Sept. 13, 1949. F. E. MAURITS 2,482,014

WINDROW TRAILER

Filed March 25, 1947 4 Sheets-Sheet 1

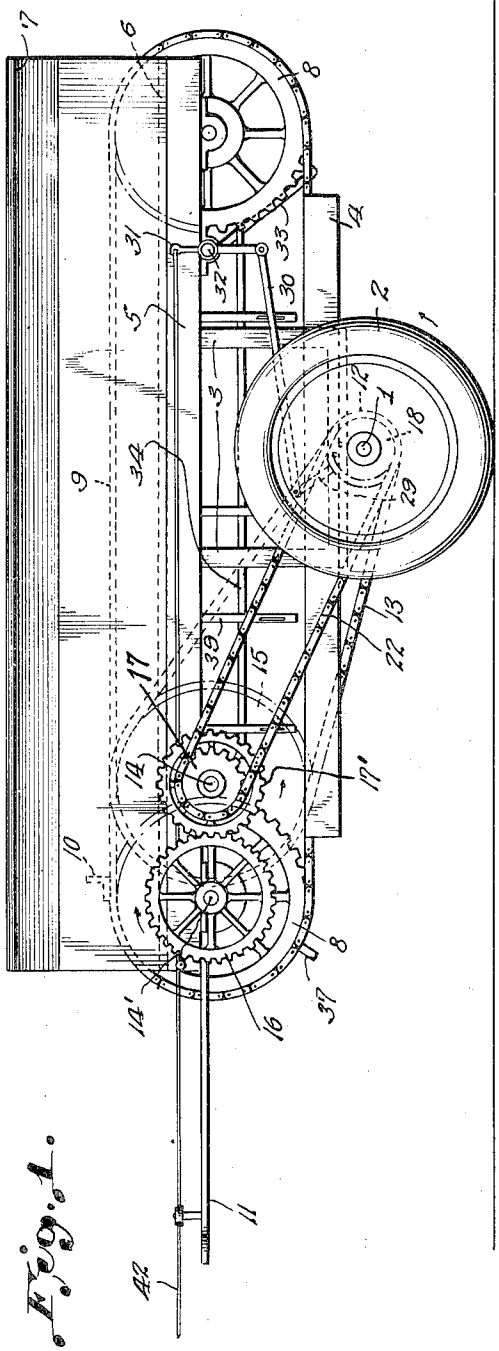

Fig. 1.

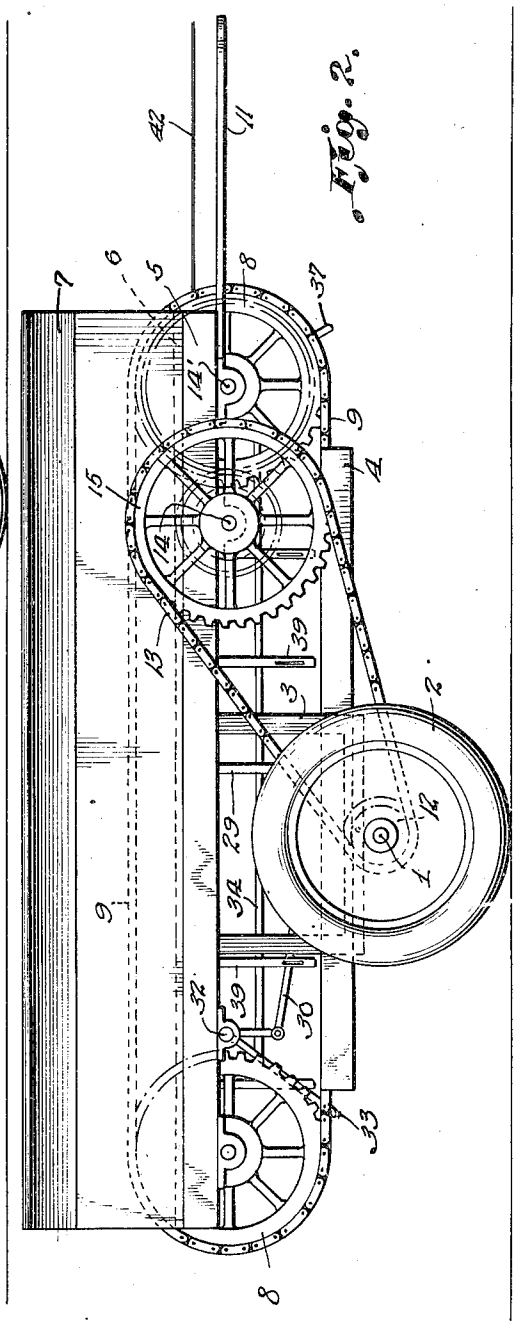

Fig. 2.

