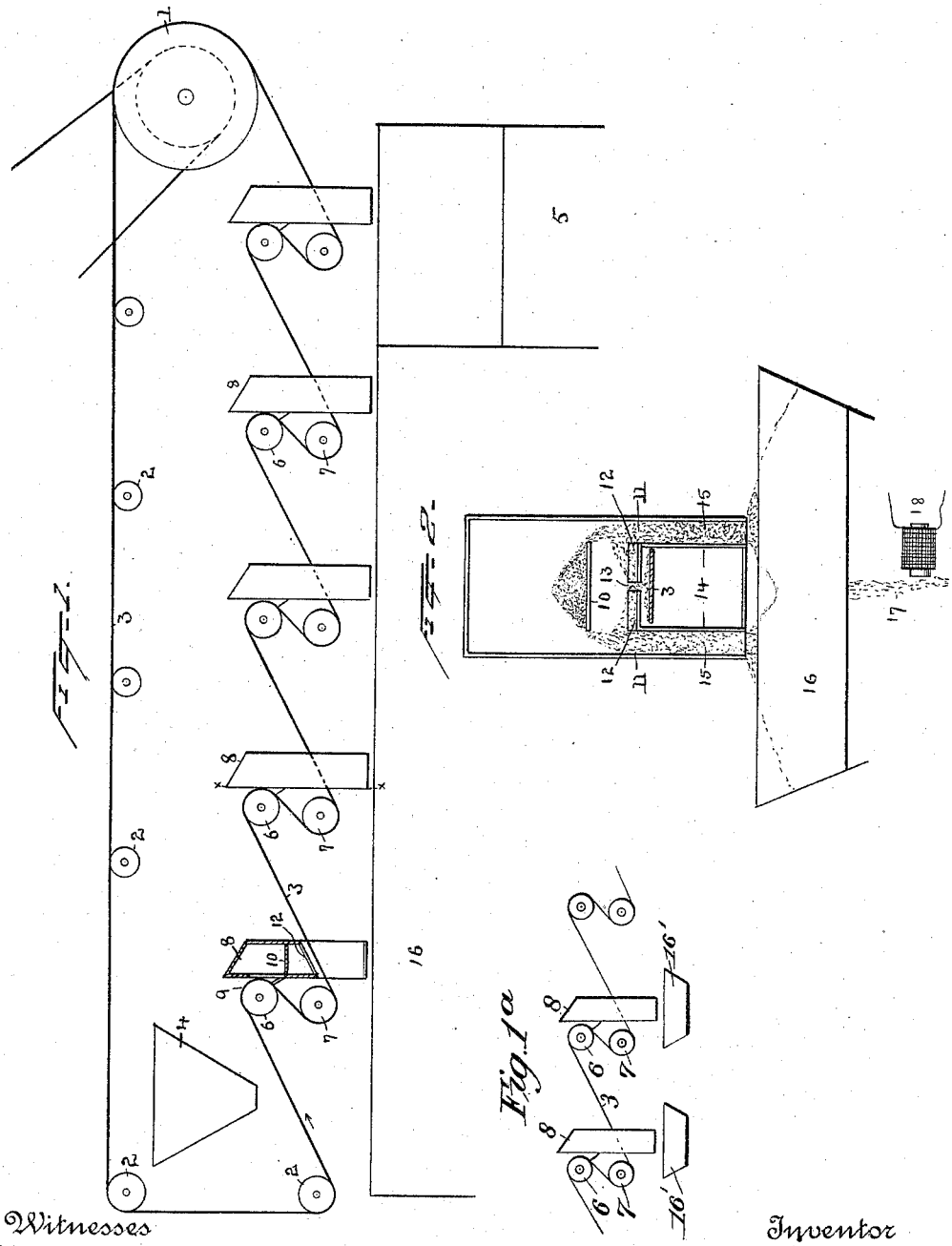
(No Model.)

T. A. EDISON.

ORE CONVEYING APPARATUS.

No. 474,592. Patented May 10, 1892.



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UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, NEW JERSEY.

ORE-CONVEYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 474,592, dated May 10, 1892.

Application filed October 1, 1891. Serial No. 407,456. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Ore-Conveying Apparatus, (Case No. 934,) of which the following is a specification.

The present invention relates to means for conveying ore or other materials from one point to several magnetic separators or other apparatus and for keeping the hopper or hoppers full without causing them to run over. In the present conveyer a single long belt is employed; but it is supported at intervals by pulleys arranged as hereinafter described, and means are provided for dumping the material into the several hoppers successively and for reloading the material which falls at a hopper after it is full centrally onto the belt and moving the same along to the succeeding hopper.

In the accompanying drawings, Figure 1 is a general view of the system. Fig. 1ª shows a modification, and Fig. 2 is a section on line *x x* of Fig. 1.

