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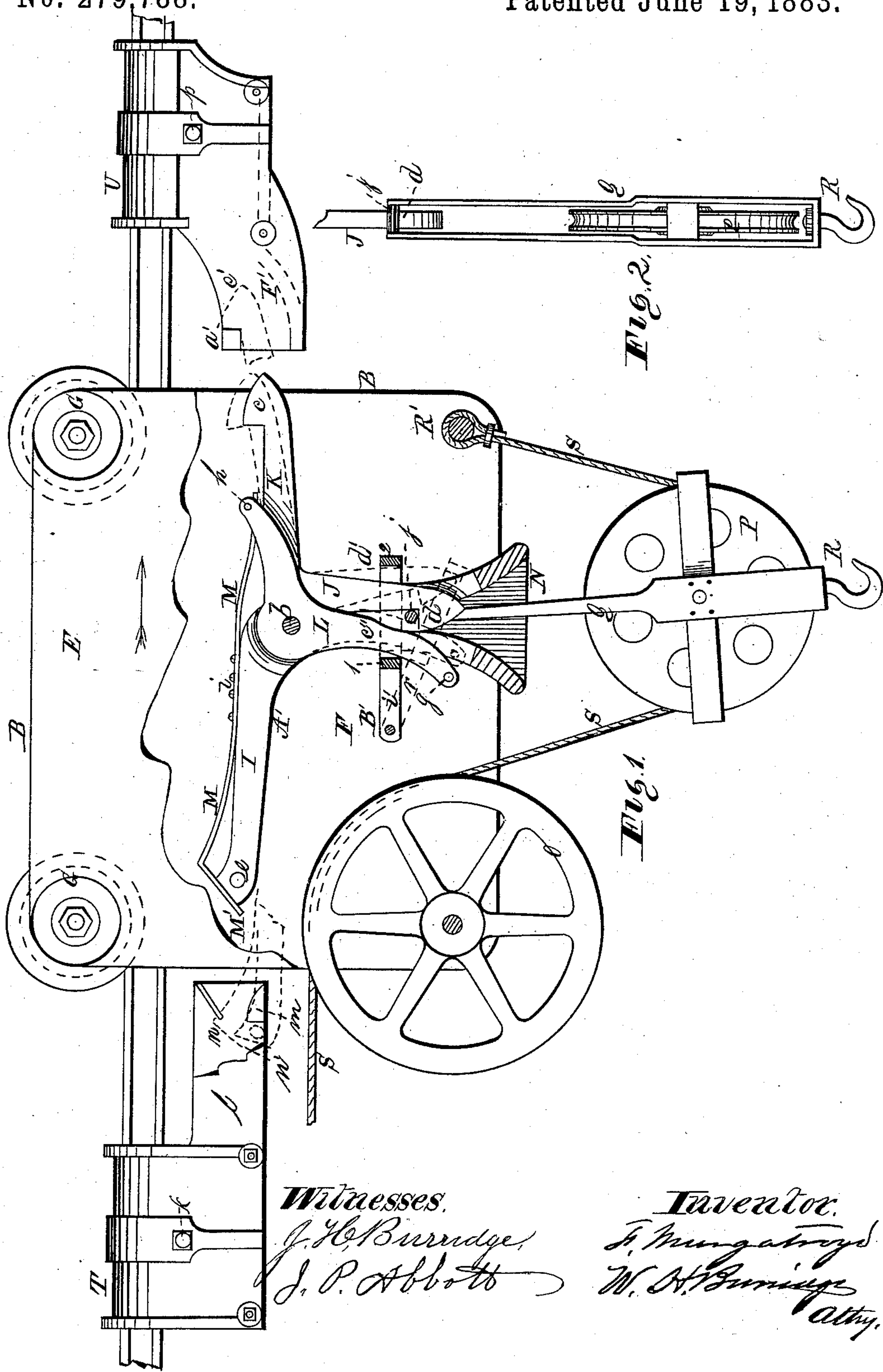
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F. MURGATROYD.

COAL AND ORE CARRIER AND TRANSMITTER.

No. 279,788.