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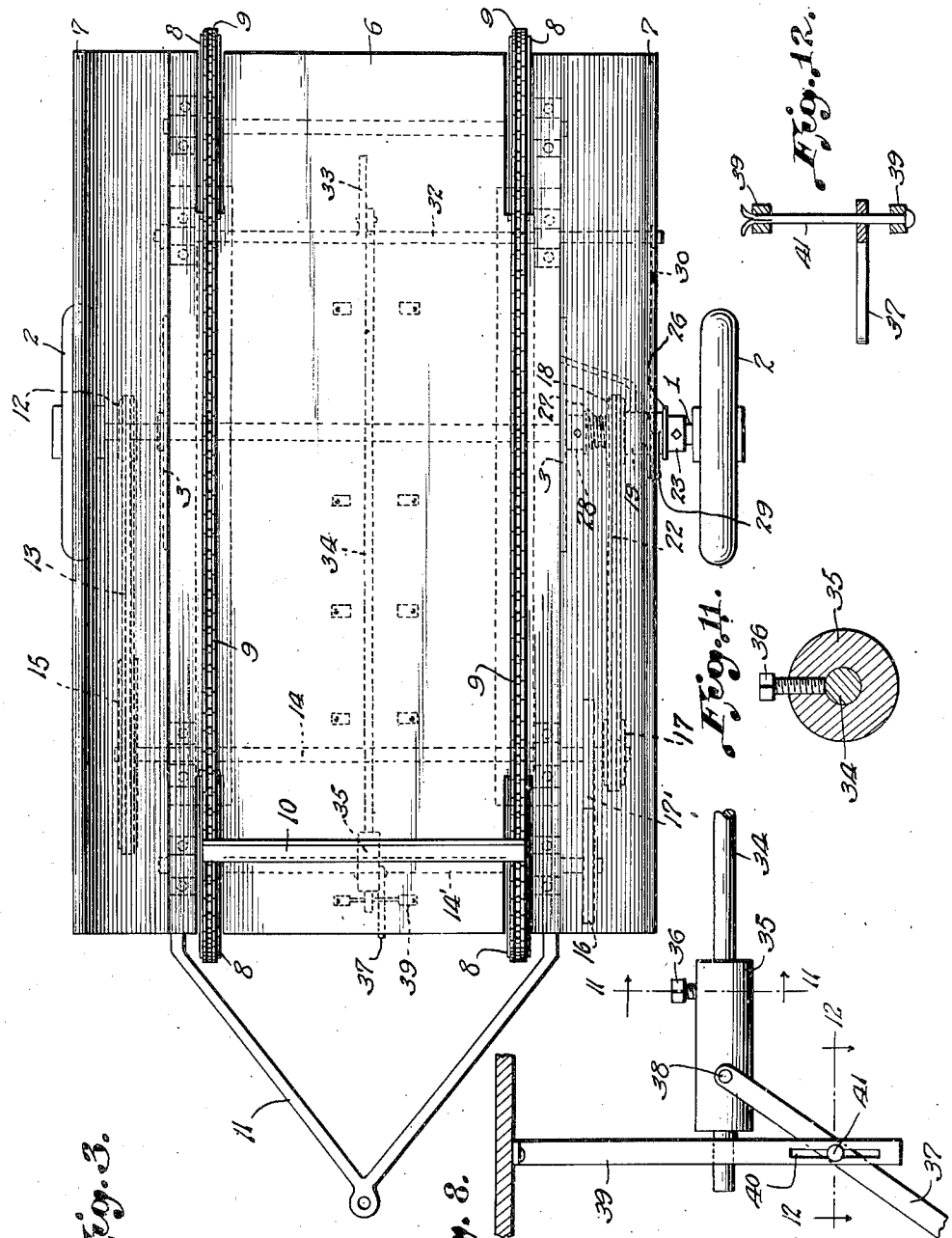

Fig. 3.

Fig. 12.

Fig. 11.

