F. L. STUART.

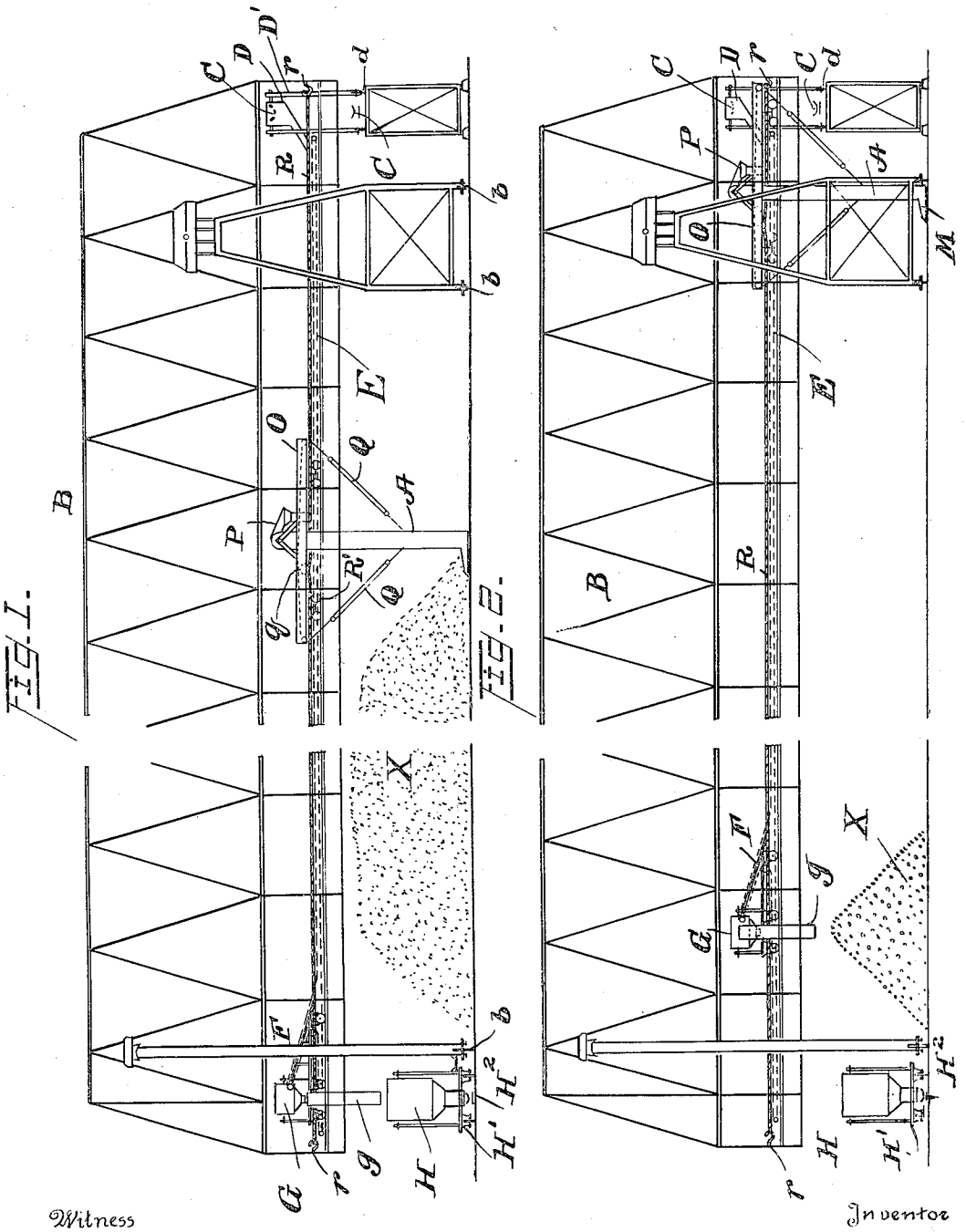
APPARATUS FOR RAISING AND CONVEYING COAL, &c.

APPLICATION FILED MAY 20, 1916.

1,230,236.

Patented June 19, 1917.

5 SHEETS—SHEET 1.



Witness

Joseph W. Linnbaum.

