Aug. 18, 1931. W. MICKLE 1,819,432

ATTACHMENT TO HARVESTER THRASHERS

Filed Jan. 10, 1929 3 Sheets-Sheet 1

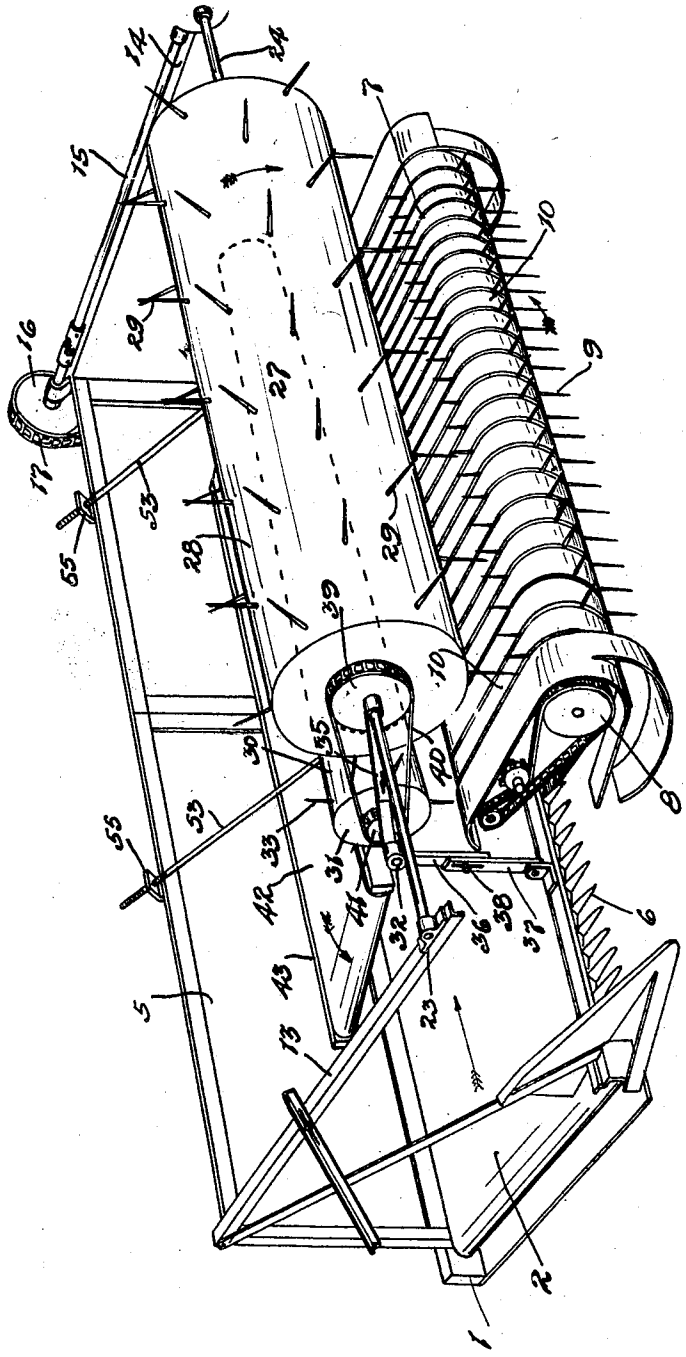


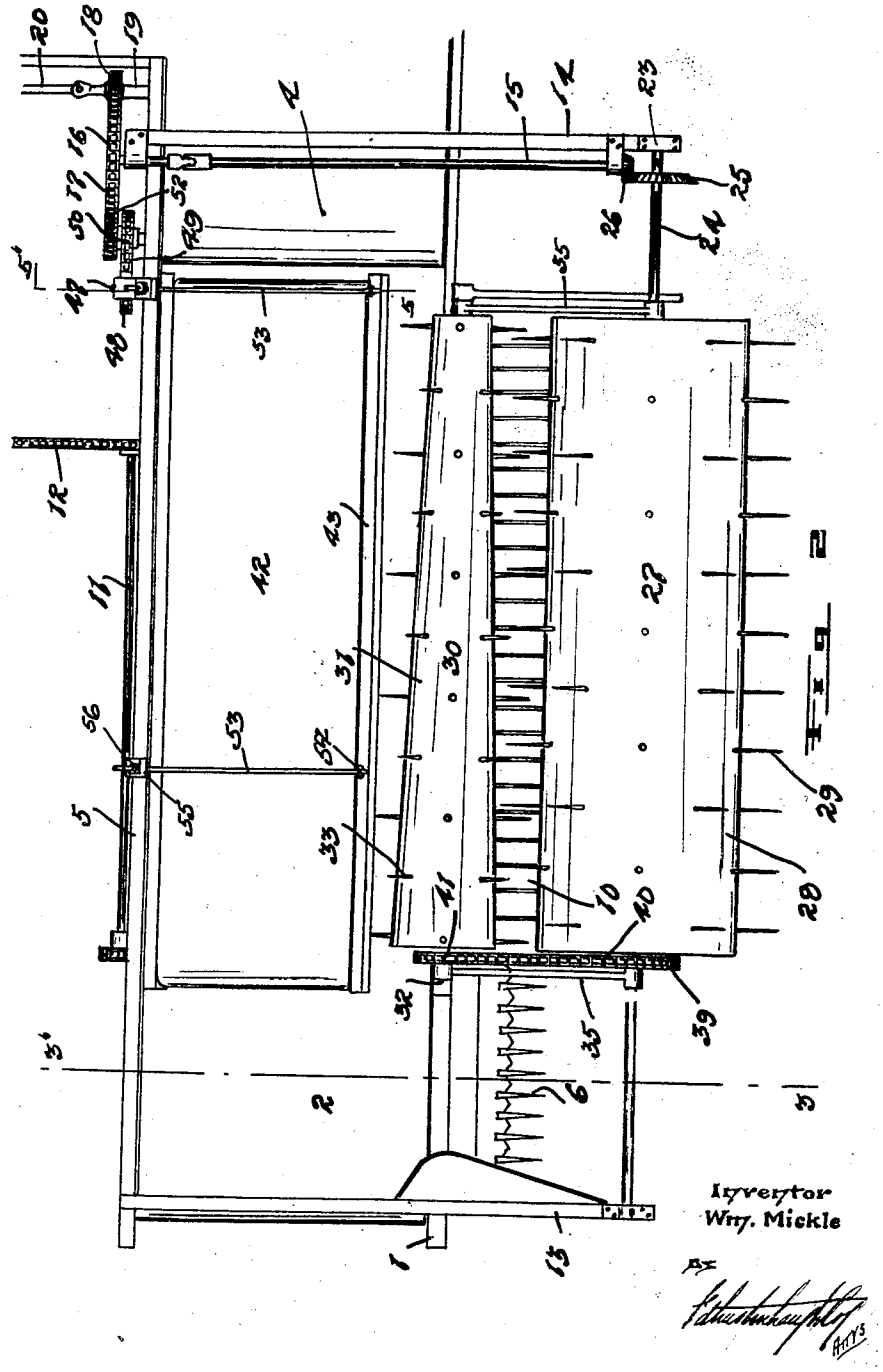
Fig. 1

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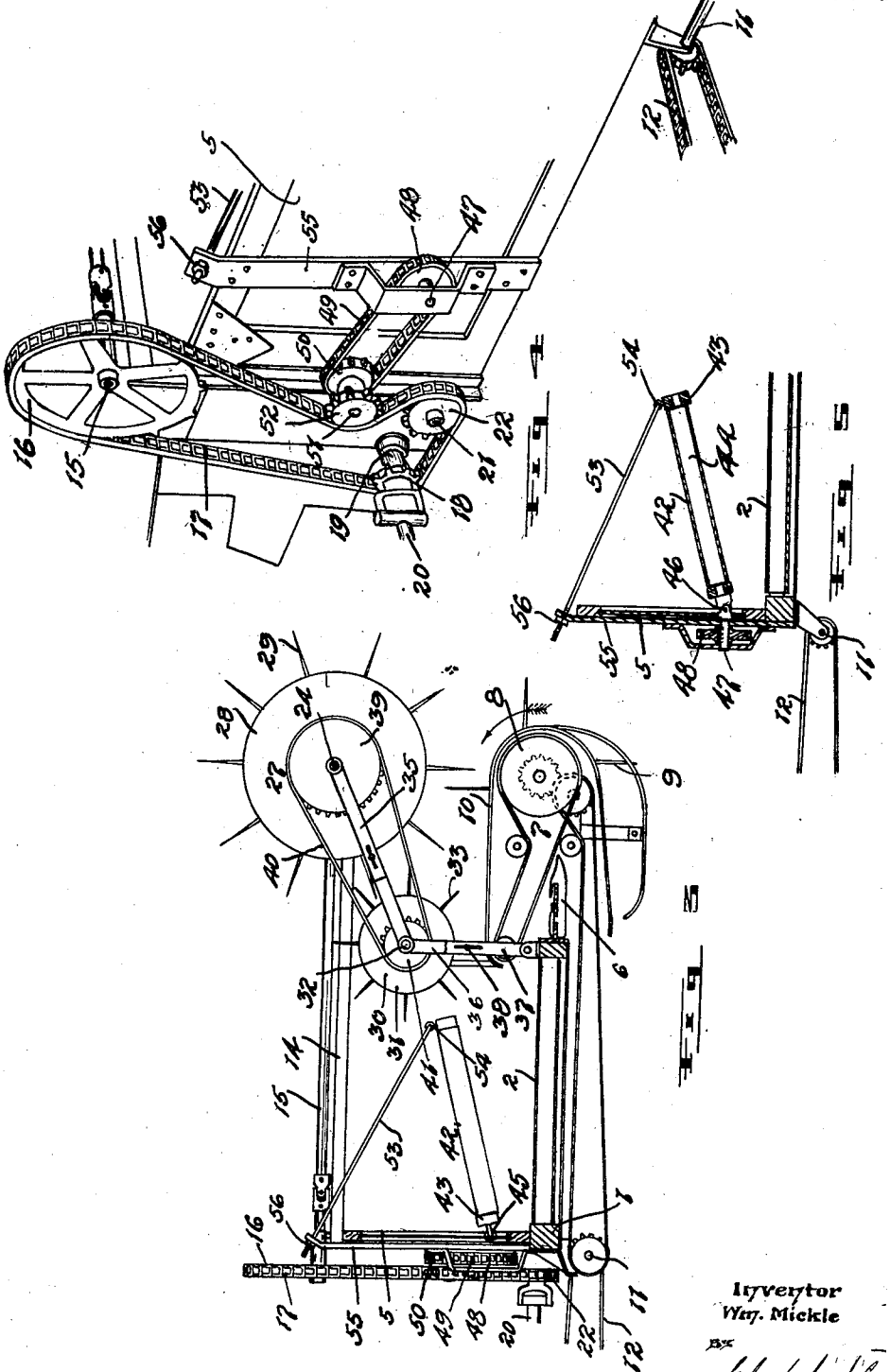
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ATTACHMENT TO HARVESTER THRASHERS

Filed Jan. 10, 1929 3 Sheets-Sheet 3



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Patented Aug. 18, 1931 1,819,432

UNITED STATES PATENT OFFICE

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ATTACHMENT TO HARVESTER THRASHERS

Application filed January 10, 1929. Serial No. 331,511.

The invention relates to improvements in attachments to harvester-thrashers and the general object of the invention is to provide an attachment which will effect a more even feeding of the cut grain, thereby avoiding clogging at the thrashing cylinder as at present very often occurs.