Fig. 8.

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WINDROW TRAILER

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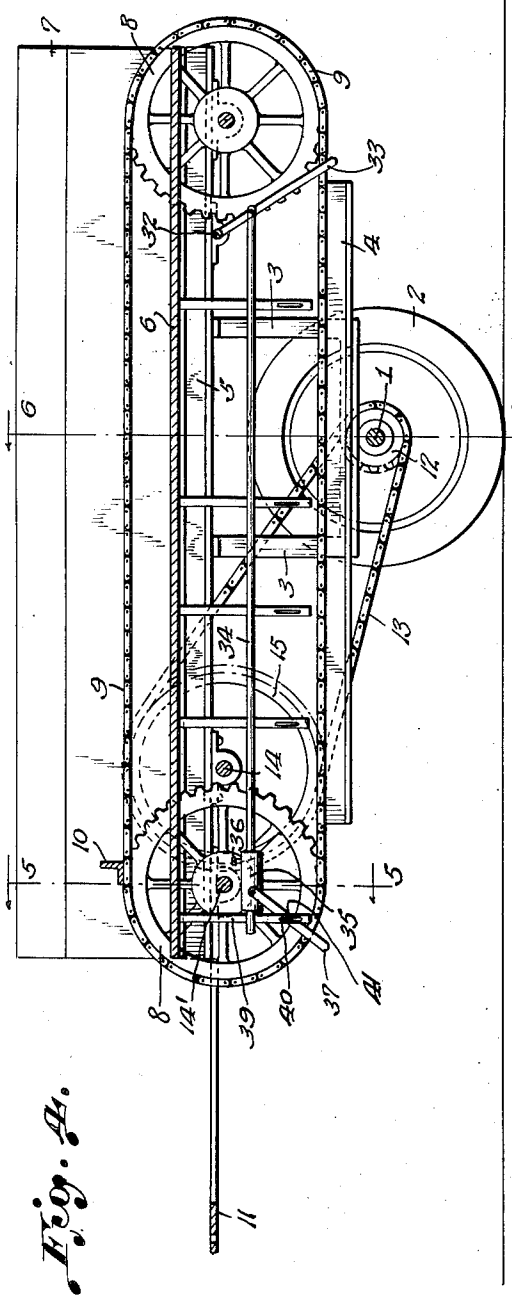

Fig. 4.

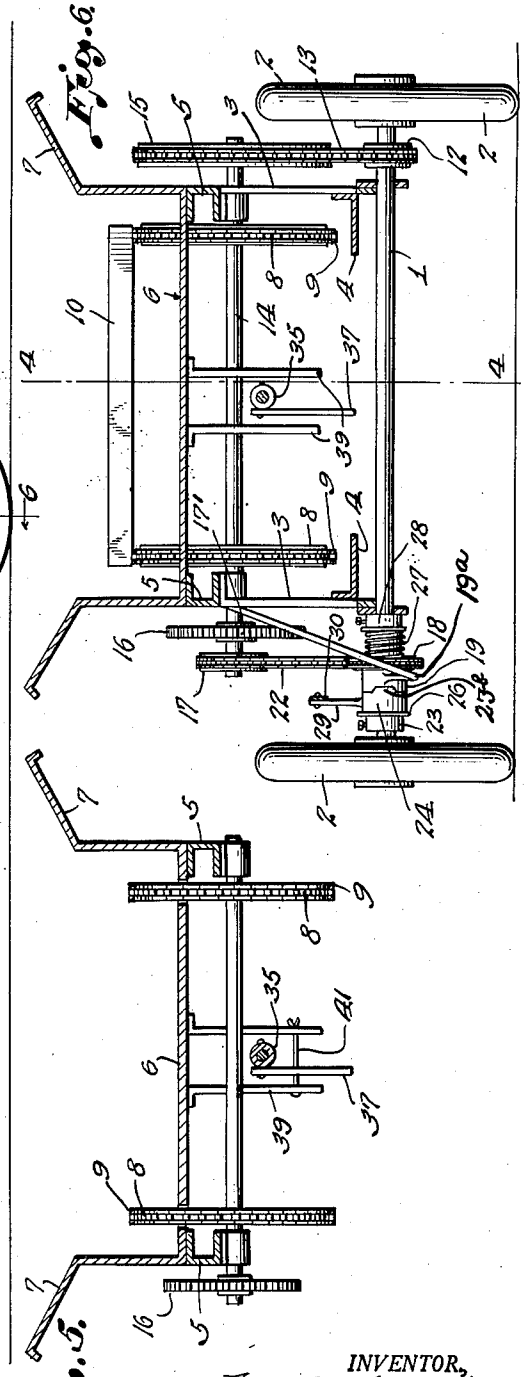

Fig. 6.

