

**No. 702,720.**

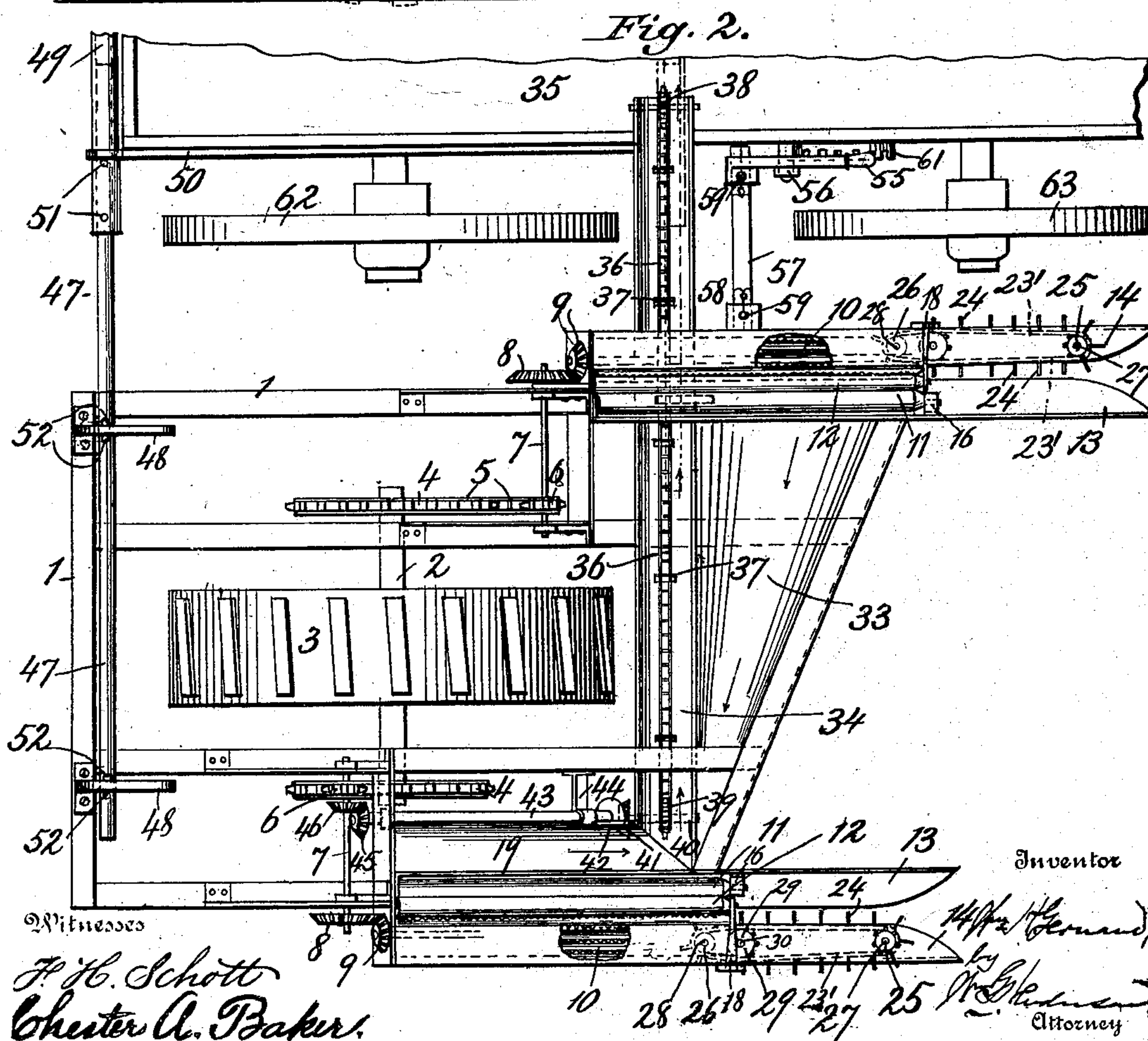
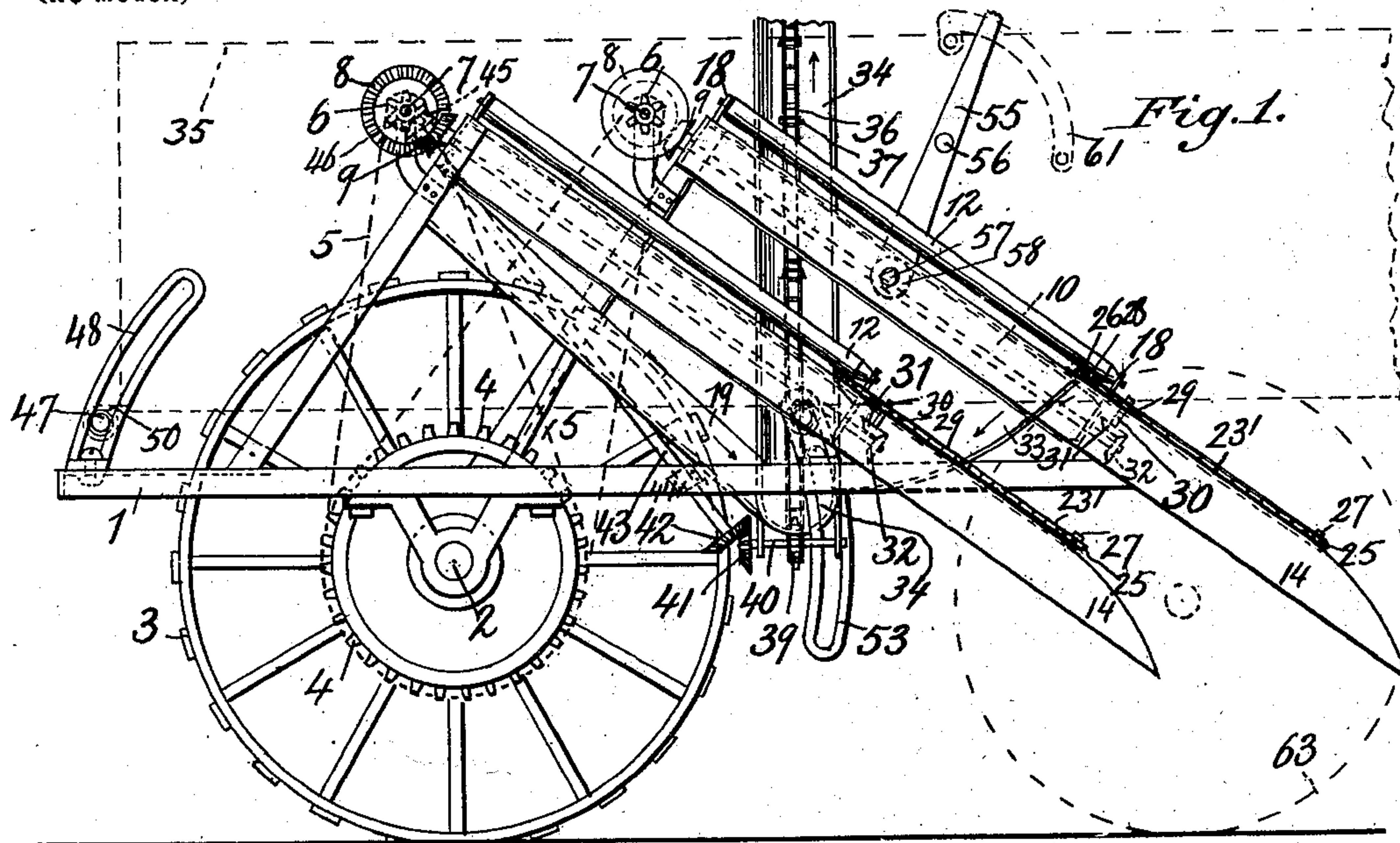
**Patented June 17, 1902.**

