

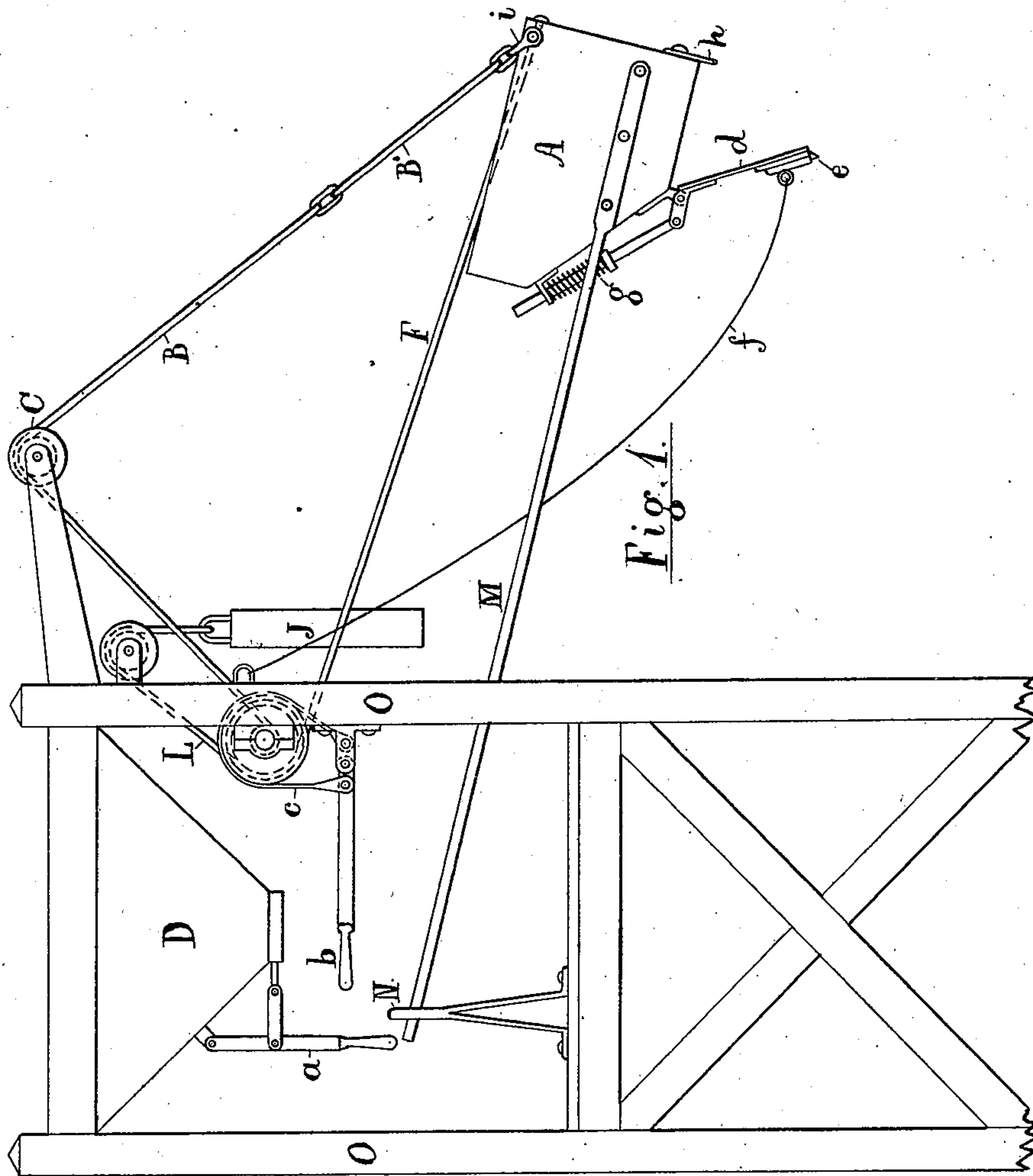
(No Model.)

2 Sheets—Sheet 1.

J. B. REYNOLDS.  
Ore and Coal Conveyer.

No. 230,056.

Patented July 13, 1880.



Attest:

Wm. L. Fish

Chas. C. Kemick

Inventor.

J. B. Reynolds

per Thos. S. Crane, Atty.