Inventor

Francis Lee Stuart

By Baldwin & Wright

Attorneys

F. L. STUART.

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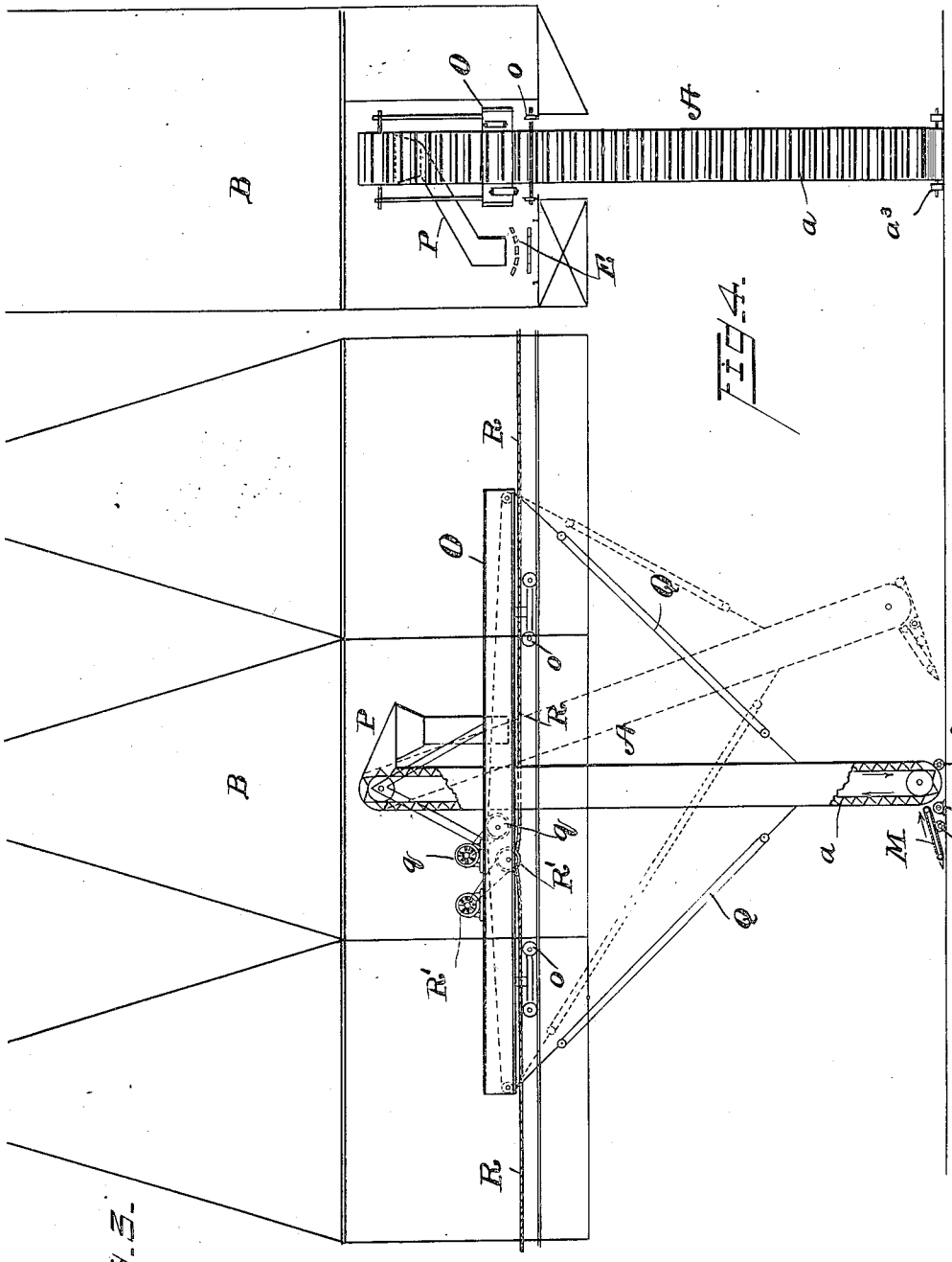


FIG. 4.

FIG. 3.

