

984,353.

T. L. CUMMINGS.
WING CARRIER.
APPLICATION FILED MAR. 26, 1910.

Patented Feb. 14, 1911.
5 SHEETS—SHEET 1.

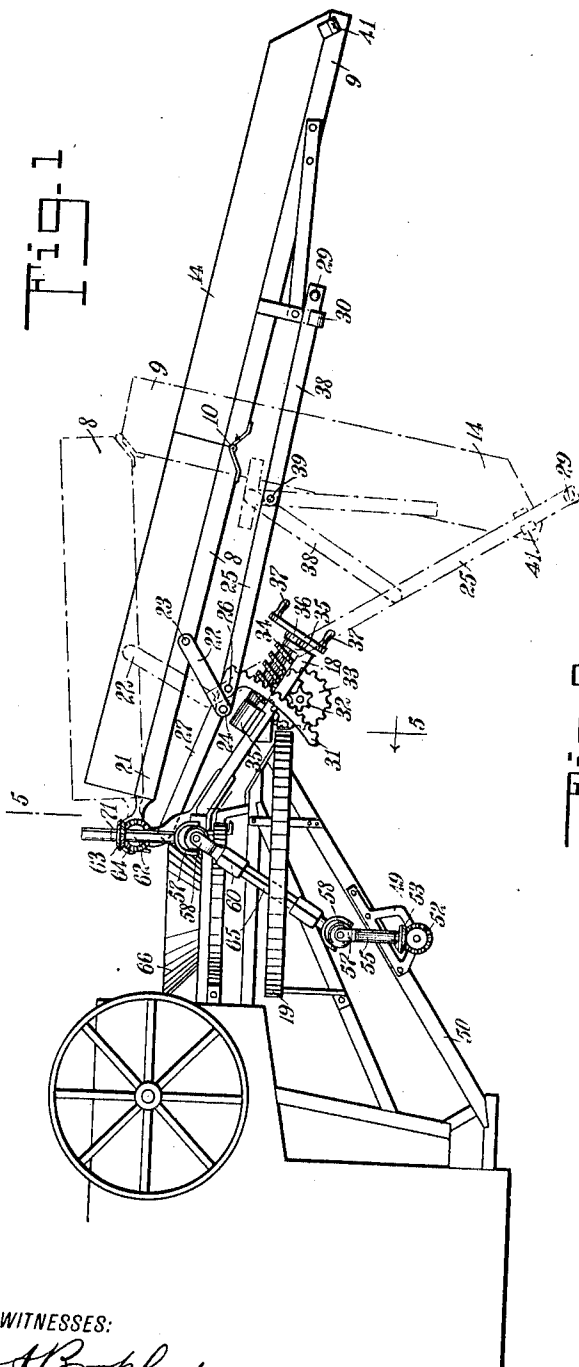
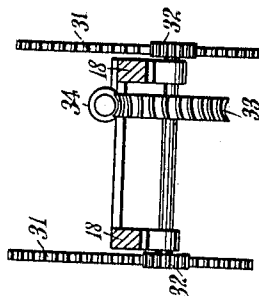


Fig. 1



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6 SHEETS—SHEET 2.