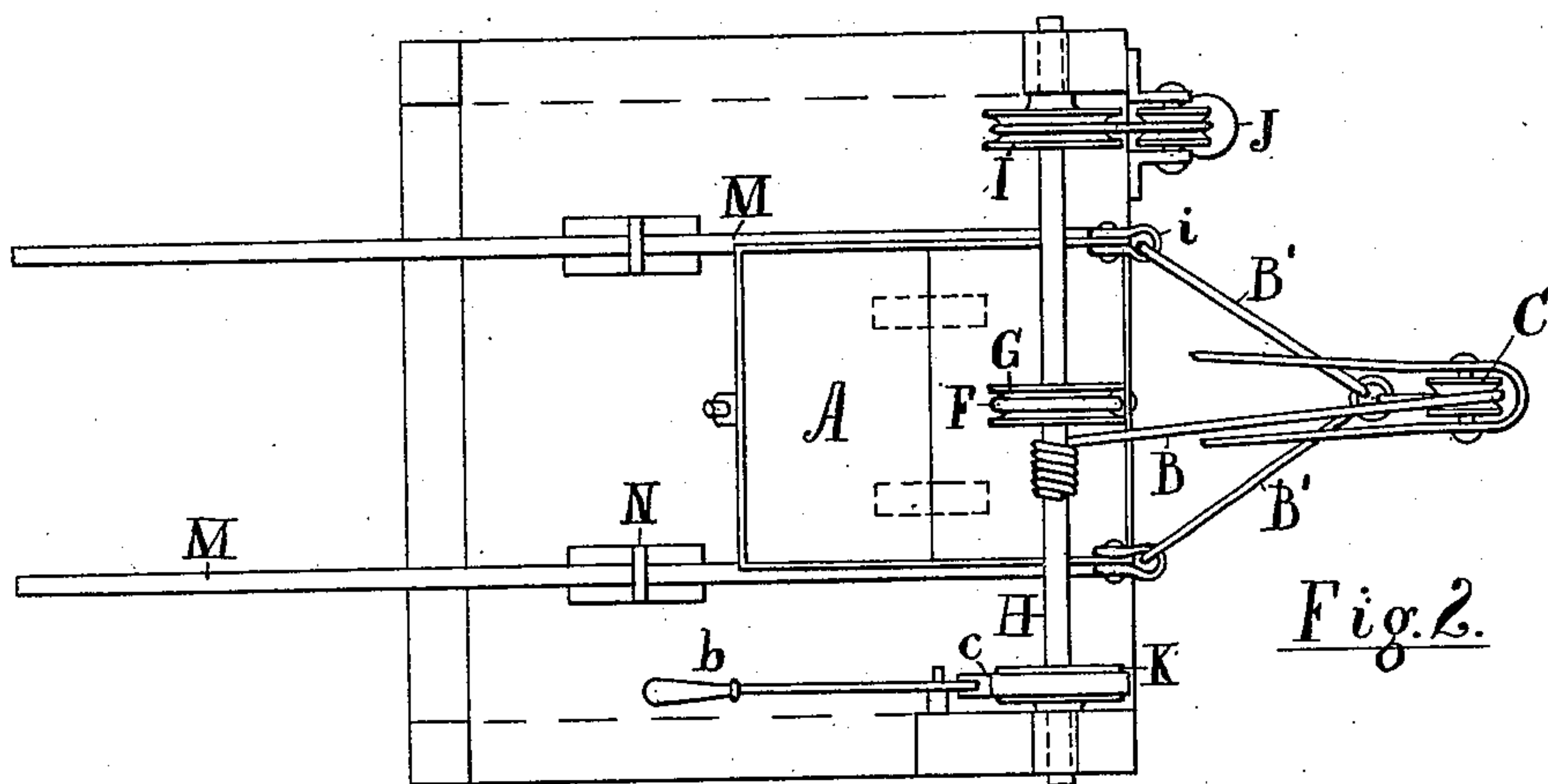
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2 Sheets—Sheet 2.

