

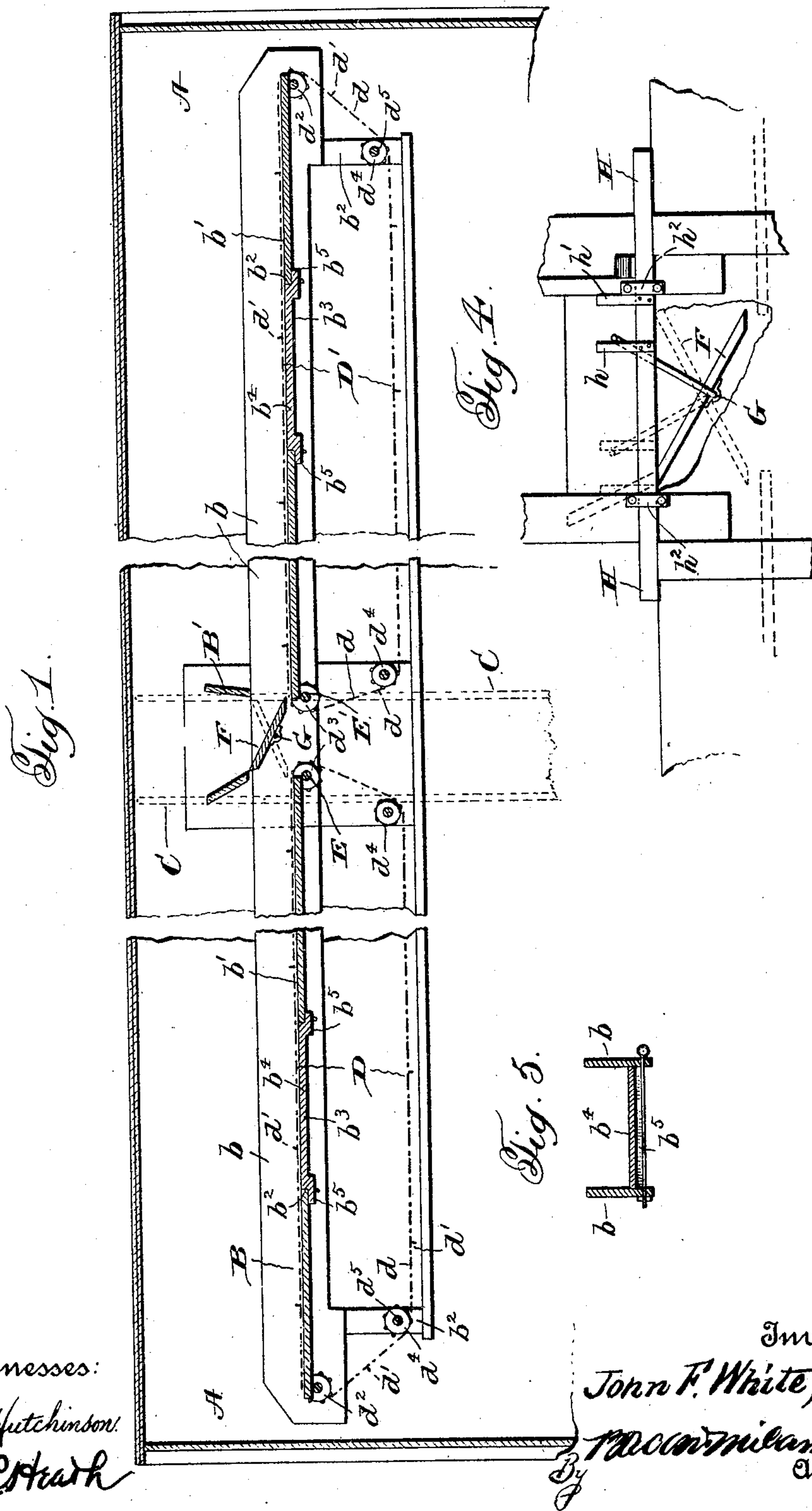
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PATENTED SEPT. 12, 1905.

