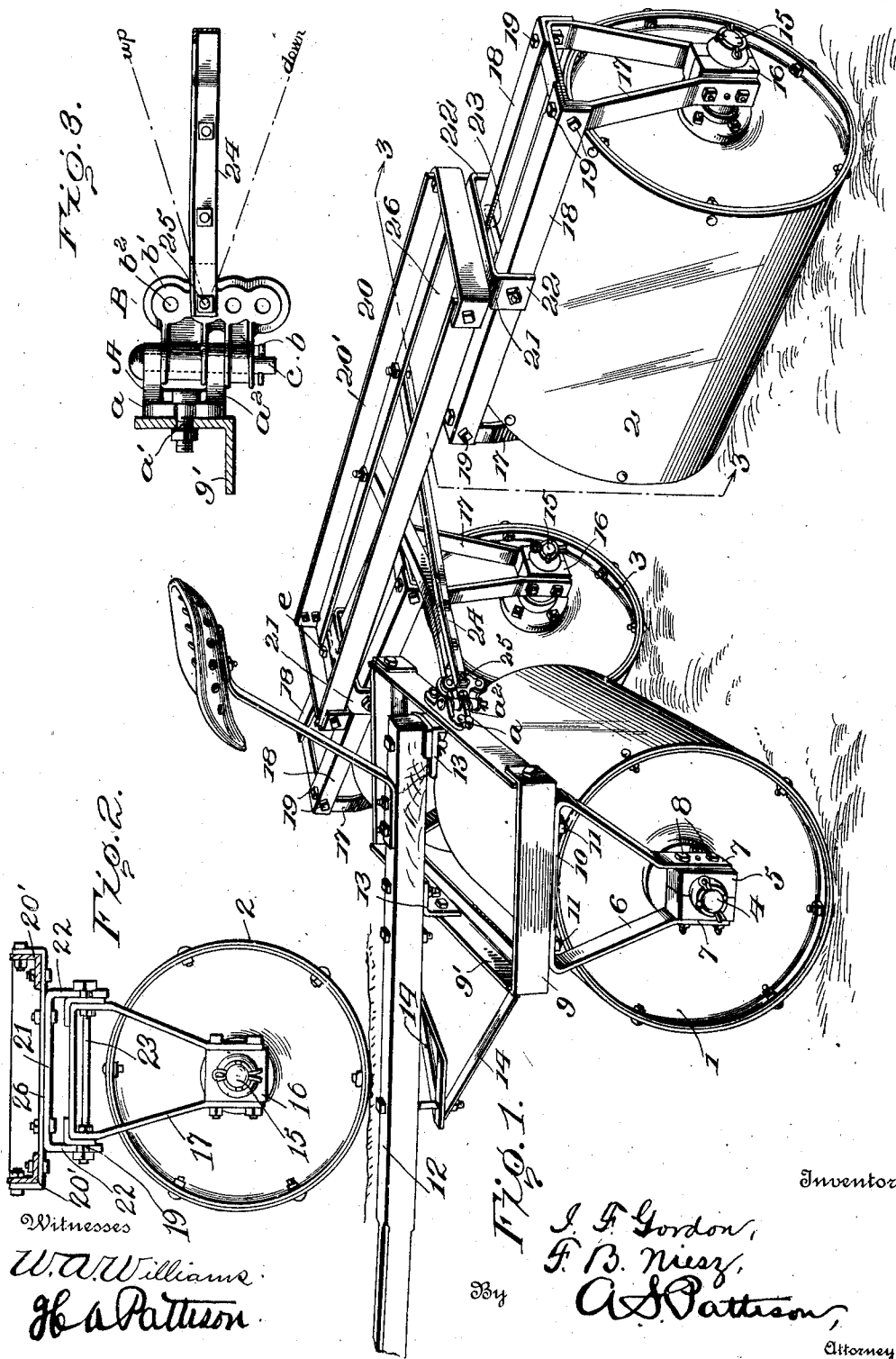


I. F. GORDON & F. B. NIESZ.
 COMBINED LAND AND CORN ROLLER.
 APPLICATION FILED JAN. 16, 1911.

998,498.