Fig. 5.

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WINDROW TRAILER

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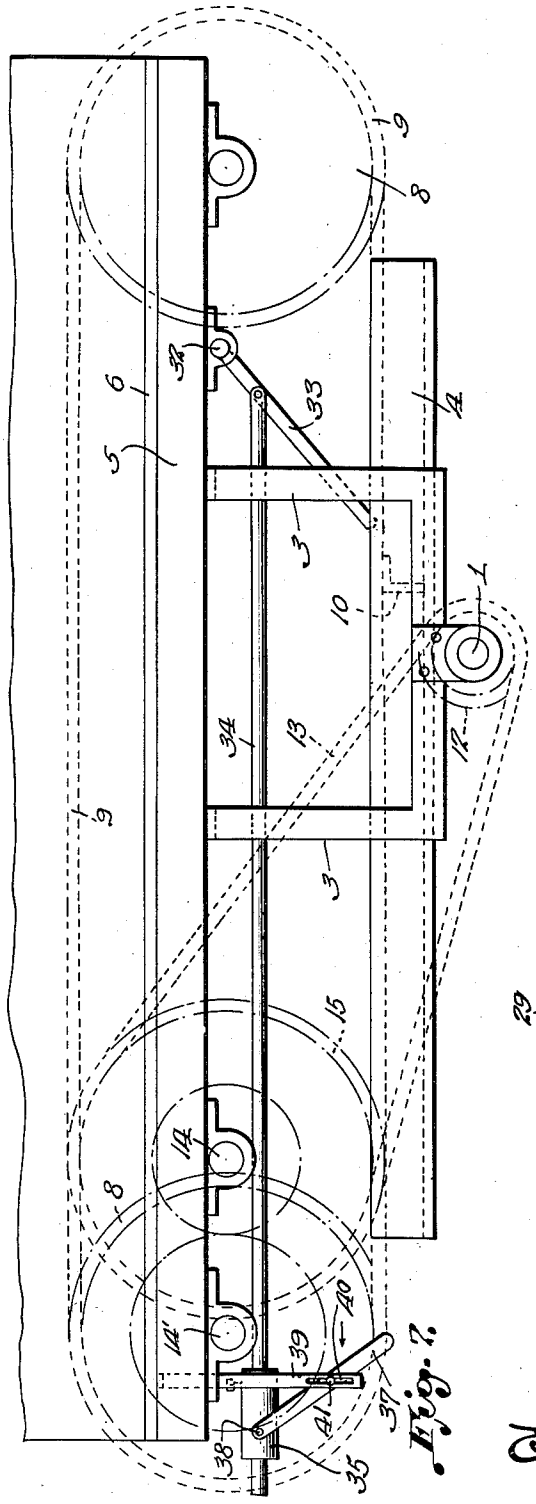

Fig. 7.

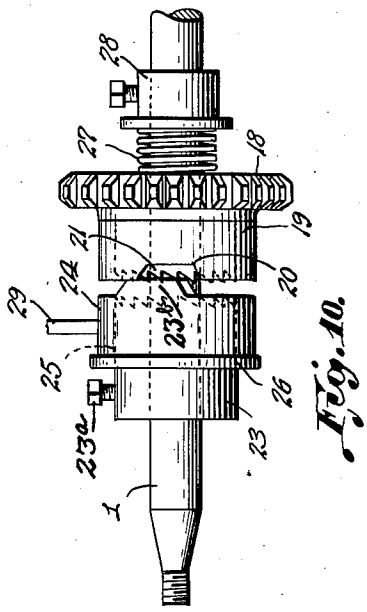

Fig. 10.

