F. L. STUART.

CONVEYER.

APPLICATION FILED JUNE 3, 1918.

1,310,454.

Patented July 22, 1919.

5 SHEETS—SHEET 1.

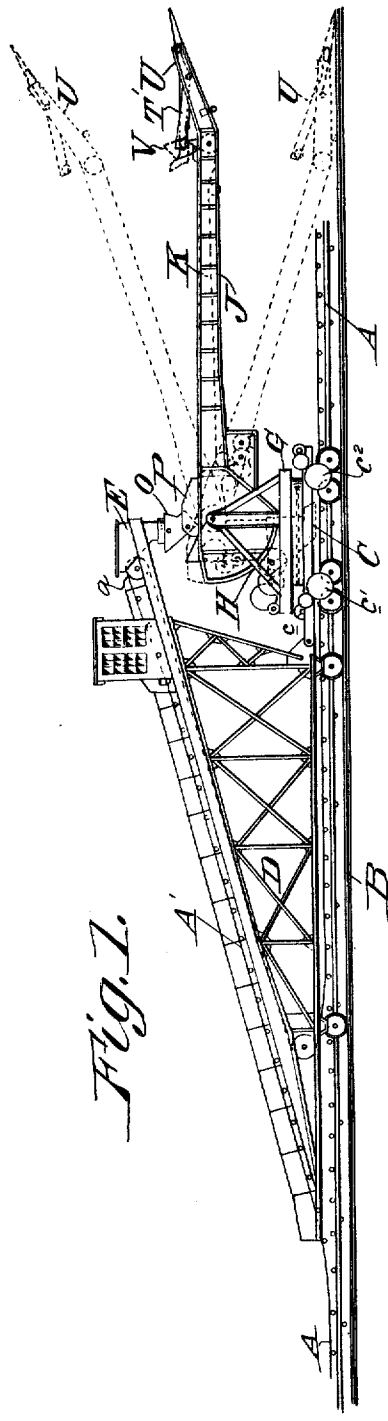


Fig. 1.

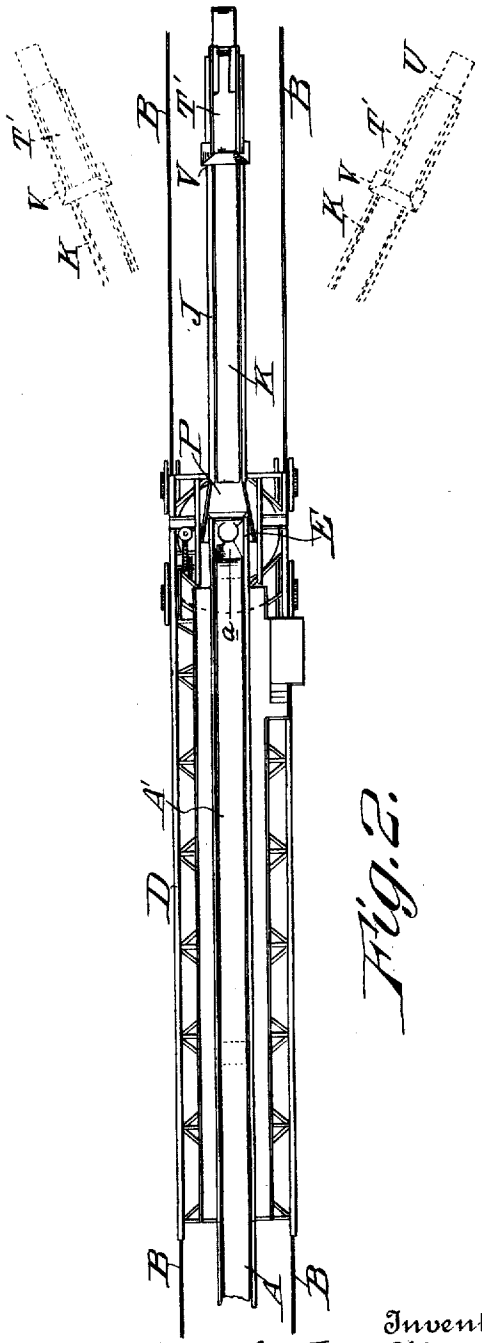


Fig. 2.

