Jan. 6, 1953 A. L. DONOGH 2,624,482

CHAFF AND STRAW RECEIVER AND COCKER

Filed Feb. 27, 1951 2 SHEETS—SHEET 1

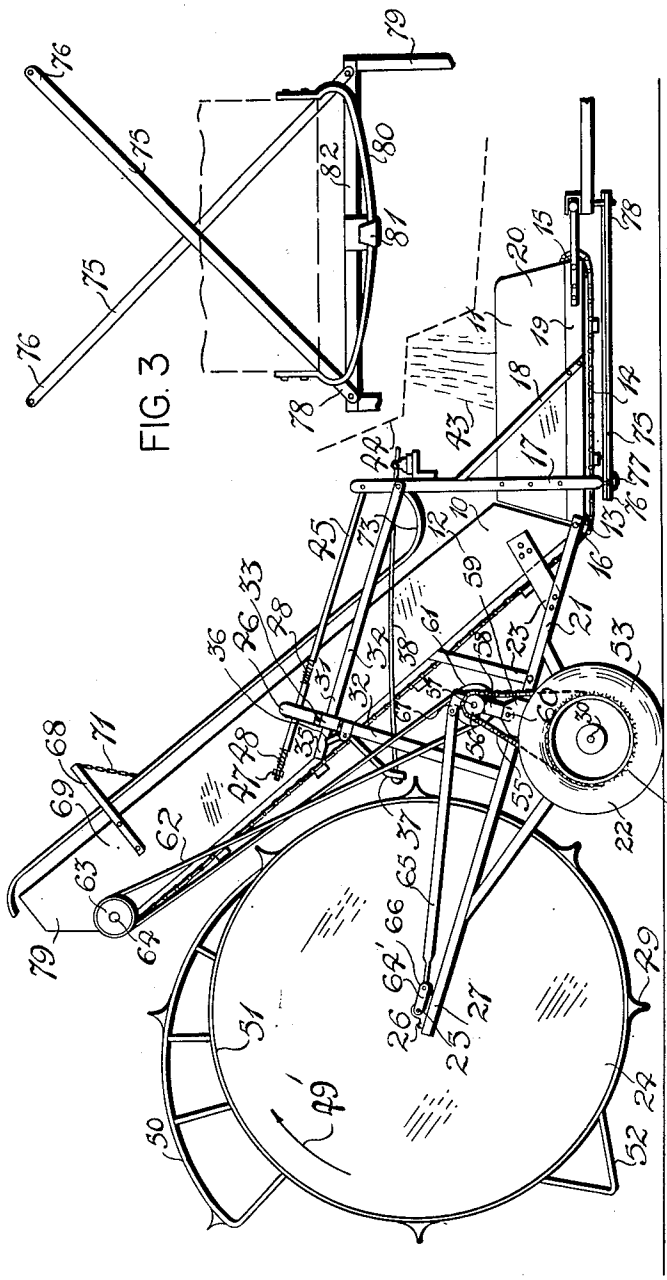

FIG. 1

FIG. 3

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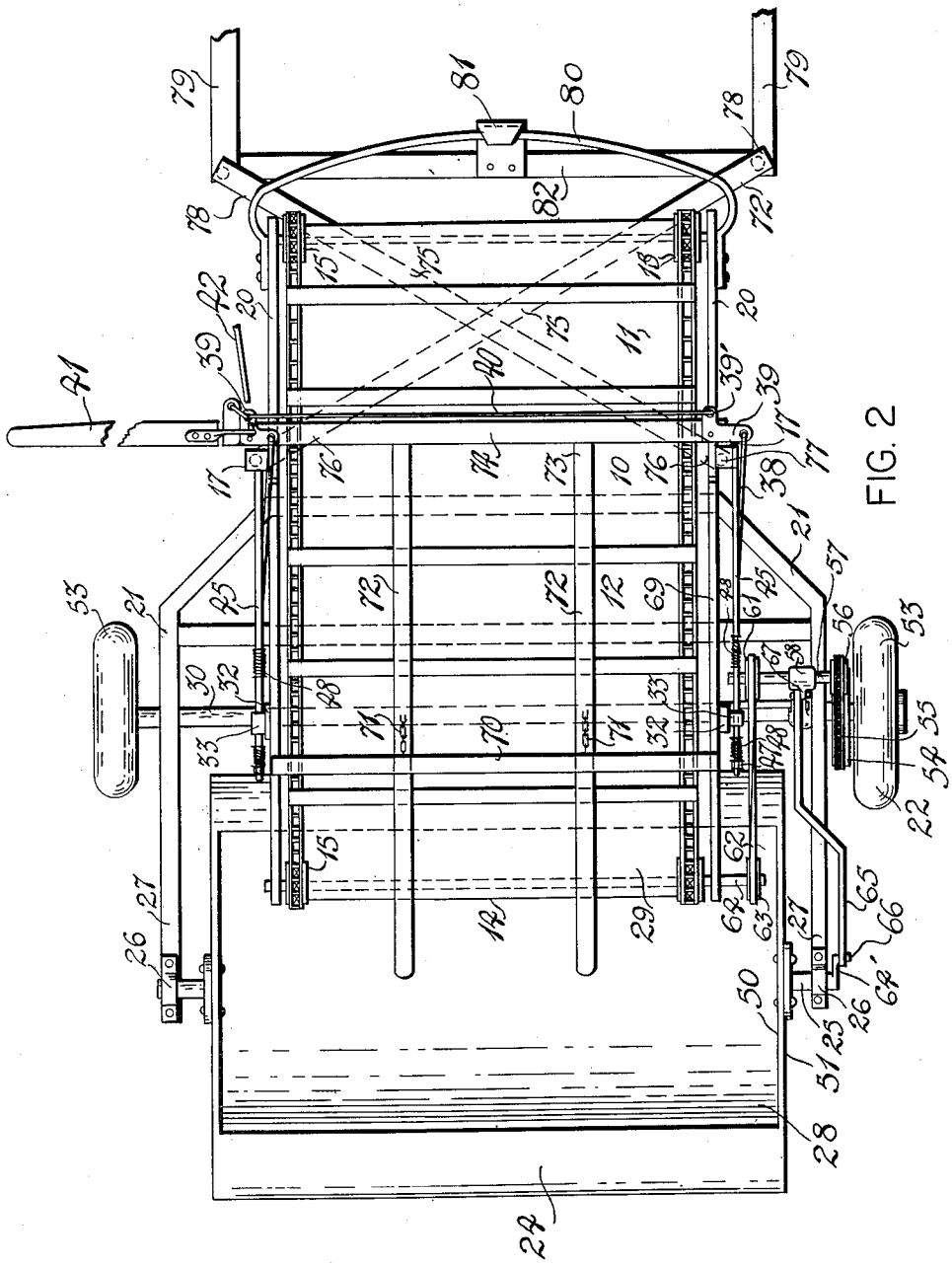

FIG. 2

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UNITED STATES PATENT OFFICE

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CHAFF AND STRAW RECEIVER AND COCKER

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Application February 27, 1951, Serial No. 212,856

3 Claims. (Cl. 214—353)

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My invention relates to new and useful improvements in chaff and straw receivers and cockers, more particularly to improvements to devices described in my United States Patent No. 2,482,160 dated September 20, 1949, an object of my invention being to provide a device of the character herewithin described whereby the movement of the conveyor is arrested during the unloading cycle of the drum thus preventing straw and chaff being delivered at the discharge end of the conveyor during said cycle.

A further object of my invention is to provide a device of the character herewithin described in which said arresting of the movement of the conveyor is carried out automatically by virtue of the teeter action of the device. Furthermore, the drive is resumed to the conveyor as soon as the drum returns to the loading position.