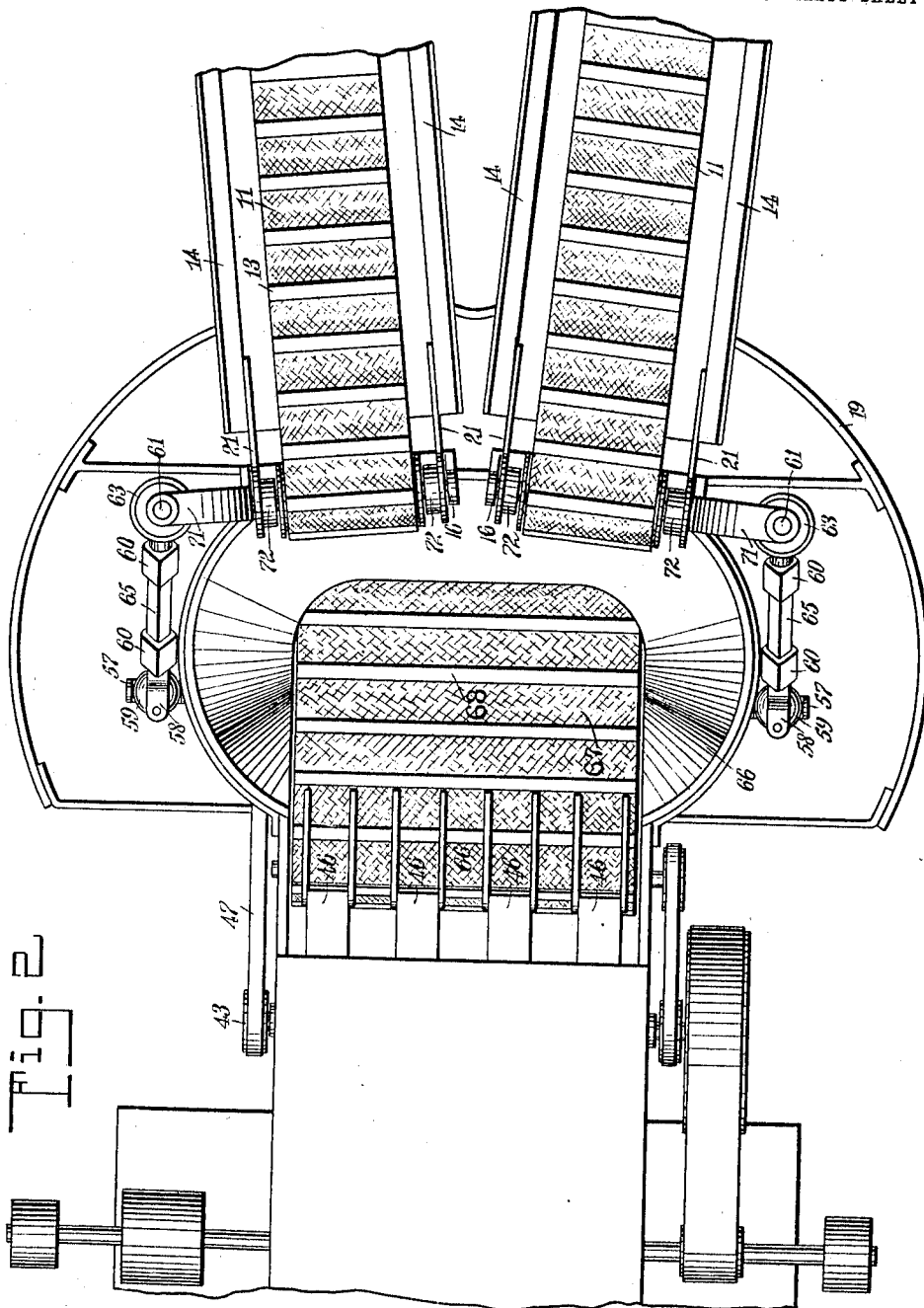


Fig. 2

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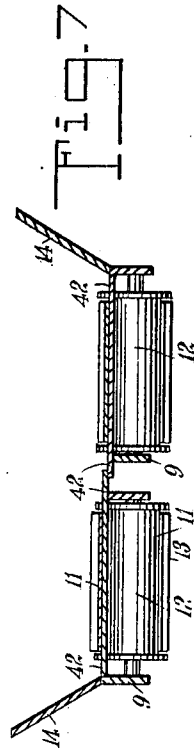
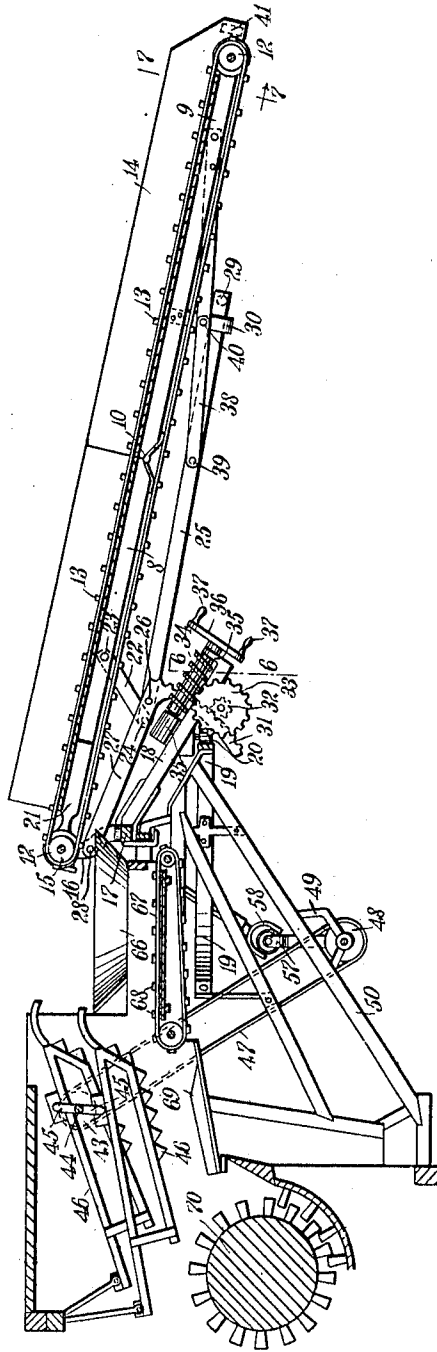
APPLICATION FILED MAR. 26, 1910.

