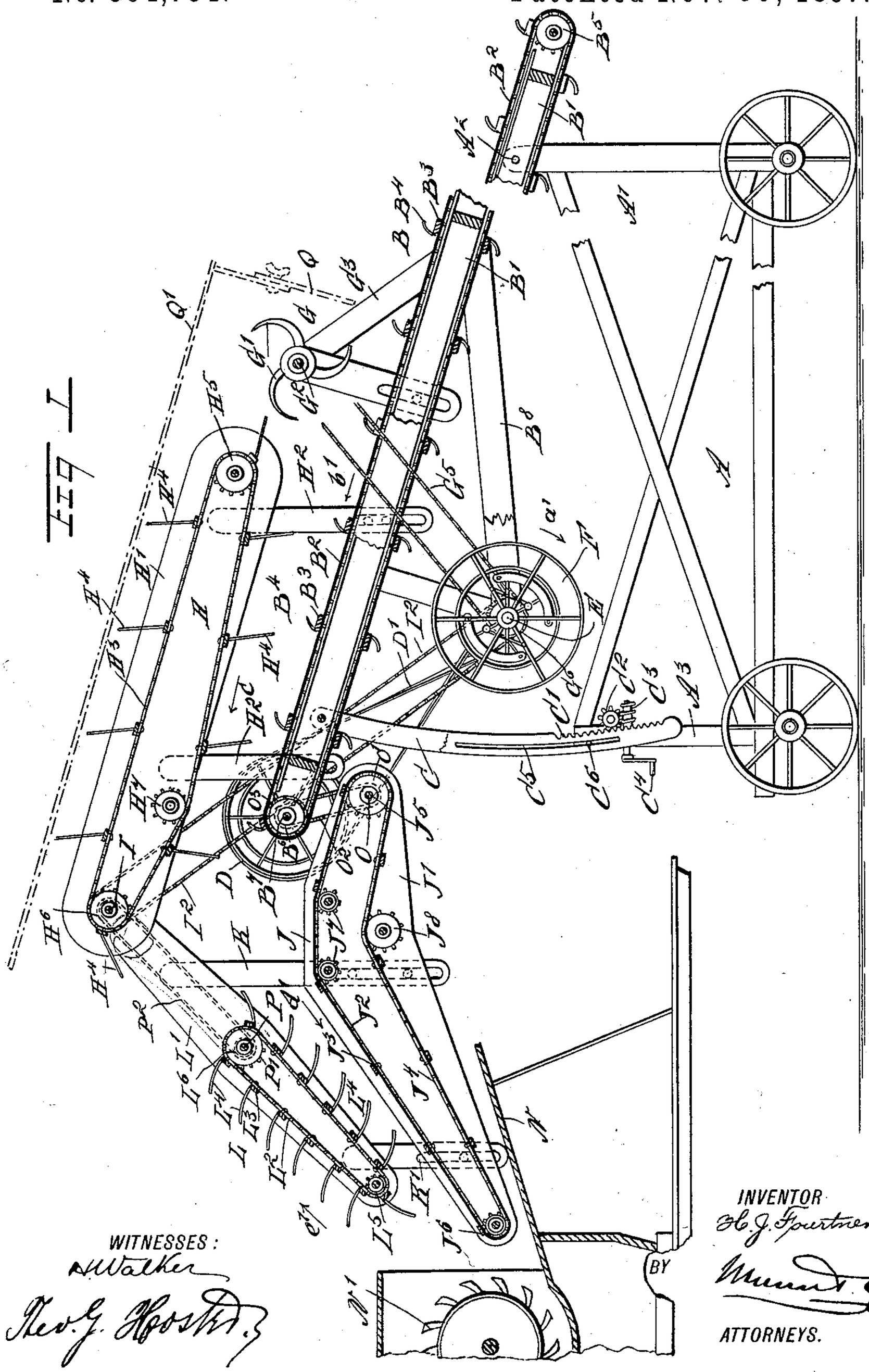
(No Model.) 2 Sheets—Sheet 1.

H. J. FOURTNER.

BAND CUTTER AND SELF FEEDER.

No. 594,784. Patented Nov. 30, 1897.

FIG. 1.



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(No Model.) 2 Sheets—Sheet 2.

