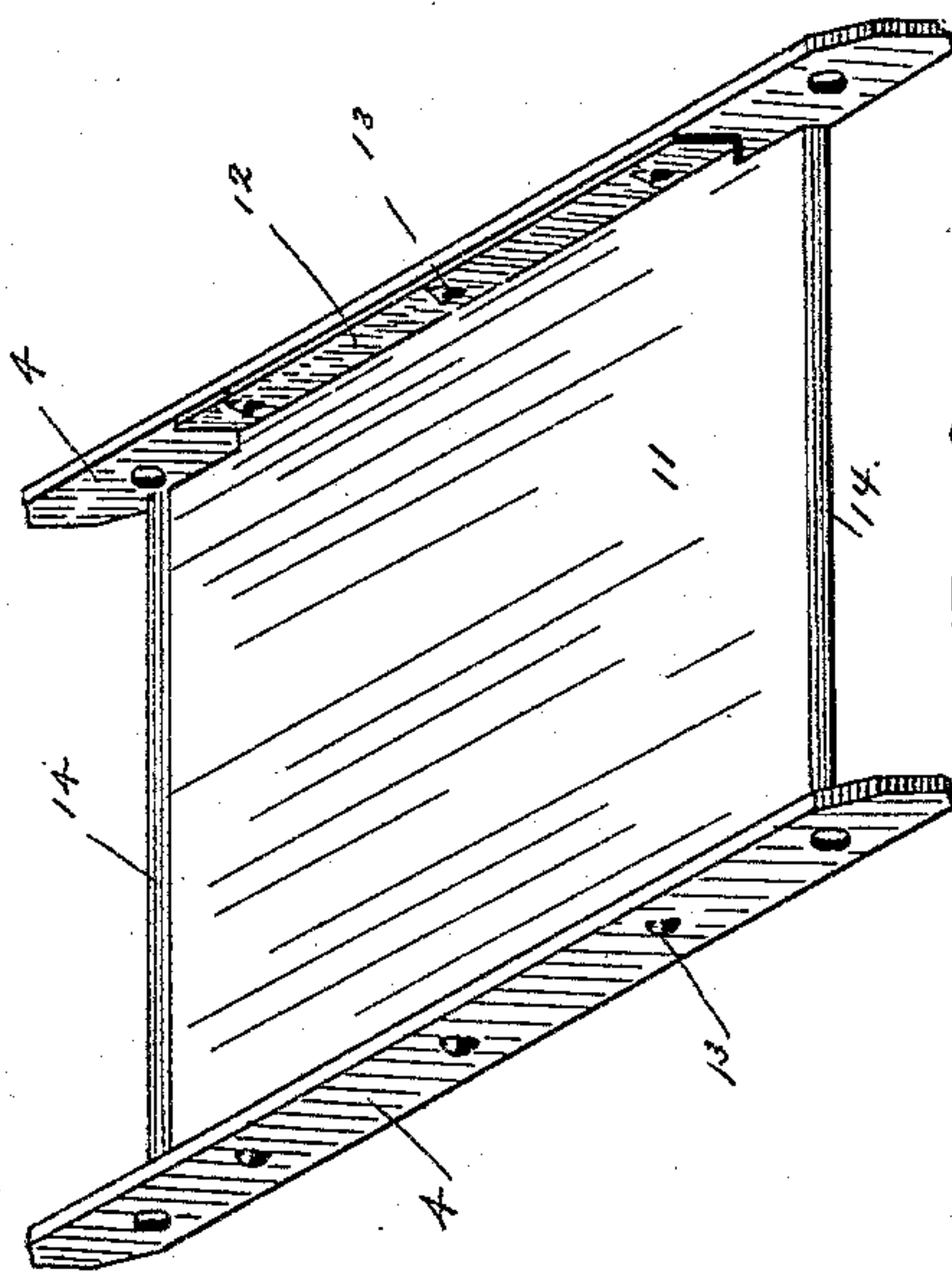


Fig. 9.

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ARTHUR J. FRITH, OF NEW YORK, N. Y.

BUCKET CONVEYER.

SPECIFICATION forming part of Letters Patent No. 597,844, dated January 25, 1898.

Application filed July 3, 1896. Serial No. 597,936. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR J. FRITH, of the city of New York, in the county and State of New York, have invented certain new and useful Improvements in Bucket Conveyers, which invention is fully set forth and illustrated in the following specification and accompanying drawings.