A further object of the invention is to provide an attachment which can be adjusted in respect to the existing pick-up and table canvas to suit the existing conditions of the grain and which will materially aid the pick-up in delivering the grain to the table canvas and will distribute the grain more evenly over the canvas and which also will aid the canvas to feed the grain delivered thereon.

A still further object is to provide a motor driven attachment which can accordingly be operated when the machine is standing still so that should the machine have to be stopped where a particularly heavy pile of grain is encountered, the attachment will gradually reduce and feed the pile until such time that the machine can be advanced and the remainder of the pile delivered by the pick-up.

A still further object is to embody as part of the attachment a rotary distributor adapted to throw cut grain well back onto the table canvas thereby effecting a more even distribution of the cut grain on such canvas.

A further object is to construct the attachment so that it can be readily installed on an existing harvester thrasher without requiring any material alteration in the existing construction thereof.

With the above more important objects in view, the invention consists essentially in the arrangement and construction of parts hereinafter more particularly described, reference being had to the accompanying drawings, in which:—

Fig. 1 is a perspective view of the attachment as it appears installed on a harvester-thrasher and as associated with the pick-up utilized on such machine.

Fig. 2 is a plan view of the parts appearing in Figure 1.

Fig. 3 is a vertical sectional view at 3—3′ Figure 2.

Fig. 4 is a perspective view of the driving mechanism.

Fig. 5 is a vertical sectional view at 5—5′ Figure 2.

In the drawings like characters of reference indicate corresponding parts in the several figures.

I might initially explain that it is common practice to cut the grain on the field with the machine known as a swather or windrow-harvester which machine cuts say a sixteen foot swath and then leaves the cut grain in windrows on the field, the windrows being possibly three feet wide. The grain is allowed to dry in the windrows and is then harvested by using a further existing machine known as a harvester-thrasher. The harvester-thrasher is marketed with cutting knives similar to those of the well known binding machine but when such harvester-thrasher is to be used to harvest cut grain in windrows on the field, the knives are dispensed with and a pick-up attachment is provided which attachment is also at the present time well known and is utilized to deliver the windrowed grain to the table canvas of the machine.

I have not considered it necessary to herein enter into a detailed description of the harvester-thrasher or of the pick-up attachment as such machines are well known to one familiar with the art and as the attachment is associated with the existing pick-up and table canvas, only those parts of the harvester-thrasher are herein shown.

The table 1 of the harvester-thrasher carries the table canvas 2 which is operated in the direction of the applied arrow Figure 1 to deliver the grain towards the elevator canvas 4 from which it passes in the well known manner to the cylinder and concave (not shown). The table is provided rearwardly with a wind board 5 and at the front edge with knife guards 6, it being here understood that when my attachment is used, the cutting knife carried by the guards is removed.

Forwardly of the table is located the pick-up 7 of well known type which embodies a driven drum 8 carrying spikes or teeth 9, the

teeth being driven in the direction of the applied arrow Figure 1 and delivering the grain rearwardly over the pick-up guides 10 onto the table canvas 2. The pick-up which is an existing attachment for the harvester-thrasher is used as aforesaid when the grain has been cut and left in windrows on the field by the swather or windrow-harvester previously mentioned. Said pick-up is customarily driven from one of the ground wheels (not shown) of the harvester-thrasher and here I wish it to be noted that as a result of this when the machine is stopped on the field, the pick up stops operating.

Rearwardly of the machine table is the counter shaft 11 utilized to drive the pick-up, the counter shaft being driven by a chain 12 from one of the ground wheels. The harvester-thrasher as at present constructed is provided with a driven reel (not herein shown) and the existing reel supporting arms 13 and 14 are utilized by me to support part of my attachment and the said attachment is driven by the existing reel drive shaft 15. This shaft has the rear end thereof provided with a chain wheel 16 which is connected by a chain 17 to a driving chain wheel 18 mounted on the drive shaft 19 for the knife before mentioned.

