

Patented Nov. 21, 1899.

MACHINE FOR GATHERING SILK FROM CUT CORN.

3 Sheets—Sheet 1.

Fig.1.



By *his* Attorneys,

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No. 637,537.

Patented Nov. 21, 1899.

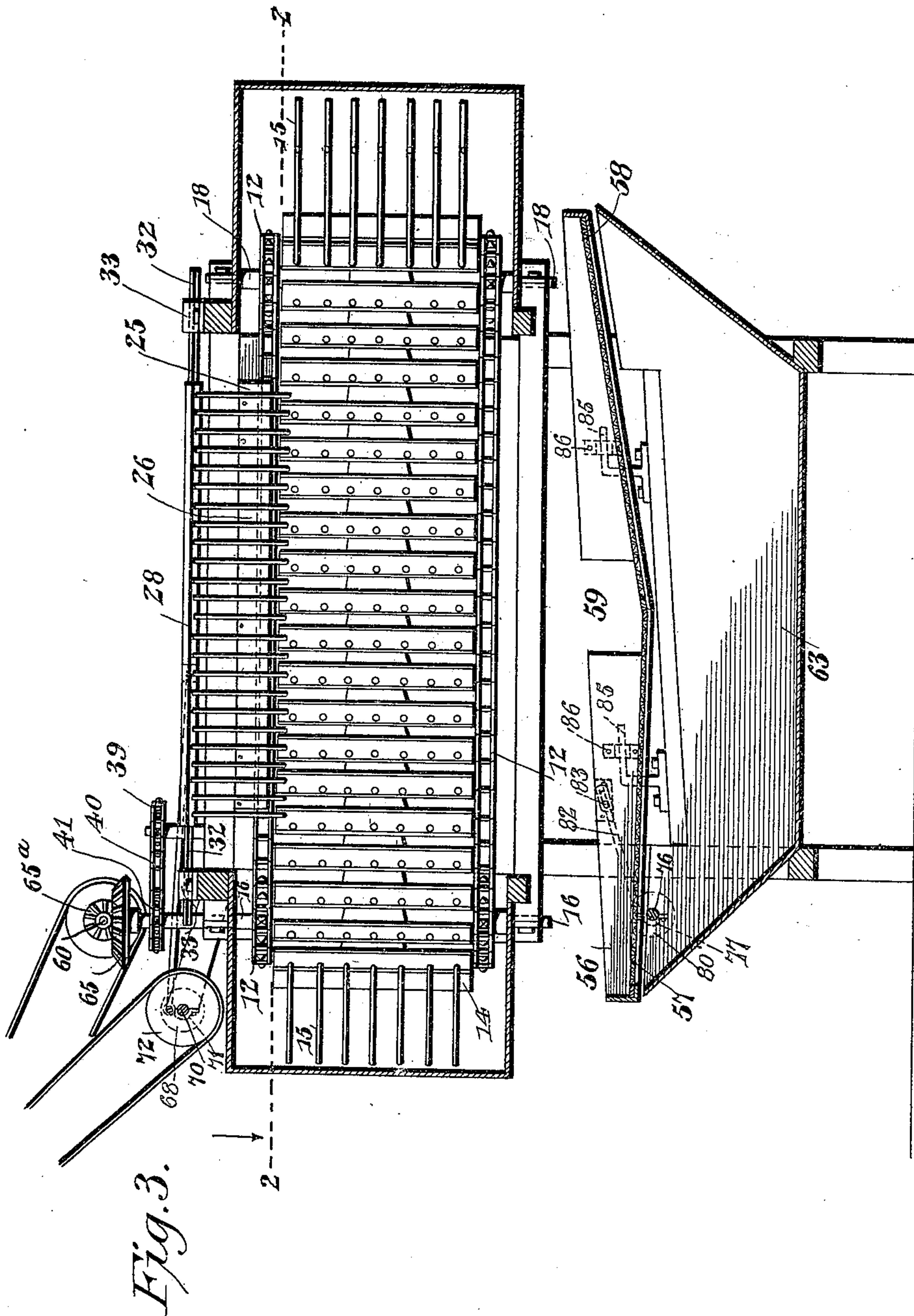
F. S. ULERY.

MACHINE FOR GATHERING SILK FROM CUT CORN.

(No Model.)

(Application filed May 10, 1899.)

3 Sheets—Sheet 2.



Witnesses

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3 Sheets—Sheet 3.