Witness
Joseph W. Linnbaum

Inventor
Francis Lee Stuart

By Baldwin & Wight
Attorneys

F. L. STUART.

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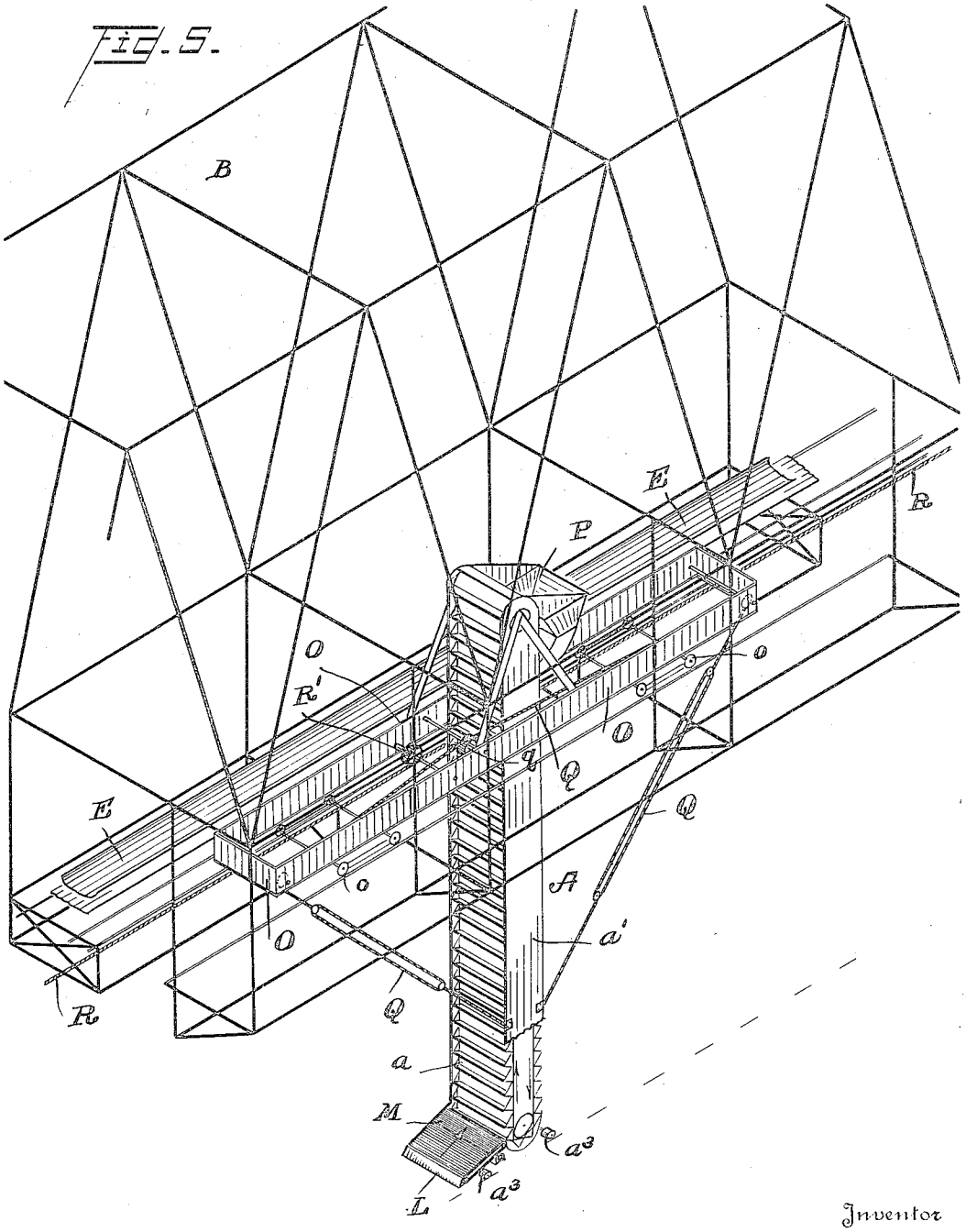
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5 SHEETS—SHEET 3.

Fig. 5.



