

T. R. COOK.
TRANSFER MECHANISM.
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985,398.

Patented Feb. 28, 1911.

2 SHEETS—SHEET 1.

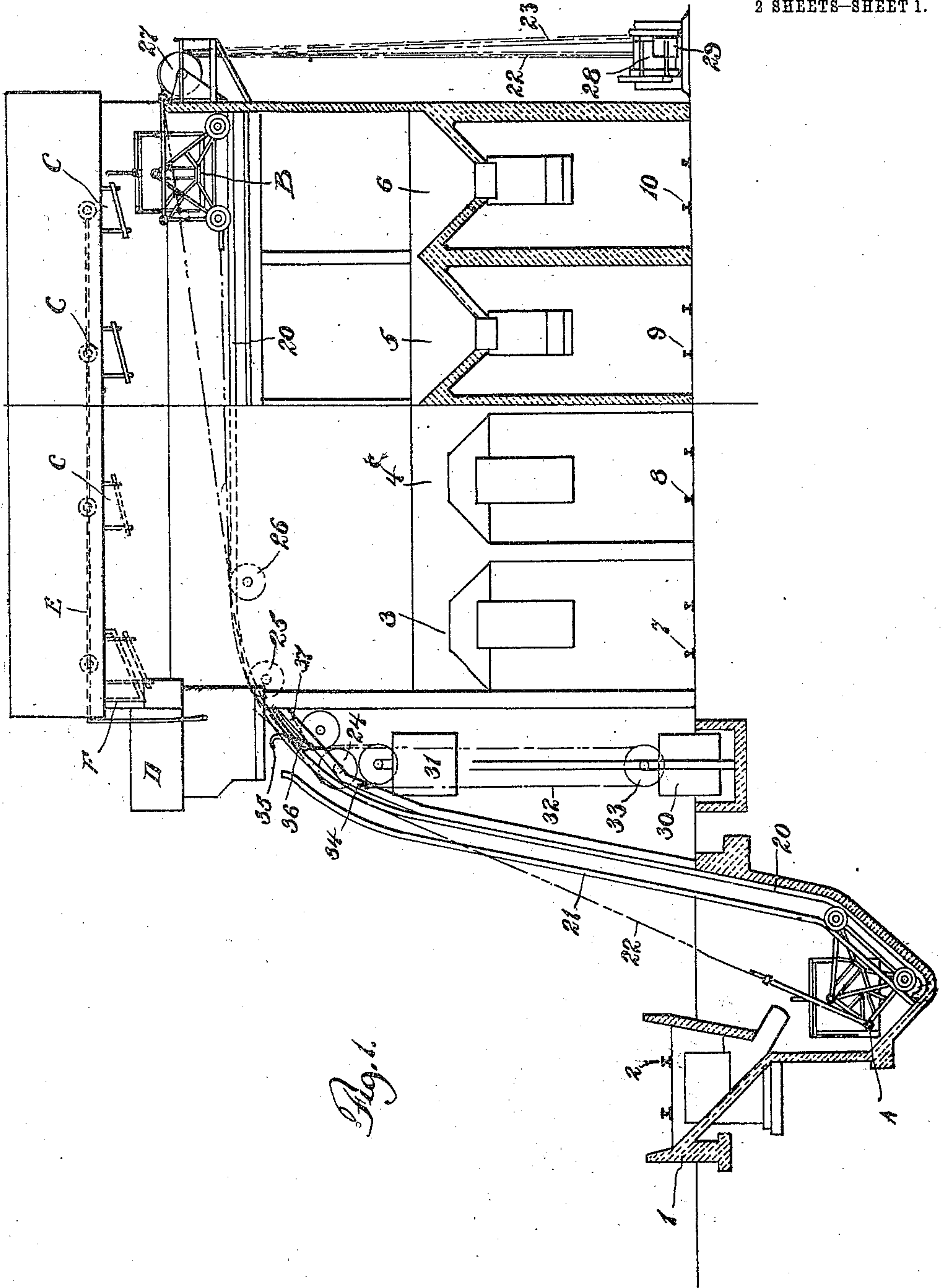


Fig. 1.