Patented June 19, 1883.



Witnesses.

J. H. Burrage,
J. P. Abbott

Inventor.

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(No Model.)

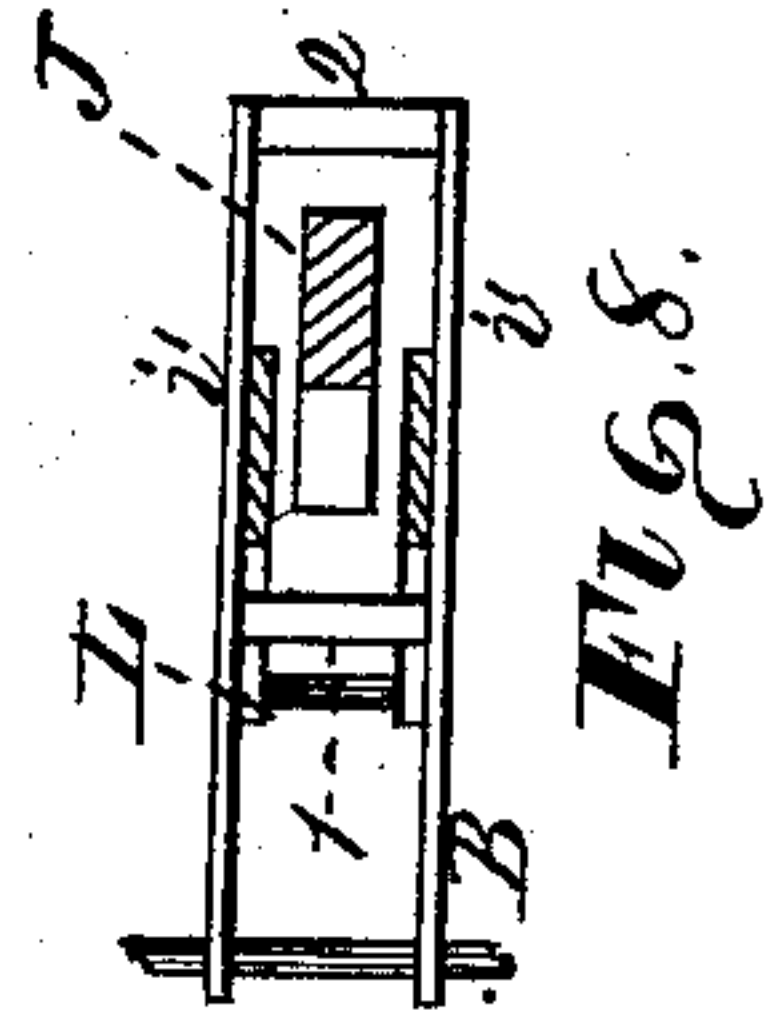
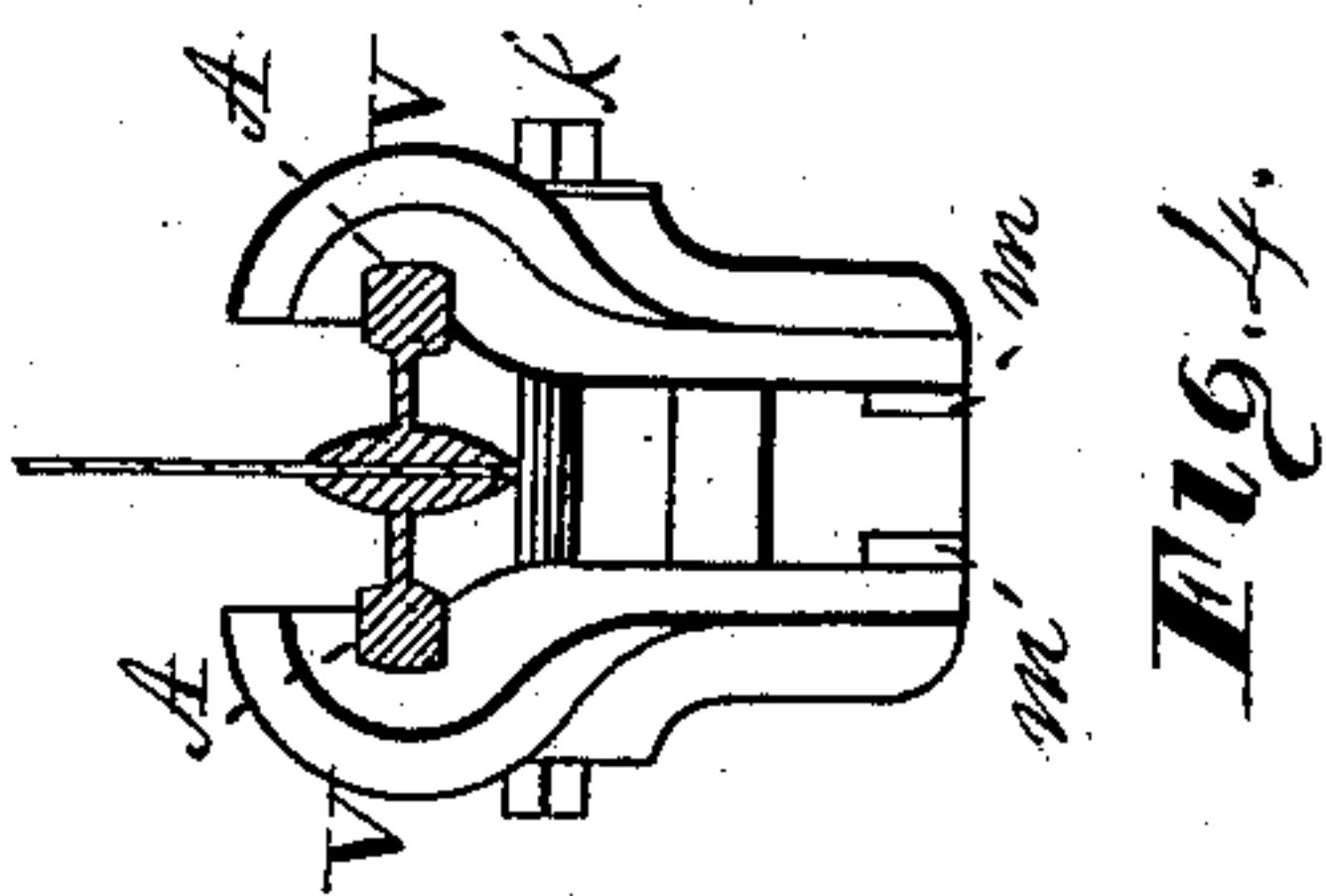