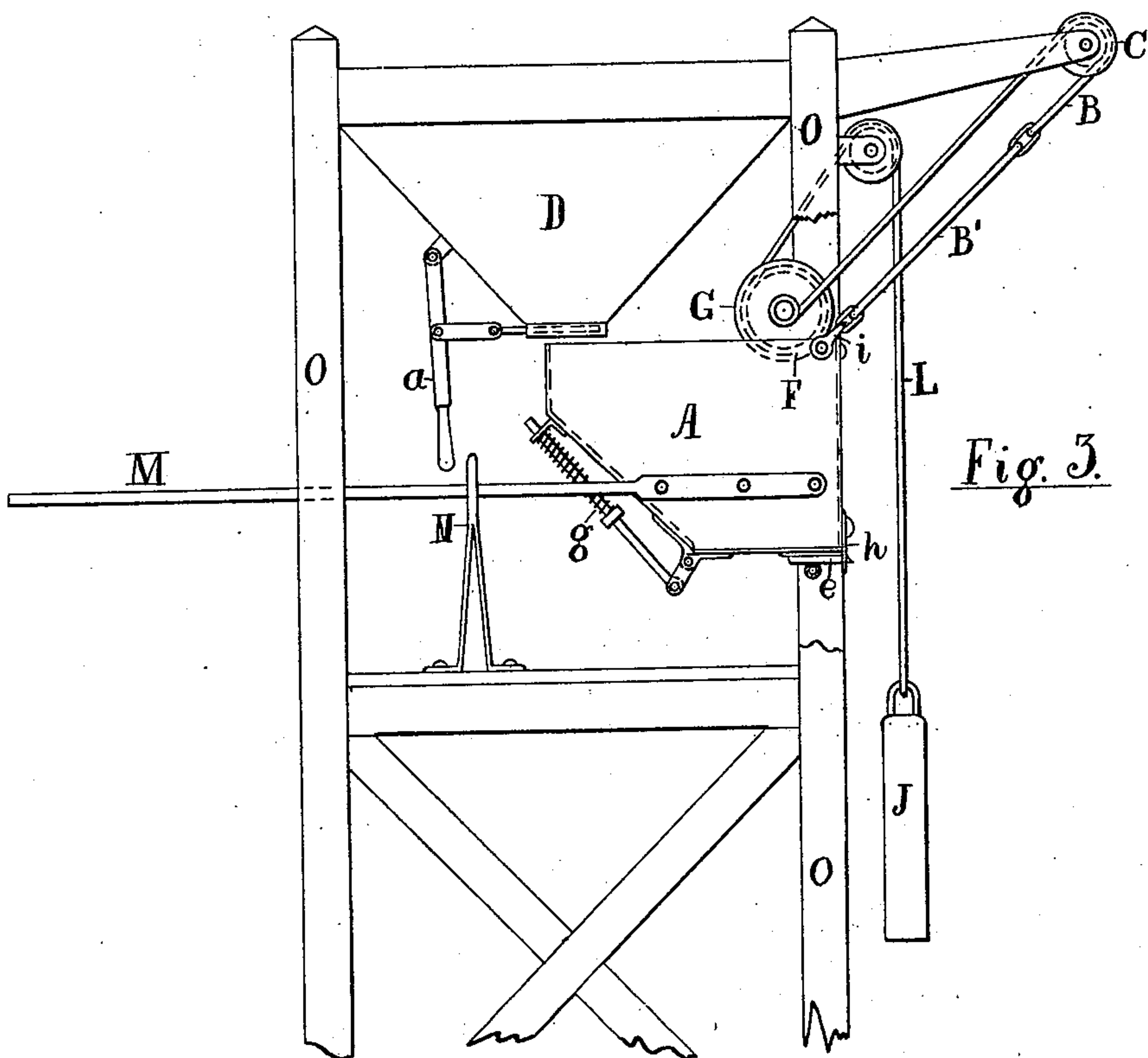
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*Fig. 2.*



*Fig. 3.*

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# UNITED STATES PATENT OFFICE.

JEROME B. REYNOLDS, OF KEARNEY, ASSIGNOR OF ONE-HALF OF HIS  
RIGHT TO WILLIAM P. HARRIS, OF NEWARK, NEW JERSEY.

## ORE AND COAL CONVEYER.

SPECIFICATION forming part of Letters Patent No. 230,056, dated July 13, 1880.

Application filed May 6, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, JEROME B. REYNOLDS, of Kearney, in the county of Hudson and State of New Jersey, have invented a new and useful Improvement in Ore and Coal Conveyers, of which the following is a specification.

My invention relates to an improvement in ore and coal conveyers; and it consists, first, in an improved mode of suspending a conveyer-bucket so that it shall automatically transport its contents from the hopper to the desired point; second, in counterbalancing the weight of the bucket, so that it shall automatically return to the hopper after discharging its load; third, in the construction of the suspending and guiding mechanism, to adapt the movements of the conveyer to various situations; and, fourth, in combining a brake with the suspending mechanism, to control the operations of the same as desired.

The primary object of this invention is to coal locomotives upon the track of a railroad, and the illustrations annexed represent the form best adapted for that purpose; but the device is equally fitting for coaling boats or filling coal-cars from a large bin or hopper near the track. It is also especially adapted to dumping ore into cars without the jar and concussion occasioned by the use of the ordinary chute. It is especially valuable for coaling locomotives, for the reason that it carries the coal close to the tender before it is discharged, thus avoiding the injurious jar inflicted upon the tank and framing of the tender when the coal is shot into it with great momentum from a chute at a considerable height. It also avoids the production of the dust raised by the falling of coal from a height, which is a cause of great annoyance in the coaling of passenger-trains in warm weather, when the car-windows are generally open.

