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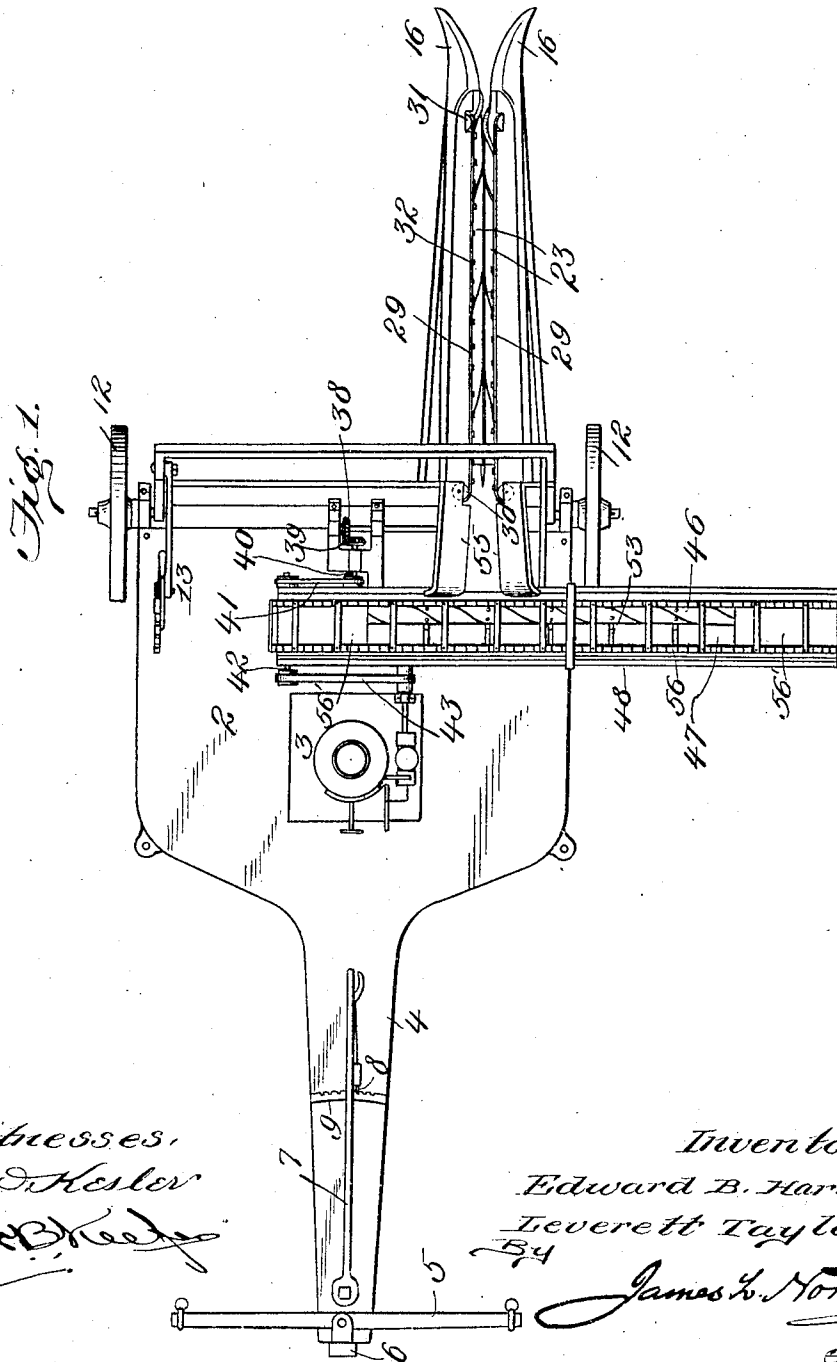
PATENTED MAR. 17, 1908.

E. B. HARMAN & L. TAYLOR.

CORN HUSKING MACHINE.

APPLICATION FILED FEB. 13, 1907.