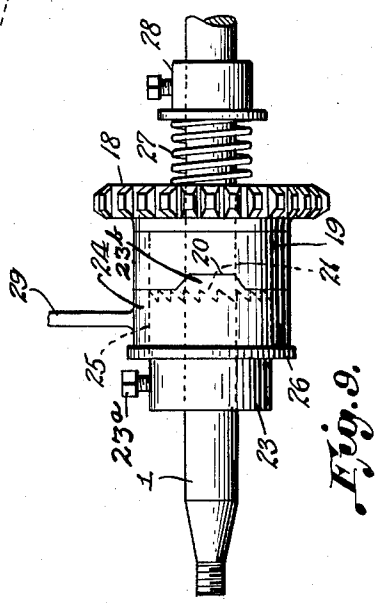

Fig. 9.

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Patented Sept. 13, 1949 2,482,014

UNITED STATES PATENT OFFICE

2,482,014

WINDROW TRAILER

Forrest E. Maurits, West Point, Nebr.

Application March 25, 1947, Serial No. 737,192

5 Claims. (Cl. 214—83.36)

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This invention relates to a wind-row trailer.

An object of the invention is the construction of an efficient and novel machine which will wind-row straw or any residue from a combined or thrashing harvester.

Another object of the invention is the construction of a machine which is low enough to be placed under the part of the combine or thrasher where the straw is discharged. The residue or straw from a small combine is so scattered in the field it is very hard to save without a great effort as well as time being involved. Therefore, the wind-rows produced by my machine are adjustable from approximately 10 feet to 50 feet, depending upon the weight of the material and residue one is combining, making it very easy to sweep up and stack the straw, or pick up with wind-row bailer or hay loader.

A still further object of this invention is to construct an efficient low-down machine which is provided with a body that is capable of receiving a maximum load of straw, or the like.

Another object of the invention is the construction of a machine which has a normally slow-moving conveyor, but which conveyor can be speeded up for the efficient operation of the machine.

Another object of the invention is the construction of a machine of this class that has a conveyor that is operable at different speeds, producing efficient results.

With the foregoing and other objects in view, my invention comprises certain novel constructions, combinations, and arrangements of parts as will be hereinafter fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

In the drawings:

Fig. 1 is a view in side elevation of the left-hand side of the machine, while

Fig. 2 is a similar view of the right-hand side of the machine.

Fig. 3 is a top plan view.

Fig. 4 is a vertical, longitudinal sectional view of the machine, on line 4—4, Fig. 6.

Fig. 5 is a transverse sectional view taken on line 5—5, Fig. 4, and looking in the direction of the arrows.

Fig. 6 is a transverse sectional view, taken on line 6—6, Fig. 4, and looking in the direction of the arrows.

Fig. 7 is an enlarged fragmentary view in elevation of the machine showing particularly the frame of the body, the operating rod and the trigger means connected thereto.

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Fig. 8 is a fragmentary view of the machine showing one set of brackets, part of the operating rod, the adjustable sleeve carried thereby, and one of the triggers, connected to the sleeve and the brackets.

Fig. 9 is a view in elevation of the clutch device, shown in a closed position, while

Fig. 10 shows the clutch device in an open or unmeshing condition.

Fig. 11 is an enlarged sectional view taken on line 11—11, Fig. 8, and looking in the direction of the arrows.

Fig. 12 is a sectional view taken on line 12—12, Fig. 8, and looking in the direction of the arrows.

Referring to the drawings, in which the preferred embodiment of this invention is illustrated, 1 designates the axle or primary shaft which has two wheels 2 fixedly secured thereto. A pair of substantially U-shaped frames 3 are suitably supported upon the primary shaft 1. A pair of L-shaped tracks 4 is supported upon frames 3; these tracks 4 extend inward and are for the purpose hereinafter described. A pair of channel irons 5 are supported upon the upper portion of frames 3, and on these channel irons 5 is mounted the straw bed 6; the straw bed 6 is provided with outwardly flared sides 7. Therefore, the frames 3, channel irons 5 and straw bed 6 constitute the body of the machine.

Suitably secured to the bottom of the channel irons 5 are large sprocket wheels 8; in other words, there are four sprocket wheels 8, two being on the left-hand side of the machine, Fig. 1, and two being on the right-hand side of the machine, Fig. 2. Mounted on these sprocket wheels 8 are endless sprocket chains 9. Attached to these sprocket chains 9 is a pusher-blade 10.

Suitably attached to and extending from the forward end of the body of the machine is a hitch 11; this hitch 11 is utilized for attaching the machine to a combine or thrasher, or the like. This machine is built low enough to fit under the discharge end of the combine or thrasher.