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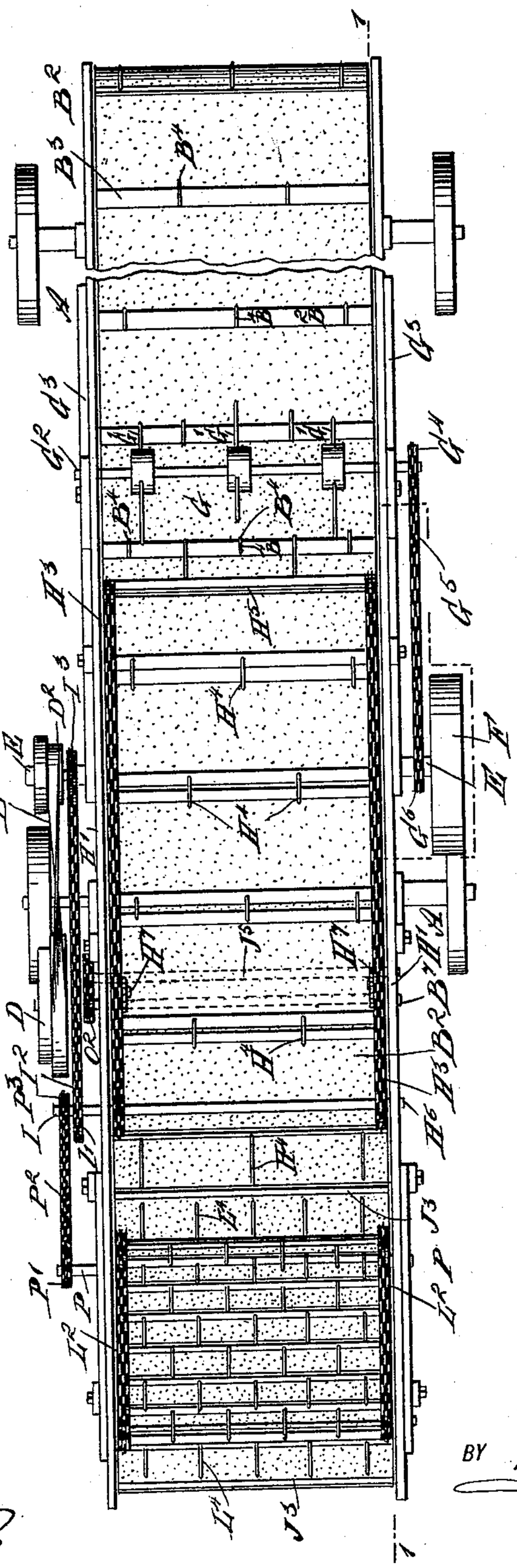
FIG 2



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UNITED STATES PATENT OFFICE.

HENRY J. FOURTNER, OF HAZELTON, IOWA.

BAND-CUTTER AND SELF-FEEDER.

SPECIFICATION forming part of Letters Patent No. 594,784, dated November 30, 1897.

Application filed February 24, 1897. Serial No. 624,752. (No model.)

To all whom it may concern:

Be it known that I, HENRY J. FOURTNER, of Hazelton, in the county of Buchanan and State of Iowa, have invented a new and Improved Band-Cutter and Self-Feeder, of which the following is a full, clear, and exact description.

The invention relates to threshing-machines; and its object is to provide a new and improved band-cutter and self-feeder which is simple and durable in construction, readily applied to any threshing-machine, and arranged to feed the grain in regular quantities corresponding to the capacity of the threshing-machine, so as to prevent overfeeding, and consequently bad threshing of the grain, as is frequently experienced in machines of the same class as heretofore constructed.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both figures.

Figure 1 is a sectional side elevation of the improvement on the line 1 1 of Fig. 2, and Fig. 2 is a plan view of the same.

The improved band-cutter and feeder is mounted on a wheeled vehicle A, provided at its rear end with a standard A′, on which is pivoted at A^2 the frame B′ of a conveyer B, pivotally connected near its front end with segmental links C, formed with rack-teeth C′, in mesh with the pinion C^2, journaled on the front standard A^3 of the vehicle A. A worm C^3 engages the pinion C^2 and is likewise journaled on the standard A^3 and provided with a handle or a crank-arm C^4 to permit the operator to turn the said worm C^3 and pinion to impart an up-and-down motion to the link C to swing the conveyer up or down, according to the height of the threshing-machine on which the device is to be used. Each link C is formed with a suitable segmental slot C^5, engaging a pin C^6 on the standard A^3 to guide the said link in its up-and-down movement and to hold its rack-teeth C′ in mesh with the pinion C^2. The conveyer B is provided with the usual belt B^2, carrying transversely-extending slats B^3, supporting curved prongs B^4 to prevent the grain from sliding down the belt when in an inclined position and to allow of spreading the grain over the belt in a thin layer, as hereinafter more fully described.

The belt is provided with the usual sprocket-chains, passing over the pulleys B^5 B^6, journaled in the ends of the frame B′. On the shaft B^7 of the sprocket-wheel B^6 is secured a pulley D, connected by a cross-belt D′ with a pulley D^2, secured on one end of the driving-shaft E, journaled in a suitable bracket B^8, carried by the frame B′ of the conveyer B, the said bracket extending downwardly, so that the shaft E extends transversely under the conveyer, as plainly illustrated in Fig. 1.