Witness
Joseph W. Linnbaum

Inventor
Francis Lee Stuart

By Baldwin & Wright
his Attorneys

F. L. STUART.

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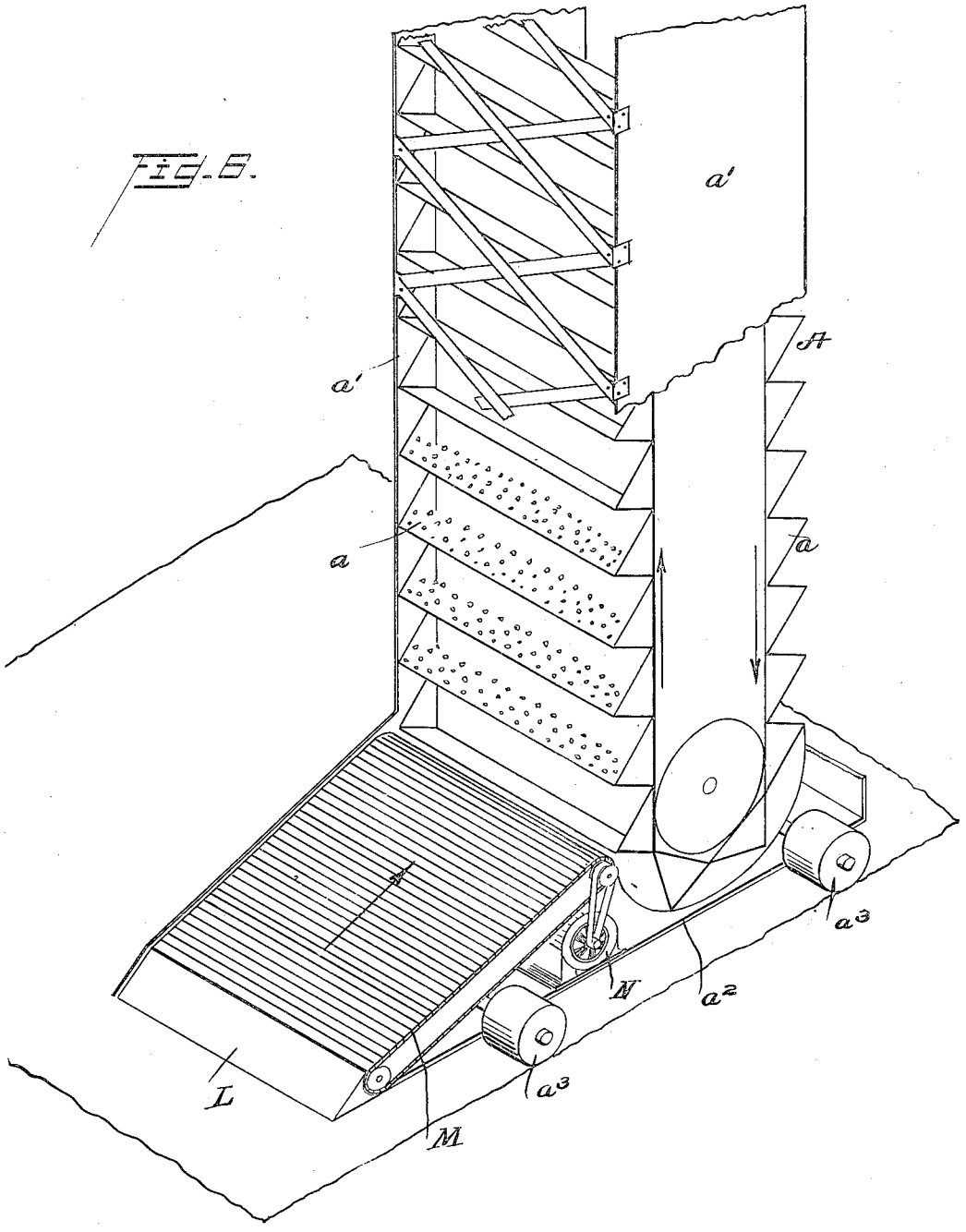
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5 SHEETS—SHEET 4.

Fig. 6.



Witness

Joseph W. Linnbaum

Inventor

Francis Lee Stuart

By Baldwin & Wight

Attorneys

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5 SHEETS—SHEET 5.