WITNESSES

Narvey L. Lechner
Cacheworth Martin

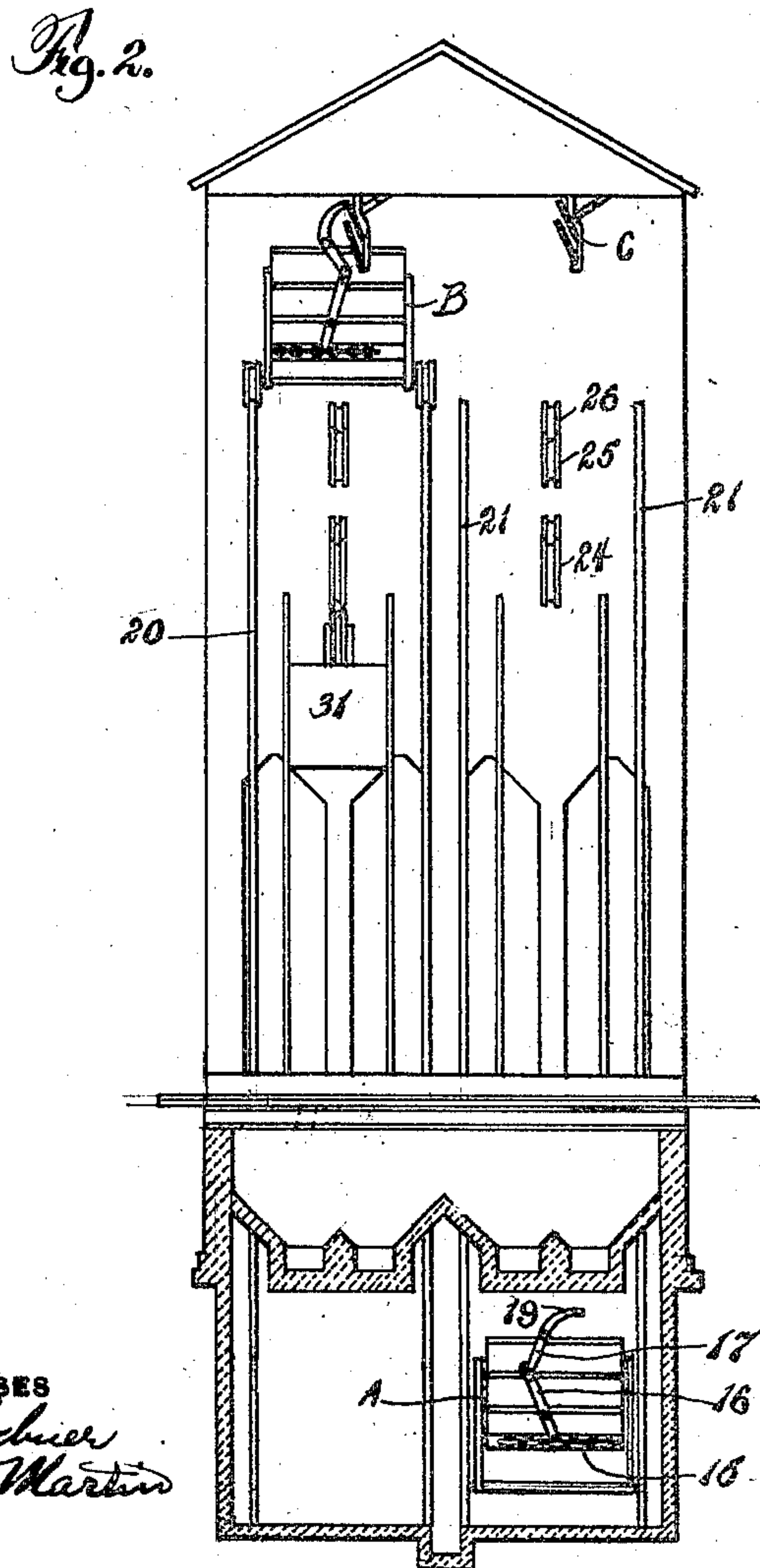