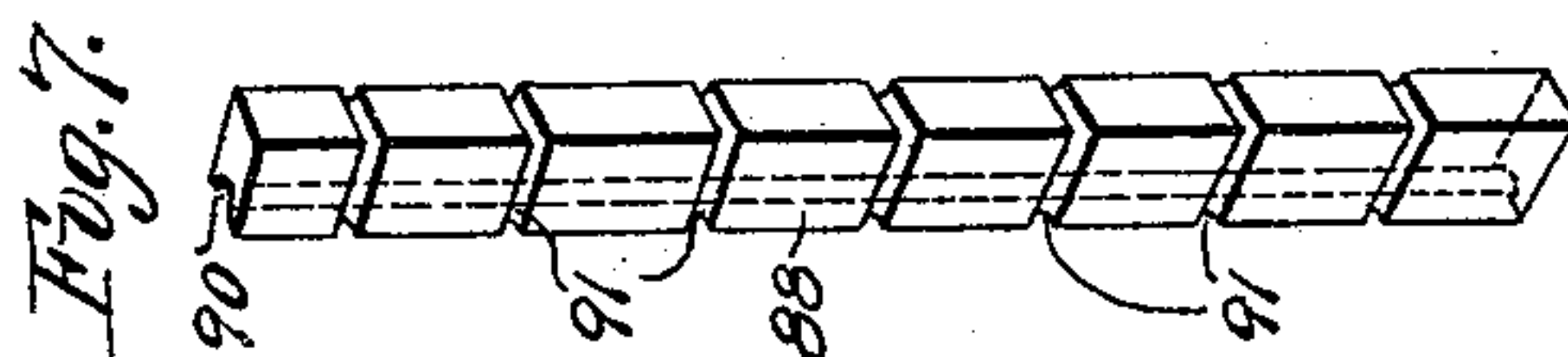


Fig. 5.