On a suitable pulley 1, driven by any suitable means—such as the belt shown—and on supporting-pulleys 2 is placed a long endless belt 3, which is designed for conveying ore, &c., from the hopper 4 at one end to the receptacle or receptacles along and under the belt, the ore being conveyed by the lower half or section of the belt only. At intervals along the lower section of the belt are pulleys 6 7, arranged one above another in pairs, the belt passing over the upper pulley and under the lower pulley of each successive pair, as shown, thus throwing the lower section of the belt into zigzag form. This is much exaggerated in the drawings, since the pulleys are larger in proportion to the distance between the pairs than they would be in practice. Adjacent to each pair of rolls 6 7 is a box or shaft 8, so placed that when the ore or material reaches the point 9 on the upper roller it will fall off into the box and will strike the shelf or partition 10, which extends entirely across the box from the front to the rear, but which is narrower than the box in the other direction, thus leaving openings 11 at each side. Below this shelf is a second shelf 12, also extending across the box from the front to the rear, but being narrower than the box in the other direction. This shelf is inclined and is provided with a central opening 13, which comes directly over the center of the belt 3. From the shelf 12 to the bottom of the box are inner side walls 14, which form side passages 15, through which the ore passes. Below the boxes described is a continuous trough 16, or several short troughs or boxes, as indicated at 16′, Fig. 1ª, one for each pair of pulleys.

When material is fed onto the belt at the left and the belt is moving forward in the direction of the arrow, the ore will be carried to the first pulley 6 and will drop onto the shelf 10 of the first box until it is piled up on this shelf, so that it rolls off at either side, when it will fall into the receptacle 16 and will fall in a stream 17 in front of the magnet 18, whereby the trajectory of the magnetic part is changed. Any desired apparatus may be placed below the receptacle 16 instead of the magnetic separator. Since the material is fed onto the conveyer faster than it escapes at the first separator, the receptacle soon becomes full under the shaft and the ore will back up in the passages 15 and will finally roll onto the shelf 12, and then pass through the opening 13 onto the middle of the belt. The same operation will take place at each successive shaft until the ore reaches the end 5. By this method and apparatus the several separators are kept fully supplied if sufficient material is fed onto the conveyer, and if not one or more of the separators nearest to the hopper 4 is or are fed to the full capacity. A further object attained is that the material conveyed toward the end 5 is reloaded centrally on the belt at intervals.

What I claim is—

1. The combination, in a conveying apparatus, of a belt conveyer, guide and driving pulleys therefor, a receptacle under the belt, means for leading the material being conveyed from the belt to said receptacle at one point, and means for guiding the material being conveyed onto the belt when the receptacle is full at said point, whereby succeeding material will be carried along to the next point of deposit, substantially as described.

2. The combination of a hopper or receptacle, a conveyer for ore or other material,

means for unloading the same to fill the hopper or receptacle and for reloading a part of the material centrally on the conveyer when the hopper is full, whereby said hopper can be kept full without danger of running over, and an apparatus below said hopper for treating the ore or material, substantially as described.

3. The combination of a conveyer-belt, two or more receptacles having outlet-passages below said belt, whereby material in said receptacles may pass to a magnetic separator or other apparatus below said receptacle or receptacles, and means for unloading the ore or material into the receptacle or receptacles and for reloading a part of the material onto the belt, whereby when the receptacle is full over the first apparatus ore is carried along to the succeeding one, substantially as described.

4. The combination, in a conveyer, of a belt, supporting and driving pulleys over which the belt passes, a receptacle or receptacles below said belt, means at one or more points for depositing material being conveyed in said receptacle or receptacles, and means for reloading a part of the material being conveyed on the belt when the receptacle or receptacles nearest the loading-point is or are full, the receptacle or receptacles having outlets whereby material therein can be drawn off and passed to a magnetic separator or other apparatus, substantially as described.

5. The combination of a conveyer-belt, supporting and driving pulleys therefor, pulleys for changing the direction of the belt at intervals, means adjacent to said pulleys for unloading and reloading the material to be conveyed, a receptacle or receptacles into which said material is unloaded, said receptacles having outlets, and a series of separators in which said outlets may convey material, substantially as described.

6. The combination of a conveyer-belt, two pulleys, one above the other, around which said belt passes, a box adjacent to said pulleys, into which material being conveyed is dropped from the upper pulley, a receptacle into which said material falls, and means for loading the material being conveyed on the belt when said receptacle is full, whereby material will be carried along to a succeeding point when a receptacle is full, substantially as described.

7. The combination of a conveyer-belt, two pulleys, one above the other, around which said belt passes, a box or shaft adjacent to said pulleys, into which material being conveyed is dropped from the upper pulley, a shelf onto which said material falls, a receptacle into which the material falls from said shelf, and a shelf between the first-mentioned shelf and the belt, having an opening centrally located over the belt, whereby as the receptacle becomes full and the material backs up into the box it is loaded onto the belt, substantially as described.

8. A reloading device for conveyers, consisting of a box or shaft having an opening near the top, a shelf below said opening, said shelf being narrower than the box, whereby openings are left at the sides of the box through which material being conveyed can fall, and a second shelf over the conveyer and having a central opening, substantially as described.

9. A reloading device for belt conveyers, consisting of a box or shaft having an opening near the top and spanning the belt, a shelf below said opening, said shelf being narrower than the box, whereby openings are left at the sides of the box through which material being conveyed can fall, a receptacle in position to receive the material, a second shelf over the conveyer and below the first shelf and having a central opening, and passages from the receptacle to said second shelf, whereby when the passages are filled material falling from the belt will pass again onto the same, substantially as described.

This specification signed and witnessed this 28th day of August, 1891.

THOS. A. EDISON.

Witnesses:
CHARLES M. CATLIN,
JOHN F. RANDOLPH.