Patented July 18, 1911.

3 SHEETS—SHEET 1.



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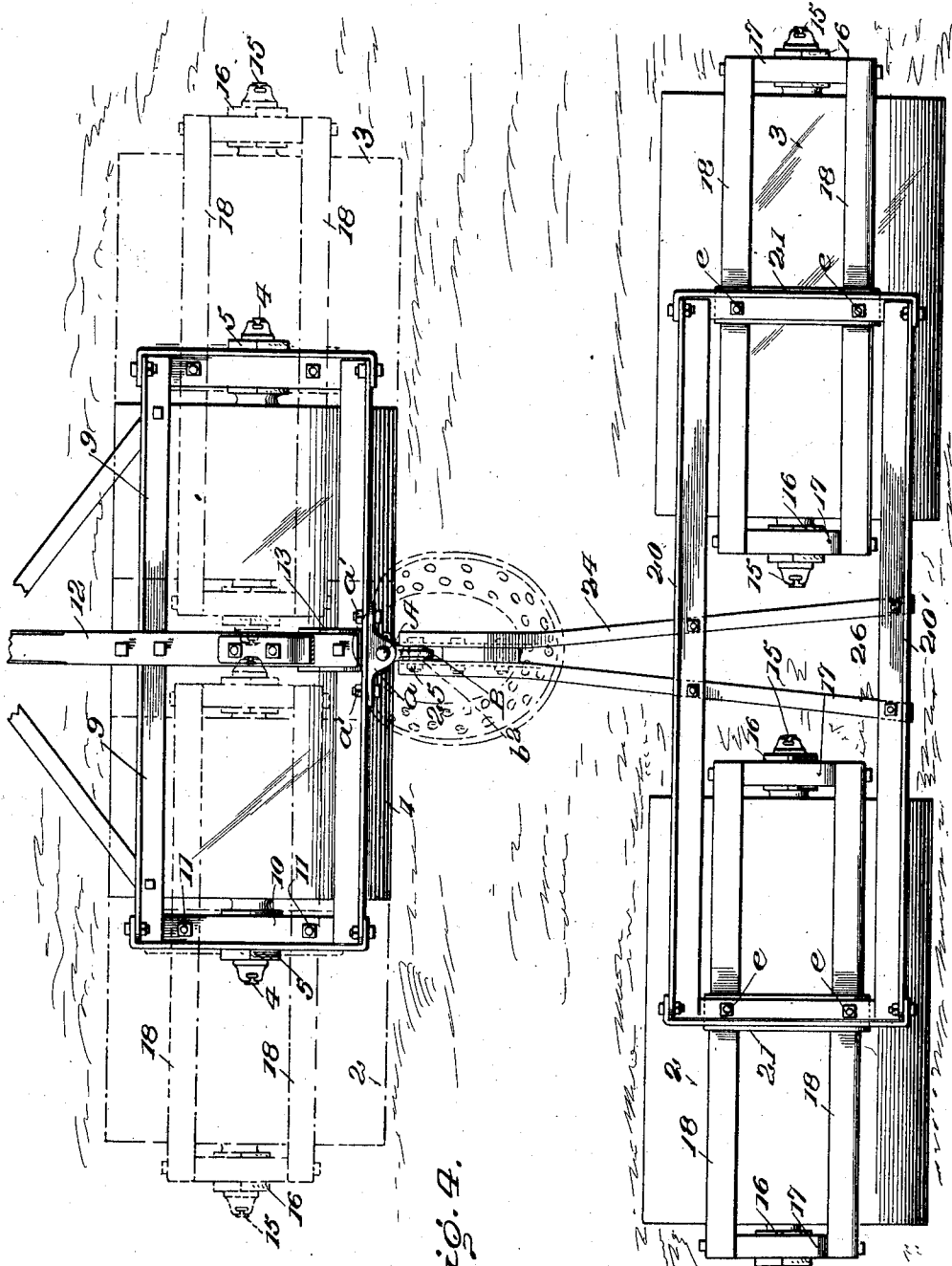


Fig. 4.