4 SHEETS—SHEET 1.



Witnesses,
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J.B. Keefe

Inventors
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By
James L. Norris
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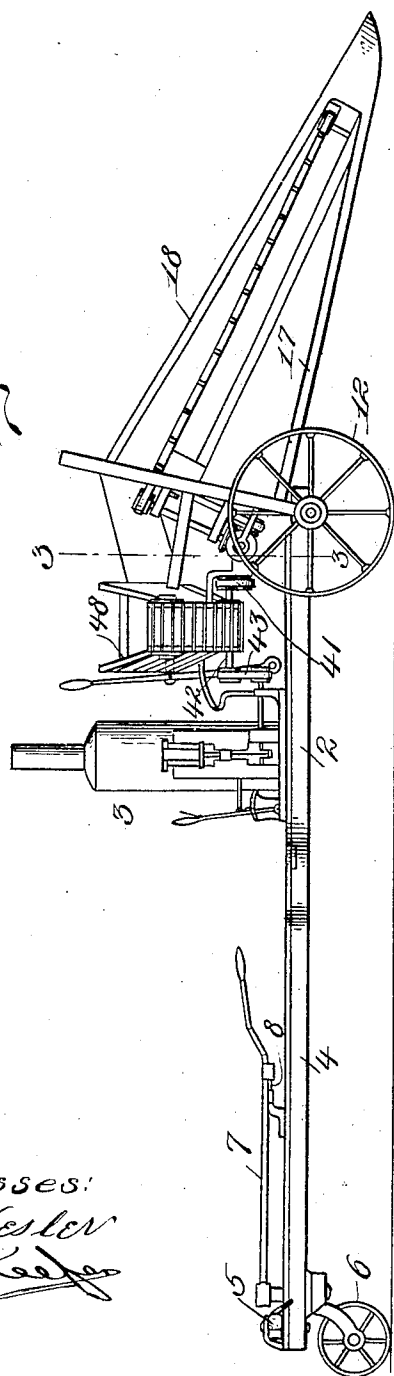
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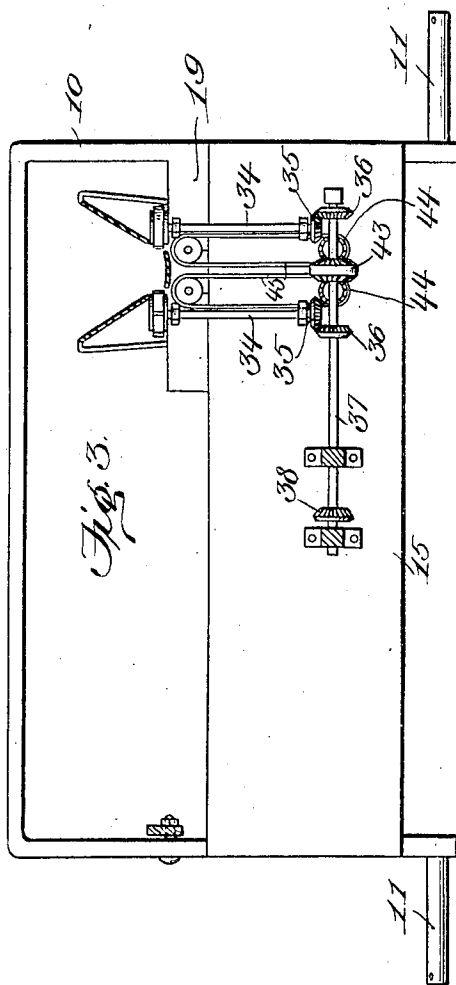
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Fig. 2.



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Fig. 3.