J. F. WHITE.
GRAIN CONVEYER.

APPLICATION FILED DEC. 15, 1904.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

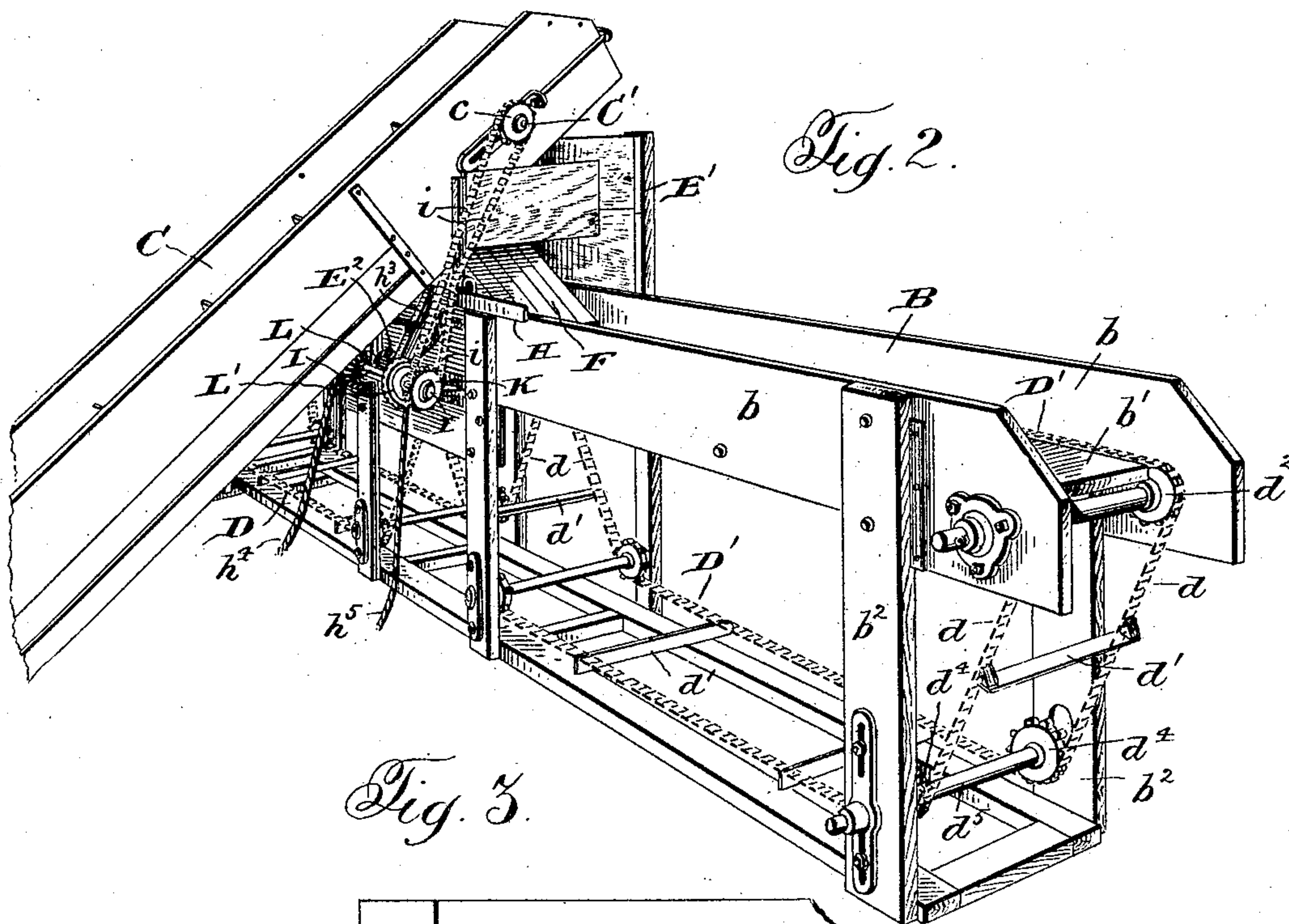