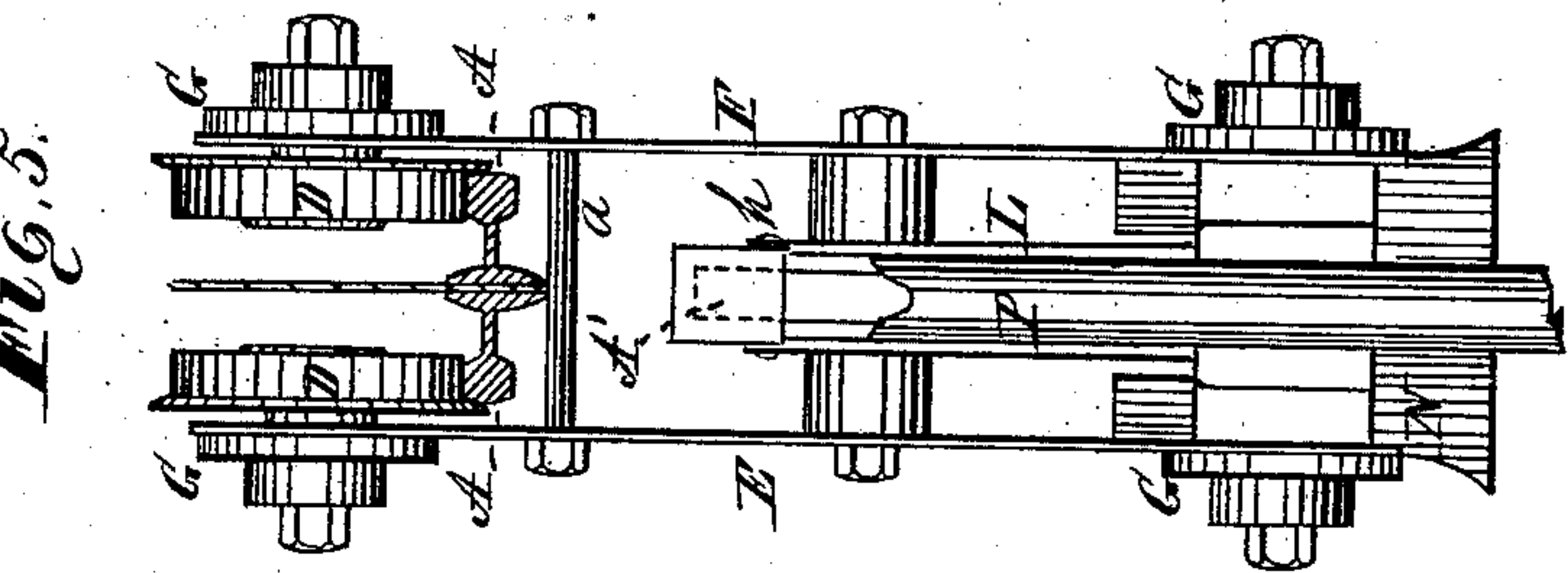
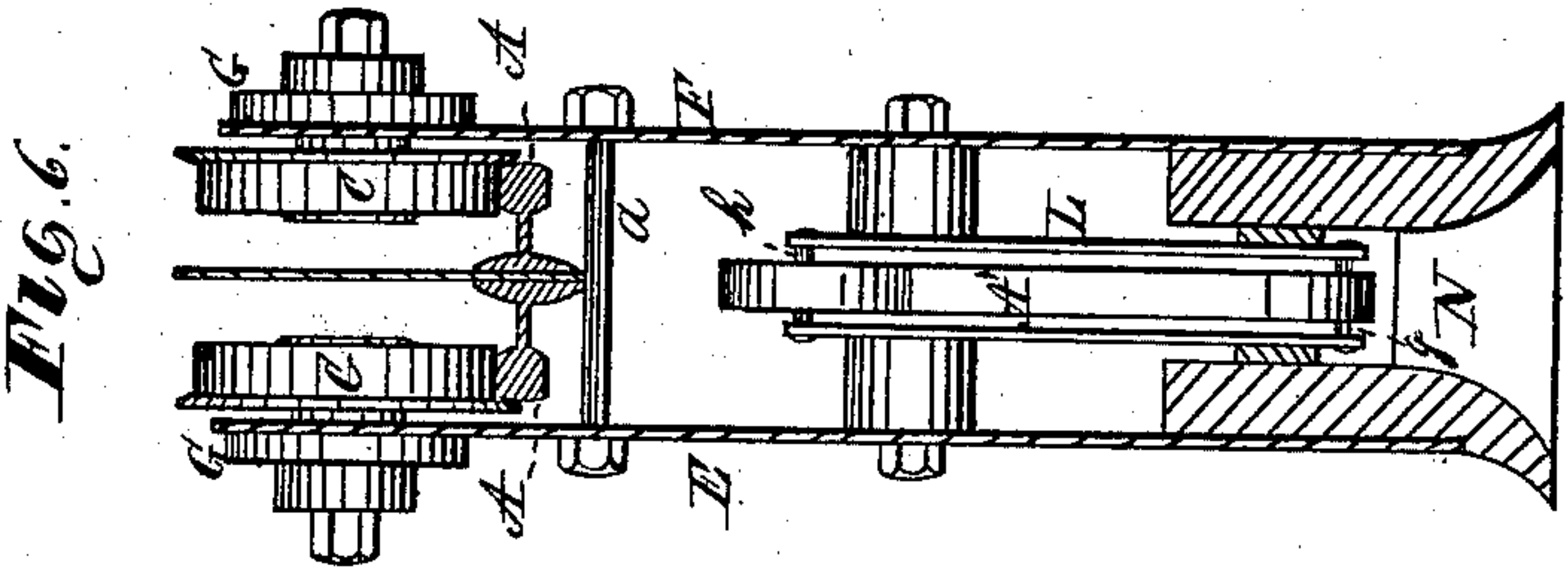
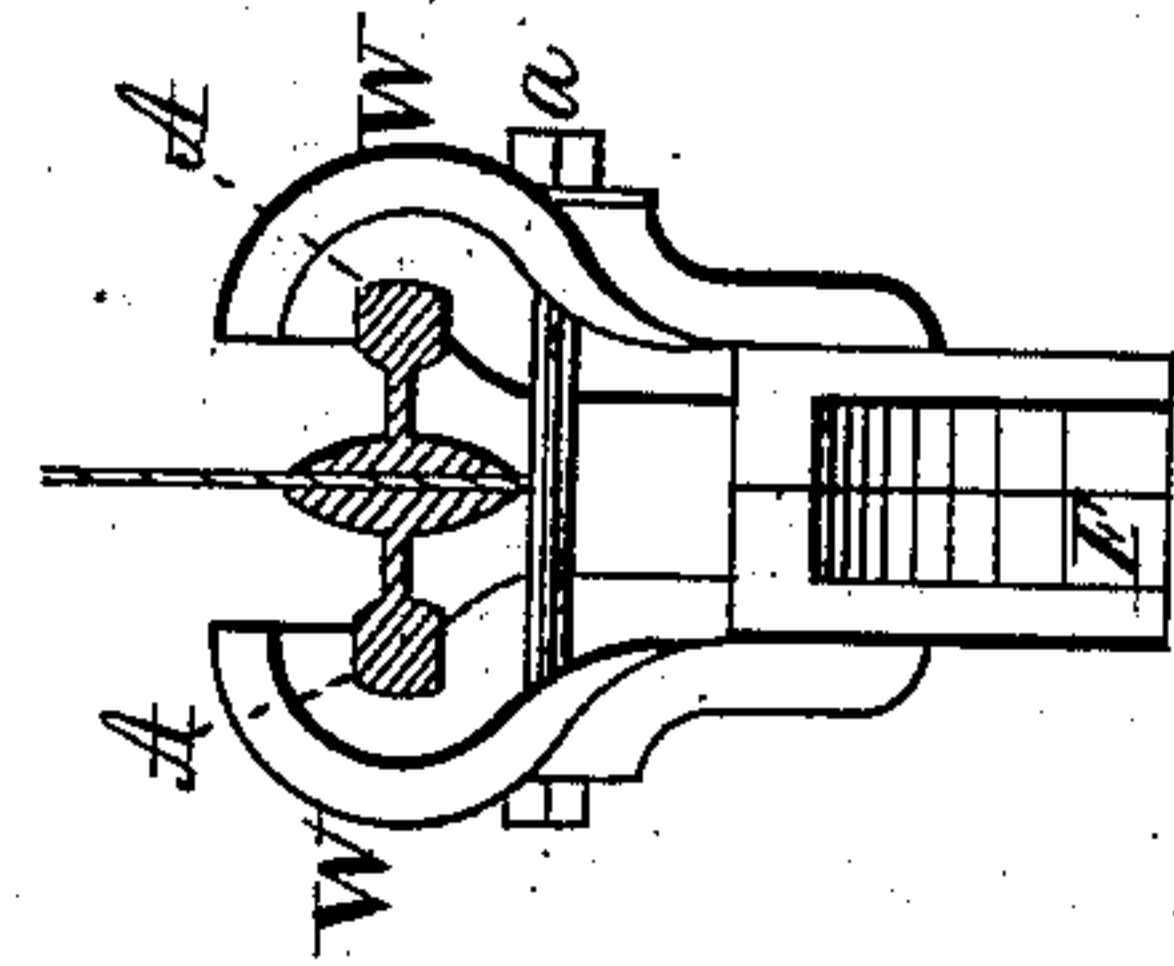