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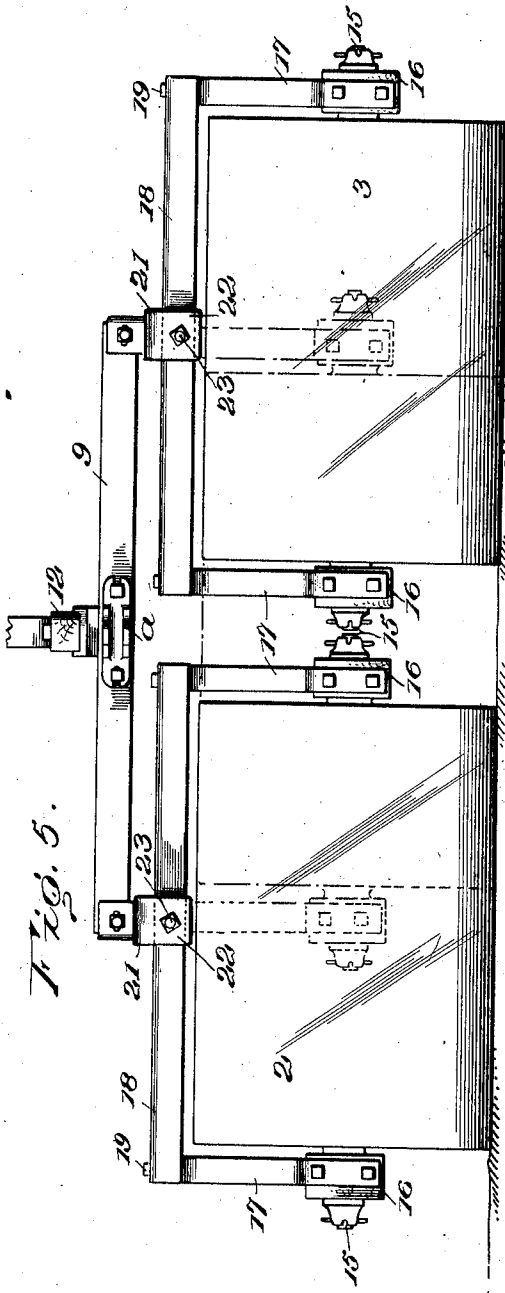


Fig. 5.

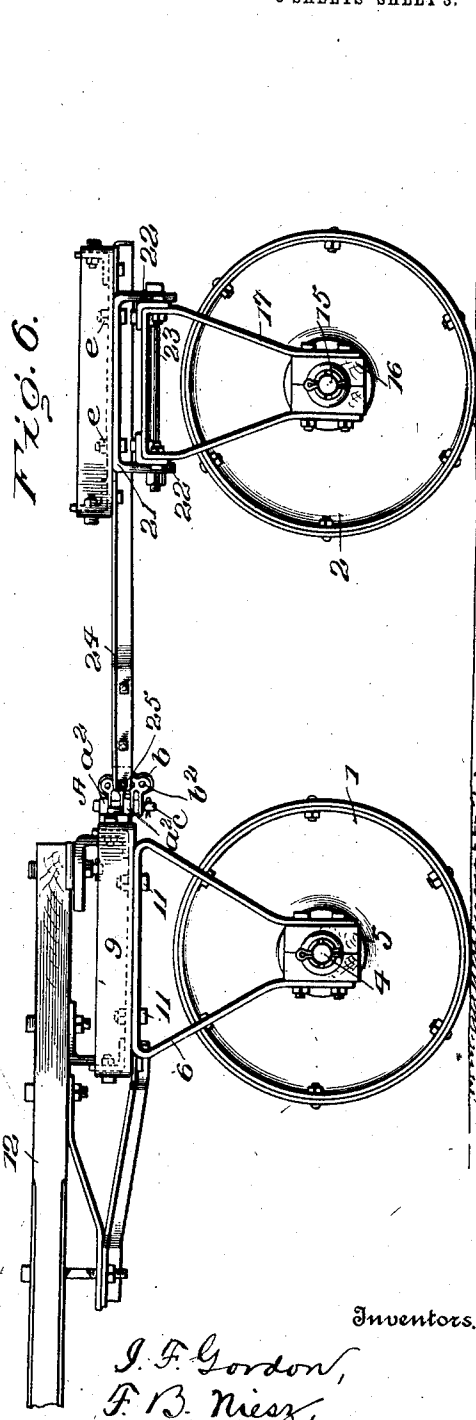


Fig. 6.