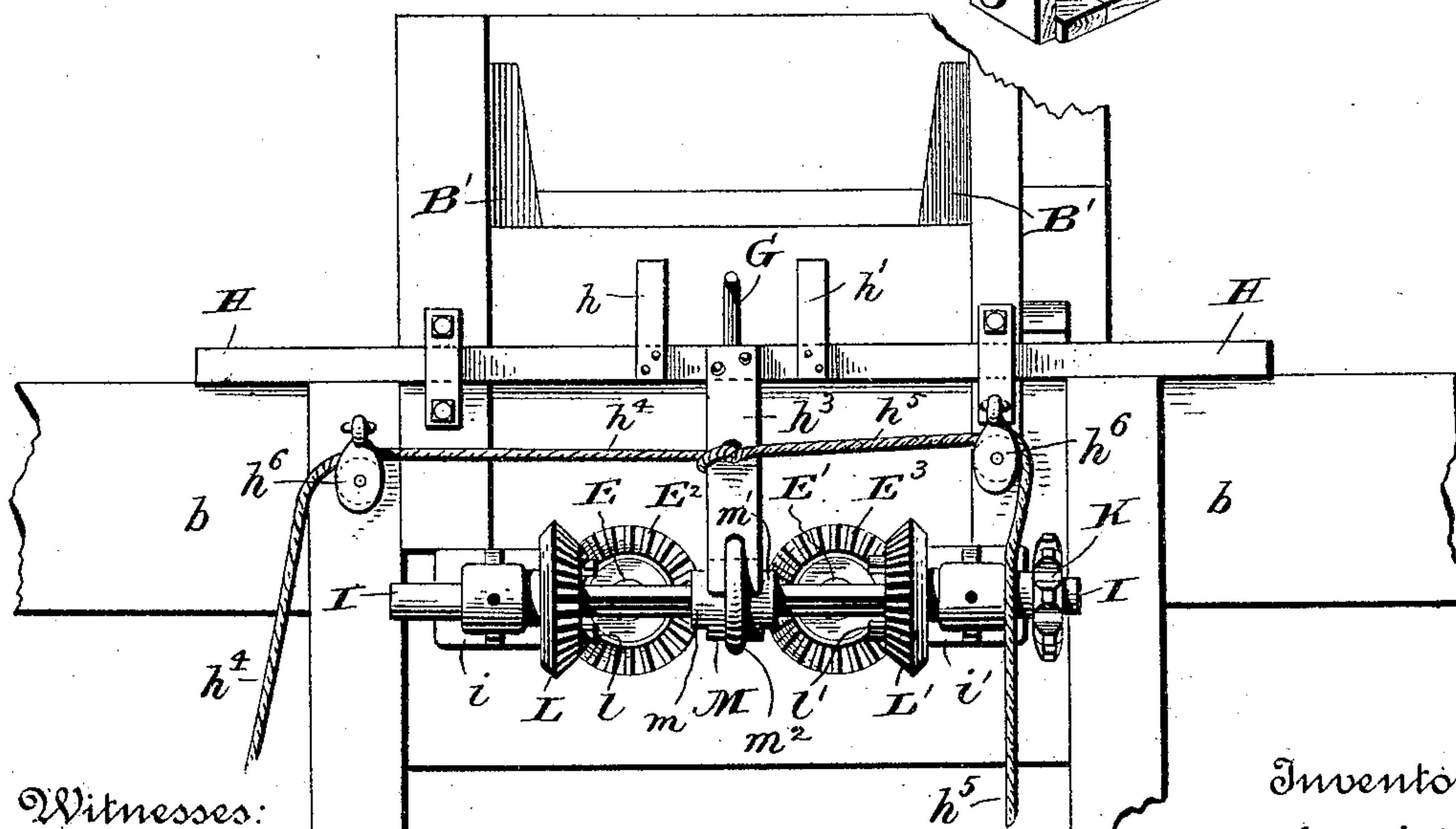


Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN F. WHITE, OF BLOOMINGTON, ILLINOIS.