**W. H. GERNAND.**  
**MACHINE FOR HUSKING CORN.**

(Application filed May 22, 1900.)

(No Model.)

**3 Sheets—Sheet 1.**





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3 Sheets—Sheet 2.

Fig. 3.

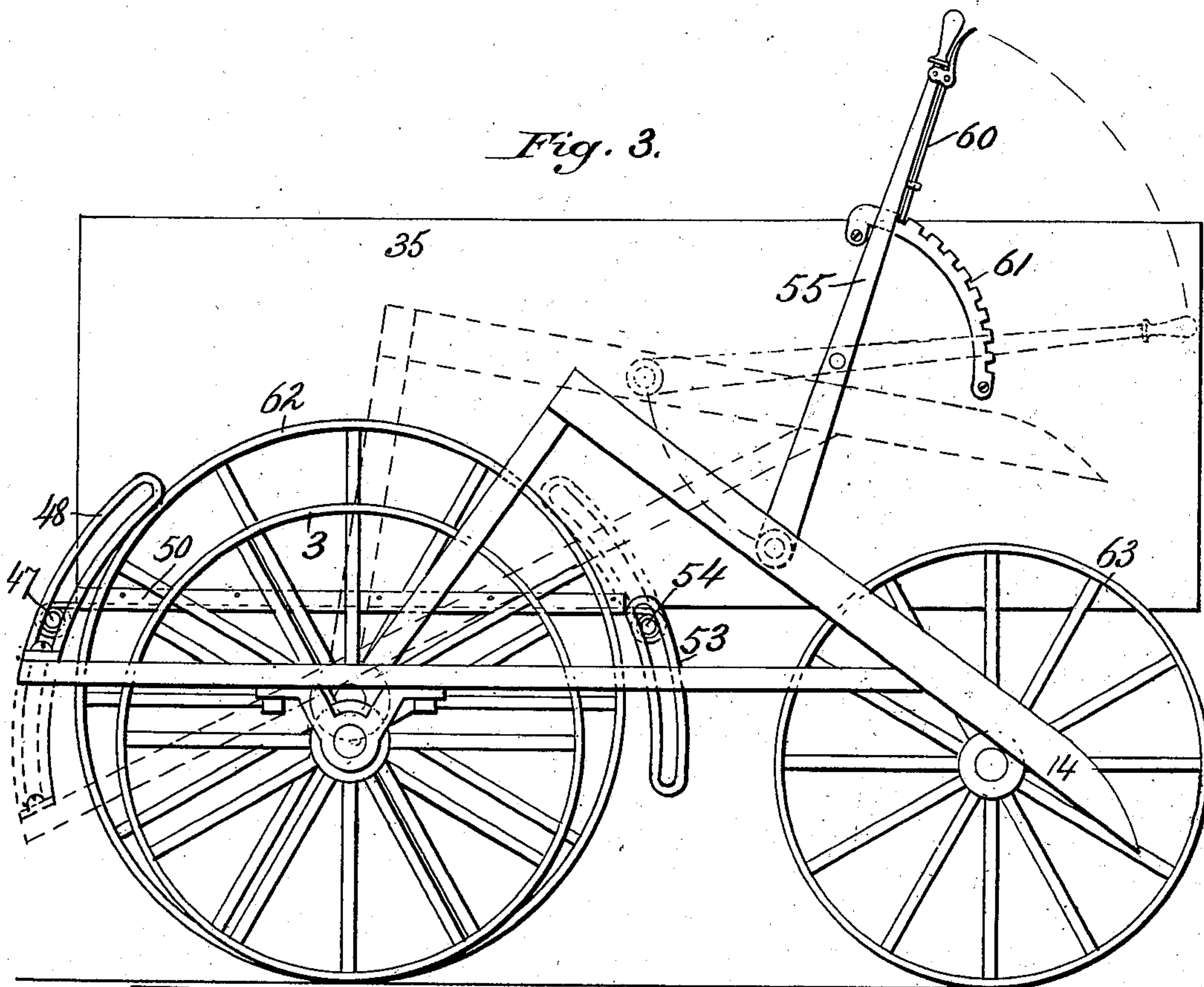
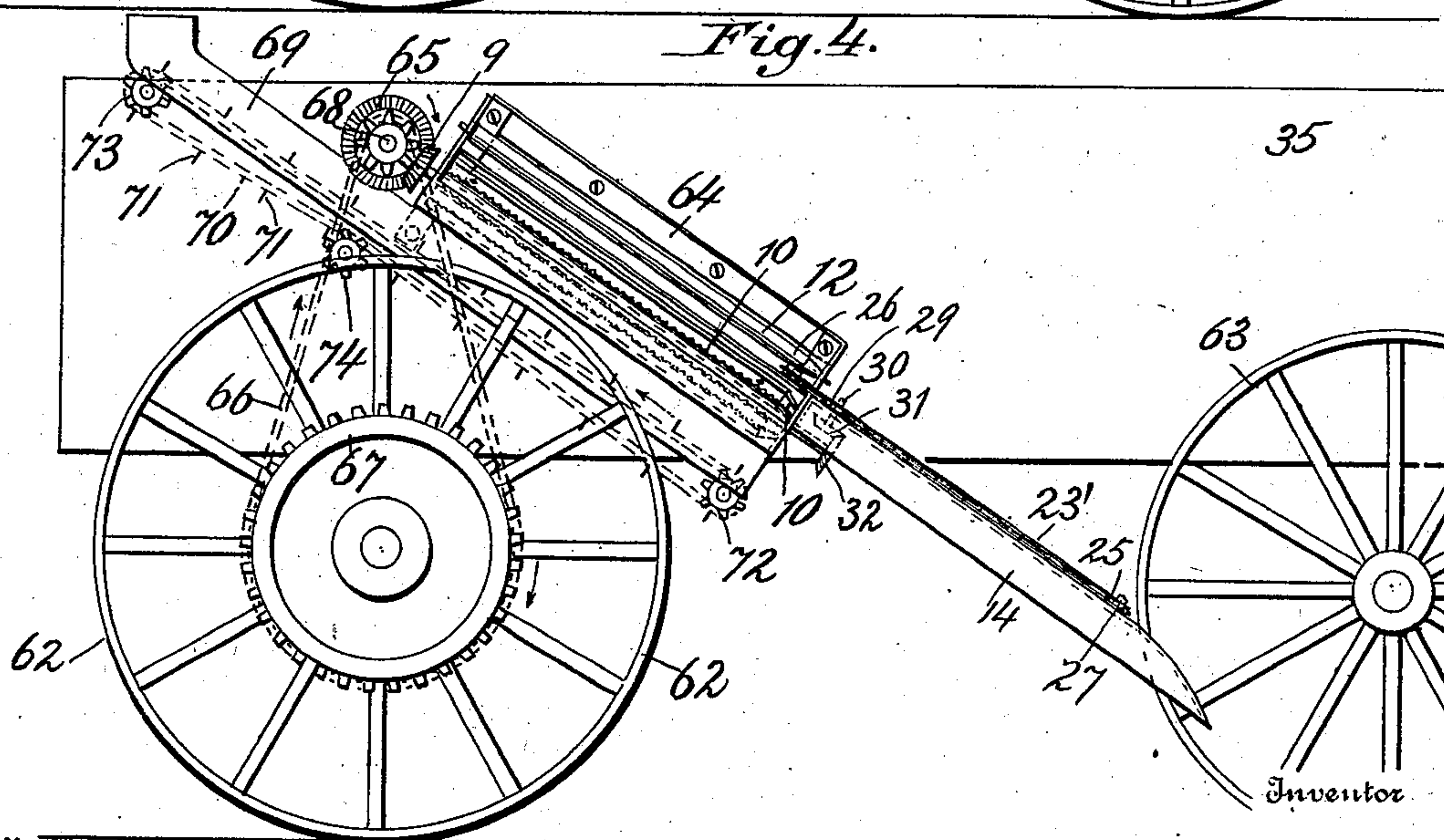


Fig. 4.