The object of this invention is to provide a gravity-bucket conveyor which shall be of simple construction and thoroughly efficient in operation.

The invention will first be described in detail, and then set forth in the claims.

In the accompanying drawings, Figure 1 is a side elevation of an endless gravity-bucket conveyor embodying my invention. Fig. 2 is a sectional end elevation taken through Fig. 1 at the line $x-x$. Fig. 3 is a side elevation, partly in section, showing a portion of the conveyor upon an enlarged scale to illustrate more clearly certain details of construction. Fig. 4 is a view in plan of Fig. 3. Fig. 5 is an enlarged sectional side elevation illustrating the method of loading the buckets. Fig. 6 is a view in perspective, upon an enlarged scale, showing the manner of securing the interposed plates to the links of the conveyor, as hereinafter described. Fig. 7 is an end view of a portion of the conveyor upon an enlarged scale. Fig. 8 is a sectional end view showing the location of a brush or scraper at the loading-point, as hereinafter described.

In said figures the several parts are respectively indicated by reference-numbers, as follows:

The number 1 indicates the framework of the conveyor, in which is journaled in suitable bearings a shaft 2, carrying a sprocket-wheel 3 for driving the conveyor, the shaft 2 being operated by a steam-engine or from any other suitable source of power. The endless conveyor is constructed of two parallel series of links 4, between which are suspended by means of shafts or pivots 5 gravity-buckets 6, the shafts 5 passing through the buckets at one side of their centers. Each bucket is provided at its front and rear ends with a lip or flange 7, and one end (preferably the forward end) is made, by means of a weight 7^a or otherwise, of greater weight than the opposite end. By pivoting the buckets slightly out of

center and increasing the weight of one end the bucket, when empty, is suspended in a slightly-inclined position, as shown in Fig. 1 at the right and in Fig. 3; but when carrying its load the weight of the material in the rear end of the bucket will counterbalance the weight 7^a and the bucket will hang level, as shown at the left in Fig. 1. The shafts 5 are provided with wheels 8, which run upon upper and lower tracks 9 10, carried by the frame 1, suitable curved guide-rails 9^a 10^a being provided at the corners of the conveyor. Said shafts, in addition to acting as axles for the buckets and for the wheels 8, serve the purpose of pivoting the side links 4 to each other, as clearly shown in Figs. 1 and 4. The buckets 6 are not in contact with each other, but are spaced apart, the space between each two buckets being at least the length of one of the links 4. In each space between the buckets is inserted a plate 11, provided with side flanges 12, by means of which flanges and rivets 13 the plate is secured to the side links 4, each plate being also provided with end flanges 14, which are sprung into contact with the shafts 5, as shown in Fig. 3, so as to make a tight joint and prevent material from dropping through the conveyor around the shafts 5. The spaces between the shafts 5 and the lips 7 on the buckets may be filled by short plates 11^a, similar to the plates 11. It will thus be seen that the conveyor is composed of a series of plates and buckets and that no material can escape through the conveyor from the upper surface thereof.

The number 15, Figs. 1, 5, and 8, indicates a hopper or chute located at any suitable point above and in line with the lower track 10, upon which the conveyor travels, so that the material to be conveyed can be delivered from any desired source of supply through said hopper or chute to the buckets 6 as they travel beneath the hopper. Secured to the hopper 15 at its rear end is a bar 16, which rests in the path of travel of the conveyor, so that the buckets will come in contact therewith, as hereinafter described. Located in front of the hopper 15 and pivoted thereto by a shaft or pivot 17 is a brush or scraper 18, Figs. 1, 5, and 8, adapted to sweep into the buckets any material which may lodge upon the plates 11. The hopper 15 is not in con-

tact with the plates 11 of the conveyer, and the brush or scraper 18 is also held out of contact by means of a stop 19, which engages the hopper or chute 15 and limits the motion of the brush or scraper 18 upon its pivot 17. Thus all contact between the moving plates and the hopper and brush is avoided.