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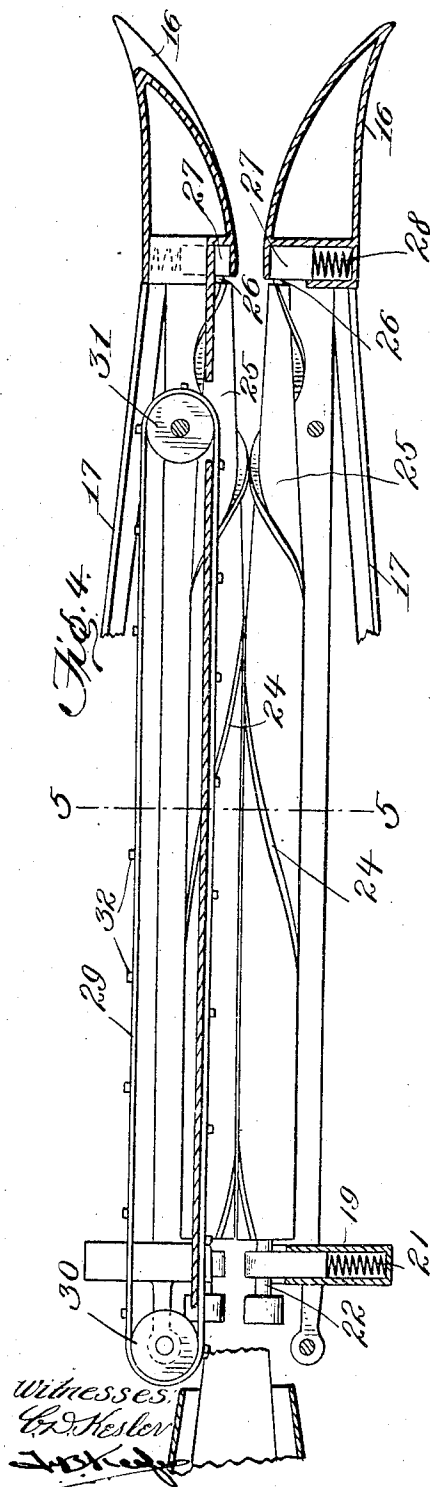
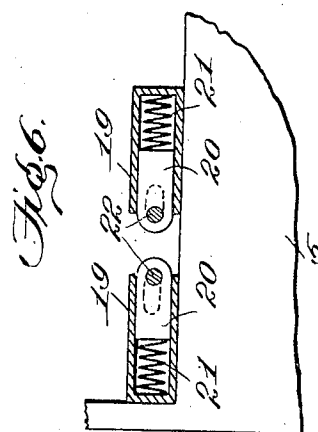
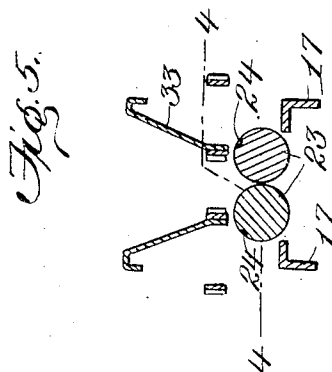
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4 SHEETS—SHEET 3.