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6 SHEETS—SHEET 3.

Fig. 3



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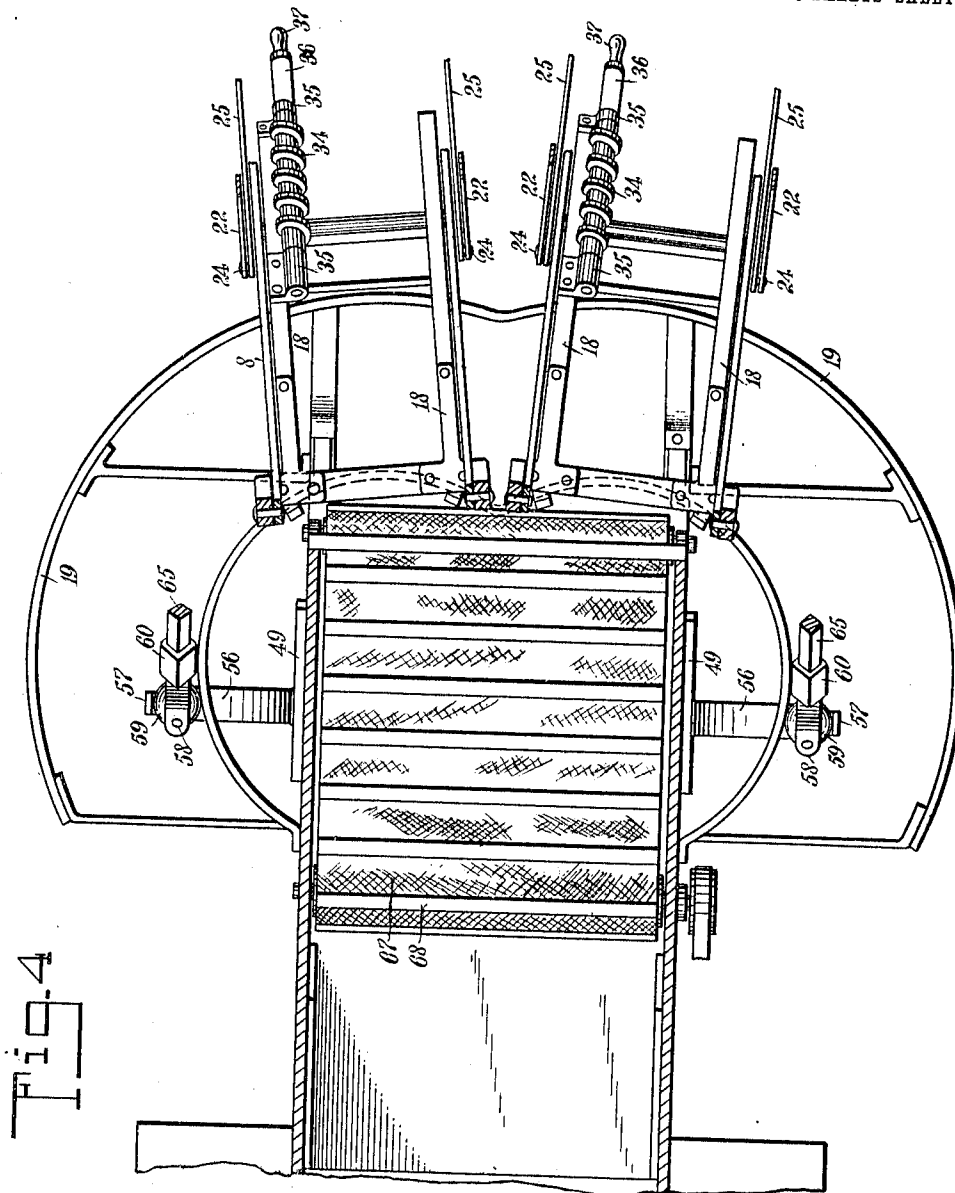
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984,353.