The complete operation of the conveyer is as follows: Assuming that motion be imparted to the conveyer by the driving-engine, so as to cause it to travel in the direction of the arrow, when an empty bucket, hanging in an inclined position, passes forward to receive its load from the hopper and reaches the bar 16 the elevated rear end of the bucket will come in contact with said bar and will be thereby depressed, so that the bucket will then pass in a level position beneath the hopper and be loaded with material therefrom, the material passing from the hopper directly into the bucket. As the bucket continues to travel it passes, loaded, from beneath the chute 15, ascends the vertical path of the conveyer, and passes upon the upper horizontal rails 9. As each bucket passes from beneath the hopper the brush 18 will sweep into the bucket any material which may be found upon the plates 11 and will also level the upper surface of the material in the bucket. Should, however, the brush 18 come in contact with some obstruction—such as a large lump of material in the bucket—which it cannot remove, said brush will rise upon its pivot 17 to clear the obstruction and permit the loaded bucket to pass. When the conveyer commences its vertical travel, any dust or fine material which may have remained upon the plates 11 and was not removed by the brush 18 will slide from one plate to another and finally drop into the bucket at the corner of the conveyer, the plates 11 being thus automatically cleansed. When the loaded bucket, traveling on the upper horizontal rails 9, comes in contact with the overturning mechanism, located, for example, at the point T, the bucket will be overturned and its contents discharged. The overturning of the bucket will reverse the lap of the lips 7, with the plates 11^a, and the slight additional weight of the weighted end of the bucket, pivoted out of center, will cause it to turn completely over, as shown in Fig. 1. The bucket then continues its travel in its reversed position until it reaches the lower end of its vertical path of travel, when it will assume its normal position, ready to be again loaded.

The mechanism for overturning the buckets may be of any suitable construction and may be located at any desired point, and it may be arranged, if desired, to turn the bucket only half over instead of completely over. The bucket may discharge into a shed or house 19', a pocket or hopper 20, or into any other desired receptacle.

Having thus fully described my invention, I claim—

1. In a conveyer, the combination of endless flexible connections; gravity-buckets suspended between said connections and spaced apart; and a series of separate rigid plates interposed in the spaces between said buckets, and unconnected therewith, and arranged so as to interfere with the buckets at each end, and limit the movements of the buckets upon their pivots.

2. In a conveyer, the combination of endless flexible connections; gravity-buckets spaced apart and suspended between said connections by means of supporting shafts or pivots; and interposed plates in the spaces between said buckets, having their ends sprung into contact with said shafts so as to make a tight joint.

3. In a conveyer, the combination of a series of pivoted links forming an endless flexible connection; gravity-buckets spaced apart and suspended between said links by means of supporting shafts or pivots; and a series of plates, interposed in the spaces between the buckets, secured to said links through downwardly-extending side flanges, and having their ends sprung into contact with said shafts.

4. In a bucket conveyer, a gravity-bucket pivotally suspended slightly out of center and having one of its ends provided with a counterbalance, whereby, when the bucket is free and loaded, the weight of the material in its opposite end causes the bucket to hang level.

5. In a bucket conveyer, the combination of endless flexible connections; a series of gravity-buckets spaced apart and suspended slightly out of their centers, between said connections, each bucket having one of its ends provided with a counterbalance; and a series of plates interposed in the spaces between said buckets.

6. In a bucket conveyer, the combination of a series of pivoted links forming an endless flexible connection; a series of gravity-buckets spaced apart and suspended slightly out of center, between said connections, each bucket having one of its ends provided with a counterbalance; and a series of plates interposed in the spaces between said buckets and secured to said links.

7. In a bucket conveyer, the combination of a gravity-bucket pivotally suspended slightly out of center and having one of its ends provided with a counterbalance; a hopper or chute; and a bar located in the rear of said chute and in the path of travel of the bucket, for the purposes set forth.

8. In a bucket conveyer, the combination of endless flexible connections; buckets suspended between said connections and spaced apart; a series of plates interposed in the spaces between the buckets; a hopper or chute for supplying material to the buckets; and a brush or scraper located in front of said chute, for the purpose of sweeping said plates and leveling the material in the buckets.

9. In a bucket conveyer, the combination with a hopper or chute for supplying material to the buckets, of a brush or scraper located in front of said chute and pivoted thereto, 5 for the purposes set forth.

10. In a bucket conveyer, in combination with a hopper or chute for supplying material

to the buckets, a pivoted brush or scraper located in front of said chute and provided with a limiting-stop, for the purposes set forth.

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Witnesses:

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