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Fig. 4.

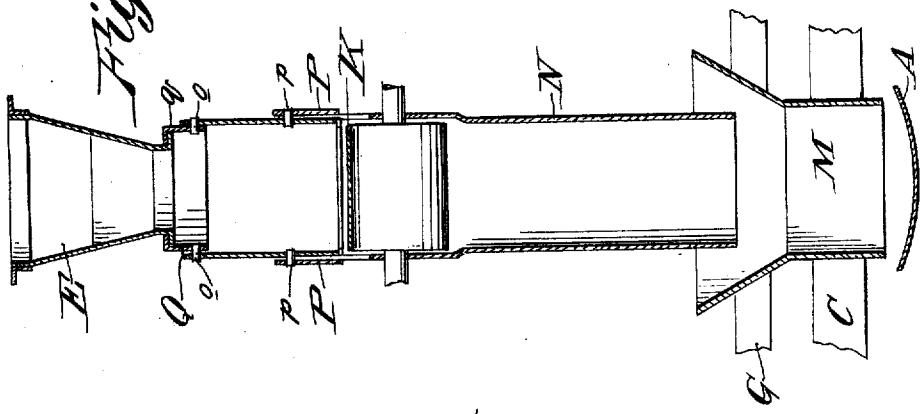
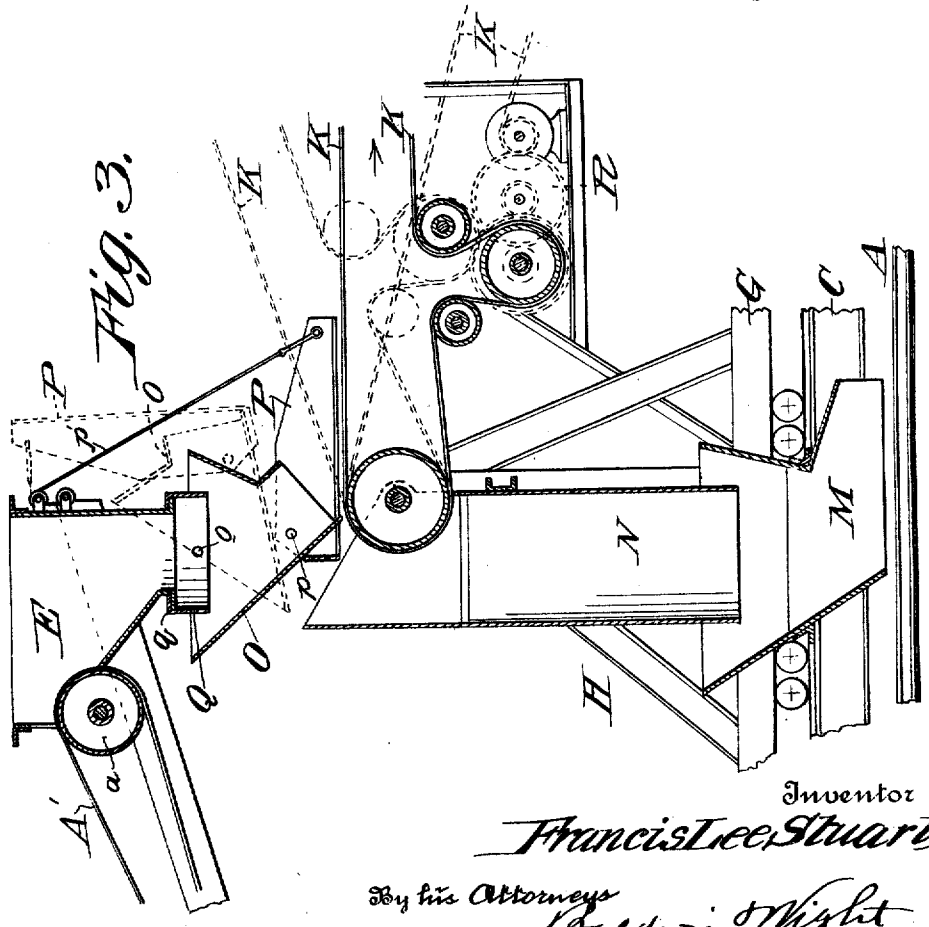


Fig. 3.