Witnesses

J. H. Schott  
Chester A. Baker.

William H. Gernand,  
by *[Signature]*  
Attorney



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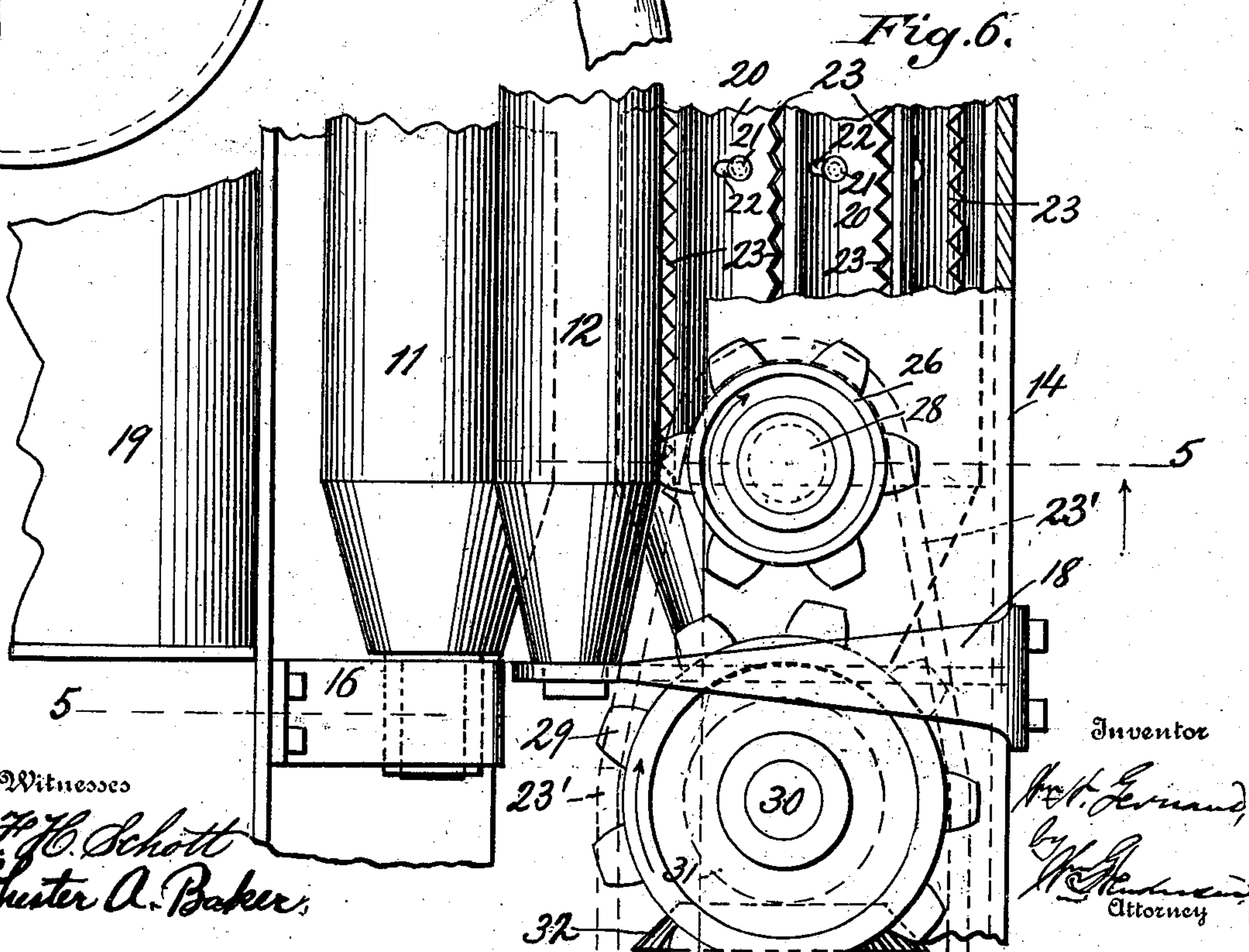
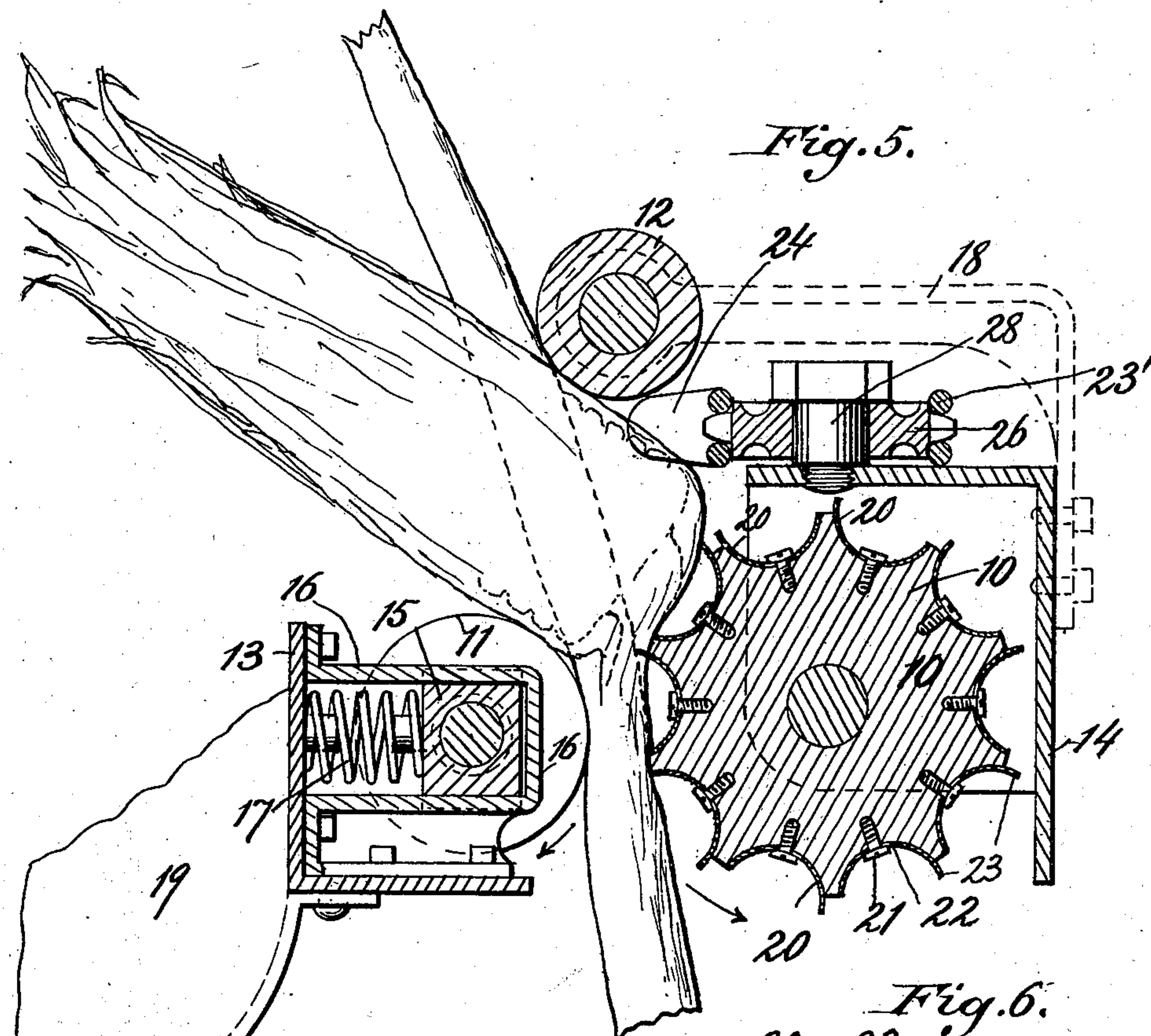
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3 Sheets—Sheet 3.