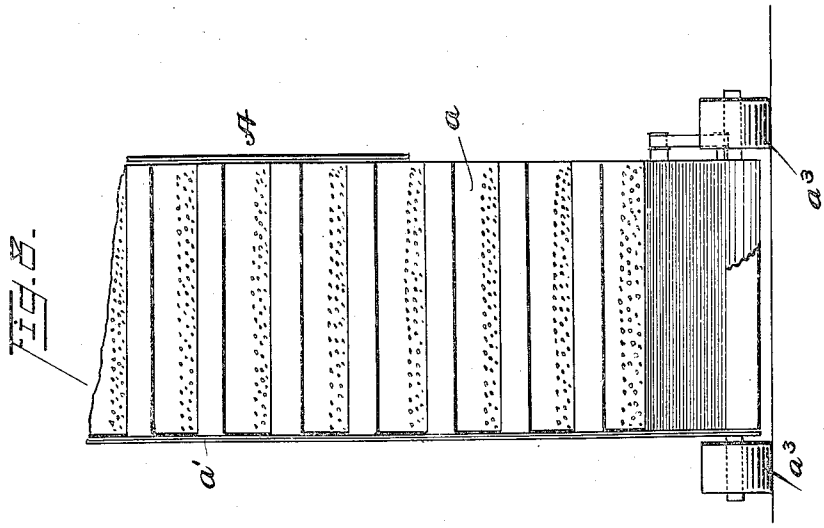


FIG. 6.

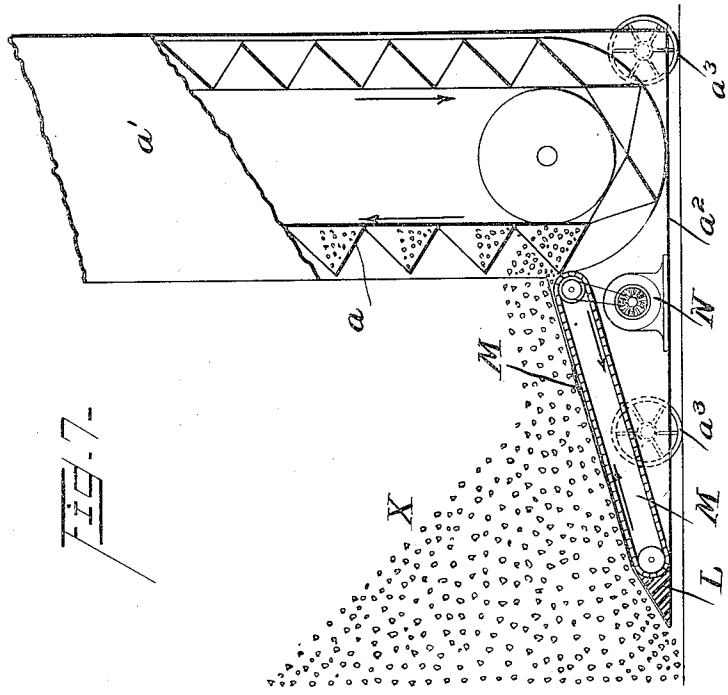


FIG. 7.

Witness

Joseph W. Linnbaum

Inventor

Francis Lee Stuart

By Baldwin & Wight

Attorneys

UNITED STATES PATENT OFFICE.

FRANCIS LEE STUART, OF BALTIMORE, MARYLAND.

APPARATUS FOR RAISING AND CONVEYING COAL, &c.

1,230,236. Specification of Letters Patent. Patented June 19, 1917.

Application filed May 20, 1916. Serial No. 98,889.

To all whom it may concern:

Be it known that I, FRANCIS LEE STUART, a citizen of the United States, residing in Baltimore, Maryland, have invented certain new and useful Improvements in Apparatus for Raising and Conveying Coal, &c., of which the following is a specification.

This invention relates to apparatus for conveying, storing and reclaiming material which has been stored.