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5 SHEETS—SHEET 4.



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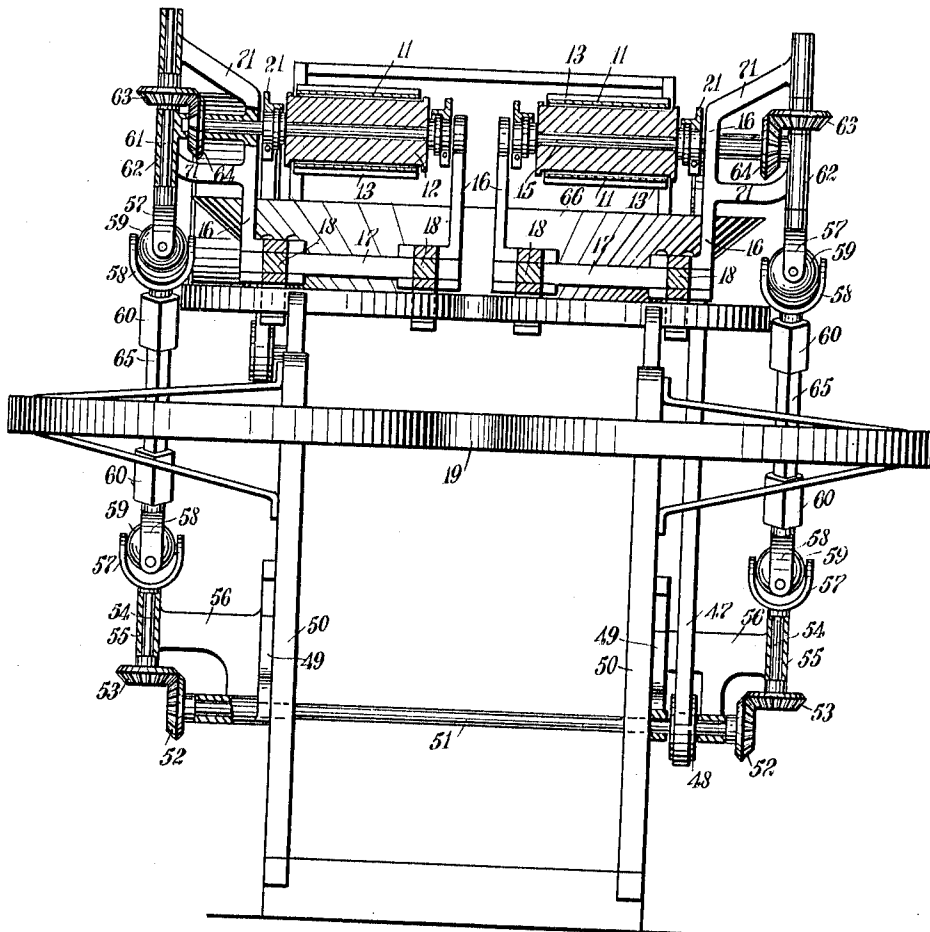
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APPLICATION FILED MAR. 26, 1910.