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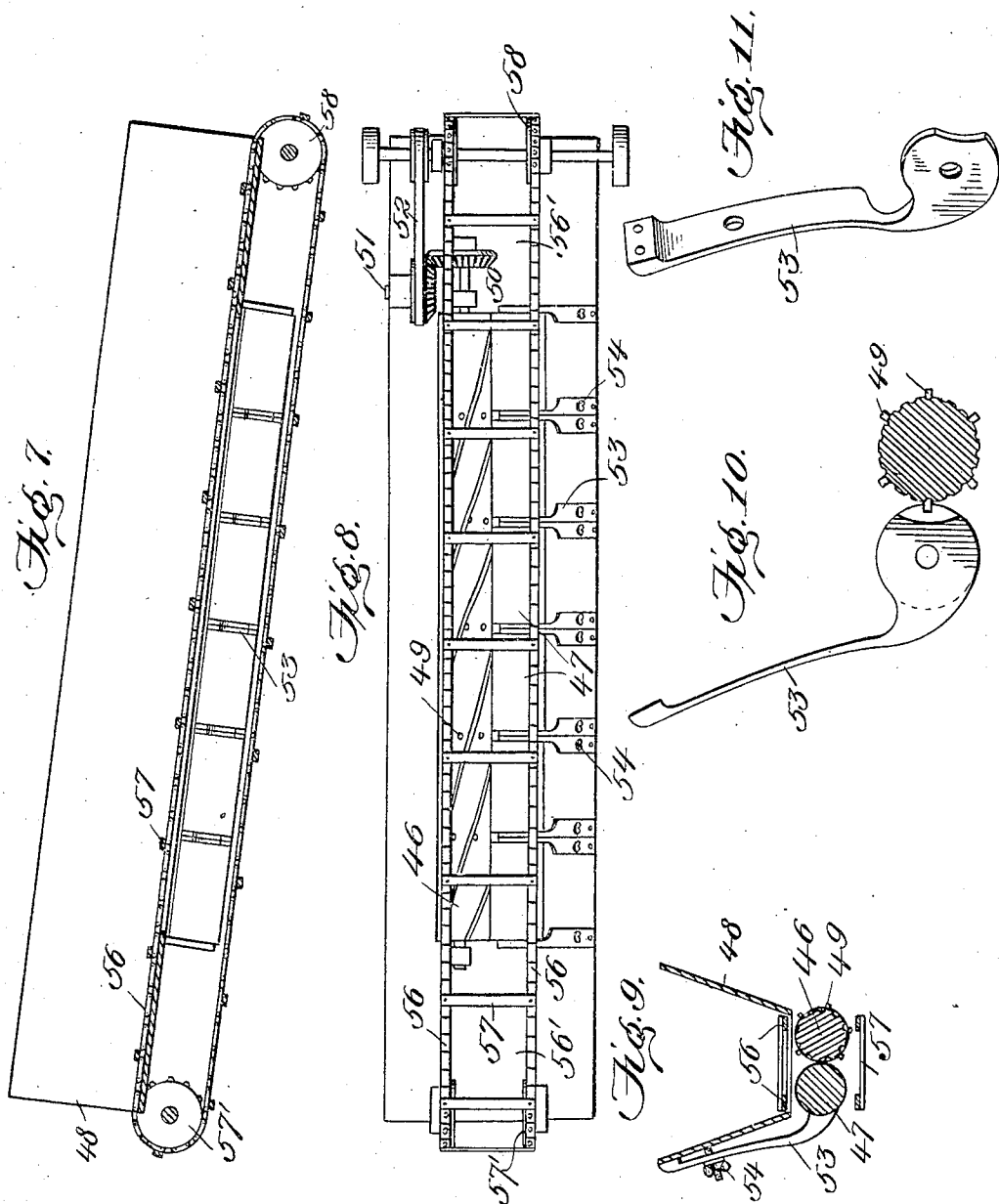
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

EDWARD B. HARMAN AND LEVERETT TAYLOR, OF FULLERTON, NEBRASKA, ASSIGNORS OF
ONE-THIRD TO GEORGE D. MEIKLEJOHN, OF FULLERTON, NEBRASKA.

CORN-HUSKING MACHINE.

No. 882,466.

Specification of Letters Patent.

Patented March 17, 1908.

Application filed February 13, 1907. Serial No. 357,192.

To all whom it may concern:

Be it known that we, EDWARD B. HARMAN and LEVERETT TAYLOR, citizens of the United States, residing at Fullerton, in the county of Nance and State of Nebraska, have invented new and useful Improvements in Corn-Husking Machines, of which the following is a specification.

This invention relates to a corn husking machine, and the primary object of the invention is to provide an effective apparatus of this character which can travel across a field of corn to strip the ears from the stalks of corn and afterward to husk or shuck said ears in a clean manner. The machine, however, need not necessarily move across the field, nor is it essential that all the parts hereinafter described be embodied in one apparatus. For example, the husking mechanism may be used independently of the snapping or picking mechanism, and vice versa.

In the drawings accompanying and forming a part of this specification there is illustrated in detail one form of embodiment of the invention which, to enable those skilled in the art to practice said invention, will be hereinafter more particularly described, while the novelty of said invention will be included in the claims succeeding said description.