On the shaft E is held a friction governor-pulley F of any approved construction and connected by a belt with a pulley on one of the driving-shafts of the threshing-machine, so that when the latter is set in motion a rotary motion is given to the said friction governor-pulley F and by the latter to the shaft E, so that the rotary motion of the latter in the direction of the arrow a' is transmitted by the pulleys D^2 D and the cross-belt D′ to the shaft B^7 to impart a traveling motion to the conveyer-belt B^2 in the direction of the arrow b'.

The grain is fed upon the slat belt B^2 near the outer end thereof at the sprocket-wheel B^5, so that the grain is carried upward and forward and is finally brought under the band-cutter G, formed with sets of curved knives G′, secured to a transversely-extending shaft G^2, journaled in brackets G^3, held adjustably on the frame B′ of the conveyer, so as to bring the cutters G′ nearer to or farther from the belt B^2 to cut the bands of the sheaves of grain of different thickness. On the shaft G^2 is secured a sprocket-wheel G^4, over which passes a sprocket-chain G^5, also passing over a sprocket-wheel G^6, secured on the main driving-shaft E, previously mentioned, so that when the said shaft is rotated the rotary motion is transmitted to the shaft G^2 by the said sprocket-chain G^5 on the sprocket-wheels G^6 and G^4. As the sheaves of grain pass under the band-cutter the cutters G′ thereof cut the bands to permit the sheaves to open and spread on the belt B^2, and in order to form a very thin layer of grain on the belt before the

grain is discharged therefrom I provide a spreader H, arranged over the upper portion of the conveyer B, as plainly indicated in Fig. 1. This spreader H is provided with a suitably-constructed frame H′, mounted on arms H^2, held vertically adjustable on the conveyer-frame B′. The spreader H is provided with sprocket-chains H^3, carrying transversely-extending slats supporting spreader-arms H^4, traveling in the direction of the arrow *c* and at a higher rate of speed than the prongs B^4, so that the said spreader-arms H^4 spread the grain in a thin layer on the upper portion of the belt B^2. The sprocket-chains H^3 pass over the sprocket-wheels H^5 and H^6, journaled in the ends of the frame H′, and the sprocket-wheels H^6 are secured on a transversely-extending shaft I, provided at one outer end with a sprocket-wheel I′, over which passes a sprocket-chain I^2, also passing over a sprocket-wheel I^3, secured on the main driving-shaft E, so that when the latter is rotated a rotary motion is transmitted by the said sprocket-wheels I^3 I′ and the chain I^2 to the shaft I, so that the sprocket-chains H^3 are caused to travel in the direction of the arrow *c* to move the arms H^4 in the same direction. The grain formed in a thin layer at the upper end of the belt B^2 by the spreader H, as described, is finally discharged upon a delivery slat belt J, having a frame J′ held adjustably on arms K K′, depending from the frame L′ of the feeder L, as shown in the drawings. The lower ends of the arms K′ are adapted to rest on the feed-table N of the threshing-machine, so as to bring the forward end of the delivery slat belt J in close proximity to the beater N′ of the threshing-machine. The delivery slat belt J is provided with an apron J^2, supporting transverse slats J^3 and mounted on sprocket-chains J^4, passing over sprocket-wheels J^5 and J^6, journaled in the ends of the frame J′. The sprocket-wheels J^5 have their shafts O provided at one outer end with a sprocket-wheel O′, connected by a sprocket-chain O^2 with a sprocket-wheel O^3 on the shaft B^7, so that when the latter is rotated, as previously explained, a traveling motion is imparted to the apron J^2 in the direction of the arrow *d*′. The rear part of the apron J^2 extends under the upper end of the belt B^2 and is slightly inclined upwardly by passing over wheels J^7, the apron then extending downwardly and forwardly to the sprocket-wheels J^6, at which point the grain is finally delivered over the inner end of the feed-table N to the feeder N′ of the threshing-machine. The lower run of the apron J^2 passes over a tightening-pulley J^8, journaled in the frame J′, as indicated in Fig. 1. The feeder L, previously mentioned, is arranged over the downwardly-inclined forward portion of the apron J^2, and this feeder is provided with sprocket-chains L^2, carrying transversely-extending slats L^3, supporting prongs L^4 to prevent the grain from sliding down the apron J^2 and to deliver the grain in regular quantities to the feeder, so that a proper feeding of the grain takes place. The sprocket-chains L^2 of the feeder L pass over sprocket-wheels L^5 and L^6, journaled in the frame L′, the sprocket-wheels L^6 being secured on the shaft P, provided at one outer end with a sprocket-wheel P′, connected by a sprocket-chain P^2 with a sprocket-wheel P^3, secured on the shaft I of the spreader H, so that when the latter is set in motion, as before described, a traveling motion is given to the feeder L in the direction of the arrow *e*′—that is, the prongs L^4 move in the same direction at the lower run of the sprocket-chains L^2 as those of the upper run of the apron J^2.