According to my invention I employ a bridge which may be moved from place to place on a suitable track over places for storage and this bridge carries a conveyer which receives material from a tripper connected to move with the bridge and which is associated with a main conveyer belt which carries the material from a source of supply. The delivery end of the bridge is connected to move with a hopper which receives material from the bridge conveyer and delivers to a belt conveyer for carrying the material to distant points. The bridge conveyer is associated with a tripper which is movable across the bridge while still maintaining an operative relation with the bridge conveyer, and this tripper may deliver to any place beneath the bridge or to the hopper at the delivery end of the bridge. In order to reclaim or elevate material from piles beneath the bridge I provide a reclaiming elevator which is carried by a truck movable on a track on the bridge and which is provided with a chute delivering to the bridge conveyer. The reclaiming elevator comprises a plow adapted to enter the lower portion of a pile of material and which is provided with a conveyer set at a slight incline and delivering to a vertically arranged conveyer preferably of the bucket type. The conveyer with the plow is so supported that it may be set at any desired angle and moved from place to place either toward or into the pile or away therefrom.

In the accompanying drawings,—

Figure 1 is a view of my improved reclaiming elevator, showing how it is mounted to be moved from place to place and how it delivers to a conveyer which carries the material and delivers it to another conveyer.

Fig. 2 is a similar view, showing the reclaiming elevator moved to one side when not in use, and this figure also shows means by which material may be delivered to a pile for storage.

Fig. 3 is a view on a larger scale, showing the reclaiming elevator and it also shows apparatus for taking material from the reclaiming elevator and delivering it to a belt conveyer.

Fig. 4 shows an end elevation of some of the mechanism shown in Fig. 3.

Fig. 5 is a perspective view on a larger scale more clearly indicating the details of construction of the reclaiming elevator and showing how it delivers to a belt conveyer and how it may be moved from place to place on a bridge which supports it.

Fig. 6 is a perspective view on an enlarged scale of the lower portion of the reclaiming elevator.

Fig. 7 is a detail view, mainly in section, of the lower portion of the reclaiming elevator, showing how it enters a pile of material and how the material is elevated.

Fig. 8 is another view of the mechanism shown in Fig. 7.

I have shown in Figs. 1 and 2 the reclaiming elevator A hung from a bridge B of any suitable construction and provided with rollers *b* adapted to traverse a track whereby the bridge with the parts which it supports may be moved from place to place.

Material may be brought to the bridge by a conveyer C which, by means of a tripper D′, delivers to a hopper D, as more clearly shown and described in my co-pending application for patent above mentioned. The tripper D′ is connected to move coincidently with the bridge on rails *d*. The hopper D deposits the material on a horizontally arranged belt conveyer E provided with a tripper F which may deliver to a hopper G through which the material passes by means of a chute *g* to a pile X. Or the tripper and hopper may be moved to the position shown in Fig. 1 and deliver to a hopper H mounted on a truck H′ connected with the bridge and moved conincidently therewith. This hopper may deliver to a belt conveyer H^2 for carrying the material to any desired point. Any suitable means may be provided for moving the tripper F and hopper G back and forth across the bridge so as to deliver the material in any desired plane.

The reclaiming elevator A comprises an endless series of buckets *a* having a suitable housing *a′* extending from its upper to its lower end. At its lower end the elevator carries a truck a^2, the rollers a^3 of which are adapted to rest on the ground. On the truck is mounted a plow L adapted to enter

the pile of material X in storage and this plow is provided with an endless conveyer M which moves in the direction indicated by the arrow and may be driven by a motor N mounted on the truck. The elevating buckets *a* may be driven in any suitable way and the arrangement is such that the material to be elevated is received by the plow, delivered to the elevating buckets *a* and carried upwardly thereby. The upper portion of the elevator passes through and is supported by a truck O provided with rollers *o* traversing tracks on the bridge. The truck carries a chute P by means of which the material elevated is delivered to the horizontally arranged conveyer belt E. It will be observed by reference to Fig. 4 that the chute P extends sidewise from the upper end of the elevator and that the conveyer belt is arranged in a different vertical plane from that of the elevator.

Any suitable means may be employed for supporting the upper end of the reclaiming elevator and for moving it back and forth on the bridge. Preferably, however, the elevator is supported on the truck O as before described and this truck may be moved in either direction by a cable R which is made fast at opposite ends of the bridge as indicated at *r*, Figs. 1 and 2, and is connected with mechanism R′ on the truck by means of which the cable may be operated to move the elevator back and forth to any desired extent. I also preferably employ tackle Q attached to the elevator A between its upper and lower ends and connected with mechanism *q* on the truck by means of which the elevator may be adjusted or set at any desired angle or may be held in a vertical position. The mechanism *q* and R′ may, if desired, be provided with a suitable housing O′.