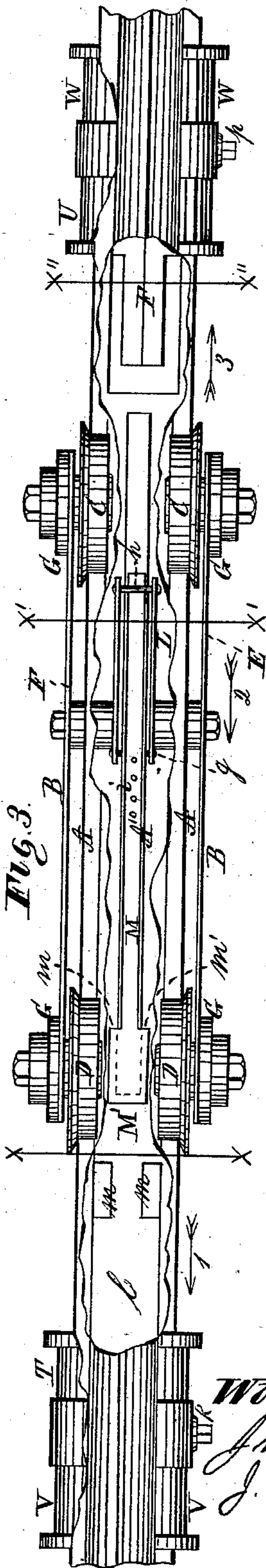
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COAL AND ORE CARRIER AND TRANSMITTER.