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J. H. Schott  
Chester A. Baker

Inventor

W. H. Gernand  
by W. H. Gernand  
Attorney



# UNITED STATES PATENT OFFICE.

WILLIAM H. GERNAND, OF ALVIN, ILLINOIS.

## MACHINE FOR HUSKING CORN.

SPECIFICATION forming part of Letters Patent No. 702,720, dated June 17, 1902.

Application filed May 22, 1900. Serial No. 17,530. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. GERNAND, a citizen of the United States, residing at Alvin, in the county of Vermilion and State of Illinois, have invented certain new and useful Improvements in Machines for Husking Corn; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to machines for husking corn; and it has for its object to provide such a machine in which by an improved construction and arrangement of parts the husks will be stripped from the ears of corn and the ears detached from the cornstalks and deposited in a wagon-body or other receiver as the husking-machine is moved through the corn-field.

It has, further, for its object to provide an improved construction and arrangement of the stripping-rolls.

It has, further, for its object to provide one of the rolls with shifting grippers, which have the function of being moved forward in the rotation of the roll in which they are attached, so as to grip the husks at the butt of the ear and hold the husks until the ear is detached and then to be retracted, whereby the husks are more effectively removed and less power required to effect the husking and injury to the grains of corn on the ear prevented; also, to provide simple means for insuring the delivery of the severed ears into the delivery chute or trough from which the ears are delivered into the wagon-body or other receiver; also, to provide a construction by which two rows may be operated upon in the forward movement of the husking-machine, the rows being operated upon in succession or alternation as the machine advances; also, to provide simple and efficient means for adjusting the height at which the husking mechanism shall operate, and also to generally provide a construction and arrangement in which the machine will be simplified by having as few parts as possible for efficiently performing the work.

To the accomplishment of the foregoing and such other objects as may hereinafter appear the invention consists in the construction and in the combination of parts hereinafter particularly described and then sought to be clearly defined by the claims, reference being had to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is a side elevation of the machine; Fig. 2, a plan of the same, showing the manner of connecting it with the wagon-body. Fig. 3 is a side elevation illustrating the elevating mechanism. Fig. 4 is a side elevation of a modified form. Fig. 5 is a cross-section, enlarged, on the line 5 5 of Fig. 6; and Fig. 6 is a plan of Fig. 5 with a part of the frame broken away to show the fluted roller with its shifting grippers.

In the drawings the numeral 1 designates a frame, which preferably is made of angle-iron and in which is journaled the axle 2 of a drive-wheel 3, said axle having sprocket-wheels 4, from which chains 5 pass to smaller sprockets 6 on shafts 7, each of which shafts carries a bevel-gear 8, meshing with a bevel-pinion 9, mounted on the end of a longitudinally-fluted roll 10, which roll stands in an inclined position and constitutes one of the husking-rolls. The husking-roll 10 and its companion parallel rolls 11 and 12 are journaled in suitable bearings supported from the guides which direct the cornstalks into line to be received between the rolls as the machine advances. These guides, which are designated by the numerals 13 and 14, are preferably made of angle-iron, the guide 13 having the horizontal portion of the iron at its bottom and the guide 14 having its horizontal portion at the top, the two guides being spaced apart, as indicated in Fig. 2, for the passage of the cornstalks. The roll 11, which has a smooth surface, is journaled in sliding boxes 15, fitting in brackets 16, extending from the guide 13, each box 15 being under the influence of a spring 17, so that the roller 11 will exert a yielding pressure on the cornstalk, thus causing the stalk to be held by yielding pressure between the fluted roll and the smooth roll 11, and thus prevent undue strain on the parts by reason of the varying thickness of the stalks and also causing the stalks to be always grasped by a firm but yielding



pressure. The other smooth roll 12 is jour-  
 naled in the brackets 18, which extend from  
 the guide 14, and it lies over the space between  
 the rolls 10 and 11 and parallel with said rolls,  
 5 and it serves to press the ears of corn toward  
 the roll 11, so that when the ears are severed  
 from the stalk they will fall over the roll 11  
 and into the trough located to one side thereof  
 to receive the ears, said trough being design-  
 10 nated by the numeral 19 and being inclined,  
 as illustrated. The fluted roll 10 is provided  
 in each of its cavities with a sliding gripper  
 20, the grippers being illustrated as made in  
 concave or semicircular form and being held  
 15 in their cavities by means of screws 21, passed  
 through slots 22 made in the grippers, so that  
 each gripper may have a transverse sliding  
 movement, each gripper having one edge  
 formed with serrations or teeth 23. It will  
 20 be observed that under this construction in  
 the rotation of the roll 10 the forward edge  
 of each gripper first comes in contact with  
 the butt-end of the ear of corn and is pressed  
 so as to project the rear or serrated edge of the  
 25 gripper beyond the periphery of the roll and  
 against the butt-end of the ear of corn, the  
 teeth of the gripper piercing the husks and  
 taking a firm hold thereon, which it retains  
 until the forward edge of the gripper leaves  
 30 the point of contact with the ear and stalk and  
 that from such point the rear or toothed edge  
 is retracted, so as to loose its grip upon the  
 husks. By this action the grippers are made  
 to take a firm hold on the husks and draw on  
 35 the same during the period that the stalk is  
 being drawn down between the rolls and the  
 ear is being pressed sidewise by the over-  
 hanging roll 12 during and after the break-  
 ing or severing of the ear from the stalk, and  
 40 thus the husks are more thoroughly separated  
 from the ear of corn and the latter discharged  
 to one side entirely free of the husks and with-  
 out having the grains of corn shelled from  
 the cob. This construction also enables the  
 45 husking to be effected with the expenditure  
 of less power than otherwise.