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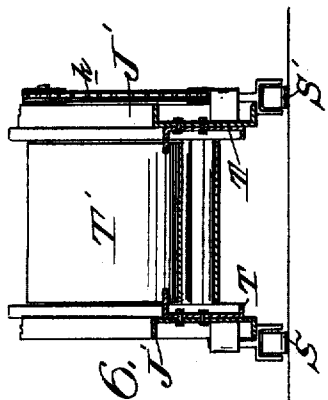


Fig. 6.

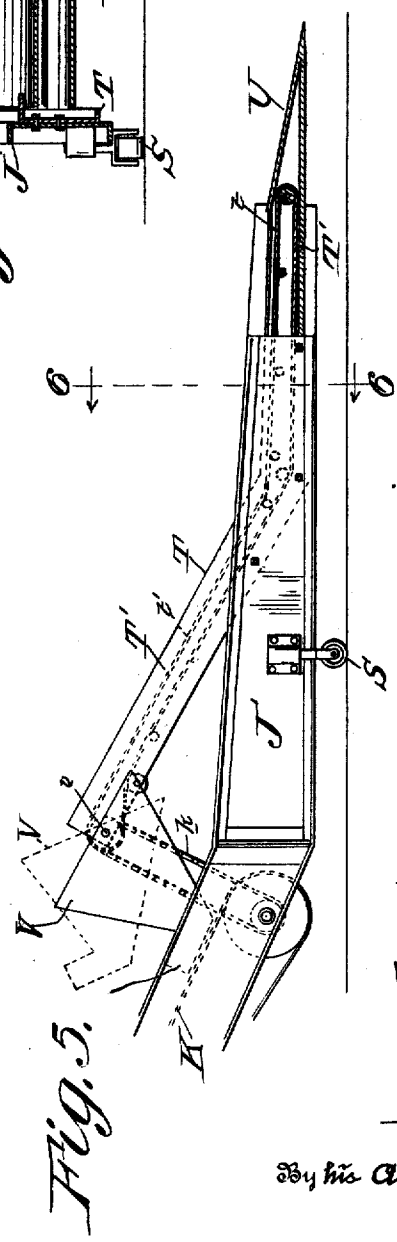


Fig. 5.

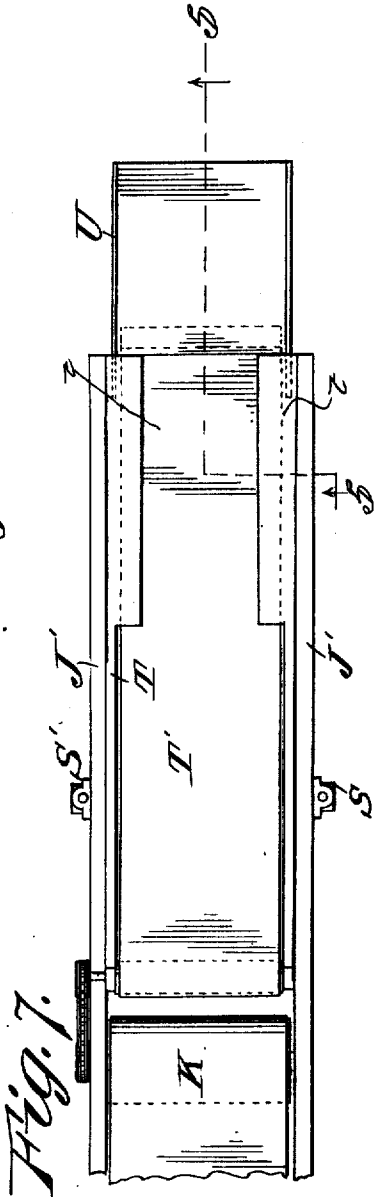


Fig. 7.

