No. 750,642. PATENTED JAN. 26, 1904.

J. R. HALL.

FEEDING DEVICE FOR CORN HUSKING MACHINES.

APPLICATION FILED FEB. 9, 1903.

NO MODEL.

Fig 1.

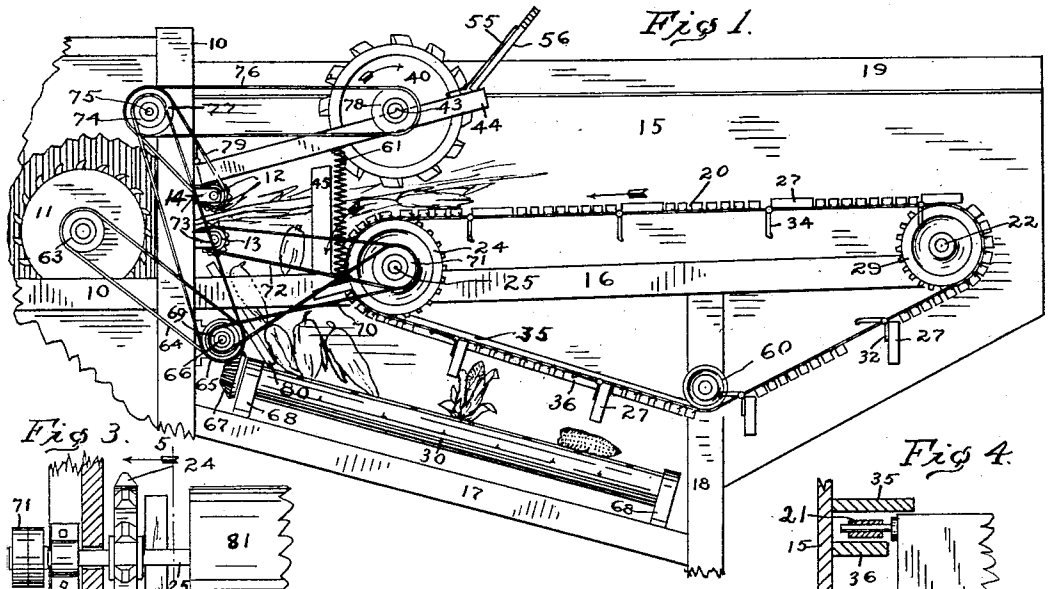


Fig 3.

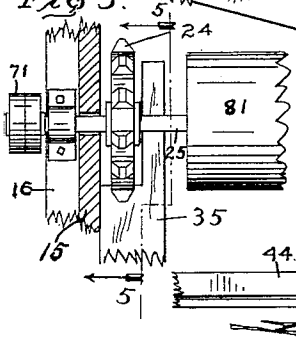
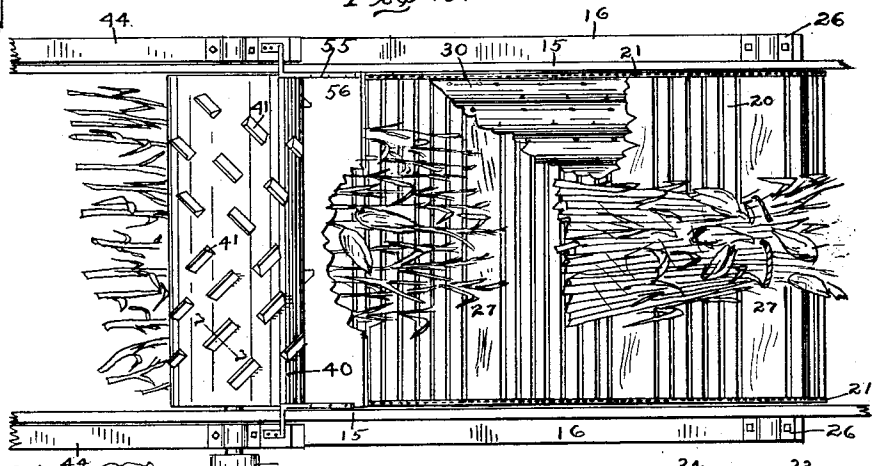


Fig 4.

Fig 2.