For the purpose of moving or feeding the  
 stalks between the guides 13 and 14 as the  
 machine is moved forward an endless belt or  
 50 chain 23' is employed, said chain being pro-  
 vided with fingers 24 and passing around the  
 sprockets 25 and 26, mounted upon studs 27  
 and 28, screwed into the top portion of the  
 angle-iron guide 14, there being also provided  
 55 a sprocket 29, the stem 30 of which is pro-  
 vided at its lower end with a bevel-gear 31,  
 with which meshes a bevel-gear 32, connected  
 with the end of the roller 10, so that motion  
 will thus be transmitted to the endless feed-  
 60 chain in such manner as to press the stalk  
 inwardly between the guides as the machine  
 is moved forward, the stalks being thus guided  
 and directed to the lower ends of the rolls by  
 which they are grasped and properly fed as  
 65 the machine moves onward, the lower or for-  
 ward ends of each of the rolls being made  
 tapering, as illustrated, so as to avoid chok-

ing of the machine by the stalks coming in  
 contact with abrupt edges of the rolls, the  
 endless feed-chain holding and feeding the 70  
 stalks until the stalks are grasped by the  
 stripping-rolls. As the ears of corn are sev-  
 ered from the stalk those which are severed  
 by the outside set of husking or stripping rolls  
 drop into the inclined spout or trough 19, 75  
 while those severed by the inner set of strip-  
 ping-rolls fall into the chute or trough 33 and  
 slide down the same, both troughs at their  
 lower ends discharging into an elevator-trough  
 34, which at its upper end discharges into the 80  
 wagon-body 35, the elevator-trough 34 being  
 provided with a chain elevator 36, provided  
 with carrier blades or blocks 37, said chain  
 at its upper end passing around a sprocket  
 38 and at its lower end beneath the trough 85  
 around a sprocket 39, mounted upon a shaft  
 40, which carries a bevel-gear 41, with which  
 meshes a bevel-gear 42, attached to the lower  
 end of a shaft 43, revolving in suitable brack-  
 ets 44 and having at its upper end a bevel-gear 90  
 45, with which meshes a bevel-gear 46 on one  
 of the shafts 7, by which means motion is  
 transmitted to the chain elevator.

It will be observed that one set of the strip-  
 per rolls and guides are located in advance of 95  
 the other set. The purpose of this is to en-  
 able two rows of corn to be husked at the  
 same time in the forward movement of the  
 husking-machine and without both sets of  
 husking-rolls actually husking at the same 100  
 moment, the arrangement of the two sets, one  
 in advance of the other, enabling them to husk  
 and strip the ears of corn from the rows in  
 alternation, the rolls of one set grasping the  
 stalks in their path while those of the other 105  
 set are passing from one stalk to the next in  
 its path of travel, and so on in alternation.  
 This enables more than one row to be husked  
 in the forward movement of the machine  
 without imposing upon the machine the work 110  
 of husking from the two rows at the same  
 moment, which if done would throw too much  
 work upon the machine and require too much  
 power to operate the machine; but by arrang-  
 ing the different sets of stripping-rolls in the 115  
 manner indicated the result sought is accom-  
 plished without imposing too much upon the  
 machine. As illustrated in the drawings, the  
 distance which the forward ends of one set  
 of husking-rolls lie in advance of the other set 120  
 of husking-rolls is at an angle other than  
 forty-five degrees, and whenever such angle  
 is referred to it is meant to define and is to be  
 understood merely as an illustration of such  
 an angle as will permit the two sets of husk- 125  
 ing-rolls to operate in alternation, as pre-  
 viously described.

The husking mechanism, as illustrated in  
 Figs. 1 and 3 of the drawings, is connected  
 with the wagon-body by means of a rod 47, 130  
 which is passed through slotted brackets 48,  
 connected to the frame 1, and into a tube or  
 sleeve 49, secured to the wagon-body, said  
 tube or sleeve being preferably placed to the



wagon-body by means of angle-irons 50, which will fit to the lower edges of the rear bottom portion of the body. This rod is prevented from sliding in the tube or sleeve by means of pins 51, and the frame 1 is prevented from moving lengthwise of the rod 47 by means of one or more pins 52, passed into the rod at the side of the brackets 48, this mode of connection at the same time permitting the frame 1 to be tilted, as indicated by dotted lines in Fig. 3, so that the stripping-rolls and their guides may be adjusted up or down to accommodate the mechanism to the conditions of the cornstalks, thus enabling the husking apparatus to begin its work near the point where the lowermost ears of corn are on the stalks, in some fields the ears of corn being lower than in others. The stability of the connection between the frame 1 and the wagon-body is further insured by a slotted bracket 53, connected to a suitable part of the frame 1 and having the rod 54 passing through it, said rod being secured to the wagon-body in manner similar to the rod 47 and otherwise held in place as previously described for the rod 47. These slotted brackets also enable the husking apparatus to be connected to wagon-bodies of different heights.