GRAIN-CONVEYER.

No. 799,584.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN F. WHITE, a citizen of the United States, residing at Bloomington, in the county of McLean and State of Illinois, have invented certain new and useful Improvements in Grain-Conveyers, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to means for elevating grain and distributing it into barns, cribs, and the like. In the apparatus of this character heretofore in use, where the grain is delivered at a central point of the barn or crib, it has been proposed to install a shiftable conveyor in the barn or crib for the purpose of filling the entire interior of said barn or crib. In this form of apparatus the conveyor is first placed with one of its ends adjacent the delivery end of the means used to elevate the grain and its other end adjacent to one end of the barn. The conveyor is then actuated to cause the grain to travel from the delivery end of the elevator toward the end of the barn, and this movement of the conveyor is continued until one-half of the barn or crib has been filled with the grain. The conveyor is then shifted to the opposite end of the barn and the operation repeated. A construction of this character requires a great deal of complicated mechanism for shifting the conveyor, and it is to overcome this objection that the present invention has been designed, which, broadly stated, contemplates the use of a fixed conveyor mechanism supported in the top of a barn or crib and extending substantially the entire length thereof, means for delivering the grain to said conveyor mechanism at a point intermediate its ends, and means for actuating said conveyor mechanism to cause the grain to travel in either direction from its point of delivery, and means for effecting the discharge of grain at various points along the conveyor mechanism.

45 The invention, more specifically stated, comprises a conveyor-trough secured in the upper portion of a barn or crib and extending substantially the entire length thereof, an elevator adapted to deliver the grain to said conveyor-trough at a point intermediate its ends, fixed conveyor mechanism coöperating with said conveyor-trough, and means for actuating said conveyor mechanism to cause the grain to travel in the conveyor-trough in either direction from the delivery-spout of the elevator.

In the drawings accompanying this specification, wherein a preferable embodiment of my invention is shown, and wherein like letters of reference refer to similar parts in the several views, Figure 1 is a longitudinal section of a barn or crib, showing the conveyor-trough and the conveyor mechanism for causing the grain to travel in either direction in said trough from its point of delivery. Fig. 2 is a perspective view of a portion of the conveyor-trough, conveyor mechanism, and the elevator for delivering the grain thereto. Fig. 3 is a detail view showing the gearing for actuating the conveyor mechanism. Fig. 4 is a detail view of the pivoted gate and the mechanism for actuating the same; and Fig. 5 is a transverse section through the conveyor-trough, showing one of the removable gates secured therein.

Referring more particularly to the drawings, A designates the upper portion of a barn or crib, adapted for the storage of grain. B designates a conveyor-trough having the sides *b b* and the substantially flat bottom *b'*, secured in the upper portion of said barn or crib and extending substantially the entire length of said barn or crib, but terminating short of the ends thereof.

B' designates an open-ended hopper secured above the central portion of the conveyor-trough B, and C designates an elevator, the delivery end of which projects through the side of the barn or crib and is adapted to deliver the grain to the hopper B'. The elevator C is of any suitable type and can be driven in any suitable manner, and as it forms no part of my invention I have deemed it unnecessary to fully illustrate the same. The upper shaft C' of the elevator projects without the sides of the elevator-casing and has keyed thereto a sprocket-wheel *c* for a purpose to be hereinafter more particularly set forth. The grain is caused to travel in either direction in the conveyor-trough from its point of delivery by a pair of conveyers D and D', which extend from the central portion of the conveyor-trough to the opposite ends of the same and which are designed to be driven in different directions. Each of the conveyers D and D' consists, preferably, of a pair of endless chains *d*, connected at intervals by the flights *d'*. The upper stretches of the conveyers D and D' are adapted to travel over the bottom *b'* of the conveyor-trough B, so that the flights *d'* will cause the travel of any grain dumped in the trough.