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UNITED STATES PATENT OFFICE.

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COMBINED LAND AND CORN ROLLER.

998,498.

Specification of Letters Patent. Patented July 18, 1911.

Application filed January 16, 1911. Serial No. 603,032.

To all whom it may concern:

Be it known that we, IRA F. GORDON and FRANK B. NIESZ, citizens of the United States, residing (GORDON) at Grand Rapids, in the county of Kent and State of Michigan, and (NIESZ) at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Combined Land and Corn Rollers, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in combined land and corn rollers, and pertains to that type which comprises three rollers, the frames of which are flexibly connected to permit the separate rollers to independently assume different angles for the purpose of thoroughly covering the surface to be rolled.

The specific form of the above type here involved is that which consists of three rollers, two of them being rear rollers arranged in a line with their inner ends separated, and the third and front roller arranged in a line with the space between the inner ends of the rear rollers.

One object of the present invention is to provide a roller of the type referred to of a simple construction, whereby cheapness in manufacture is effected, and an improved roller in respect to the construction of the roller frames, and the manner of flexibly connecting the roller frames to each other.

Another object of our invention is to so construct the three roller combination, that it can be converted into a two roller construction with the rollers in a line and separated sufficiently at their inner ends so that a row of corn will pass between the rollers or drums, and thus convert the three roller land roller into a flexible two section corn roller.

In the accompanying drawings: Figure 1 is a perspective view of our improved roller showing the rollers in the position assumed by them when turning around. Fig. 2 is a vertical cross section through the frames 18 and 20 and the roller 2. Fig. 3 is a detached enlarged side elevation of the universal connection between the draft or reach bar of the frame connecting the rear rollers and the front roller frame, the rear bar or main roller frame being shown in section. Fig. 4 is a top plan view of my improved three roller combination showing in dotted lines

the position of the two rear rollers on the front section when it is converted into a two section flexible corn roller. Fig. 5 is a rear view of the apparatus when converted into a two section flexible corn roller. Fig. 6 is a side view of the three roller flexible construction.

We are aware that it is not new to provide a land roller of the type herein shown and in which the three rollers are adapted to have an independent movement, thus enabling the three rollers to thoroughly pulverize a predetermined soil space in a manner which cannot be done by a single straight rigid roller covering the same soil space. One of our present improvements pertains to the particular frame construction and hinged connections which will now be described and particularly pointed out.

The front roller 1 and the two rear rollers 2 and 3 are preferably composed of hollow metallic drums, which together with the frame construction to be hereinafter described, comprises a roller of medium weight for soil rolling purposes, the frames being constructed to permit of adding weight to meet the extreme weight required for soil rolling purposes. The front roller is provided with centrally arranged projecting spindles 4, which are journaled in suitable journal boxes 5. Projecting upward from these journals 5, are approximately Y-shaped standards 6, composed of a flat strip of iron. The lower parallel ends 7 of these standards engage opposite sides of the journal 5, and are secured thereto by means of suitable bolts 8, passing through the ends 7 and the journal boxes 5. These standards 6 extend above the roller 1 and are connected by a rectangular frame 9. This rectangular frame is composed of L-shaped angle bars 9' as shown; the horizontal flanges of the end portions of the frame being bolted to the top of the Y-shaped standards 6, by means of bolts 11.

A draft bar or pole 12 has its inner end connected with the frame 9, by means of angle irons 13 and brace rods 14.