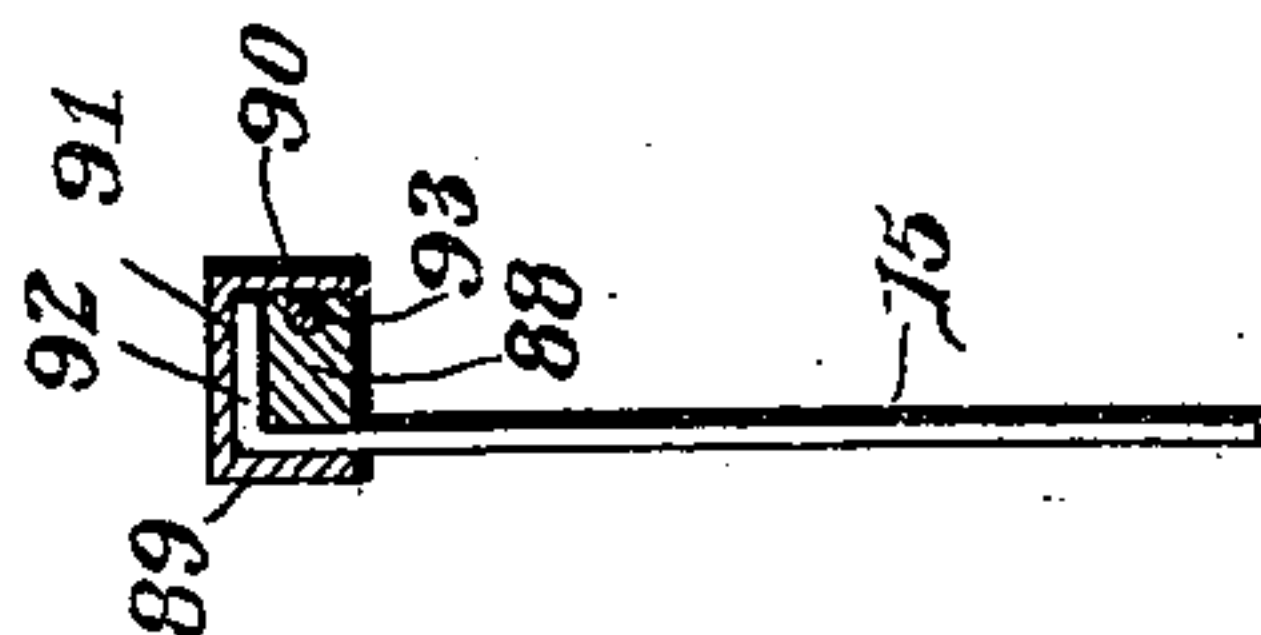
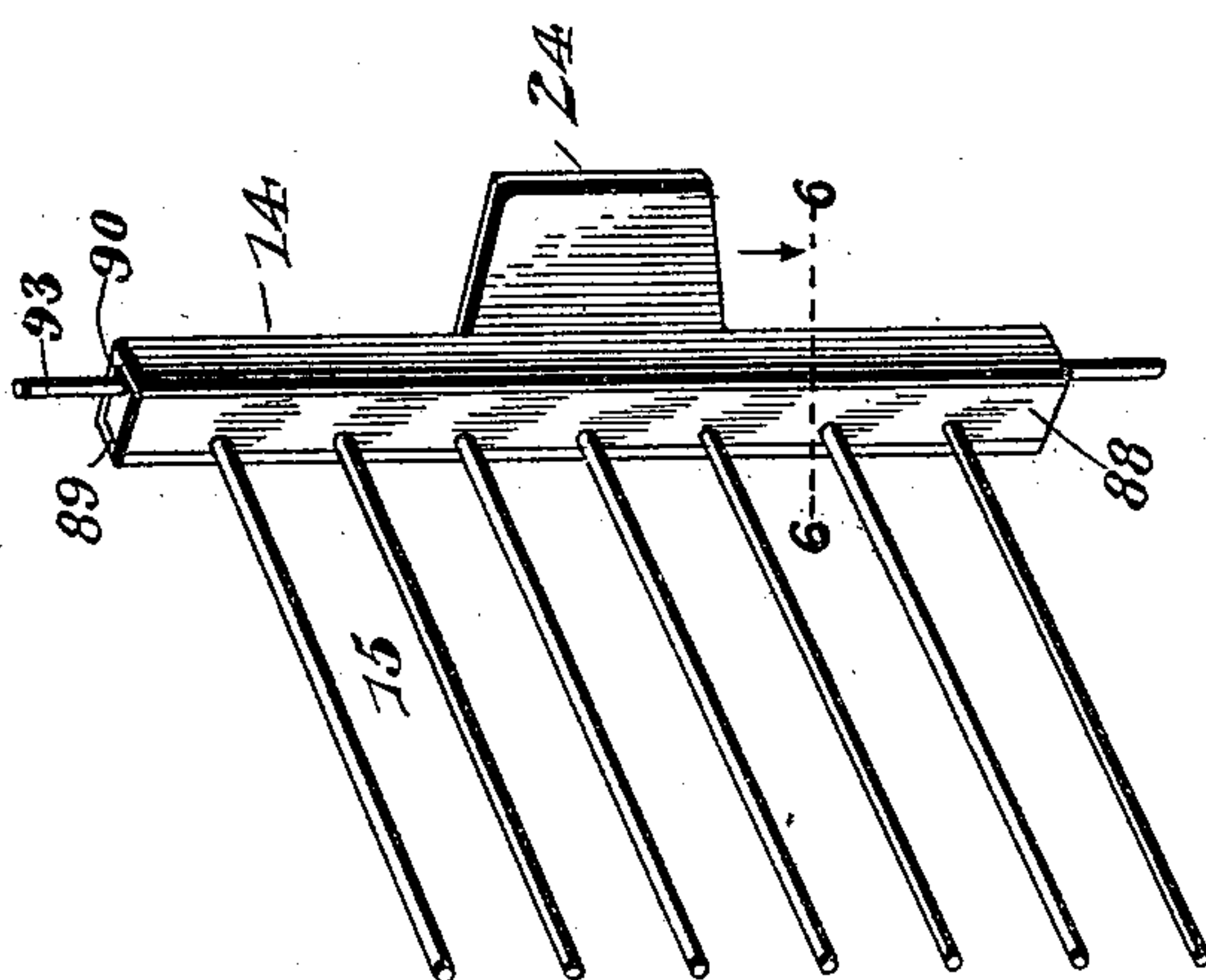
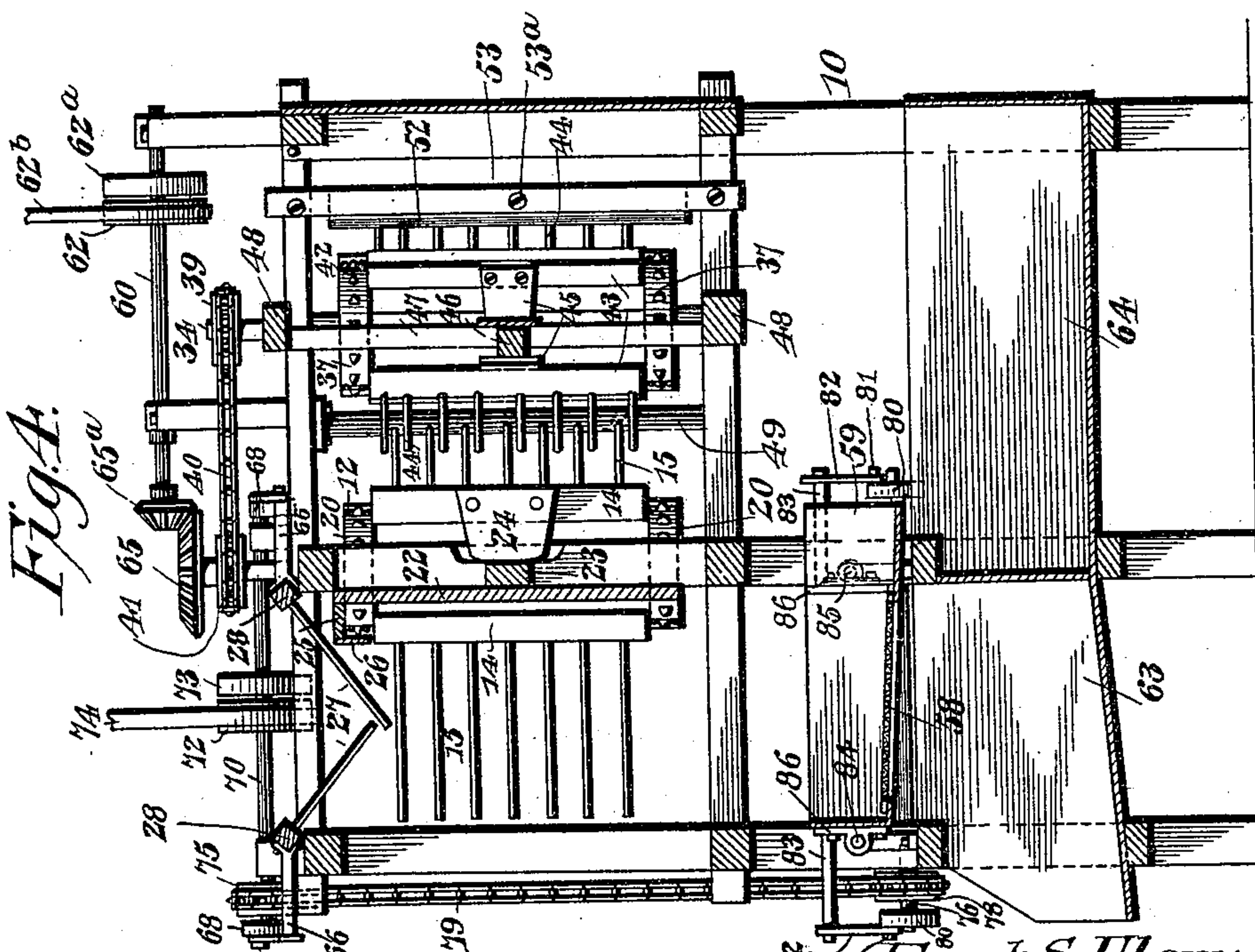