There is provided means for driving the conveyor, constituted by the sprocket chains 9 and pusher-blade 10, at different speeds, for the purpose hereinafter described. To drive the conveyor at a slow speed, a small sprocket 12 is fixedly secured to the axle or shaft 1 (Figs. 2 and 6), over which passes the sprocket chain 13. An auxiliary shaft 14 is suitably journaled upon the channel irons 5, and on one end of said auxiliary shaft 14 is a ratchet-type sprocket 15, of any ordinary type. This ratchet sprocket 15 registers with the small sprocket 12, and chain 13 passes

over this sprocket 15. These sprockets 12 and 15, together with chain 13, constitute the slow drive for the conveyor. When the conveyor is being driven by the slow drive, the pusher-blade 10 will be moving under the straw bed at a slow speed, allowing the dumping straw to collect considerably upon the body of the machine before being dumped.

The mechanism for driving the conveyor at a high speed comprises gear wheel 16 fixedly secured to shaft 14', Fig. 1, and this gear wheel 16 meshes with small gear 17', which gear 17' is suitably mounted on the body of the machine. This mounting comprises placing the gear wheel 16 on shaft 14' and small gear 17 on the auxiliary shaft 14, Figs. 1 and 6. On primary shaft 1, Figs. 9 and 10, is a loosely mounted sprocket 18. This sprocket 18 is provided with a sleeve 21 which has ratchet teeth on its outer end which mesh with the ratchet teeth on inner end of sleeve 25, which is part of shaft collar 23 fixed to shaft 1 with set screw 23*a*. Sprocket chain 22 is mounted on sprocket 18 and small sprocket 17, Fig. 1. The outer half of disengaging collar 24 slides over sleeve 25 with its outer edge held in place by flange 26, fixed to shaft collar 23; its inner edge has two high points 23*b*. These points 23*b* fit into sockets 20 in other half of disengaging collar 19, which inner edge is held in place by sprocket 18 and inner-sleeve 21. Moving disengaging collar 24 causes high points 23*b* to leave sockets 20 on disengaging collar 19, which is fastened to frame with an arm linkage 19*a*, Fig. 6; this movement disengages the clutch, Fig. 10. A coil spring 27 is on shaft 1, against sprocket 18, and is held in place by the set collar 28. An integral operating finger 29 is on loose collar 24, the outer end of this finger 29 being connected to the inner end of link 30. The outer end of link 30 (Fig. 1) is connected to the lower end of rocker arm 31. Rocker arm 31 is mounted on shaft 32. Depending from the shaft 32 is primary trigger 33 (Fig. 4). A control or operating rod 34 is pivotally connected at its outer end to the primary trigger 33 (Fig. 7). On the inner end of operating rod 34 is an adjustable sleeve 35 (Fig. 8). This sleeve is held in an adjusted position upon rod 34 by means of a set screw 36. An auxiliary trigger 37 is connected at its inner or upper end, by a pivot 38, preferably to one side of the sleeve 35. Sets of brackets 39 are placed at intervals upon the bottom of the straw bed 6; each set of brackets comprising two arranged parallel. The depending brackets 39 are provided with elongated slots 40 in which pin 41 slides.

In operation when the pusher-blade 10 strikes the lower end of the primary trigger 33, it throws the trigger inwardly as shown in Fig. 7, this causing the auxiliary trigger 37 to have its inner end swung inwardly, ready to be struck or pushed by the pusher-blade 10 as it passes said auxiliary trigger in its travel. When the primary trigger is swung inwardly by the pusher-blade, shaft 32 will be slightly rotated, which in turn operates the rocker arm 31 to throw the loose collar 24 into the position shown in Fig. 10. This causes the conveyor to move slowly, allowing full loading of the body of the machine. By moving the collar 35 along the control rod 34 to a new position the rapidity of dumpage can be varied. This moving or adjustment of the collar is accomplished by removal of pin 41 and placing the pin upon a new set of brackets 39. Of course, the pin has to be put through the trigger 37, in the same hook-up as shown in Figs. 8, 11 and 12. The series of brackets 39 shown in Figs. 1 and 2 are provided for this adjustment of the collar 35, trigger 37 and pin 41. When the trigger 37 is actuated, to swing it from the position shown in Fig. 7 to the position shown in Fig. 8, the clutch mechanism will be as shown in Fig. 9. This is in the rapid-movement position, for the conveyor, causing the load on the straw bed to be rapidly discharged. Therefore, it follows that the closer the auxiliary trigger device 35, 37 and 41 is to the primary trigger device 33 the shorter is the time of loading the body, by the slow motion of the conveyor. It is sometimes desirable to have the conveyor move at a slow speed only for a short time, as when the straw is being discharged at a rapid speed to the machine, as when there is an abundance of grain, and the discharge of the straw is consequently heavier. If there is a lean discharge of straw, then the period of slow travel of the conveyor is longer, allowing the body to fill with straw.