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Witnesses.

J. H. Burridge
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UNITED STATES PATENT OFFICE.

FRANK MURGATROYD, OF CLEVELAND, OHIO.

COAL AND ORE CARRIER AND TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 279,788, dated June 19, 1883.

Application filed April 30, 1883. (No model.)

To all whom it may concern:

Be it known that I, FRANK MURGATROYD, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and Improved Coal and Ore Carrier and Transmitter; and I do hereby declare that the following is a full, clear, and complete description thereof.

This invention is for transferring coal from the dock to vessels and loading the same therein, or for unloading vessels of their coal and transferring the same to the dock or coal-yard, as the case may be. The apparatus may also be used for moving the coal from one place in the yard to another, and for loading and unloading vessels of other articles than coal—as, for instance, ores, grain, &c. The apparatus is also adapted for loading and unloading freight from railway-cars, wagons, &c., and for other purposes of a like nature, the invention being an improvement on a similar apparatus for which an application for United States Letters Patent has been made.

The construction and practical operation of the above-said improvement and of the apparatus in general will be fully understood by the following description thereof, and drawings making a part of this specification, in which—

Figure 1 represents a side elevation of the loading and carrying apparatus above alluded to. Fig. 2 is a detached section. Fig. 3 is a plan view of Fig. 1. Fig. 4 is a vertical transverse section taken through the line $x x$, and viewed in the direction of the arrow 1. Fig. 5 is a section taken through said line, and viewed in the opposite direction of the arrow 1. Fig. 6 is a vertical transverse section through the line $x' x'$, and viewed in the direction of the arrow 2. Fig. 7 is a section through the line $x'' x''$, and viewed in the direction of the arrow 3. Fig. 8 is a detached section.

Like letters of reference refer to like parts in the several views.

In the drawings, A A indicate a railway-track, the rails of which may be of any desirable form or shape, and the length of the track be more or less, as may be required. Said track is hung from a frame-work of any suitable construction. (Not shown in the drawings, as it is not essential for a full under-

standing of the construction and operation of the herein-described apparatus.) The framework alluded to is mounted upon wheels or rollers, that it may be moved from place to place.

B, Fig. 1, is a carrier suspended from the above-said track, and upon which it moves on the wheels D D and C C, as and by means hereinafter described. The said carrier consists of a pair of metal plates, E and F, Figs. 1 and 5, which are connected to each other by suitable braces and bolts, a .

It will be observed that the plates of the carrier depend from the outside of the track—that is to say, the track is between the sides of the carrier, as seen in Figs. 5 and 6. The upper sides of the carrier are re-enforced by circular plates G, through which the axles of the car-wheels respectively project.