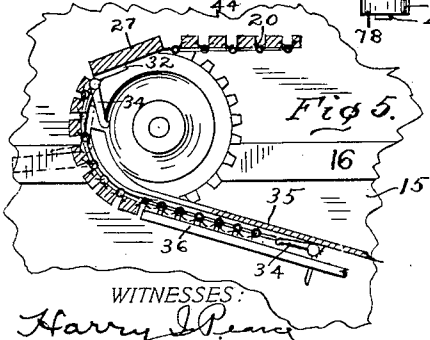


Fig 5.

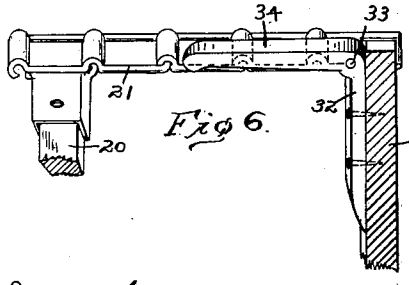


Fig 6.

Fig 7.



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No. 750,642. Patented January 26, 1904.

UNITED STATES PATENT OFFICE.

JOSEPH R. HALL, OF INDIANAPOLIS, INDIANA.

FEEDING DEVICE FOR CORN-HUSKING MACHINES.

SPECIFICATION forming part of Letters Patent No. 750,642, dated January 26, 1904.

Application filed February 9, 1903. Serial No. 142,645. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH R. HALL, of Indianapolis, county of Marion, and State of Indiana, have invented a certain new and useful Feeding Device for Corn-Husking Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like figures refer to like parts.

The object of this invention is to improve the construction of a feeding device for corn-husking machines whereby they will operate more satisfactorily. One difficulty in the operation of such machines is forcing the corn-stalks by the proper feeding mechanism through the snap-rolls. Another difficulty is to prevent ears of corn being caught by the husking-rolls and held by their husks in vertical position, whereby the shuck does not separate from the ear of corn and the latter tends to clog the movement of the other ears of corn down the husking-rolls. My invention overcomes especially these two difficulties.

An important feature of my invention relating to the feeding mechanism is the means for distributing the stalks and material as it is fed into the machine. To that end I provide inclined teeth on the feed-roll which are arranged diagonally, so that a bundle of material thrown upon the conveyer will be separated and distributed laterally by the teeth on the feed-roll, so as to bring the material more evenly to the snap-rolls. To this end also I gear the machine so that said feed-roll will be driven at a higher rate of speed than the conveyer which moves the material, and this differential movement of the feed-roll, together with the arrangement of teeth thereon, assists materially in the satisfactory lateral distribution of the stalks and material entering the machine. The means whereby such results are accomplished will be understood from the accompanying drawings and the following description and claims.

In the drawings, Figure 1 is a side elevation of the upper front portion of a corn-husker, the near side board being removed and parts broken away. Fig. 2 is a plan view of the central portion of the part of the corn-husker that is shown in Fig. 1, parts being broken away and the flaring side boards removed. Fig. 3 is a plan view of the means at one side for supporting and controlling the conveyer, parts being broken away and parts in section. Fig. 4 is a vertical section of a portion of the left-hand side board of the machine with a portion of the conveyer shown and the means for guiding it. Fig. 5 is a side elevation of a portion of the conveyer and other parts, parts, however, being in section on the line 5 5 of Fig. 3. Fig. 6 is a detail perspective view of a portion of the conveyer-chain and a slat and a widened slat or board attached thereto. Fig. 7 is a transverse section of one of the teeth on the feed-roll on the line 7 7 of Fig. 2.

Referring now to the details of what is shown herein to explain my invention, there appears in the first place the forward portion of the main framework 10 of the machine with a suitable cylinder 11 mounted therein. On the front end of the frame 10 a pair of snap-rolls 12 and 13 are mounted in the brackets 14. On each side extending forward from said framework 10 there is a side board 15. These side boards are secured to substantially horizontal upper pieces or bars 16 and lower bars 17, and the front uprights of the main frame 10 and the upright frame-piece 18, and a flaring side board 19 is placed above the vertical side board 15.