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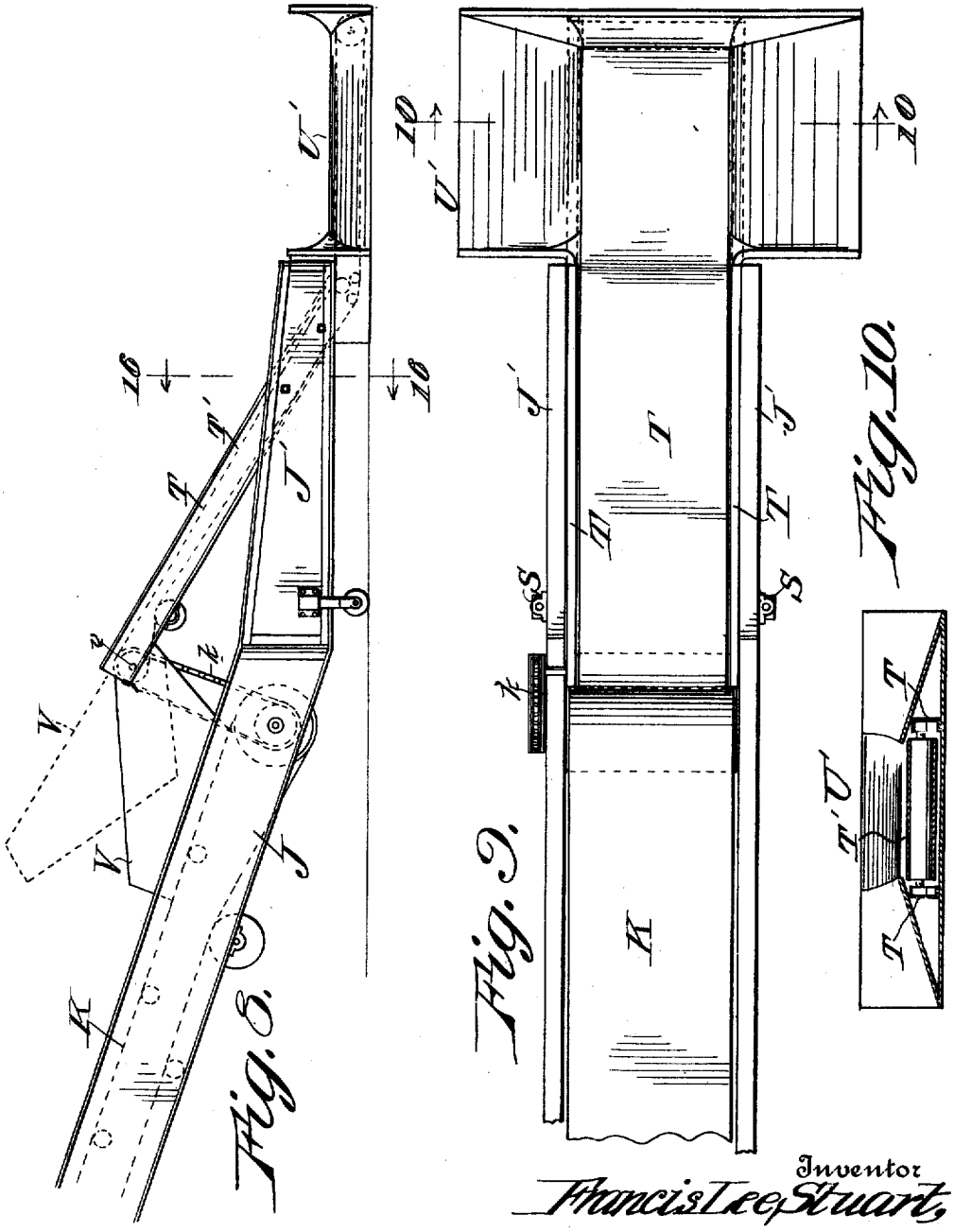
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5 SHEETS—SHEET 4.



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5 SHEETS—SHEET 5.