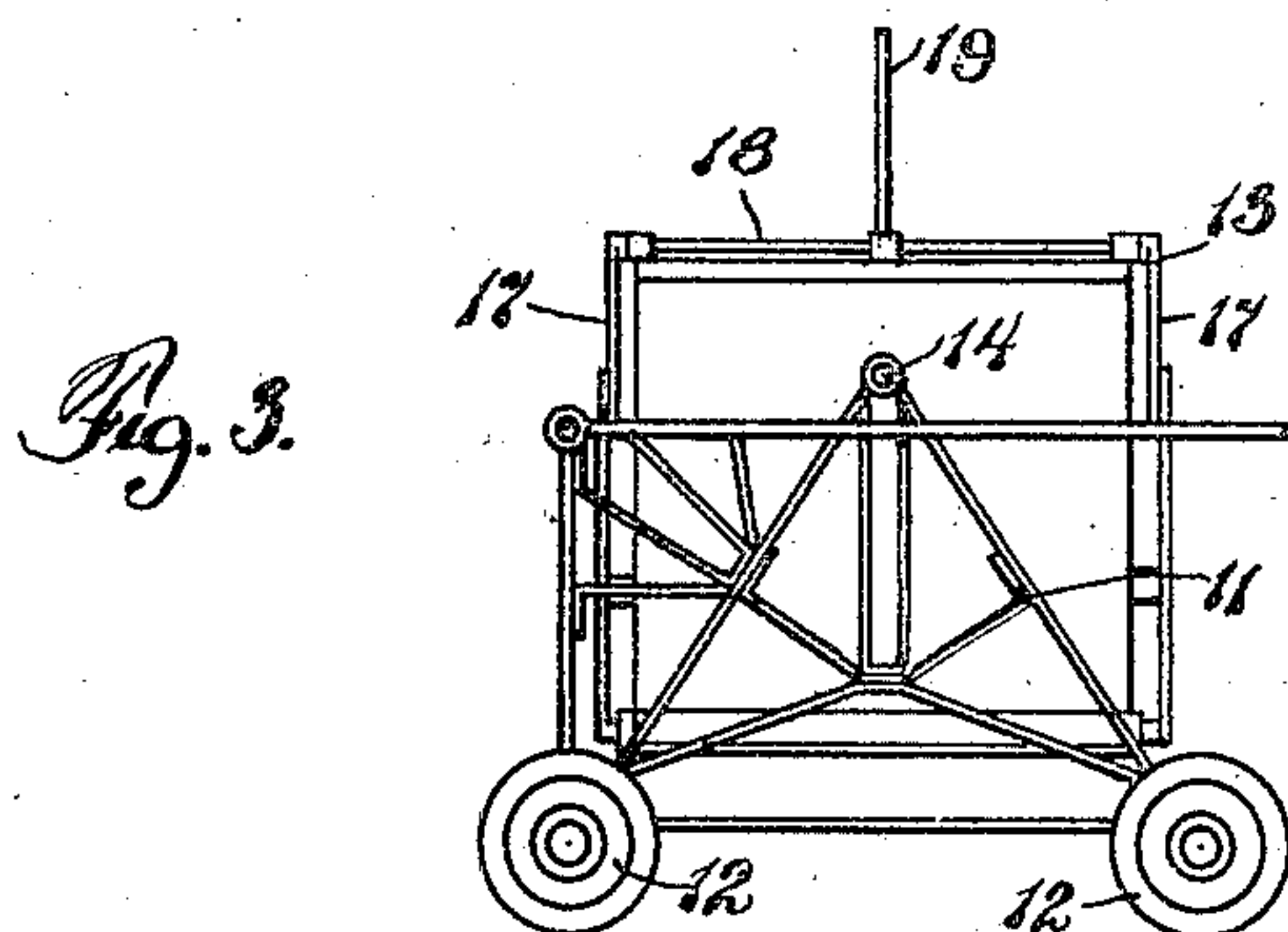
INVENTOR

Thomas R. Cook
by atty
Paul Synnestvedt

TRANSFER MECHANISM.