In order to prevent two or more sheaves of grain passing at the same time to the cutter G, I provide a transversely-extending board Q over the belt B^2, and in the front of the cutters G′ this board Q is held vertically adjustable on a suitable frame or hood Q′, extending over the spreader H and the cutter G, so as to protect the same against the inclemency of the weather. (See Fig. 1.)

The operation is as follows: When the machine is to be used, the frame B′ of the conveyer B is swung up or down by the operator turning the crank-arm C^4, as before explained, so as to bring the arm K′ upon the top of the feed-table N of the threshing-machine, and consequently the device can be readily adjusted for threshing-machines of different construction and having their feed-tables N at different heights from the ground. When the several parts have been adjusted to bring the end of the apron J^2 close to the mouth of the feed-table N and the threshing-machine is started up, the several parts of the band-cutter and self-feeder are set in motion, as before explained. The sheaves of grain are fed upon the grain-conveyer belt B^2, as previously mentioned, so that the sheaves are carried forward and upward to the band-cutter G, which cuts the bands to permit the grain to spread, which is accomplished by the spreader-arms H^4 of the spreader H moving in contact with the grain and at a higher rate of speed than that of the grain carried forward by the belt B^2. The grain is thus spread in a thin layer and is discharged in this condition upon the apron J^2, which carries the grain forward to the prongs L^4, which travel in the same direction as the apron J^2, so that the grain is finally delivered at the lower end of the apron J^2 to the feeder of the threshing-machine.

Thus it is evident that by the arrangement described an overfeeding of the grain upon the threshing-machine is entirely prevented, and in case the threshing-machine should become clogged and consequently run slower the friction governor-pulley F will reduce the speed of the band-cutter and self-feeder accordingly, so that less grain is fed to the feeder.

In order to prevent the arms H^4 and their sprocket-chains H^5 from being pressed up-

ward at the lower run, I provide sprocket-wheels H^7, journaled in the frame H′ and located approximately above the sprocket-wheels B^6. By having the belt B^2 and apron J^2 form a continuous surface for the grain to rest on it is evident that loose grain cannot drop off the same and is carried forward into the threshing-machine to be separated from the chaff.

It is understood that the machine described is entirely separate and distinct from the threshing-machine and is only connected with the same when it is desired to automatically feed the grain to the feeder of the threshing-machine, as above described.

Thus by the arrangement described an operator is enabled by throwing off the driving-belt to stop the band-cutter and self-feeder at any time to feed grain by hand, if desired.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A device of the class described, comprising a conveyer-belt, a cutter above the conveyer-belt, a spreader-belt in front of the cutter and projecting over and beyond the inner end of the conveyer-belt, said spreader-belt running at a higher rate of speed than the conveyer-belt, a delivery-belt projecting under the conveyer-belt and receiving the grain therefrom, and a feeder-belt over the delivery-belt, substantially as described.

2. A device of the class described, comprising a conveyer-belt, a cutter above the conveyer-belt, a spreader-belt in front of the cutter and projecting over and beyond the inner end of the conveyer-belt, said spreader-belt running at a higher rate of speed than the said conveyer-belt, a delivery-belt inclined in both directions from a point at one side of the center, one of the ends of the said belt extending under the conveyer-belt, and an inclined feeder-belt arranged over the outer inclined portion of the said delivery-belt, substantially as described.

3. A device of the class described, comprising a supporting-frame, an adjustable conveyer-frame mounted on the said supporting-frame, a toothed conveyer-belt mounted in the said frame, a rotary cutter carried by the conveyer-frame above the conveyer-belt, a toothed spreader-belt adjustably supported on the conveyer-frame above the inner end of the conveyer-belt, a delivery-belt adapted to be supported on the feed-table of a threshing-machine, said belt having one end extending under the conveyer-belt, and a toothed feeder-belt supported above the delivery-belt, substantially as described.

4. In a device of the class described, the combination with a conveyer, a cutter, and a spreader, of a delivery-belt having one end extending under the conveyer, standards secured to the sides of the delivery-belt frame and adapted to support one end thereof on the feed-table of a threshing-machine and a feeder-belt having its supporting-frame secured to the upper ends of the standards of the delivery-belt, substantially as described.

5. A device of the class described provided with a wheeled vehicle, a conveyer having its frame pivoted on the said vehicle, means for swinging the said conveyer up or down, a spreader held vertically adjustable on the conveyer-frame and located directly above the same, a delivery slat belt, and a feeder having arms for carrying the said slat belt and adapted to rest on the feed-table of the threshing-machine, substantially as shown and described.

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