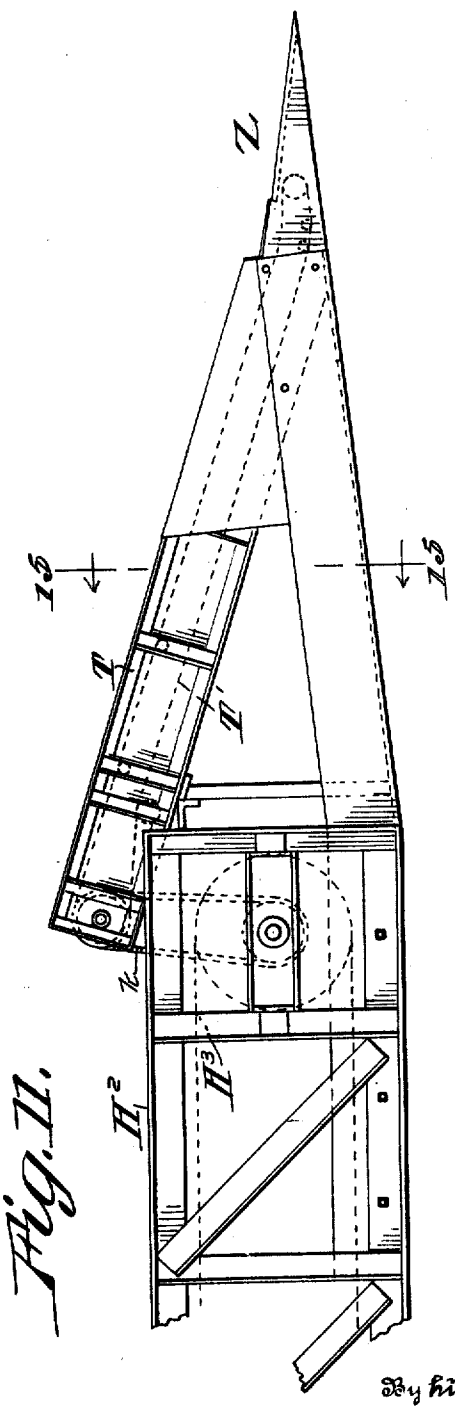


Fig. 11.

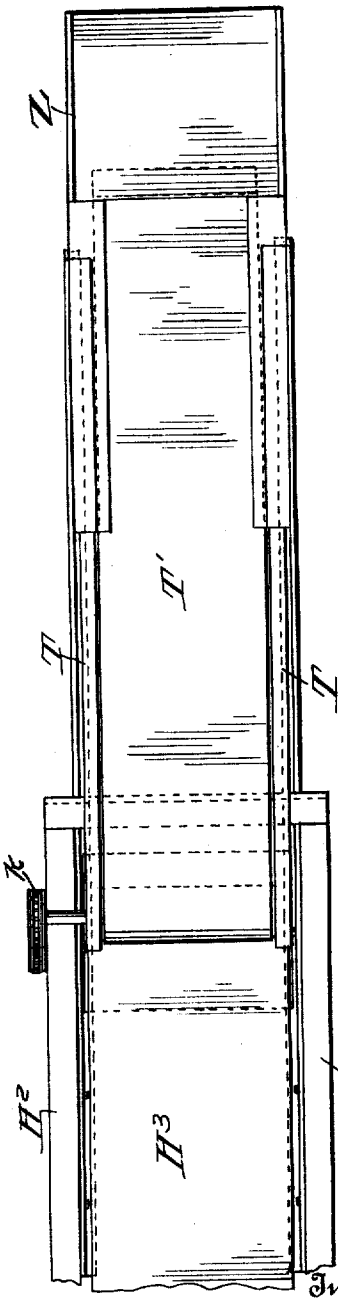


Fig. 12.

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UNITED STATES PATENT OFFICE.

FRANCIS LEE STUART, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO INTERNATIONAL CONVEYOR CORPORATION, OF NEW YORK, N. Y.

CONVEYER.

1,310,454. Specification of Letters Patent. Patented July 22, 1919.

Application filed June 3, 1918. Serial No. 237,880.

To all whom it may concern:

Be it known that I, FRANCIS LEE STUART, a citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Conveyers, of which the following is a specification.