The upper stretches of the conveyers D and D' are supported upon sprocket-wheels d^2 , secured to the sides b at the ends of the conveyer-trough B, and sprocket-wheels d^3 , secured to the sides of the conveyer-trough B and underlying the hopper B'. The portion of the bottom b' of the conveyer-trough between the sprocket-wheels d^3 , which support the inner ends of the conveyers D and D', is cut away to permit the passage therethrough of said conveyers. The lower stretches of the conveyers D and D' are supported upon sprocket-wheels d^4 , secured to shafts d^5 , which are journaled in depending standards b^2 , secured to the sides b of the conveyer-trough B. One of the shafts d^5 of each of the conveyers is preferably made adjustable in the standards b^2 , so that the tension of the conveyer-belts may be regulated. The sprocket-wheels d^3 , which support the inner ends of the upper stretches of the conveyers D and D', are secured one pair to a shaft E and the other pair to a shaft E', which constitute the driving-shafts for the conveyers. The ends of said shafts project through the side of the conveyer-trough B, which is adjacent the elevator C, and have secured thereto the gear-wheels E^2 and E^3 for a purpose to be hereinafter more particularly set forth.

F designates a gate which is pivotally mounted between the sides b directly under the hopper B' and is designed to be tilted to connect said hopper with the portion of the trough which contains the conveyer D or with the portion of the trough which contains the conveyer D', accordingly as it is desired to distribute the grain to one side or the other of the barn. The gate F is fixedly secured to a rod G, which is journaled in the sides b of the conveyer-trough B. The end of the rod G adjacent the elevator C projects through the side b of the conveyer-trough and is bent upwardly to lie alongside of said side and then outwardly to project between a pair of upwardly-extending arms h and h' , secured to a bar H, mounted to slide horizontally in guides h^2 , secured to the side b of the conveyer-trough. From this construction it will be obvious that when the slide H is reciprocated the gate F will be tilted to connect the hopper with either the portion of the trough containing the conveyer D or the portion containing the conveyer D'.

I will now proceed to describe the means for actuating the conveyers D and D'.

I designates a horizontal shaft supported in brackets i , secured to the side b of the conveyer-trough B adjacent the elevator C.

K designates a sprocket-wheel secured to one end of the shaft I, which is connected by a chain i' with the sprocket-wheel c on the upper shaft C' of the elevator C, so that the shaft I will be continuously driven while the elevator is being operated.

L and L' designate a pair of bevel-gears

loosely mounted on the shaft I and meshing with opposite sides of the gear-wheels E^2 and E^3 , secured to the projecting ends of the drive-shafts E and E' of the conveyers D and D', whereby said conveyers will be driven in opposite directions when the gear-wheels L and L' are clutched to the shaft I. The gear-wheels L and L' have formed on their inner faces clutch-faces l and l' .

M is a clutch-sleeve splined on the shaft I and provided with the clutch-faces m and m' , adapted to engage, respectively, the clutch-faces l and l' on the gear-wheels L and L' to cause either of said gear-wheels to rotate with the shaft I. The clutch member M is provided with an annular portion m^2 , which is adapted to be engaged by the bifurcated end of an arm h^3 , depending from the sliding bar H. The sliding bar H is given a reciprocatory movement in either direction by means of ropes h^4 and h^5 , the inner ends of which are secured to the depending arm h^3 and the outer ends of which extend in opposite directions from the arm h^3 and over pulleys h^6 , and from thence downwardly to any point accessible to the hand of the operator.

The operation of the device as thus far described is as follows: The elevator C is first started. The operator then pulls upon the rope h^4 , which causes the bar H to slide to the left, which causes the arm h' to abut against the outwardly-bent portion of the rod G, thereby causing the gate F to tilt and connect the hopper B' with that portion of the conveyer-trough containing the conveyer D. Simultaneously with the tilting of the gate F the clutch member M is brought into engagement with the pulley L to cause the same to rotate with the shaft I and through the gear-wheel E' and drive-shaft E to drive the conveyer D toward the left. The parts are left in this position until the left-hand side of the barn or crib is filled. The rope h^5 is then pulled, which first causes the conveyer D to cease to operate and then connects the hopper B' with the portion of the conveyer-trough containing the conveyer D' and simultaneously causes said conveyer D' to run to the right. The parts are left in this position until the right-hand side of the barn is filled, when the ropes h^4 and h^5 are adjusted to bring the clutch member M to a central position, so that neither of the conveyers D and D' will be operated.