Referring to said drawings, Figure 1 is a top plan view of a corn husking machine involving the invention; Fig. 2 is a side elevation of said machine; Fig. 3 is a vertical section on the line 3—3, Fig. 2; and looking toward the left; Fig. 4 is a top plan and partial sectional view of the snapping or picking mechanism and certain cooperating devices hereinafter more particularly described, the section of said Fig. 4 being on the irregular line 4—4, of Fig. 5; Fig. 5 is a cross section on the line 5—5, Fig. 4; Fig. 6 is a detail view of yieldable bearing means for the snapping or picking rollers; Fig. 7 is a longitudinal sectional elevation of the husking mechanism; Fig. 8 is a bottom plan view of the same; Fig. 9 is a cross sectional view of said husking mechanism; Fig. 10 is a sectional elevation of a portion of the husking mechanism; and Fig. 11 is a detail view in perspective of a yieldable bearing.

The figures of the drawings are upon different scales. For instance, the scale of Fig. 4 is very much greater than that of Figs. 1 and

2, and the scale of Figs. 10 and 11 is greater than that of Fig. 9.

Like characters refer to like parts throughout the several figures of the drawings.

While it is not essential as will be understood from what is hereinbefore stated, to mount the different parts of the apparatus in any particular manner, it is preferred that these be carried upon some suitable form of vehicle, as will hereinafter appear. This vehicle may be moved across a field in any desirable way, for example, by power or by draft animals, such as horses, provision in the present instance being made for the drawing of the vehicle over a field by horses. The apparatus may have one or a plurality of picking or snapping mechanisms. To avoid possible confusion there is shown in the drawings and hereinafter described but one of these picking mechanisms. In like manner the other parts of the machine may be duplicated if desired as the invention does not reside in these features but in certain advantageous mechanical relations, whereby effective results can be accomplished. The different moving parts may be operated in any suitable way, for example, by a motor on the vehicle, and this motor may be of any desirable type.

The vehicle shown in the drawings includes in its make-up a deck or platform as 2, and upon this deck or platform may be mounted a motor as 3. The motor shown is a steam engine. The rear portion of the platform is reduced in width or narrowed as at 4, and horses or other draft animals can be hitched to a double tree as 5 suitably mounted at the rear end of said narrowed portion 4, the horses at such time being at opposite sides of said narrowed portion 4. The latter has swiveled thereto a guiding wheel as 6 to the vertical spindle of which is rigidly connected a tiller or hand lever as 7 equipped with a suitably operated detent as 8 coöperative with the teeth of the segment 9 suitably fastened to the upper side of said narrowed portion 4. By disengaging the detent 8 from the toothed segment 9 the tiller or lever 7 can be operated to guide the vehicle.

At the forward side of the vehicle is a yoke as 10, the vertical sides of which are equipped at their lower ends with duplicate axles as 11 with which are rotatively associated the traction wheels 12 held to the axles in any

desirable manner. The picking and snapping means and certain adjunctive devices are carried by this yoke 10. The deck or platform 2 is supported by said axles 11 in such a way that the axles can be turned relatively to the deck for the purpose of swinging the yoke 10 to raise or lower the picking mechanism. In Fig. 1 there is shown conventionally and denoted in a general way by 13 a convenient mechanism for operating the yoke. It is not essential to describe this mechanism in detail for the same in itself forms no part of the invention.