Another object of my invention is to provide a device of the character herewithin described which includes means whereby the material being carried on the conveyor is maintained in contact therewith thus preventing said material from being displaced from the conveyor when the device is being used in relatively strong winds.

A still further object of my invention is to provide a device of the character herewithin described which incorporates a novel swivelling hitch by which the device is secured to the thresher or combine, the use of which permits the close coupling which is desirable in order for the chaff to be discharged directly on the conveyor, yet which at the same time permits the thresher or combine and the receiver and cocker to be angulated one from the other within limits.

Yet another object of my invention is to provide a device of the character herewithin described which is economical in manufacture, simple in operation, and otherwise, well suited for the purpose for which it is designed.

With the foregoing objects in view, and such other objects and advantages as will become apparent to those skilled in the art to which this invention relates as this specification proceeds, my invention consists essentially in the arrangement and construction of parts all as hereinafter more particularly described, reference being had to the accompanying drawings in which:

Figure 1 is a side elevation of my device with the drum and the associated structure in the raised or loading position.

Figure 2 is a top plan view of my device.

Figure 3 is a fragmentary plan view of my swivelling hitch assembly per se.

In the drawings like characters of reference

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indicate corresponding parts in the different figures.

The chaff and straw receiver and cocker to which the invention relates as more particularly described and claimed in my United States Patent No. 2,482,160, which issued on the 20th day of September, 1949. However, I have made certain improvements to the operation and structure of this device, the principal one of which relates to the movement of the conveyor and the arresting of said movement during the unloading cycle of the drum.

Proceeding now to describe my invention in detail, it will be seen upon reference to the accompanying drawings that I have provided a hinged conveyor unit collectively designated 10 comprising a forward, substantially, horizontal conveyor 11 and a rear, upwardly inclined conveyor 12, said conveyors being hingedly connected together by means of a pivot rod 13. The conveyor belt 14, which is of conventional, twin-chain operated canvass construction extends around both of the conveyor units 11 and 12 as a continuous belt, pulleys 15 being provided at the forward end of the front conveyor unit 11 and at the rear end of the rear conveyor unit 12. Further pulleys 16 are situated upon pivot rod 13 at the conjunction of the two conveyor units in order to change direction in the conventional manner.

Front supporting structure is provided including a pair of vertical members 17 braced by diagonals 18 in association with side members 19 upon which the conveyor 11 is mounted, vertical sides 20 enclosing the conveyor as illustrated.

Rear supporting structure includes a pair of parallel frame members 21 mounted upon a two-wheeled truck collectively designated 22, the rear conveyor unit 12 being supported by means of struts 23. Reference to Figure 1 will show that the forward ends of the frame members 21 are secured to the aforementioned pivot 13.

A chaff collecting drum 24 mounted for rotation upon a shaft 25 is supported within bearings 26 secured to the outboard ends 27 of the aforementioned frame members 21. It is to be observed that the drum 24 together with the rear conveyor 12 are mounted upon the truck 22 and that the centre of gravity of this portion of the assembly is such that it may teeter upon the truck as will hereinafter be described.

The drum 24 is hollow and is provided with an open side portion 28 which is normally situated immediately below the discharge end 29 of the rear conveyor 12 so that chaff discharged from said conveyor is deposited within said drum.

The centre of gravity of this rear assembly is such that, under normal conditions, the weight of the drum would cause the assembly to pivot around the wheel axle **30** until the perimeter of the drum engages the ground. However, the assembly is maintained in the position illustrated in Figure 1 until it is desired to unload the contents of the drum by means of a latch assembly collectively designated **31**. This latch assembly includes a pair of vertical members **32** extending upwardly from the frame members **21** upon each side of the conveyor **12**, each of said members having an open-ended bracket **33** secured thereto. A latch bar **34** is slideably engageable within these brackets and extends rearwardly to be secured adjacent the upper end of the aforementioned members **17** which form part of the supporting structure of the front conveyor **11**. The forward ends **35** of the latch bars **34** are provided with a notch **36** within which is engageable a pivoted latch **37** secured to the aforesaid vertical members **32** thus maintaining the assembly in the raised position as illustrated.