The shaft 19 is driven by the shaft 20 which latter shaft is operated by a motor (not shown) on the machine. The table canvas 2 is driven by the shaft 21 which is provided with a chain wheel 22 driven by the chain 17 and the said chain 17 is also utilized to drive the elevator canvas 4 hereinbefore mentioned. The details of the latter driving members are best shown in Figure 4 and it will be here noted that the shaft 15 is motor driven whereas the pick-up is driven by a ground wheel of the machine.

In equipping the machine with the existing parts as already described with my invention, I provide the parts hereinafter described in detail.

The forward ends of the arms 13 and 14 are provided with bearings 23 which support rotatably a cross shaft 24 which is driven by a bevel gear 25 secured to the cross shaft and meshed with a bevel pinion 26 secured to the shaft 15. The shaft 24 carries a rotary feeder indicated generally by the reference numeral 27 and which is in the form of a relatively large hollow drum 28 having suitably disposed alternated rows of spikes or prongs 29 extending from the periphery thereof. The rotary feeder overlies the front end of the pick-up with which it co-operates and it is driven in the direction of the applied arrow Figure 1.

To the rear of the rotary feeder and above the rear end of the pick-up, I locate a horizontally disposed rotary distributor 30 which is frustro-conical in shape and has the smaller end thereof adjacent the elevator canvas 4, that is, opposite the inner end of the table convas. The rotary distributor comprises the frustro-conical shaped body 31 mounted on the cross shaft 32 and provided with alternated rows of spikes or prongs 33.

The shaft is rotatably mounted in the rear ends of hangers 35, the front ends of which are mounted on the shaft 24 and means is provided for adjustably supporting the shaft 32 from the table to permit of the adjustment of the rotary distributor in respect to the rear end of the pick up, such means embodying adjusting bars 36 and 37 interposed between the shaft 32 and the table, the bars being adjustably connected together by a jam bolt 38 of the well known type. The shaft 24 is fitted with a chain wheel 39 which is connected by a chain 40 to a chain wheel 41 on the shaft 32 and the chain wheels 39 and 41 are so selected that the shaft 32 is driven at a considerably higher speed than the shaft 24 such as a two to one ratio.

To the rear of the distributor and overlying the table canvas, I locate an auxiliary canvas 42 in the form of an endless conveyor which canvas is driven in the direction of the applied arrow Figure 1 and is adjustably supported above the underlying canvas. The member 42 embodies side frames 43 in which the ends of rollers 44 are rotatably mounted and the side frame next the wind board 5 is pivotally attached at one end to the wind board in any suitable manner such as by engaged eyes indicated at 45 and at the other end by a universal joint 46 formed in the relatively short driving shaft 47 of the adjoining roller 44. The shaft 47 is fitted with a chain wheel 48 which is driven by a chain 49 from a chain wheel 50 secured to the driving shaft 51 of the elevator canvas 4, the shaft 51 being driven by a chain wheel 52 engaged by the chain 17 hereinbefore mentioned.

The front side of the auxiliary canvas 42 is adjustably supported by adjusting rods 53 connected by engaging eyes 54 to the front side of the frame 43 and having their rear ends screw threaded and passing slidably through the upper ends of stationary bars 55 secured to the wind board. Adjusting nuts 56 are screw threaded onto the rear ends of the rods 53 and obviously by adjusting the nuts one can raise or lower the front side of the auxiliary canvas 42 and vary its angular position.

When the machine equipped with my attachment is in operation on the field, the rotary feeder co-operates with the pick-up to gather the windrowed grain and direct the same rearwardly towards the table and the rotary feeder insures of a positive and even feed. Very often in practice, one will find what might be termed heavy piles of grain on the field and where the machine

is only equipped with the pick-up, the feed will be very heavy which may result in the subsequent clogging of the cylinder, it being borne in mind that the pick-up is only working when the machine is moving.