Between the sides of the carrier is pivoted, at b , a lever, A'. Said lever has three arms, I, J, and K. Each of the arms J and K terminates in a hook, $c d$, respectively, whereas the end of the arm I is provided with a pin, e , projecting from either side thereof, the purpose of which will presently be shown.

L, Fig. 1, is a lever consisting of two corresponding sides, as shown in Figs. 3 and 6, in which it will be seen that the ends of the sides of the lever are connected to each other by the bars $g h$, respectively. The bar h passes across the arm K of the lever A', also over the end of the spring M, made fast to said lever at i . The opposite end of the spring terminates in a broad flat head, M', projecting over the end of the arm, as seen in Figs. 1 and 3.

Secured between the sides of the lower part of the carrier is a guide or conductor, N, by which the sides are braced. The upper part of the guide is slotted, as seen in Figs. 5 and 6, to permit the depending arms of the levers L and A' to move backward between the sides of the carrier. In Fig. 1 one side of the carrier is shown as broken away, that the several levers, guide, and the wheel O may be seen.

P is a sheave journaled in a bail, Q, and by which it is suspended from the hook d of the arm J of the lever A' by means of the bar j . The lower end of the bail is provided with a drop-hook, R. One end of the rope S is attached to the carrier at R', from which it passes under the

sheave P, thence to the wheel O, and extending therefrom to a hoisting-engine. (Not shown in the drawings.)

At each end of the railway or track above alluded to, or at any place or places along the track that may be desired, are secured, respectively, the stops T and U. Said stop T consists of the clamps V V, Figs. 3 and 4, fitted to the rails of the track and secured thereto by the bolt k. In the projecting end l of the stop T are two lugs, m m, Figs. 1 and 3. Immediately above each of said lugs is an inclined projection or arm, one of which is shown at n in Fig. 1. The space between the two inclined projections is just wide enough to allow the narrow part of the spring M to pass between, but not the head thereof. The stop is adjustably connected to the railway, that it may be moved along in either direction, as the distance the carrier is to run may require. The stop U, above referred to, is similar to the stop T, and consists of the clamps W W, Figs. 3 and 7, secured to the rails by the bolt p, that the stop may be adjusted thereon at any desirable place.

The operation of the above-described apparatus is substantially as follows: Let it be supposed that the carrier B has been moved in the direction of the arrow shown in Fig. 1, and become attached to the stop U by the hook e of the arm K being caught on the stop-catch a', as indicated by the dotted lines e', and that the bail of the sheave P is detached from the hook d of the arm J, and the sheave lowered to the load to be raised, to which it is supposed to be made fast by the hook R; and, furthermore, let it be supposed that the rope S is connected to a hoisting-machine. Now, as the said hoisting-machine winds up the rope, the sheave, with its attached load, will be drawn upward until the upper end of the bail Q enters the guide N, by which it is made, as it continues to be drawn up, to impinge upon the lever L, which at this time is in the position indicated by the dotted line e'', Fig. 1. This action of the bail on the lever forces back the end thereof to the position shown by the full lines, which, as a consequence, depresses the upper end of said lever L down upon the spring M and the arm K of the lever A', causing said arm to become disengaged from the stop-catch a', thereby advancing the hook d of the arm J from the position indicated by the broken line d' to that shown by the full line, which, as will be seen, is caught under the bar j of the bail Q, by which it suspends the sheave and the load attached thereto from the carrier, the carrier being now released from the stop-catch a', as above said, and therefore free to move away from the stop U along the track, by a continuous winding up of the rope by the hoisting-machine. When the carrier reaches the stop T, which may be more or less distant from the stop U, the end of the arm I of the lever A' enters the said stop T, and in so doing the broad end or head M' of the spring M comes in contact with the inclined projections n, by