There is shown as extending between the vertical side branches of the yoke 10 what will be termed a cross board 15, although it is not necessary that this part be made of wood, the designation in question being used in a generic sense. As a matter of fact said part 15 may consist of a metallic plate or may be of composite material. At a point in advance of the deck 2 are two practically similar coöperating guiding members as 16. These members 16 taper from their inner toward their outer ends and are longitudinally curved, as clearly shown in Fig. 4 so as to present between them an inwardly tapering throat into which the corn stalks are guided by the conjoint action of the two guiding members. The latter are ordinarily hollow, and may be made of any desirable material. From the lower portions of these guiding members and rigidly connected therewith are extended the two braces 17, see Fig. 2 for example, which are generally made of angular form and which are united rigidly in some suitable way to the outer side of the cross board 15. Other braces as 18 (see Fig. 2) may also extend from these guiding members 16 to said cross board. The two guiding members therefore are strongly braced so that they can effectively support without possibility of derangement certain members hereinafter more particularly described. While the throat between the two guiding members 16 is inwardly tapered, the walls of said throat are not in contact at the inner end thereof, but are separated a distance sufficient to permit the free passage thereof through of the stalks.

On the upper side of the cross board 15, as clearly shown in Figs. 3 and 6, there are mounted two boxings as 19 which receive for sliding movement the spring actuated blocks 20, the springs 21 of which constantly force said blocks toward each other. These blocks 20 serve as bearings for the shafts 22 of the picking or snapping rollers 23. These rollers are disposed in parallelism, extend toward the guide members 16 and have spirally arranged ribs as 24 on their peripheries. The two snapping rollers 23 are illustrated as provided with tapered portions 25 and these tapered portions act and will hereinafter be designated as feed-screws. In the present

case the said feed screws are integral with the snapping or picking rollers 23. The feed screws taper toward their outer ends and terminate in stubs or gudgeons 26 rotatively supported by spring controlled blocks as 27 supported in the hollow guide members 16 and movable toward each other by springs as 28. The rollers 23 and screws 25 are therefore yieldably mounted so that they can recede in case an obstruction should be encountered by them. In this way the action of the machine will not be affected for by virtue of feeding mechanism hereinafter described the obstruction can be easily removed. Each screw 25 constitutes in effect a forward continuation or really a part of the directly co-operative picking roller. In fact, the two members may be made in one piece. The screws 25 taper toward their outer ends by reason of which said screws can have tapered threads so that there is no possibility of the screws crushing the stalks. As the machine is moved forward in the line of a row of stalks, the stalks are directed by the guiding members 16 into the throat between said guiding members and are caused to pass into the narrowed portion of said throat where they are brought under the action of the screws 25 which practically bend down the stalks so that the ears thereon can be brought into the range of operation of the two ribbed picking or snapping rollers 23, which latter rollers co-act to remove the ears from the stalks, assuming that there is more than one ear on each stalk. The means shown for turning the snapping rolls and feed screws will be hereinafter described.

Ear feeding mechanism of some suitable nature is preferably employed in connection with the snapping mechanism, and for this purpose the companion belts 29 may be employed. These belts are disposed in parallelism and may be of sprocket form, in which case they pass around upper sprocket wheels as 30 and lower sprocket wheels as 31, the latter being situated below the outer ends of the two rollers 23 and their shafts being supported by suitable bearings upon the braces 18. The inner runs of these two sprocket belts or chains move adjacently to each other and a short distance above the bite of the two rollers 23. The said belts or chains are preferably equipped on their outer sides with projections 32 which advance the ears of corn longitudinally of the rollers 23 and toward the husking mechanism hereinafter described. Above the rollers 23 are the downwardly converging angular side boards 33 resting at their upper ends on the boxings 19 and connected at their lower ends with the guide members 16. These side boards 33 prevent side escape of the ears of corn snapped off the stalks by the joint action of the two rollers 23, and the inner runs of the respective belts 29 travel substantially in

contact with the lower portions of said boards 33, as clearly indicated in Fig. 5. The upper wheels 30 are situated above the upper ends of the two rollers 23 so that said chains 29 will convey the ears of corn from off the inner ends of the said rollers. The said wheels 30 are suitably fastened to the upper ends of shafts as 34 supported by bearings upon the board 15 and boxings 19, respectively, the lower ends of said shafts 34 having fastened thereto beveled gears as 35 meshing with similar beveled gears as 36 on the shaft 37 supported by bearings on said board 15. Said shaft 37 is shown as carrying at one end a beveled gear 38 meshing with a beveled gear as 39, the shaft 40 of which is supported by a suitable standard on the deck or platform 2. Said shaft 40 is connected by gearing denoted in a general way by 41 with the shaft 42 which in turn is connected by gearing denoted in a general way by 43 with the main shaft of the motor 3. By virtue therefore of the described connections the inner runs of the two belts or chains 29 will be moved simultaneously upward longitudinally of the cooperating rollers 23, when the motor 3 is in operation.