When the clutch mechanism is in its inoperative position as shown in Fig. 10, then the conveyor is being driven by the slow gearing, consisting of sprocket 12, chain 13 and ratchet-sprocket 15. However, as soon as the pusher-blade 10 of the conveyor strikes the auxiliary trigger 37, irrespective of what set of brackets it is mounted on, the rapid movement of the conveyor will be caused, because of the throwing-in of the cooperating parts of the clutch device (Figs. 9 and 10) as hereinbefore described.

If the operator on the combine wishes to operate the clutch mechanism, he can pull on the cable or rope 42 (Fig. 1) which is attached to the upper end of rocker arm 31. This will result in operating link 30 and finger 29 of the clutch mechanism.

It is to be noted that the outer end of rod 34, while being pivotally connected to the primary trigger 33, is relatively retained in a fixed position while the inner end of said rod is adjustably mounted on the different sets of brackets 39.

In the travel of the sprocket chains 9, they will partly travel over the angle irons or tracks 4; these tracks protect to a certain degree the chains from coming in contact with growth or stubble in the field over which the machine passes.

While I have described the preferred embodiment of my invention and illustrated the same in the accompanying drawings, certain minor changes or alterations may appear to one skilled in the art to which this invention relates during the extensive manufacture of the same, and I, therefore, reserve the right to make such changes or alterations as shall fairly fall within the scope of the appended claims.

What I claim is:

1. In a machine of the class described, the combination of a primary shaft provided with traction wheels, a body mounted on said primary shaft, a conveyor having a portion traveling over part of said body, a clutch device on said primary shaft, means connecting said clutch device and conveyor, a primary trigger extending from said body, an auxiliary trigger and means mounting said auxiliary trigger on said body, a rod connecting said triggers, and means connecting said triggers and clutch device, whereby movement of said triggers will control the operation of said clutch device.

2. In a machine of the class described, the combination of a primary shaft provided with traction wheels, a body mounted on said primary shaft, a conveyor having a portion traveling over

said body, a clutch device on said primary shaft, means connecting said clutch device and conveyor, a primary trigger provided with a shaft depending from said body, means connecting said last-mentioned shaft to said clutch device, an auxiliary trigger and means for adjustably positioning said auxiliary trigger upon said body, a rod and means connecting said rod to said triggers, and said conveyor provided with means for operating said triggers.

3. In a machine of the class described, the combination of a primary shaft provided with traction wheels, a body mounted on said primary shaft, a clutch device on said primary shaft, an endless conveyor having portions traveling over said body, said conveyor provided with a pusher-blade, a series of sets of depending brackets on said body, each bracket provided with an elongated slot, a primary trigger depending from said body, a pin extending through the slots of one set of brackets, an auxiliary trigger mounted on said pin, a rod connected at its outer end to said primary trigger, a sleeve on said rod, said auxiliary trigger connected at its upper end to said sleeve, means connecting said primary trigger to said clutch device, and said pusher-blade being adapted to first engage the primary trigger, and subsequently engage the auxiliary trigger for controlling movement of the clutch device.

4. In a machine of the class described, the combination of an open-ended body, an endless conveyor having an upper portion thereof traveling

over said body, said endless conveyor provided with a pusher-blade, means including triggers for driving said conveyor at different speeds, and said pusher-blade being adapted to engage said triggers for changing the speed of said driving means.

5. In a machine of the class described, the combination of an open-ended body, an endless conveyor having an upper portion traveling from one end of said body to the other end thereof, driving means for said conveyor including a clutch device and triggers, said conveyor provided with means for independently operating said triggers, and means connecting said triggers to said clutch device, whereby movement of the clutch device will be controlled by different triggers being operated.

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