Means to selectively release latches **37** are provided and may take the form more fully described in my above identified United States patent and which briefly comprise cables **38** extending from the lower ends of latches **37** to bell-crank levers **39** mounted adjacent the rear of said rear conveyor, the forward ends **39'** of said bell-crank levers being connected by a further cable or rod **40** so that said bell-cranks may be rotated either by means of a trip arm **41** or by a manually operated operated cable **42** and as a full description of this mechanism is contained in my previous patent, it is not thought necessary to describe this mechanism further at this stage.

Before proceeding further, a brief description of the main operation of my device will be given. Chaff and straw indicated by the reference character **43** is deposited from the rear end **44** of the combine or thresher (shown in phantom) upon the forward end of the front conveyor **11** whereupon it is conveyed rearwardly to the rear conveyor **12** and elevated to the discharge end **29** thereof whereupon it is discharged into the open side **28** of the drum **24**. When the drum is loaded, the release latches **37** are actuated either by means of the trip arm **41** striking an adjacent cock (not illustrated) or by means of the manually operated cable **42**, whereupon the weight of the drum and contents causes the rear portion of my device to pivot around axle **30** so that the drum engages with the ground. When this happens it will be appreciated that the two conveyor portions hinge around pivot **13** and that the latch bars **34** slide within the brackets **33**. At this point it should be noted that I have provided a shock absorber rod **45** extending rearwardly from the vertical members **17** and passing through the upper end **46** of the vertical members **32**, the amount of travel of the vertical members sliding upon rods **45** being limited by stops **47** and cushioned by means of compression springs **48** surrounding said rods.

As the drum strikes the ground, lugs **49** provided around the perimeter of the drum, engage with the ground thus causing, as the assembly is moved forwardly by the combine, the drum to rotate in a direction represented by the arrow **49'**. As the aforementioned open side **28** revolves towards the ground, the contents of the drum are deposited thereupon in the form of a cock or stack.

An inclined cam **50** is provided upon the perimeter of the drum **24** upstanding from the sides **51** of the open side **28** thereof which urges the drum upwardly as they, in turn, engage the ground thus causing the rear portion of the assembly to take up once again the position shown in Figure 1 with the latches **37** again engaged within the notches **36**. It will be appreciated that the slope of the cams **50** give an upward thrust to the assembly as they engage with the ground thus returning the assembly to the original position.

In this connection, it will be appreciated that there will be a tendency for the drum to oscillate when it is returned empty, to the upper position, and to prevent this I have provided a triangular snubber **52** secured to the perimeter of the drum and extending outwardly therefrom capable of engaging with the ground when the drum is in the upper position thus preventing free rotation of the drum when in this position.

The conveyor assembly **10** is driven from the ground engaging wheels **53** of the truck **22** by means of a sprocket **54** secured to axle **30**, said sprocket having a chain **55** extending thereabout and around a corresponding sprocket **56** journalled for rotation upon a stub shaft **57**.

The aforementioned stub shaft **57** and sprocket **56** are mounted upon a pivoted supporting standard **58** secured to a bracket **59** upstanding from one of the frame members **21**, said standard being pivotally connected to said bracket by means of a pin **60**.

A belt pulley **61** is secured to the opposite end of stub shaft **57**, a crossed belt **62** extending around said pulley and also around a corresponding pulley **63** which, in turn, is secured to the upper shaft **64** of the conveyor assembly. From the foregoing, it will be appreciated that rotation of wheels **53** will cause the conveyor to operate in substantially a conventional manner.