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6 SHEETS—SHEET 5.

Fig. 5



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UNITED STATES PATENT OFFICE.

THADDEUS L. CUMMINGS, OF SPENCER, IOWA.

WING-CARRIER.

984,353.

Specification of Letters Patent.

Patented Feb. 14, 1911.

Application filed March 26, 1910. Serial No. 551,639.

To all whom it may concern:

Be it known that I, THADDEUS L. CUMMINGS, a citizen of the United States, and a resident of Spencer, in the county of Clay and State of Iowa, have invented a new and Improved Wing-Carrier, of which the following is a full, clear, and exact description.

Among the principal objects which the present invention has in view are: to provide means for folding the carriers to nest upon the structure of the threshing machine to which they are applied; to provide means for varying the operative position of the carriers; to provide a driving mechanism for a plurality of carriers operable from a single source; to provide removable guide boards for carriers and means connected therewith for lapping a plurality of carriers to constitute a single conveyer; and to provide a transmission mechanism which is flexible and universal in form to accommodate variation in angular relation of the said carriers.

One embodiment of the present invention is disclosed in the structure illustrated in the accompanying drawings, in which like characters of reference denote corresponding parts in all the views, and in which—

Figure 1 is a side elevation of a carrier and operating mechanism therefor constructed and arranged in accordance with the present invention; Fig. 2 is a plan view of the receiving end of a threshing machine, showing in connection therewith carriers and transmission mechanism connected therewith constructed and arranged in accordance with the present invention; Fig. 3 is a longitudinal section of the carrier supporting frame, illustrating in conjunction therewith power transmitted operating mechanism; Fig. 4 is a plan view of a skeleton frame for carriers constructed and arranged in accordance with the present invention; Fig. 5 is a cross section taken on the line 5—5 in Fig. 1, illustrating the track for operating the carriers, and in section the mounting for the power transmission mechanism; Fig. 6 is a cross section taken on the line 6—6 in Fig. 3, illustrating the mechanism for varying the suspended angle of the carriers; and Fig. 7 is a cross section taken on the line 7—7 in Fig. 3, illustrating the combined relation of two carriers when operating as a single conveyer.

The present construction, in many respects, is an improvement on that illustrated

and described by me in Letters Patent of the United States, No. 834,195, granted to me under date of October 23, 1906.

In the present construction the carriers are formed in two sections 8 and 9. The sections 8 and 9 are hingedly connected at 10. When extended the sections 8 and 9 form a runway for a conveyer belt 11. The conveyer belt 11 is driven over rollers 12, 12, one of which is mounted at the extreme outer end of the section 9. The conveyer belt 11 is provided with a series of battens 13, 13. The sections 8 and 9 are each provided with side boards 14, 14, slightly flared, as shown in Fig. 2 of the drawings, and disposed in line so that the boards of the adjoining sections form uninterrupted side guides for the conveyance of the material being handled. The inner roller 12 is mounted upon a shaft 15, held in bearings in brackets 16. The brackets 16 are fixedly attached to a cross bar 17, from which is extended an arm 18. The arm 18 is supported by a circular track 19, being supported thereon by rollers 20. The arm 18, and the rollers 20, support the carriers and the sections 8 and 9 thereof, in conjunction with the shaft 15. The shafts 15 are provided with the sleeves 72, 72, over which are threaded the eyeleted ends of the straps, 21, 21. The straps 21 are fixedly attached to the sections 8, 8, of the carriers and form the hinge or pivot for elevating or lowering the outer end of the said sections 8 of the carriers.