The husking apparatus is raised and lowered by means of a lever 55, which is fulcrumed to the wagon-body at 56 and is connected with the husking apparatus by a rod 57, which will be held to the lever and also to a collar 58, extending from the side of the husking apparatus by means of pins 59, so that by removing said pins and sliding said rod the connection between the wagon-body and the husking apparatus may be separated, the ends of said rod being made angular where they fit to the lever and to said collar. The lever is held to its adjusted position by its bolt 60 engaging the notched rack 61, secured to the wagon-body. Under the connections described when one wagon-body is filled with husked corn it may be detached from the husking apparatus and replaced by another wagon connected up in the same manner.

In Figs. 1, 2, and 3 of the drawings the husking mechanism is illustrated as driven from a power-wheel 3 independent of the wheels 62 and 63 of the wagon, which power-wheel may be of a different diameter from the wagon-wheels, and the gearing through which power will be transmitted from the power-wheel to the stripping-rolls and feed-chain will be so proportioned as to give the proper motion to the parts in the advancement of the machine, and it may be here mentioned that the shaft 2 of the power-wheel 3 may be provided with a ratchet or clutch mechanism, such as is in common use for the purpose of operating the parts only in the forward movement of the machine, said parts being thrown out of operation by the ratchet mechanism in any backward movement of the machine, which ratchet mechanism, however,

it is not necessary to illustrate, as the same is common and well known and forms no part of the invention.

In Fig. 4 of the drawings, however, I have illustrated one form of the invention, in which is employed a single set of stripping-rolls instead of two sets, as in Fig. 2. In this modified form the construction and arrangement and operation of the stripping-rolls and of the guides and of the feed-chains are the same as in each of the two sets of the stripping mechanism or corresponding parts illustrated in Fig. 2 of the drawings. In Fig. 4, however, showing the modified form, the frame 64, which supports the stripping-rolls, will be bolted direct to the side of the wagon-body, as illustrated, and the power will be transmitted to the fluted roll 10 through a bevel-gear 65, suitably mounted and meshing with the bevel-gear 9 of the roll 10, said gear 65 deriving its motion from the wagon-wheel 62 through a chain 66, which passes around a sprocket-wheel 67, attached to the wagon-wheel 62 and around a smaller sprocket-wheel 68, mounted upon the same shaft as the bevel-gear 65, as illustrated in Fig. 4. In this modification the ears of corn as they are detached from the stalks are directed to one side by the smooth idler-roll 12 the same as in the other form of the invention and into the inclined trough 69, in which works an elevator-chain 70, having the blades or blocks 71 and passing around the sprockets 72 and 73, so as to elevate the ears of corn through the trough 69 and discharge them from the top thereof into the wagon-body, the upper end of the trough being turned inwardly for that purpose. Motion will be transmitted to the carrier-chain 70 by means of a sprocket 74, engaging the links of the chain and deriving its motion from the chain 66, which engages that sprocket. It will be understood that there may be employed a ratchet or clutch mechanism in connection with the wagon-wheel 62, so as to have motion transmitted only in the forward movement of the wagon, which mechanism, however, it is not necessary to illustrate, as it is common and forms no part of this invention.

Under the construction and arrangement of parts described a very efficient corn-husking machine is made which is composed of comparatively few parts requiring but comparatively little power to operate the machine, the several features possessing the advantages pointed out in the detailed description given of the same. It is also obvious that changes can be made in the details and essential features of my invention still be retained. Having described my invention and set forth its merits, what I claim is—

1. In a husking-machine, a husking-roll having grippers mounted thereon and movable transversely to the periphery to permit one edge of the gripper to be projected while the opposite edge retreats whereby as one edge engages the ear of corn the opposite edge is projected to engage the butt-end of the ear



of corn in the rotation of the roll, substantially as described.

2. In a husking-machine, a husking-roll provided with concave slidable grippers adapted in the rotation of the roll to have one edge of the gripper to retreat while the other edge is projected into engagement with the butt-end of the ear of corn in the rotation of the roll, substantially as described.

3. In a husking-machine, a husking-roll provided with grippers slidable transversely of its periphery with one free edge to be projected as the opposite edge retreats to adapt them by engagement of one edge with an ear of corn to have the other edge projected into engagement with the butt-end of the ear in the rotation of the roll, and a yielding roll arranged opposite to the first-named roll and adapted to exert a yielding pressure on the cornstalk in passing between the two rolls, substantially as described.

4. In a husking-machine, a husking-roll adapted in its rotation to have a part thereof engage the butt-end of the ear of corn, a yielding roll arranged opposite to the first-named roll and adapted to exert a yielding pressure on the cornstalk in passing between the rolls, and a third roll lying over the line of separation of said two rolls and adapted to press the ear of corn to one side as it is detached from the stalk, substantially as described.

5. In a husking-machine, a husking-roll provided with movable grippers adapted in the rotation of the roll to have one edge projected to engage the butt-end of the ear of corn, a yielding roll arranged opposite to said first-named roll and adapted to exert a yielding pressure on the cornstalk in passing between the rolls, and a third roll lying over the line of separation of said two rolls and adapted to press the ear of corn to one side as it is detached from the stalk, substantially as described.

6. In a husking-machine, a husking-roll adapted in its rotation to have a part thereof engage the butt-end of the ear of corn, a pressure-roll arranged opposite to the first-named roll, a third roll lying over the line of separation of said two rolls and adapted to press the ear of corn to one side as it is detached from the stalk, guides arranged in advance of said rolls to direct the stalk between the guides to the rolls, and an endless feed operating between said guides to act upon the stalks as they pass between the guides to the rolls, substantially as described.