However, it will be appreciated that it is undesirable for the conveyor to be actuating during the time that the aforementioned drum **24** is revolving in the unloading cycle otherwise, chaff and straw will continue to be discharged from the end **29** of the conveyor. Consequently, I have provided means for arresting the motion of the conveyor during the unloading cycle of the drum. Said means includes an eccentric crank **64'** secured to one end of shaft **25** upon which the drum is mounted and a crank arm **65** extending between the outboard end **66** of the crank and the upper end **67** of the aforementioned pivoted supporting standard **58** so that when the drum is rotating as hereinbefore described, the crank **64'** rotates in the direction of arrow **49'** thus drawing the crank arm **65** rearwardly which, in turn, tips or pivots the standard **58** also rearwardly thus slackening belt **62** upon pulleys **61** and **63** which effectively arrests the movement of the conveyor. As the crank **64'** completes its revolution together with drum **24**, it returns to the position illustrated in Figure 1 so that the crank arm **65** returns the standard **58** to the substantially vertical position thus tightening belt **62** and reinstituting the movement of the conveyor.

In conjunction with my upwardly inclined conveyor **12** I have also provided means for preventing the wind from displacing straw and chaff from this conveyor during elevation thereof, said means including a pair of struts **68** upstanding from the sides **69** of this conveyor and substantially towards the upper end thereof. A cross bar **70** spans these two struts and suspended from this cross bar by means of chains **71** are a pair

of longitudinally extending strips 72 extending substantially the full length of the conveyor 12 and above the upper run of canvass thereof, the lower ends 73 of these strips being secured to a cross member 74 adjacent the lower end of the conveyor.

I have provided hitching means for securing my device to the towing unit, said hitching means including a pair of members 75 pivotally secured by the rear end 76 thereof to the supporting framework of the underside of the front conveyor 11 and indicated by the reference character 77. These two members cross in X-formation and are pivotally secured by their front ends 78 thereof to the framework 79 of the combine or thresher. An arcuate guide bar 80 spans the front end of my device and is slideably engageable by a clamp 81 secured to the rear cross member 82 of the thresher. By this means limited angular movement of my device with relation to the combine is assured without detracting from the necessary close coupled connection therebetween.

Since various modifications can be made in my invention as hereinabove described, and many apparently widely different embodiments of same made within the spirit and scope of the claims without departing from such spirit and scope, it is intended that all matter contained in the accompanying specification shall be interpreted as illustrative only and not in a limiting sense.

What I claim as my invention is:

1. In a chaff and straw receiver and cocker, including front and rear supporting structure, a hinged conveyor unit, and an open-sided drum mounted upon said supporting structure, a truck on which said rear supporting structure is mounted to teeter, means for unloading said drum when full, and means for arresting the movement of said conveyor during the unloading cycle, said last mentioned means including a pivoted supporting standard for the drive of said conveyor, a belt pulley mounted for rotation on the upper end of said standard, a belt extending around said pulley, upwardly and rearwardly and around a further pulley on said conveyor, a rotatable crank secured upon one end of the shaft supporting said drum and a crank-arm extending between one end of said crank and the upper end of said supporting standard adapted to pivot the latter rearwardly during the unloading cycle of said drum thereby slackening the belt around said pulleys on said standard and said conveyor.

2. In a chaff and straw receiver and cocker, including front and rear supporting structure, a hinged conveyor unit, and an open-sided drum mounted upon said supporting structure, a truck on which said rear supporting structure is mounted to teeter, means for unloading said drum when full, and means for arresting the movement of said conveyor during the unloading cycle, said last mentioned means including a pivoted supporting standard for the drive of said conveyor, a belt pulley mounted for rotation on the upper end of said standard, a belt extending around said pulley, upwardly and rearwardly and around a further pulley on said conveyor, a rotatable crank secured upon one end of the shaft supporting said drum, a crank-arm extending between one end of said crank and the upper end of said supporting standard so that the latter is moved rearwardly during the unloading cycle of said drum thereby slackening the belt around said pulleys on said standard and said conveyor, and further means to prevent oscillation of said drum when in the raised position.

3. The device according to claim 2 in which said means to prevent the oscillation of said drum when in the raised position comprises a snubber component secured to the perimeter of said drum substantially opposite the open side thereof.

ANDREW L. DONOGH.

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