With my device in use, one will slow down the speed of travel of the machine which will cause the pick-up to operate slowly and during this time, the rotary feeder which is motor driven is feeding the major part of the grain to the machine and the result is that the pick-up and rotary feeder gradually eat through the pile so to speak and without bunching the feed.

After the grain has been forced back to the rotary distributor, it is forcibly thrown by the distributor over the canvas and as the distributor is driven at a relatively high speed in relation to the feeder and is of the frustri-conical shape shown, it will be evenly distributed over the table canvas.

In other words, the large end of the rotary distributor will throw the grain further back onto the canvas than occurs at the small end thereof and the result is that the grain is fed beneath the elevator canvas 4 in a continuous stream the full width of such canvas. The auxiliary canvas 42, which is driven at a slightly slower speed than the table canvas, not only holds the grain onto the table canvas insuring of the positive feeding of it but also has a tendency to roll the grain between the canvases. The angular position of the auxiliary canvas can be adjusted depending on whether there is a light or heavy crop as will be readily understood.

What I claim as my invention is:—

1. The combination with a harvester-thrasher having a table canvas and a pick-up, of a pronged driven rotary drum like distributor overlying the rear end of the pick-up and adapted to distribute the grain elevated by the pick-up over the table canvas.

2. The combination with a harvester-thrasher having a table canvas and a pick-up, of a frusto-conical shaped driven rotary pronged distributor extending lengthwise above the rear part of the pick-up and adapted to distribute the grain elevated by the pick-up over the table canvas.

3. The combination with a harvester-thrasher having a table canvas and a pick-up, of a frusto-conical shaped driven rotary pronged distributor extending lengthwise above the rear part of the pick-up and having the small end thereof adjoining the discharging end of the table canvas, said distributor being adapted to distribute the grain elevated by the pick-up over the table canvas.

4. The combination with a harvester-thrasher having a table canvas and a pick-up, of a driven rotary feeder suspended above the front side of the pick-up and a driven rotary distributor suspended above the rear side of the pick-up.

5. The combination with a harvester-thrasher having a table canvas and a pick-up, of a relatively large pronged rotary drum like feeder extending lengthwise above the front side of the pick-up and a rotary drum like pronged distributor extending lengthwise above the rear side of the pick-up, said distributor being driven at a considerably higher rate of speed than the rotary feeder.

6. The combination with a harvester-thrasher having a table canvas, of an auxiliary canvas suspended above the table canvas and feeding in the same direction as the table canvas.

7. The combination with a harvester-thrasher having a table canvas, of an auxiliary canvas suspended above the table canvas and feeding in the same direction as the table canvas but driven at a lesser speed.

8. The combination with a harvester-thrasher having a table canvas, of an auxiliary driven canvas overlying the table canvas and having the front side thereof adjustable towards and away from the table canvas.

9. The combination with a harvester-thrasher having a table canvas, of an auxiliary driven canvas overlying the table canvas and having the rear side thereof hingedly supported and the front side thereof adjustably supported.

10. The combination with a harvester-thrasher having a table canvas and a pick-up, of a rotary pronged driven feeder overlying the rear side of the pick-up and an auxiliary driven canvas overlying the table canvas and having the front side thereof adjoining the rotary feeder adjustable towards and away from the table canvas.

11. The combination with a harvester-thrasher having a table canvas and a pick-up, of a rotary drum like pronged feeder suspended above the front side of the pick-up, a rotary frusto-conical shaped pronged distributor suspended above the rear side of the pick-up and an auxiliary canvas suspended above the table canvas and feeding in the same direction as the table canvas.

12. The combination with a harvester-thrasher having a table canvas and a pick-up, of a rotary drum like pronged feeder suspended above the front side of the pick-up, a rotary frusto-conical shaped pronged distributor suspended above the rear side of the pick-up and an auxiliary canvas suspended above the table canvas and feeding in the same direction as the table canvas and having the front side thereof adjustable towards and away from the table canvas.

Signed at Winnipeg this 10 day of December 1928.

WILLIAM MICKLE.