This invention relates to apparatus for carrying material brought from a distance by a main conveyer belt to a pile or other place for storage and also to apparatus for gathering material and depositing it upon a conveyer which carries it to a distant point, and the principal object of the invention is to combine in a single apparatus, associated with a single belt conveyer, mechanism by means of which material may be taken from the belt and delivered by another conveyer to a storage place or may be received from carriers or from storage or a pile and deposited on the main conveyer belt which carries it to its destination.

In carrying out my invention, I provide a truck adapted to move over a track parallel with a main conveyer belt, and on this truck I mount a frame which supports a loop of the main conveyer, which loop or tripper delivers through a hopper to a boom conveyer which is so mounted on a turn-table supported by the truck that it may be moved both vertically and horizontally to any desired extent. The boom conveyer is adapted to deliver material supplied to it by the tripper to suitable carriers or a place for storage. The boom conveyer is provided with a plow, scraper or other suitable device for gathering material and the belt conveyer of the boom is motor driven. At its inner end the boom conveyer delivers through a hopper to a chute carried by the truck which in turn transfers the gathered material to the main conveyer belt.

Other features of the invention will be hereinafter described.

In the accompanying drawings:—

Figure 1 shows a side elevation of my improved apparatus, indicating by dotted lines how the boom conveyer may be adjusted vertically.

Fig. 2 is a plan view thereof, and indicates by dotted lines how the boom conveyer may be adjusted horizontally.

Fig. 3 is a view on an enlarged scale and in section illustrating particularly the mechanism by means of which material may be delivered from the main conveyer to the boom conveyer or from the boom conveyer to the main conveyer.

Fig. 4 is a sectional view taken at right angles to that shown in Fig. 3.

Fig. 5 is a detail view on an enlarged scale of the devices for gathering material on the outer end of the boom.

Fig. 6 shows a transverse section on the line 6—6 of Fig. 5.

Fig. 7 is a plan view of the parts shown in Fig. 5.

Fig. 8 shows a side elevation of a modified form of gathering mechanism.

Fig. 9 is a plan view thereof.

Fig. 10 shows a transverse section on the line 10—10 of Fig. 9.

Fig. 11 is a side view of devices for gathering material which may be employed.

Fig. 12 is a plan view of the same.

A main conveyer belt A runs parallel with the rails B of a track on which a truck C is supported. The truck C is connected with another truck or frame D on which is supported a loop A′ of the main conveyer belt which loop at its upper end passes around a roller *a* and at that point delivers to a hopper E. The frame D is coupled to the truck C at *c* and may be moved from place to place therewith. The two parts C and D may be considered a single truck. The truck has wheels *c′* resting on the rails B and these wheels are motor driven, as indicated at c^2. The truck supports a turn-table G which in turn supports a frame H to which is pivotally connected a boom conveyer J in such manner that said boom conveyer may be turned about a horizontal axis. In this way the boom conveyer may be adjusted to any desired extent both horizontally and vertically. Suitable mechanism may be employed, as indicated in the drawings, for turning the turn-table and for adjusting the boom conveyer vertically. The boom J carries a conveyer belt K which is motor driven, as indicated. The truck C is provided with a chute M which delivers to the main conveyer belt A. This chute extends centrally through the turn-table G and receives material from a hopper N which is supported on the frame H. The loop A′

of the main conveyer delivers to the hopper E which is supported by the frame H and this hopper E supports another hopper O which delivers to the belt K of the boom conveyer. P indicates a chute interposed between the hopper O and the belt K which guides material from the hopper to the belt. This chute is pivotally connected to the hopper at *p* and may be raised and lowered by the devices *p'*, in the manner indicated by dotted lines. The hopper O is pivotally connected at *o* to a ring Q which is pivotally supported at *q* by the hopper E, the arrangement being such that while the hopper E remains stationary the hopper O and the chute P may be turned about a vertical axis, and the pivotal connection between the hopper O and the ring Q is such that the hopper O may be turned about a horizontal axis so that said hopper O and chute P may be moved to the position shown by dotted lines in Fig. 3. When all the parts are in the position shown by full lines in Fig. 3 material may be delivered through the hopper E and O and chute P to the belt K. When the belt is moving in the direction indicated by the arrow in Fig. 3 said belt may deliver the material to a place of storage or to carriers. But when the belt K is moved in the opposite direction and is reclaiming material or carrying material to the main conveyer belt, the hopper O and chute P are raised to the position shown by dotted lines, so that belt K may deliver material through the hopper N and chute M to the main conveyer belt. The boom conveyer belt is driven by the motor mechanism indicated at R in Fig. 3. At its outer end the reclaimer frame J is provided with means for gathering material from a pile or for receiving it from any source of supply. Various forms of mechanism for this purpose may be employed. I have illustrated some ways by which it may be done.