The sections 8 of the carriers are provided with links 22. The links 22 are pivotally connected at 23 with the side boards of the section 8, and at 24 with a lever 25. The lever 25 is pivotally connected at 26 with an arm 27, which is pivotally mounted at 28 upon the bracket 16. Normally, the free end of the lever 25, which is provided with a hand-hole 29, rests within a hook 30. In this position, the weight of the carrier is received directly upon the link 22 and the arm 27. As long as the lever 25 rests in the hook 30, the disposition of the sections 8 and 9 of the carrier remains unchanged. The angle of extension and operation of the carrier is varied by raising or lowering the arm 27, and this is accomplished by providing a gear toothed segment 31, formed on the end of the said arm 27, and held in toothed engagement with a small pinion 32. The pinion 32 is fixedly mounted on a shaft which fixedly carries a larger pinion 33.

The pinion 33 is a worm wheel, and held in engagement with a worm 34 mounted on a shaft supported in bearings 35, 35 formed on the arm 18. The said shaft is provided with a hand wheel 36, having hand-holds 37, 37 by which the said wheel is manipulated. By rotating the shaft by means of the wheel 36 the pinion 32 is rotated, elevating or depressing the segment 31 and the arm 27, and link 22, together with the carrier or conveyer formed by the sections 8 and 9. When the lever 25 is raised out of engagement with the hook 30, the said lever may be lowered, swinging about the pivot 26. In this action on the part of the lever 25, the section 9 is rotated about the hinge 10, being connected to the lever 25 by a link 38, which is pivotally connected to the said lever at 39 and to the hook 30 at 40. The hook 30 is fixedly connected to the section 9. The section 9 thus swings about the hinge 10 until the hook 41, at the extreme outer end of the section 9, is brought into engagement with the said lever 25 when the said lever is placed in engagement therewith.

As above stated, the link 22 is pivotally connected to the lever 25, the distance between the pivotal connection 24 of the said link with the said lever and the pivotal connection 26, constituting the fulcrum of the said lever, forming a short lever extension. The operation of the lever in assuming the depressed position just above described not alone moves the section 9, but, by reason of the link 22, it raises the section 8. This double action is continued until in the position wherein the lever 25 is held in engagement with the hook 41, the sections 8 and 9 assuming the positions illustrated in Fig. 1 of the drawings by the broken line construction therein shown. If it be desired, the outer end of the section 9 may be drawn to a position more closely disposed with reference to the thresher frame, by manipulating the wheel 36 to raise the segment 31 and the link 22 and lever 25 connected therewith. Also, by causing the lever 25 to take a shorter hold on the hook 41 when thrown into proper position. In either position, however, it is obvious that the carriers are disposed in a manner to be more easily transported than if extended as heretofore arranged.

As shown in Figs. 2 and 4, the carriers are arranged to be disposed at various angles and to operate independently. It sometimes occurs, however, that the material being handled is not in bundles, but in loose and massed condition wherein it can be better handled by a wide conveyer than by being placed upon narrow carriers. To provide for this contingency, the side boards 14, 14 on the sides of the sections 8 and 9 of each carrier adjacent to the other carrier are made removable. When removed the plat-

forms 42, 42 of the carriers are overlaid in the manner shown in Fig. 7 of the drawings. When the carriers are thus arranged, it is obvious that the conveyer embodying both carriers will handle the loose material as delivered from a pitchfork or from grab hooks, better than if delivered upon a single, and necessarily, narrow conveyer.

The rollers 12, 12 are driven by a transmission mechanism, receiving power from a driven pulley 43 of the threshing machine driving mechanism. In the particular construction illustrated in the accompanying drawings, the pulley 43 is mounted on a shaft 44, from which are extended crank members 45, 45 to reciprocate saws 46, 46 employed to sever the bundle binders when the machine is employed in the handling of grain as bound in sheaves or bundles. The pulley 43 is connected by means of a belt 47 with a pulley 48. The pulley 48 is suspended in bearings formed in a bracket 49, which is mounted upon framing members 50, as shown in Figs. 3 and 5 of the drawings. The pulley is fixedly mounted upon a shaft 51, suitably mounted in the said bracket, and having at the ends thereof fixedly attached beveled gears 52, 52. The gears 52, 52 are meshed with companion gears 53, 53. The gears 53, 53 are fixedly attached to vertical shafts 54, 54 which are extended in bearing heads 55, 55 of brackets 56, 56 extended from the side of the brackets 49, 49. The upper ends of the shafts 54, 54 are each provided with a fixed yoke of a knuckle or universal connection formed by yokes 57 and 58 pivotally connected to a rocking member 59 to articulate in diametrically opposite directions. The yokes 58 are each provided with a hollow square extension 60. Similar vertical shafts 61, 61 are mounted in bearing heads 62, 62, mounted at the outer ends of laterally extended arms 71, 71 set out from and integrally formed with the outer brackets 16, 16. The shafts 61, 61 are provided with fixed beveled gears 63, 63 which are meshed in toothed engagement with companion gears 64, 64 fixedly mounted on the shafts 15 on each of the carriers with which the thresher is provided.