985,398.

2 SHEETS—SHEET 2.



Harvey L. Lechner
Archibuth Martin

Thomas R. Cook
by atty
Paul Lynnestvedt

UNITED STATES PATENT OFFICE.

THOMAS R. COOK, OF FORT WAYNE, INDIANA.

TRANSFER MECHANISM.

985,398

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, THOMAS R. COOK, a citizen of the United States, residing at Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Transfer Mechanisms, of which the following is a specification.

The invention relates to mechanism for handling coal or similar material, and particularly for mechanism employed for receiving the material and carrying it to elevated bins or hoppers from which it may be discharged by gravity. The invention has for its objects; the provision of semi-automatic conveying mechanism requiring little attention, of simple construction, and efficient and reliable in operation; the provision of mechanism in which the load upon the operating mechanism is made uniform and the starting load reduced to a minimum. One embodiment of the invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a somewhat diagrammatic side elevation showing the general arrangement of the mechanism,

Figure 2 is a front elevation, partially in section, of the arrangement shown in Figure 1, and

Figure 3 is an enlarged side elevation view of the dump car employed.

Referring to the general arrangement as shown in Fig. 1, 1 is a receiving bin or hopper, over which cars carrying material such as coal, may be conducted on the rails 2, and 3, 4, 5 and 6 are discharge bins or hoppers to which the material from the receiving hopper 1 is carried by means of the transfer mechanism to be hereinafter more particularly described. The hoppers are all preferably constructed of concrete, and the hoppers 3, 4, 5 and 6 are supported at an elevation by means of a framework, the outline only of which is illustrated. Car tracks, 7, 8, 9 and 10 lead under the various discharge hoppers, the discharge from the hoppers to the cars being accomplished by means of chutes to which suitable controlling mechanism (not shown) is applied.

The transfer of material from the bin 1 to the bins 3, 4, 5 and 6 is accomplished by means of a pair of dump cars operating upon substantially parallel tracks, which

tracks extend from a position beneath the hopper 1 to a position over the hoppers 3, 4, 5 and 6, so that the cars may be filled by means of a gravity discharge from the hopper or bin 1, and carried along the track to a position over the hoppers 3, 4, 5 and 6 and there discharged. A single motor is used for operating the cars, and automatic mechanism is provided for dumping the cars when they arrive at the proper hopper. A system of counter-weights is employed, so that the weight of the descending car may be utilized in lifting the loaded car, thus rendering the load upon the operating motor more uniform.

The cars employed (Figs. 2 and 3) comprise a truck-like framework 11 carried by wheels 12, and a body portion 13 pivoted at 14 between the frames 11. The main part of the body portion of the car lies below the pivot point 14, so that the body portion 13 maintains itself in upright position regardless of the angle of the wheel base as will be seen by reference to the lower car in Fig. 1. Doors 15 are provided in the bottom of the car (Fig. 2) which doors are operated by means of a pair of levers 16—16, one of which is located at each end of the car, such levers being engaged at their upper ends by another pair of levers 17—17. These levers 17 are secured upon a transverse shaft 18 which carries at its center the curved operating handle 19, the actuation of which serves to open and shut the doors. Each car rides upon a track 20, such tracks 20 being parallel, and being braced and supported in any suitable manner. Guard rails 21 extend along the tracks 20, and render disengagement of the car from the track impossible when such car is upon the inclined portion of the track. The dump cars which may be referred to as A and B are operated by means of cables 22 and 23 extending over sheaves 24, 25, 26 and 27, and to the drum 28 of the operating motor 29, which motor may be of any approved type but is preferably an electric motor. The point of attachment of the cables 22 and 23 to the cars A and B is preferably at a point sufficiently high above the wheel base that the weight of the car in connection with the pull upon the cables is sufficient to maintain the cars upon their tracks 20, but the guard rails 21 here-