In my device as thus far described the only point of discharge for the grain is at the ends of the conveyer-trough B. It has been found desirable, however, to provide means for discharging the grain from various points of the conveyer-trough. I have therefore provided the bottom b' of the conveyer-trough B with a plurality of openings b^3 , which are normally closed by gates b^3 , the inner faces of said gates being flush with the bottom b' of the conveyer-trough B, so as not to interfere with the running of the conveyers therein. Each

of the gates b^3 comprises a body portion b^4 of the same thickness as the bottom b' of the conveyer-trough and of a size to snugly fit the opening b^2 therein and end pieces b^5 , secured to the under side of the body portion b^4 at its ends and projecting beyond the ends thereof, so as to underlie the portions of the bottom b' adjacent the opening b^2 when the gates are secured in position. The gates are removably secured in position by means of rods which pass through the sides b of the conveyer-trough and engage the under side of the end pieces b^5 . In practice the gates are all first secured in position, and the only discharge is at the end of the trough. As soon as the end of the barn is filled, however, the gate next adjacent the end is removed, and so on until all of the gates are removed. By this means the entire body of the barn or crib can be filled. If desired, detachable chutes of any suitable type may be attached to the conveyer-trough B to conduct the grain from the openings b^2 to either side of the barn or crib.

I do not desire to limit myself to the precise form and construction shown in the drawings, as it is obvious that many minor changes may be made without departing from the spirit of the invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In an apparatus of the character described, fixed conveyer mechanism secured in the upper portion of a barn or crib and extending substantially the entire length thereof, means for delivering grain to said conveyer mechanism intermediate its ends, means for actuating said conveyer mechanism to cause the grain to travel in either direction from its point of delivery, and means for effecting the discharge of the grain at various points along the conveyer mechanism.

2. In an apparatus of the character described, conveyer mechanism secured in the upper portion of a barn or crib and extending substantially the entire length thereof, an elevator arranged to deliver grain to said conveyer mechanism intermediate its ends, gearing connecting the elevator and the conveyer mechanism, and means for actuating said conveyer mechanism to cause the grain to travel in either direction from its point of delivery.

3. In an apparatus of the character described, a conveyer-trough secured in the upper portion of a barn or crib and extending substantially the entire length thereof, fixed conveyer mechanism associated with said trough, means for delivering grain to the trough intermediate its ends, and means for actuating the conveyer mechanism to cause the grain to travel in the trough in either direction from its point of delivery.

4. In an apparatus of the character described, a conveyer-trough secured in the upper portion of a barn or crib, conveyer

mechanism associated with said trough, means for delivering grain to the trough intermediate its ends, means for actuating the conveyer mechanism to cause the grain to travel in the trough in either direction from its point of delivery, and means for effecting the discharge of the grain at various points of the trough.

5. In an apparatus of the character described, a conveyer-trough secured in the upper portion of a barn or crib, conveyer mechanism associated with said trough, means for delivering grain to the trough intermediate its ends, means for actuating the conveyer mechanism to cause the grain to travel in the trough in either direction from its point of delivery, and a plurality of removable gates secured in the bottom of said trough.

6. In an apparatus of the character described, a pair of conveyers secured in the upper portion of a barn or crib, an elevator, means for connecting the discharge-spout of said elevator with either of said conveyers, and means for driving said conveyers independently in opposite directions.

7. In an apparatus of the character described, a pair of conveyers secured in the upper portion of a barn or crib and adapted to be driven in opposite directions, an elevator, means for connecting the delivery-spout of said elevator with either of said conveyers, and means for simultaneously causing the conveyer connected to the elevator to run with the elevator.