The feed-conveyer is formed of a number of slats 20, secured to the sprocket-chains 21 and mounted at its outer end on the sprocket-wheels 29, carried by the shaft 22, working in bearings 26 on the upper frame-pieces 16. The inner end of the conveyer is mounted on a pair of sprocket-wheels 24, carried by the shaft 25 in bearings like 26 on the frame-pieces 16. The lower portion of the conveyer passes under a pulley 60, mounted on the upright 18 at each side of the machine, said pulleys being so located as to cause the feed-conveyer on its under side to travel parallel with and in close proximity to the husking-rolls 30. At certain intervals instead of slats in the conveyer there are widened slats or boards 27, so mounted that while feeding the stalks and moving inward the boards will lie flat and flush with the small slats, but

on the under side of the conveyer. While moving outward these boards 27 will extend down, as shown in Fig. 1. The purpose of these boards 27 is to clear the husking-rolls 30 of corn that becomes caught between them. They also tend to keep the corn from clogging the throat of the machine while passing from the snap-rolls to the husking-rolls.

The construction of the conveyer in detail appears in Fig. 6. Said boards 27 are pivotally connected with the chain 21 by a hinge-piece 32 on the pivot 33. This hinge-piece is provided with a heel 34, extending at a right angle from it, as shown. The purpose of this heel-piece is that after the board on the conveyer has turned downward at the end of the conveyer the heel-piece will engage the upper guide-plate 35, as shown in Fig. 5. Said upper guide-plate 35 throws the heel from a vertical to a horizontal position, which forces the board downward into a vertical position and holds it that way while the board is traveling over the husking-rolls. In such part of the operation also the conveyer-chains pass on and over the lower guide-plate 36. As shown in Fig. 4, the guide-plates 35 and 36 are secured to the side board 15 parallel and near each other to furnish a narrow guideway for the movement of the chain, and whereby the heel-piece 34, as well as the board 27, is held down positively. This construction, therefore, furnishes a perfectly positive means for sweeping down the clogging ears of corn on the husking-rolls and promoting the movement of the corn thereon. As the conveyer proceeds and said boards 27 pass about the forward pulleys 60 the heel-pieces thereof become released from engagement with the upper guide-plate 35, and then said board 27 is free and after passing the sprocket-wheels 29 resumes its horizontal position, as shown on the upper side of the conveyer. As said board passes over the inner pair of sprocket-wheels 24 it sweeps downward and out of the way upon the husking-rolls any corn in the throat of the machine and prevents clogging at that point. The guide-boards 35 and 36 hold the conveyer on the under side parallel with the snap-rolls at all points until after it passes the pulleys 60. The cornstalks with the corn thereon are conveyed to the snapping-rolls by said conveyer 20 in coöperation with the feed-roll 40. This is a cylinder with its periphery provided with a series of teeth 41, arranged in diagonal rows leading from the center for the purpose of spreading the stalks from the center of the roll laterally. To this end said teeth are set diagonally with an inclined face looking laterally away from the center of the roll. They are somewhat elongated, as shown, their length extending in a diagonal direction substantially parallel with the diagonal position of the series or rows of teeth. The effect of this arrangement is that individual stalks will be forced laterally away from the center of the roll by the inclined surface of each tooth, and after a stalk is pushed laterally by one tooth it will be taken up by the next tooth in the series and pushed further laterally. All the stalks coming into immediate contact with the teeth will be affected in this way, so that the whole number of stalks will be rather evenly distributed on the conveyer from side to side, as shown. To coöperate with the form and arrangement of the teeth on said conveyer for the purpose of the lateral distribution of the stalks, I provide the driving mechanism of the conveyer and the feed-roll 40 so that the feed-roll will travel faster than the conveyer. This differential movement of the feed-roll materially assists the inclined teeth in the lateral distribution of the stalks. It will also cause a longitudinal distribution, as the stalks in immediate contact with the feed-roll will move inward faster than the stalks in immediate contact with the conveyer. Said feed-roll is mounted on a shaft 43 in the outer ends of a pair of bars 44, that at their inner ends are hinged to the forward framework of the machine, so that the feed-roll will rest by gravity upon the cornstalks that enter the machine under the feed-roll and upon the conveyer. The feed-roll is mounted, preferably, over the inner end of the conveyer, and the post 45 stops or limits the downward movement of the bars 44, and therefore the feed-roll, so as to prevent it from coming in contact with the conveyer when there are no cornstalks between them. Since the weight of the feed-roll 40 and the attached portions affected by gravity is rather too heavy for the best action on the cornstalks, I provide on each side a spiral spring 61. The lower ends of these springs rest upon the horizontal bar 16 and the upper ends bear upward against the hinged bars 44. They are extensile in their action, and therefore tend to overcome to a limited extent the weight of the feed-roll and its attached parts. Obliquely and upwardly extending arms 55 are secured to the outer ends of the bars 44, and on said arms 55 there is secured a board 56 for deflecting the cornstalks under the feed-roll and to prevent any from passing over the feed-roll.