By this mechanism material, such as coal, ore and the like, may be brought to the bridge by the conveyer C, delivered by means of the tripper D′ and hopper D to the conveyer belt E which delivers to the tripper F and then passes to the hopper G and the chute *g*. The tripper, hopper and chute may be moved back and forth to any desired extent so as to deliver the material to a storage pile or to a conveyer belt H^2 which will carry the material to some distant point. By means of the elevator A material stored in piles, bins or the like may be picked up and elevated, deposited on the horizontally arranged conveyer belt and transferred by means of the tripper F, hopper G, and chute *g* to some point of delivery, such as to the hopper H and then to the conveyer belt H^2. The motor mechanism carried by the truck O enables the operator to set the reclaiming elevator at any desired angle or to move it to any inclination or to a vertical position while entering the pile and receiving therefrom, and to also operate the conveyer on the plow and the elevating buckets at any desired speed and to stop their operation when desirable.

It will be further observed that the bridge is provided at one end with a tripper which moves coincidently with the bridge and delivers material to the bridge conveyer wherever the bridge is located and that the bridge is provided with a tripper which may be moved to any desired position endwise on the bridge, and furthermore the bridge is provided with a hopper which moves coincidently with the bridge, delivers to a belt conveyer associated therewith at any desired point thereon and receives material from the tripper of the bridge conveyer when said tripper is in position to deliver to it.

It will be observed that the apparatus is so organized that there is a minimum amount of breakage as the material passes gently from the plow and its conveyer to the delivery conveyer.

I claim as my invention:

1. The combination with a movable bridge, of a belt conveyer thereon, a tripper associated with said conveyer delivering material therefrom and movable endwise on the bridge, a reclaiming elevator, a truck on which said reclaiming elevator is supported, a track on the bridge by the side of the conveyer and parallel therewith on which said truck travels, a chute carried by and movable with the truck which receives material from the reclaiming elevator and discharges onto said conveyer, means at one end of the bridge for delivering to the conveyer on the bridge, and means at the opposite end of the bridge which receives material delivered by said conveyer.

2. The combination with a movable bridge, of a belt conveyer thereon, a tripper associated with said conveyer delivering material therefrom and movable endwise on the bridge, a reclaiming elevator, a truck on which it is supported, a track by the side of the belt conveyer and parallel with the belt conveyer on which said truck travels, a chute carried by and movable with the truck which receives material from the reclaiming elevator and discharges onto the belt conveyer, a main conveyer belt delivering to one end of the belt conveyer on the bridge, and a belt conveyer at the opposite end of the bridge to which the tripper on the bridge delivers.

3. The combination with a movable bridge, of a belt conveyer thereon, a tripper associated with said conveyer for delivering material at any desired point below the bridge, a main conveyer belt, a tripper associated therewith and connected with one end of the bridge to move at all times therewith and to deliver to the bridge conveyer, a hopper at the opposite end of the bridge connected to move at all times therewith and to

which the tripper on the bridge is adapted to deliver, a truck supporting the hopper and moving with the bridge, and a conveyer belt below the hopper which receives material therefrom.

4. The combination with a movable bridge, of a belt conveyer thereon and extending from end to end thereof, a tripper mounted to move endwise on the bridge and associated with the belt thereon, a main conveyer belt, a tripper associated therewith and which delivers to one end of the belt conveyer of the bridge, a reclaiming elevator delivering to said last-mentioned conveyer, a hopper connected with the bridge to move at all times therewith, and a belt conveyer over which said hopper is mounted to move.

5. The combination with a movable bridge, of a reclaiming elevator comprising a continuously moving series of buckets, a frame therefor, a truck supported on the bridge and to which the bucket frame is connected, means for adjusting the inclination of the bucket frame, a truck at the lower end of the bucket frame, and a plow on said last mentioned truck comprising a front piece adapted to enter a pile of material, and an endless conveyer belt which delivers to the buckets.

In testimony whereof, I have hereunto subscribed my name.

FRANCIS LEE STUART.

Witnesses:
E. R. SPARKS,
A. H. SCHAEFFER.