tofore referred to afford additional security. The winding of the cables upon the drum 28 is such that when one of the cars, as A is in its lower position the other car B is in its upper position, and when the car B is lowered the car A is raised. Suspended beneath the two tracks 20 are the counter-weights 30 and 31, each counter-weight being supported by means of a cable 32 passing around a pulley 33 carried by the counter-weight and having one end secured at 34 to the framework and the other end secured to a hook 35. The hook 35 is so positioned that it will engage the rear axle of the car as it moves along the track, and the further movement of the dump car along the horizontal portion of the track 20 causes the counter-weight to be lifted, so that when the car reaches the position of the car B the counter-weight assumes the position indicated at 31. After the dump car B has been dumped the counter-weight assists in dragging the car backward along the horizontal portion of the track, or in other words assists the motor in lifting the car A which starts up the track as the car B starts in the reverse direction. The load upon the motor is thus made more uniform as the hook 35 engages the car at the moment the vertical lift is completed, and the load on the motor would otherwise be greatly reduced, and on the return movement of the car the assistance of the counter-weight reduces the load upon the motor at the time when such load would otherwise be greatest, viz., at the time the car A is being moved up the upright portion of the track. Each hook 35 has a laterally extending axis 36 engaging a slot 37 in a member carried by the framework, so that when the hooks reach the position indicated at 35 they are positively stopped and maintained in position.

Above each of the bins 3, 4, 5 and 6 is a device C for securing the dumping of the car into the bin beneath. Each of the devices may be so shifted that they will either secure the dumping of the car or permit the car to pass under without actuating it, and these devices are controlled from the observation house or cab D by means of pipes E extending therefrom to the air cylinders.

In order to move the doors of the cars to closed position inclined members F are provided above each track, which members F are adapted to engage the upper side of the operating lever 19 and move it laterally.

Having thus described my invention and illustrated its use, what I claim as new and

desire to secure by Letters Patent is the following:—

1. In transfer mechanism, two tracks each having an upright portion and a substantially horizontal discharge portion, a dump car for each track, a motor for moving both cars along the tracks, connections from the motor to the cars arranged so that when one car is in upper position the other car is in lower position, and a counter-weight for each car arranged so as to be lifted with the cars as they are dragged along the horizontal portions of the tracks.

2. In transfer mechanism, two tracks each having an upright portion and a substantially horizontal discharge portion, a dump car for each track, a motor for moving both cars along the tracks, connections from the motor to the cars arranged so that when one car is in upper position the other car is in lower position, a counter-weight for each car arranged so as to be lifted with the cars as they are dragged along the horizontal portions of the tracks and to be released when the cars reach the upright portions of the tracks on their return movements.

3. In transfer mechanism, two tracks each having an upright portion and a substantially horizontal discharge portion, a dump car for each track, a motor for moving both cars along the tracks, connections from the motor to the cars arranged so that when one car is in upper position the other car is in lower position, a counter-weight for each car, and means connected to the counter-weights for automatically engaging the cars to secure the lifting of the counter-weights, such means being located adjacent the upper part of the upright portion of the tracks.

4. In transfer mechanism, two tracks each having an upright portion and a substantially horizontal discharge portion, a dump car for each track, a motor for moving both cars along the tracks, connections from the motor to the cars arranged so that when one car is in upper position the other car is in lower position, a counter-weight for each car, and hooks located adjacent the upper part of the upright portion of the tracks in position to engage the cars and connected to the counter-weights.

In testimony whereof I have hereunto signed my name in the presence of the two subscribed witnesses.

THOMAS R. COOK.

Witnesses:

M. J. BLITZ,
J. E. TILL.