In Figs. 1, 2, 5, 6 and 7 I have shown a plow which may be thrust endwise into a pile of material. The details of construction are for the most part not important, but it will be observed by reference to Figs. 5–7, inclusive, that the outer end of the conveyer frame is inclined relatively to its inner part and is supported by swivel wheels S. To the parts J' of the reclaimer frame are detachably secured frame pieces T which support an auxiliary belt conveyer T' which has a horizontal part *t* and an inclined part *t'*. The plow U which is thrust into the pile of material delivers to the belt T' and this belt delivers to a hopper V which is hinged to the frame pieces T at *v*. When the reclaimer belt is delivering from the main conveyer the hopper V should be raised in the manner indicated by dotted lines in Fig. 5 and when so raised material from the belt K may be freely delivered but when material is being conveyed from storage to the main conveyer belt the hopper V should occupy the position shown by full lines in Fig. 5. The conveyer belt T' may be driven from the conveyer K in the manner indicated at *k* in Fig. 5.

Instead of employing means for gathering material of the kind shown particularly in Figs. 5, 6 and 7, I may employ gathering means of the kind shown in Figs. 8, 9 and 10. In this case a scraper plow U' is substituted for the plow U. Otherwise the mechanism is of substantially the same kind as that before described.

When operating to store material the truck C and frame D may be moved to any desired extent while still maintaining operative relation with the main conveyer belt. The material will be received by the boom conveyer belt K and delivered from the outer end thereof.

When operating to reclaim material, the boom may be set at the proper angle and thrust into a pile in such manner as to gather material therefrom and destroy or change the slope of the pile. The truck C and parts connected therewith may be moved back and forth while performing this operation, the angle of the boom conveyer being suitably changed to correspond with the change in slope or size of the pile. While thus operating the material is delivered in the manner before described to the main conveyer and carried to its destination.

When the boom is provided with a scraper plow of the kind illustrated in Figs. 8, 9 and 10, the operation is substantially the same except that instead of being thrust into the pile of material the gathering mechanism is moved back and forth in an arc at the foot of the pile, the boom being set at different angles to move further into the pile as the operation progresses.

In Figs. 11 and 12 I have shown a construction somewhat similar to that shown in Fig. 5, but the construction of the frame is somewhat different. In this case belt T' is for the most part inclined, having only a short outer end portion arranged at an angle to the main portion of said auxiliary belt. In this case also the frame T is supported at its inner end by the frame H^2 and the belt T' overlaps the belt H^3 and delivers directly thereto.

It will be observed that in each case I preferably employ a plow at the outer end of the boom conveyer which delivers to an auxiliary conveyer in turn delivering to the belt of the boom conveyer. It will also be observed that the outer end of the boom conveyer is in each case provided with supporting rollers or wheels such as the swivel wheels S.

It will be understood that the boom may operate on either side of the main conveyer

belt and is always set at an angle when operating upon a pile of material. It may be moved forward to collect material from the pile, then moved backward, set at another angle and then moved forward again. In this way the slope of the pile is gradually reduced and the material is delivered to the main conveyer belt which carries it to its destination.

I claim as my invention:

1. Apparatus for reclaiming and conveying material, comprising a main conveyer belt, a truck mounted to move parallel therewith, a boom conveyer mounted on the truck, means for conveying material from the main conveyer belt to said boom conveyer, means carried by the boom conveyer for gathering material, and means for conveying material from the boom conveyer to the main conveyer belt.