Referring now to the frames for the rear rollers 2 and 3, they have their spindles 15 in journal boxes 16, and projecting from these journal boxes are approximately Y-shaped standards 17, similar to the Y-shaped standards 6 of the front rollers. These Y-shaped frames of the rear rollers, like the corresponding frames of the front roller,

have their outer ends projecting above the rear rollers. The outer ends of the Y-shaped standards or frames 17 are connected by L-shaped bars 18 applied thereto, as clearly shown and secured by suitable bolts or rivets 19, which arrangement places the vertical flanges of the bars 18 outside of the upright portions of the standards 17.

A rectangular frame 20 connects the frames of the rear rollers, and this frame is arranged above the rear roller frames, and is of a length to reach from center to center of the horizontal portions 18 of the rear roller frames. This connecting frame 20 consists of L-shaped angle bars 20', which are connected together with their horizontal flange at the bottom of the frame. Secured to the ends of the connecting frame 20 are inverted U-shaped hinge connections 21, the ends 22 of which are located at and substantially against the outer sides of the vertical flanges of the connecting bars 18, and a pivotal bolt 23 passes through the ends 22 and the bars 18, thus forming a central hinge connection between the roller frame and connecting bar 20.

A reach bar 24 has its rear end bifurcated and suitably connected rigidly to the connecting frame 20, the front end of the reach-bar 24 being connected with the rear side of the frame 9 of the front roller by a universal connection, which will now be described. The universal connection referred to, comprises a casting A, having a base a attached to the rear angle iron 9' of the frame 9 by means of bolts a' and a second casting B. The casting A has rearwardly projecting ears a^2 and the casting B is provided with forwardly projecting ears b , the ears of the two castings interlocking, as shown in Fig. 4, and a pivotal bolt C passes through these ears, thus furnishing a vertical pivotal connection between them, permitting a relatively horizontal hinged movement. The casting B is provided with a vertical portion b' , which has a plurality of horizontal openings b^2 , and the angle bars of this front end of the reach-bar 24 straddle the casting B, and a bolt 25 passes through the casting into either of the openings b^2 , thus forming a horizontal pivot to permit the reach-bar to swing vertically, and the rear rollers to move up and down.

Attention is called to the fact that the space or opening 26 within the connecting frame 20 is sufficiently wide to permit the inner ends of the rear roller frames to pass up and through this space for a purpose to be hereinafter referred to.

As previously stated herein, the rollers are formed of sheet-metal and are hollow to provide a minimum weight for rolling purposes. This weight is readily increased when desired, by placing boards within the front frame 9 and the connecting frame 20, and

placing on these boards either soil or stone, whichever may be most convenient to the user. In this way, the weight of the roller can be made sufficient to meet the extreme requirements for rolling purposes, according to the condition of the soil being rolled. It will be understood that in placing the boards within the connecting frame 20, they are not to be placed in a position to prevent the inner ends of the rear roller frames 18 from extending through the connecting frame 20, when the outer ends of the rollers are in so low a plane as to cause the inner ends to extend through the connecting frame 20. By reason of the pivotal arrangement of the rollers, it will be understood that they will follow the uneven conditions of the surface being rolled.

Attention is called to the fact that in the arrangement of, and the construction of the roller frames and the connecting frame for the rear rollers and the location of the reach bar 24, the draft of the rollers is located in a plane above the rollers, and that the front roller can be turned at an acute angle to permit the rollers to be turned around without any appreciable backward or forward movement, which will be found of especial advantage under certain conditions, for instance, where but a short space is provided for turning at the edges of the field. It will also be observed that the draft upon the pole 12 to which the animals are attached is in a plane substantially with the rear bar 24, thus making the whole draft of the roller substantially in the same plane. The arrangement of and construction of the frames also provides a large clearance which is of advantage under certain rolling conditions, and is of special advantage when transporting the roller from field to field or from place to place, where oftentimes it passes over fields which are grown up with stubble or other vegetation.