On the shaft 37 is a double beveled gear as 43', the sections of which mesh with beveled gears as 44 connected respectively, by belt gearings, each denoted in a general way by 45 with the rollers 23, whereby said rollers, and hence the respective feed screws 25 forming parts of the same, will be oppositely rotated.

The husking mechanism includes in its construction an elongated roll as 46, and a cooperating roll 46' in yieldable sections, each of the latter being denoted by the character 47. The husking mechanism is supported by a trough-like member as 48, the sides of which are downwardly convergent, and this trough-like member has bearings for said roller 46 and is suitably connected with the board 15. The length of the roller 46 is equal substantially to the combined length of the sections 47 of the divided roll. These sections 47 are peripherally plain, while the elongated roller 46 has circumferential spiral ribs and teeth or projections as 49 which latter move, respectively, in the spaces between the ends of the longitudinally aligned sections 47. The inner end of the shaft of the roller 46 is connected by beveled gearing denoted in a general way by 50 with the shaft 51 connected by belt gearing denoted in a general way by 52 with the shaft 42 to which reference has been hereinbefore made from which it will be understood that the said roller 46 is power operated. The shafts of the roller sections 47 are carried at the lower ends of spring hangers as 53 fastened exteriorly of the trough-like member 48 as shown clearly in Figs. 8 and 9, and the tension of which spring hangers can be regu-

lated by adjusting devices as 54, see Fig. 9. From this it will be evident that each section 49 is yieldably mounted.

The two belts 29 combine to deliver the ears of corn on to a downwardly inclined apron as 55, see for example, Fig. 1, which directs said ears on to the roller 46 and the companion divided roller made up of the yieldable sections 47. The said two rollers cooperate to husk or shuck the corn, the latter being advanced toward the outer ends of said two rollers in some suitable manner; for example, by the parallel belts 56 which may consist of sprocket chains and which are connected by lags as 57, the latter on the upper runs of the belt being disposed just above the said two rollers so as to advance the ears of corn. The said belts 56 pass around outer rolls as 57 and inner rolls as 58, the latter being suitably fastened to the shaft 42, whereby the two connected chains can be simultaneously driven. The two husking rollers are situated in the space between the upper and lower runs or portions of the two connected belts 56, as clearly indicated in Fig. 8. The ears of corn pass, after being snapped or picked from the stalks, from the picking or snapping rollers to the husking rollers which are disposed transversely to said first mentioned rollers, and which coact to shuck the corn, the corn while under the action of the husking mechanism being positively fed there along by the operation of positive feeding means, of which an example has been disclosed. By making one of the husking rollers in sections, an advantage is attained over a construction having two rolls of continuous construction. In the latter case should the rolls be accidentally separated by some obstruction feeding mechanism would feed the ears of corn out of the range of action of said rollers without being husked. In the case of a dividing husking roller this condition is not possible for if one section be rendered temporarily ineffective the corn will be conducted to the next section, and the ensuing sections, whereby the ear is clearly freed of husks. The pins 49 are made somewhat fine and as the roller 46 carrying the same turns, said pins act to tear the husks loose from the ears but do not injure the latter or the grain thereon, the consequence being that the corn leaves the husking rollers in a clean condition. There is preferably situated immediately below the upper portions of the aprons 56 and near the opposite ends thereof the plates 56', the inner ends of which overlap slightly the opposite ends of the husking rollers. These plates prevent the belts or chains 56 from sagging, while the outer plate 56' receives the shucked ears of corn, and prevents the same falling into the space between the outer ends of said husking rollers and wheels 57.