In the drawings annexed, Figure 1 represents my conveyer as it appears when discharging a load. Fig. 2 shows the entire apparatus in plan, with the exception of the hopper, which would conceal the operative parts if shown; and Fig. 3 is a side view of the apparatus with one of the posts broken away to exhibit the winding-shaft and lowering-rope more clearly.

The apparatus consists, substantially, of a bucket, A, of any desired shape, suspended by a lowering-rope, B, which is carried over a fixed pulley, C, mounted upon suitable supports between the hopper D and the dumping-point E. Guide bars or rods are secured to the sides of the bucket and extend beneath the hopper when the bucket is discharging, and a guide-rope, F, secured to the bucket, is attached to the rim of a drum or pulley, G, whose revolutions regulate the movements of the bucket as desired. This pulley G is fast upon a shaft, H, to which are also secured a pulley, I, for the counter-balance J, and a brake-wheel, K, for controlling the action of the shaft and ropes. The counterbalance-rope L is wound upon its pulley in the opposite direction to the ropes B and F, and thus tends to wind the former upon the shaft H, to which the end of it is attached.

By reference to Fig. 3 it will be seen that the suspending-rope is deflected considerably out of a vertical line when the bucket is under the hopper, and that the bucket would naturally swing away from such position and hang underneath the pulley C but for the counter-balance J, whose weight is adjusted to hold the empty bucket to the hopper by winding up the guide-rope F. The suspending-rope B is also wound upon its pulley at the same time, and the bucket is consequently raised to a higher level when being filled than when discharging.

It is the descent of the bucket when charged with a heavy load that produces the automatic movements of the whole machine, as it then turns the shaft H by the unwinding of the ropes B and F, and raises the counter-balance to operate in returning the bucket when its load is discharged.

The guide-rods M serve to steady and direct the movements of the bucket, as they are passed through guides N affixed beneath the hopper.

A lever, a, is provided to open the chute from the hopper, so that the operator can fill the bucket with the desired amount, and a handle, b, serving to press the strap c upon the brake-wheel K, the bucket can be held securely under the hopper until it is properly



filled. When the brake is relieved the loaded bucket will swing forward and downward from the proportionate unwinding of its guiding and suspending ropes to the position shown in Fig. 1.

The door of the bucket is provided with a spring-catch, *e*, to which a cord, *f*, is attached, and its other extremity secured to the frame *O* of the conveyer mechanism. The length of the cord is easily adjusted to unfasten the catch *e* as the bucket reaches the lowest point to which its momentum will carry it, and its contents being instantly discharged, the counter-balance is then operative to return it to its initial position, (shown in Fig. 3.)

If desired, the door *d* may be provided with a spring, *g*, which will suffice to overbalance its weight and close it as soon as the load is discharged, and the spring-catch, then engaging with the hasp *h*, will retain the door in position as before.

From the above description it will be seen that the essential feature of my invention is the suspension of the bucket in such a manner that it will naturally swing from the hopper to the dumping-point, and return again automatically by the action of a counter-balance raised by the descending bucket.

I do not therefore limit myself to the precise construction shown and described herein, as the mechanical arrangements may be varied so long as the essential features stated above are unchanged.

Thus I have shown the suspending-rope divided where it is attached to the bucket, the

two parts *B' B'* being secured to the front corners of the bucket by clevises *i*; but, if desired, two ropes could be used and two pulleys, *C*, and their ends attached to the shaft *II* at equal distances from the center. So, also, chains may be substituted for ropes when desired, and the proportions of the shaft, pulleys, and counter-balance varied to suit the distance which the conveyer is intended to move and the height to which it must be lifted by the counter-balance and suspending-rope.

I therefore claim my invention as follows:

1. In a conveyer for ore, coal, or similar substances, the combination of the bucket *A* with its suspending-rope *B*, guide-rope *F*, pulley *C*, and winding mechanism to operate the ropes, substantially as and for the purpose set forth.

2. The combination of the bucket, its suspending and guide ropes, the pulley *C*, the shaft *II*, and counter-balance *J*, arranged to draw the empty bucket to the hopper, substantially as herein set forth.

3. In combination with the counter-balance and shaft *H*, arranged to operate the bucket, as herein set forth, the brake for holding the bucket to the hopper while filling, substantially as shown and described.

In testimony that I claim the foregoing I have hereto set my hand this 3d day of May, 1880.

JEROME B. REYNOLDS.

Attest:

THOS. S. CRANE,  
W. P. HARRIS.