Similar figures of reference are employed for similar parts of the upper and lower universal connections.

The square extensions 60, 60 are joined by a square connecting rod 65, which forms a slip joint or connection between the two universal joints. This construction permits lineal extension of the transmission mechanism just described.

The operation of the transmission mechanism is obvious. The rotary action produced in the shaft 51 by the belt 47, is transmitted through the gears 53 and 53 to the universal joint 58 and 59, by the latter through the connecting rod 65 to the com-

panion universal joint at the upper end of the said rod 65, and thence to the shafts 61 and the gears 63 and 64 and to the rollers 12 fixedly mounted on the shaft 15.

5 The carriers formed by the sections 8 and 9 are each radially disposed with regard to the center of the circular track 19, and arranged to deliver the material, whether in loosened or bundled shape, through a hop-
 10 per 66 fixedly mounted on the frame of the thresher. The hopper 66 delivers directly upon a short endless belt 67, which is provided with advancing cleats 68, as shown in Figs. 3 and 4 of the drawings. The belt
 15 67 is properly driven to deliver material as received thereon, to a chute 69 interposed between the said belt and a flail roll 70 of the threshing machine. It is while the material is passing over the chute 69 that the
 20 binding member is severed, if the material is delivered in bundle form, by the saws 46, in the manner as above described.

Thus, it will be understood that carriers constructed from a plurality of hinged sections joined as 8 and 9, and as illustrated in the accompanying drawings, may be extended from a track-like supporting member 19 in varied lateral disposition. It will also be understood that the carriers may be
 25 brought side to side, the guide boards being removed at the joined edges to form a wide conveyer for handling material in loosened condition. It will be understood that the material so delivered by the narrow or
 30 widened conveyers, either in bundled or segregated condition, is delivered to the hopper 66, and by it disposed on the belt 67 to be passed under the reciprocated saws 46, 46, where, if the material is bound, the
 35 binding member is severed prior to the material being delivered to the flail roll 70 of the threshing machinery. It will also be understood that in all radial dispositions of the carriers, separately or collectively ar-

45 ranged, the transmission mechanism, embodying the lineally extended connecting rod 65 and sockets holding the same, accommodate such variation of position, so that the driving mechanism for the said carriers is constantly operated. 50

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

1. A longitudinally extensible wing carrier, comprising a plurality of pivotally 55 connected sections; a rocking lever fulcrumed upon the supporting structure for said carrier; links pivotally connecting said lever with said sections and on the opposite sides of the fulcrum of said lever; and lock- 60 ing devices for maintaining the said sections in extended relation.

2. A longitudinally extensible wing carrier, comprising a plurality of pivotally 65 connected sections; a rocking lever fulcrumed upon the supporting structure for said carrier; links pivotally connecting said lever with said sections and on the opposite sides of the fulcrum of said lever; and hooks 70 mounted on said sections to retain the said lever in fixed extended position and in fixed retracted position alternately.

3. A plurality of longitudinally extensible wing carriers, said carriers arranged to 75 overlap when extended in parallel relation to form a single conveyer; a supporting guide frame for said carriers arranged to dispose the said carriers in the said parallel relation; and suitable trucks mounted on 80 said frame for moving the said carriers.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

THADDEUS L. CUMMINGS.

Witnesses:

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E. I. LANDSTROM.