In operation the apparatus is moved along the field and the stalks are entered into the space between the guiding members 16 so that they may be reached by the screws 25 which bend said stalks down so that the ears thereon are brought into contact with the rollers 23, the oppositely disposed spirally arranged ribs 24 of which snap off or pick the ears from said stalks, the ears falling on the said rollers 23 and being fed there along by the two belts 29, which carry the said ears away from the rollers 23 and on to the apron 55 down which said ears gravitate on to the inner portions of the two husking rollers, one of which is designated by 46, and the other of which consists of the sections 47. The said husking rollers husk or shuck the ears of corn and during this latter operation said ears are advanced along the husking rollers by the lags or cross bars 57.

The machine hereinbefore described is effective in operation. It can quickly harvest the ears and shuck the same after thus harvesting them. There is no possibility of the machine being easily put out of order. Means are provided for carrying the stalks back to the grip of the snapping or picking rolls even where the stalks are large and stiff, and even where such stalks have been bent over or broken off near the ground.

What I claim is:—

1. In a machine of the class described, husking mechanism involving a pair of rollers, one of which is spirally ribbed and is provided with annularly-arranged teeth, the other roller comprising a series of longitudinally-alined endwise-separated sections, the teeth of the first mentioned roller being revoluble in the spaces between the sections of said second mentioned roller.

2. In a machine of the class described, husking mechanism involving a pair of rollers one of which is spirally ribbed and is provided with annularly-arranged teeth, the other roller comprising a series of longitudinally-alined endwise-separated sections, the teeth of the first mentioned roller being revoluble in the spaces between the sections of the second mentioned roller, and spring arms rotatively supporting said sections at the opposite ends thereof.

3. In a machine of the class described, husking mechanism involving a pair of rollers, one of which consists of independent, longitudinally-alined sections, spring arms supported by and pendent from the framework of the machine, said spring arms rotatively supporting the respective sections at the opposite ends thereof, and means connected with said spring arms for adjusting the tension thereof.

4. In a machine of the class described, husking mechanism involving two rollers, one of which is spirally ribbed and is pro-

vided with annularly-arranged teeth, and the other of which consists of a plurality of longitudinally-alined endwise-separated sections, the teeth of the first mentioned roller being revoluble in the spaces between the ends of said sections, and spring arms rotatively supporting said several sections.

5. In a machine of the class described, a trough-like member, endless belts supported by said trough-like member, cross bars connecting the belts, husking mechanism extending longitudinally of the belts between the runs thereof and below the sides of said trough-like member, said husking mechanism including two rollers, one of which is composed of independent bodily movable sections, and said cross bars serving to move the ears of corn along said rollers, and spring arms for supporting said sections.

6. In a machine of the class described, a trough-like member, endless belts supported by said trough-like member, cross-bars connecting the belts, husking mechanism extending longitudinally of the belts between the runs thereof and below the sides of said trough-like member, said husking mechanism including two rollers, one of which is spirally ribbed and also has annularly-arranged teeth, and the other of which is composed of independent, bodily-movable, endwise-separated sections, the teeth of the first mentioned roller being revoluble in the spaces between said sections, and said cross-bars serving to move the ears of corn along said rollers, and means for yieldably supporting said sections.

7. In a machine of the class described, a trough-like member, endless belts supported by said trough-like member, cross-bars connecting the belts, husking mechanism extending longitudinally of the belts between the runs thereof and below the sides of said trough-like member, said husking mechanism including two rollers, one of which is spirally ribbed and also has annularly-arranged teeth, and the other of which is composed of independent, bodily-movable, endwise-separated sections, the teeth of the first mentioned roller being revoluble in the spaces between said sections, and said cross-bars serving to move the ears of corn along said rollers, and spring arms supported by the framework of the machine and rotatively connected with said sections at the ends thereof.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

EDWARD B. HARMAN.
LEVERETT TAYLOR.

Witnesses:

ERVIN EDDY,
JAMES W. TANNER.