7. In a husking-machine, a husking-roll adapted in its rotation to have a part thereof engage the butt-end of the ear of corn, a roll arranged opposite to the first-named roll, a third roll lying over the line of separation of said two rolls and adapted to press the ear of corn to one side as it is detached from the stalk, guides arranged in advance of said rolls to direct the stalk between the guides to the rolls, an endless chain or belt provided with fingers operating in the space between the

guides, sprockets around which said endless belt or chain passes, one of said sprockets being arranged back of the forward ends of the rolls, and means for transmitting motion to one of said sprockets for the purpose of actuating the chain or belt, substantially as described.

8. In a husking-machine, a husking-roll adapted in its rotation to have a part thereof engage the butt-end of the ear of corn, a roll arranged opposite to the first-named roll, a third roll lying over the line of separation of said two rolls and adapted to press the ear of corn to one side as it is detached from the stalk, guides arranged in advance of said rolls to direct the stalk between the guides, an endless chain or belt provided with fingers operating in the space between the guides, sprockets around which said endless belt or chain passes, one of said sprockets having a bevel-gear connected therewith, and a bevel-gear connected with one of said rolls and meshing with the bevel-gear of the sprocket to transmit motion to the endless chain or belt, substantially as described.

9. In a husking-machine, a husking-roll adapted in its rotation to have a part thereof engage the butt-end of the ear of corn, a roll arranged opposite to the first-named roll, a third roll lying over the line of separation of said two rolls and adapted to press the ear of corn to one side as it is detached from the stalk, guides arranged in advance of said rolls to direct the stalk between the guides, an endless traveling feed operating in the space between the guides, a toothed wheel engaging with said traveling feed, a toothed wheel connected with the husking-roll and meshing with the toothed wheel of the endless feed, and a system of gears for transmitting motion from a driving-wheel to the husking-roll, substantially as described.

10. In a husking-machine, the combination of a husking-roll having its periphery provided with grippers adapted in the rotation of the roll to engage the butt-end of the ear of corn, a yielding roll arranged opposite to the first-named roll, said two rolls being spaced apart so as to permit a cornstalk to pass between them, a third roll lying over the line of separation of said two rolls and adapted to bear against and deflect to one side an ear of corn as it is severed from the stalk by the two first-named rolls, and a trough arranged to one side of said rolls to receive the detached ears of corn and have them pass through the same to a wagon-body or other receiver, substantially as described.

11. In a husking-machine two sets of husking-rolls arranged opposite to each other, the forward portion of one set of rolls being located at an angle of forty-five degrees in advance of the forward portion of the other set of rolls, that is, so each set of rolls will operate in alternation on separate rows of stalks as the machine is moved forward, one roll of each set of rolls being provided with grippers



mounted thereon to move transversely to the periphery of the roll, a trough for each set of husking-rolls arranged to receive the detached ears of corn from each set of rolls, and

5 a trough arranged to receive the detached ears of corn from the troughs of the separate sets of rolls and deliver the corn into a wagon-body or other receiver, substantially as described.

10 12. In a husking-machine, two sets of husking-rolls arranged opposite to each other, the forward portion of one set of rolls being located at an angle other than forty-five degrees in advance of the forward portion of

15 the other set of rolls, that is, so that each set of rolls will operate in alternation on separate rows of stalks as the machine is moved forward, one roll of each set of rolls being provided with grippers mounted thereon to

20 move transversely to the periphery of the roll, a system of power-communicating gears for each set of husking-rolls, and a power-transmitting wheel common to both sets of power-communicating gears, substantially as

25 described.

13. In a husking-machine, two sets of husking-rolls arranged opposite to each other, the forward portion of one set of rolls being located at an angle other than forty-five degrees in advance of the forward portion of

30 the other set of rolls, that is, so that each set of rolls will operate in alternation on separate rows of stalks as the machine is moved forward, one roll of each set of rolls being provided with grippers mounted thereon to

35 move transversely to the periphery of the roll, a gear-wheel for one roll of each set of husking-rolls, shafts provided with wheels meshing with the wheels of the husking-rolls, one for each, sprocket-wheels mounted on

40 said shafts, a power-transmitting wheel-shaft provided with sprocket-wheels, and chains connecting said sprocket-wheels with the sprockets of the first-mentioned shafts, substantially as described.

45

14. In a husking-machine, two sets of husking-rolls arranged opposite to each other, the forward portion of one set of rolls being located at an angle other than forty-five degrees in advance of the forward portion of

50

the other set of rolls, that is, so that each set of rolls will operate in alternation on separate rows of stalks as the machine is moved forward, one roll of each set of rolls being provided with grippers mounted thereon to

55 move transversely to the periphery of the roll, a trough for each set of husking-rolls extending substantially the length of said rolls and arranged to receive the detached ears of corn from each set of rolls, a trough arranged

60 to receive the detached ears of corn from the troughs of the separate sets of rows, an endless carrier for moving the ears of corn through the last-mentioned trough, mechanism for positively rotating one roll of each set

65 of husking-rolls, and means for transmitting power from said mechanism to the endless carrier in the delivery-trough, substantially as described.

15. In a husking-machine, the combination

70 with a wagon, of an independently-wheeled frame carrying husking-rolls, means for separably connecting the husking-rolls-carrying frame with the wagon, said means comprising slidably-connected members attached to

75 the wagon and to said frame to adapt the frame to be tilted and to be adjustably connected to the wagon, a trough for delivering ears of corn from the husking-rolls to the wagon-body, and means for tilting the husk-

80 ing-rolls-carrying frame in its connection to the wagon, substantially as described.

16. In a husking-machine, the combination with the wagon, of an independently-wheeled frame carrying husking-rolls and provided

85 with brackets having curved slots formed therein, rods connected with the wagon-body and passing through the curved slots of the brackets for connecting the wagon and husking-rolls frame together and permitting the

90 frame to be moved in the arc of a circle, and means for adjusting said frame in relation to the wagon-body, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM H. GERNAND.

Witnesses:

WILLIAM H. COLLINGS,  
E. L. RAY.