which the head is pushed down upon the arm I, thereby forcing the lever to the position indicated by the broken lines n', bringing the pin e to the inner side of the lugs, as shown by said broken lines n', Fig. 1. The pin, by its engagement with the lugs, prevents the carrier from moving away from the stop, as the hook e of the arm K, with its engagement with the catch-stop a', retained the carrier from moving away from the stop U, as above described. The end of the arm I for being depressed by the inclined projections, as above mentioned, releases the hook d of the arm J from the bar j of the bail of the sheave, so that the sheave, together with its suspended load, can now be lowered to the place in which it is to be deposited, which is done by reversing the action of the hoisting-engine, thereby unwinding the rope. On again raising the sheave the end of the bail enters the guide N, and is thereby directed to the depending arm of the lever L, which at this time is in the position indicated by the dotted line e'. The end of the bail impinges upon the lever and forces it back to the position indicated by the full lines, thereby depressing the upper end thereof down upon the lever K, causing the hook d of the arm J to engage the bail, as shown in Fig. 1, and as hereinbefore described. During the movement of the arm J the arm I is lifted upward, disengaging the pin from the lugs, so that the carrier can now be moved away from the stop, and in so doing the pin passes between the upper side of the lugs and the ends of the inclined projections n, whereas the broad end or head of the spring slides up over the said inclined projections by the shoulders m m, Fig. 3, of the head catching, respectively, upon the edges of its projections, while the narrow part of the spring passes between them. The broad end, for being wider than the space between the projections, must therefore slide up over them on the shoulders m m, as aforesaid. The carrier, thus detached from the stop T, moves along the track toward stop U by gravity, the track being graded for that purpose. The carrier arriving at the stop U, the arm K of the lever A' enters it, and is forced upward by the inclined plane indicated by the dotted lines F', Fig. 1. This upward movement of the arm K causes the hook e to engage the stop-catch a', which at the same time disengages the hook d of the arm J from the bail of the sheave, so that it can now be lowered for discharging the load, which being done the operation for raising the sheave and transferring it to the opposite end of the track is again repeated, as before described.

To prevent the hook e of the arm K from becoming prematurely detached from the catch-stop a' is the purpose of the yoke B', Fig. 1. Said yoke consists of two parallel sides, i' i'. A sectional side view only is shown in Fig. 1. A top view of the yoke is shown in Fig. 8, in which the two parallel sides are shown connected to each other by the cross-bars 1 and 2. Between the two cross-bars and the sides of

the yoke are loosely inclosed the arm J of the lever A' and the lever L, so that the yoke may move freely over them. The yoke, for the purpose above stated, acts as follows: The position of the yoke as shown in Fig. 1 is such as when the hooks *c* and *d* are in the position seen in Fig. 1. In this position of the yoke the cross-bar 1 rests on the depending arms of the lever L, and thereby is supported in a horizontal position, or nearly so. Now, as the hook *c* is made to engage the catch-stop *a'*, as hereinbefore explained, the yoke will fall to the position indicated by the dotted lines *r*, in consequence of the lower arm or arms of the lever L moving forward in the direction of the broken lines *c''*. In this position of the yoke the lever cannot react, it being prevented from so doing by the bar 1 of the yoke. Therefore the upper end of the lever L cannot depress the arm K for disengaging the hook *c* from the catch-stop *a'*, supposed to be hooked thereon, as indicated by the lines *c'*.

That the hook may become disengaged from the catch *a'* at the proper time, the yoke is pushed upward by the bar *j* of the bail Q as the bail and sheave are drawn up. This upward movement of the yoke allows the depending arm of the lever L to move back, while the upper arm thereof presses down upon the arm

K, for disengaging the hook *c* from the catch, as hereinbefore set forth.

It will be obvious from the above-described operation of the yoke that the hook *c* cannot become prematurely disengaged from the catch-stop, thereby making the apparatus certain in its operation and of complete safety.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a coal and ore carrier and transmitting apparatus, the [spring M, lever A', and pin, arranged in relation to and in combination with the stop T, provided with lugs *m m* and inclined projections *n n*, substantially in the manner as described, and for the purpose set forth.

2. In combination with the lever L and arm J of the lever A'; a yoke constructed and arranged to operate conjointly with said arm and levers and the bail of the sheave, substantially as herein described, and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK MURGATROYD.

Witnesses:

J. H. BURRIDGE,

W. H. BURRIDGE.