8. In an apparatus of the character described, a pair of conveyers secured in the upper portion of a barn or crib and adapted to be driven in opposite directions, an elevator, a pivoted gate adapted to connect the delivery-spout of the elevator with either of said conveyers, means for operating said gate, and means actuated by the gate-operating means for causing the conveyer connected to the delivery-spout of the elevator to run with the elevator.

9. In an apparatus of the character described, a pair of conveyers secured in the upper portion of a barn or crib and adapted to be driven in opposite directions, an elevator, means for connecting the delivery-spout of said elevator with either of said conveyers, and means for effecting the discharge of the grain at various points of said conveyers.

10. In an apparatus of the character described, a delivery-trough secured in the upper portion of a barn or crib, a pair of conveyers associated with said trough means for driving said conveyers independently in different directions, an elevator, and means for connecting the delivery-spout of the elevator with either of said conveyers.

11. In an apparatus of the character described, a conveyer-trough secured in the upper portion of a barn or crib, a pair of conveyers associated with said conveyer-trough

and adapted to be driven in opposite directions, an elevator, means for connecting the delivery-spout of the elevator with either of said conveyers, and means for causing the
5 conveyer connected to the delivery-spout of the elevator to run with the elevator.

12. In an apparatus of the character described, a conveyer-trough secured in the upper portion of a barn or crib, a pair of conveyers associated with said trough and adapted to be driven in different directions, an elevator, a movable gate adapted to connect the delivery-spout of the elevator with either of said conveyers, means for operating said gate,
15 and means actuated by said gate-operating means for causing the conveyer connected with the elevator-spout to run with the elevator.

13. In an apparatus of the character described, a conveyer-trough secured in the upper portion of a barn or crib, a pair of conveyers associated with said trough, gearing for driving said conveyers in opposite directions, an elevator, gearing for said elevator, means for connecting the elevator-spout with
20 either of said conveyers, and means for simultaneously connecting the driving-gear of the conveyer connected to the elevator-spout with the elevator-gearing.

14. In an apparatus of the character described, a conveyer-trough secured in the upper portion of a barn or crib, a pair of conveyers associated with said conveyer-trough, gearing for driving said conveyers in opposite directions, an elevator, a movable gate adapted to connect the discharge-spout of said elevator with either of said conveyers, means for operating said gate, and means actuated by said gate-operating means for connecting the driving-gear of the conveyer connected to the
35 discharge-spout of the elevator with the elevator-gearing.

15. In an apparatus of the character described, a conveyer-trough secured in the upper part of a barn or crib, a pair of conveyers

associated with said conveyer-trough, gearing 45 for driving said conveyers in opposite directions, an elevator, gearing for said elevator, a movable gate adapted to connect the delivery-spout of said elevator with either of said conveyers, and a single means for operating 50 said gate and for connecting the gearing of the conveyer connected with the delivery-spout of the elevator with the elevator-gearing.

16. In an apparatus of the character described, a conveyer-trough secured in the upper part of a barn or crib, a pair of endless conveyers arranged end to end in said trough, drive-shafts at the adjacent ends of said conveyers projecting without the conveyer-trough, gear-wheels secured to the projecting ends of said drive-shafts, a horizontal shaft supported in journals secured to the side of the conveyer-trough, a pair of gear-wheels loosely mounted on said horizontal shaft meshing 65 with the gear-wheels on the elevator drive-shafts and adapted to drive the same in opposite directions when clutched to the horizontal shaft, a clutch member splined on said horizontal shaft between said gears, an elevator, gearing between said elevator and said horizontal shaft, a movable gate adapted to connect said elevator with either of said conveyers, means for operating said gate, and a connection between said gate-operating means 75 and said clutch member, whereby when the gate-operating means is actuated to connect the delivery-spout of the elevator with one of said conveyers, the clutch member will be moved to clutch the gear-wheel meshing with 80 the drive-shaft of the conveyer so connected to the horizontal shaft.

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

JOHN F. WHITE.

Witnesses:

G. B. READ,

R. A. FRY.