2. Apparatus for reclaiming and conveying material, comprising a main conveyer belt, a truck mounted to move parallel therewith, a boom conveyer supported on the truck and mounted to move relatively thereto about a vertical axis, means for conveying material from the main conveyer belt to the boom conveyer, gathering mechanism carried by the boom conveyer, and means for conducting material gathered by the boom conveyer to the main conveyer belt.

3. Apparatus for reclaiming and conveying material, comprising a main conveyer belt, a truck mounted to move parallel therewith, a boom conveyer supported by the truck, gathering devices carried by the outer end of the boom and delivering to said boom conveyer, a tripper interposed in the main conveyer belt, a hopper to which it delivers, another pivotally mounted hopper which receives material from said first mentioned hopper and through which material is delivered to the boom conveyer, a hopper delivering to the main conveyer belt, and means for changing the position of the hopper which delivers to the boom conveyer so that it may be removed from the path of material carried by the boom conveyer toward the main conveyer belt.

4. Apparatus for reclaiming and conveying material, comprising a main conveyer belt, a truck mounted to move parallel therewith, a turntable mounted on said truck, a boom conveyer carried by the turntable which receives material from the main conveyer and also delivers material thereto, means for pivotally mounting the boom conveyer to move about a horizontal axis, a plow at the outer end of the boom conveyer, an auxiliary conveyer receiving gathered material from the plow and delivering it to the boom conveyer, and means for delivering material from the boom conveyer to the main conveyer.

5. Apparatus for reclaiming and conveying material, comprising a main conveyer belt, a truck mounted to move parallel therewith, a boom mounted on the truck, a conveyer belt carried by said boom, means for conveying material from the main conveyer belt to said boom conveyer, means carried by the boom conveyer for gathering material, an auxiliary conveyer to which the gathering means deliver and which delivers to said boom conveyer, and means for conveying material from the boom conveyer to the main conveyer belt.

6. Apparatus for reclaiming and conveying material, comprising a main conveyer belt, a truck mounted to move parallel therewith, a boom mounted on the truck, a conveyer belt carried by the boom, means for conveying material from the main conveyer belt to said boom conveyer, means carried by the boom conveyer for gathering material, an auxiliary conveyer receiving material from the gathering means and delivering to said boom conveyer, a pivotally mounted hopper interposed between the auxiliary conveyer and the boom conveyer, and means for conveying material from the boom conveyer to the main conveyer belt.

7. Apparatus for reclaiming and conveying material, comprising a main conveyer belt, a truck mounted to move parallel therewith, a boom conveyer supported on the truck and mounted to move relatively thereto about horizontal and vertical axes, means for conveying material from the main conveyer belt to the boom conveyer, gathering mechanism carried by the boom conveyer, a hopper receiving the gathered material and delivering it to the boom conveyer, and means for changing the position of said hopper from a position to deliver to the boom conveyer to a position removed from the boom conveyer whereby the latter may freely deliver material supplied to it from the main conveyer.

8. Apparatus for receiving and delivering material, comprising a main conveyer belt, a pivotally mounted conveyer receiving material therefrom, and means for moving said last mentioned conveyer in opposite directions to deliver material received from said main conveyer belt to storage or to convey material and deliver it to said main conveyer belt.

9. Apparatus for reclaiming and conveying material, comprising a main conveyer belt, a pivotally mounted boom conveyer to which the main conveyer belt delivers, and means for conveying material received by the boom conveyer to the main conveyer belt.

10. Apparatus for reclaiming and conveying material, comprising a main conveyer belt, a truck mounted to move parallel therewith, a boom conveyer mounted on the truck, means for conveying material

from the main conveyer belt to said boom conveyer, and means for conveying material from the boom conveyer to the main conveyer belt.

11. Apparatus for reclaiming and conveying material, comprising a main conveyer belt provided with a tripper, a pivotally mounted boom conveyer to which said tripper delivers, means for driving said boom conveyer in opposite directions to convey material, and means for conveying material from the boom conveyer to the main conveyer belt.

In testimony whereof, I have hereunto subscribed my name.

FRANCIS LEE STUART.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."