When the three roller combination is converted into a two roller flexible corn roller, the standards or hangers 6, together with the front roller 1, are removed from the front rectangular frame and the rear rollers 2 and 3 are removed from the rectangular frame 20. The bolts 11, which connect the hangers or standards 6 to the frame 9 are the same distance apart as the bolts c , which connect the U-shaped hinge connections 21 to the rear rectangular frame 20, which enables these hinged connections 21 to be attached to the front rectangular frame 9. To permit the rear rollers with their hinged connections to be so attached to the front rectangular frame 9, the front roller is longer than the rear rollers. The relative length of these rollers in practice is thirty-five inches for the front roller and thirty-one inches for the rear rollers. The increased length of the front roller provides a

front frame 9, correspondingly longer than the frames 18 in which the rear rollers 2 and 3 are journaled, and sufficiently longer to provide sufficient space between the inner ends of the two rear rollers when they are attached to the front frame, as shown in Fig. 5, to provide for the passage of the row of corn between these rollers. From this it will be observed that this conversion of the three roller construction into the two roller construction is accomplished by making the front frame 9 sufficiently longer than the frame 18, to provide space between the inner ends of the rollers 2 and 3 for the passage of a row of corn when they are attached to the front frame 9, as shown. In practice the front frame 9 is made approximately one-sixth longer than the rear roller frames 18, which provides ample space between the inner ends of the rollers 2 and 3 when they are attached to the front frame 9. From this it will also be observed that the front and rear rollers are detachable from the front and rear frames 9 and 20.

While we have shown and thus far described the front roller section frame 9 as longer than the rear roller frames 18 to accomplish the results above described as the preferred way of accomplishing this, yet the broad invention involved is the intermediate connection of the rear roller frames 18 at such a point that when the intermediate connection is attached to the ends of the front section frame there is a space left between the inner ends of the rollers for the passage of a row of corn. Therefore, we do not limit ourselves to the construction of having the front section frame longer than the frames 18, for the broad invention may be accomplished by a modification in this respect, though not so desirable. In fact, the generic invention involved is having the connections of the rear roller frames a distance from their inner ends less than half the length of the front section frame 9.

Having thus described our invention, what we claim and desire to secure by Letters Patent is:

1. In a roller of the type described, the combination with a front roller, of two rear rollers arranged in a line with their inner ends separated, an open rectangular connecting frame located above the rear rollers, journal frames for the rear rollers having horizontal portions thereabove, pivotal connections between the ends of the connecting frame and the journal frames, the axis of the connection extending transverse the rollers, the inner ends of the journal frames being narrower than the open connecting frame to permit them to pass therethrough as described.

2. A convertible roller comprising front and rear section frames, a single roller removably attached to the front section frame, two detachable rear roller carrying frames for the rear section frame, the front roller frame being longer than the rear roller carrying frames, whereby the front roller may be detached from the front section frame, and the rear roller frames and rollers attached at their centers to the ends of the front roller section frame and leave a space between their inner ends to permit the passage of a row of corn therebetween.

3. A convertible roller, comprising front and rear roller section frames, a single roller detachably connected with the front section, rear roller carrying frames having detachable hinged connections with the rear section frame, the front section frame being longer than the rear roller frames, whereby the front roller may be detached and the central hinged connections of the rear roller frames attached to the ends of the front section frame and leave a space between the inner ends of said rollers for the passage of a row of corn.

4. A convertible roller comprising a front section frame and a rear section frame, a single roller removably attached to the front section frame, two roller carrying frames removably attached to the rear section frame intermediate their ends, whereby the front roller may be removed from the front section frame and the rear roller frames intermediately attached to the ends of the front section frame, thus providing a space between the two rollers to permit the passage therethrough of a row of corn.

5. A convertible roller comprising a front section frame, a roller removably attached thereto, a rear section frame, two roller carrying frames intermediately removably attached to the rear section frame, the intermediate attachment of the rear roller frames being located a distance from the inner ends of said rear roller frames less than half the length of the front section frame, whereby the front roller may be removed and the intermediate attachments of the rear roller frames connected to the ends of the front section frame and provide a space between the inner ends of said rollers for the passage of a row of corn.

In testimony whereof we hereunto affix our signatures in the presence of two witnesses.

IRA F. GORDON.
FRANK B. NIESZ.

Witnesses:

C. E. LONG,
A. SCHAUTZ.