The cylinder 11 is driven by any suitable source of power and its shaft carries the pulley 63, on which the belt 64 extends to the pulley 65 on the horizontal shaft 66, which carries bevel-gears (not shown, but common in such machinery) for driving the bevel-gears 67 on the shafts of the husking-rolls. Said husking-rolls are mounted in an inclined position in the bearings 68 on the lower frame-pieces 17. The shaft 66 has a small pulley 69, from which the belt 70 extends to the pulley 71 on the shaft 25 for actuating the conveyer. The snap-roll 13 is driven by the belt 72, running from a pulley on the shaft 25 to a pulley on the shaft of the lower snap-roll. A belt 73 runs from the pulley 65 on the shaft

66 to the small pulley 74 on the shaft 75. The belt 76 runs from the large pulley 77 on said shaft 75 to the pulley 78 on the shaft 43 of the feed-roll. The belt 79 from the pulley 77 drives the upper snap-roll 12. 80 is a board in the throat of the machine for deflecting the corn as it comes from the snap-rolls down upon the husking-rolls and is secured at its ends to the side boards 15.

From the description of the driving mechanism, belting, and gearing above it is seen that the speed of the feed-roll 40 is greater than that of the conveyer. This is because the conveyer is driven from a smaller pulley on the shaft 66 than the feed-roll, the former being driven from pulley 69 and the latter from pulley 65. Furthermore, the pulley 71 for the conveyer is larger than the pulley 69 on the shaft 66, so that its speed is still further reduced, whereas the pulley 74 on the shaft 75 is smaller than the pulley 77, so that the speed of the feed-roll is further multiplied. This therefore causes the differential speed of the feed-roll and conveyer; but the same may be caused by any other method of gearing without affecting the scope of my invention. The inner end of the conveyer is centrally supported by a roller 81, (shown in Fig. 3,) which is mounted on the shaft 25.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a corn-husker, the combination of a conveyer for feeding the material to the machine, a feed-roll mounted above the inner end of the conveyer and depressed by gravity, teeth mounted on said feed-roll in diagonal series diverging from the center and each tooth having an inclined face on the side away from the center of the feed-roll, means for driving said conveyer, and means for driving said feed-roll faster than said conveyer.

2. In a corn-husker, the combination of a conveyer for feeding the material to the machine, a feed-roll mounted above the inner end of the conveyer and depressed by gravity, springs resisting the downward movement of said feed-roll, and means for driving the conveyer and feed-roll.

3. In a corn-husker, the combination with husking-rolls, of a conveyer for feeding the material to the machine, means for mounting said conveyer so that its under side will be substantially parallel with said husking-rolls, transverse slats pivoted to the conveyer, and means that cause said slats to extend downward from the under side of the conveyer into close proximity to the husking-rolls as the under side of the conveyer moves outward.

4. In a corn-husker, the combination with husking-rolls, of a conveyer for feeding the material to the machine formed of a sprocket-chain on each side thereof, transverse slats secured to the sprocket-chains in groups with an intervening space between each group of slats, a widened slat or board adapted to occupy such intervening space, the ends of said widened slat or board pivotally connected with the sprocket-chains, a heel-piece extending from such pivotal connection at substantially a right angle to the widened slat or board, and means which said heel-piece engages as the conveyer operates for forcing said widened slat or board into a vertical position as it passes along the under side of the conveyer.

5. In a corn-husker, the combination of husking-rolls, a conveyer for feeding the material to the machine formed of a sprocket-chain on each side thereof, transverse slats secured to the sprocket-chains in groups with an intervening space between each group of slats, a widened slat or board adapted to occupy such intervening space, the ends of said widened slat or board being pivotally connected with the sprocket-chains, a heel-piece extending from such pivotal connection at substantially a right angle to the widened slat or board, and a guideway for the under side of said conveyer formed of two parallel plates, said chains adapted to drag and move upon the lower plate and said heel-pieces adapted to engage the upper plate so that it will hold the widened slat or board down in a vertical position.

In witness whereof I have hereunto affixed my signature in the presence of the witnesses herein named.

JOSEPH R. HALL.

Witnesses:
V. H. LOCKWOOD,
NELLIE ALLEMONG.