Fig. 6.



Witnesses

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FRANK S. ULERY, OF GARRISON, IOWA.

MACHINE FOR GATHERING SILK FROM CUT CORN.

SPECIFICATION forming part of Letters Patent No. 637,537, dated November 21, 1899.

Application filed May 10, 1899. Serial No. 716,281. (No model.)

To all whom it may concern:

Be it known that I, FRANK S. ULERY, a citizen of the United States, residing at Garrison, in the county of Benton and State of Iowa, have invented a new and useful Machine for Gathering Silk from Cut Corn, of which the following is a specification.

My invention relates to improvements in machines for gathering silk from corn, especially designed for use in canning-factories to subject corn cut from the ear or cob to treatment for removing the silk and pieces of husk and ear from the cut corn previous to packing the latter in cans for market.

Experience has shown that green corn when cut from the cob contains more or less of the corn-silk and that it is a difficult problem to thoroughly eliminate by mechanical appliances this silk in order to produce a high grade of canned goods. I overcome these objections by the provision of a simple and efficient machine which will collect and retain the fibers or strands of corn-silk to prevent the same from passing with the green corn through the machine.

A further object is to provide means for effectually cleaning the corn-silk from the silk-collecting mechanism, so that the latter is kept in a clean condition to secure maximum efficiency in the operation of the machine.

A further object is to provide means for scattering and distributing the cut corn as it is fed to the machine in order to increase the capacity thereof, and such mechanism also serves incidentally as a means for collecting the silk fibers from the corn.

A further object is to provide means for collecting pieces of the husk and the cob from the cut corn and to discharge the same with the silk fibers into a common refuse-receptacle.

With these ends in view the invention consists in the novel combination of mechanisms and in the construction and arrangement of the several parts constituting such mechanisms, all as will be hereinafter fully described and claimed.

To enable others to understand the invention, I have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a plan view of a machine for gathering corn-silk constructed in accordance with the principles of my invention and showing the frame or casing skeletonized. Fig. 2 is a horizontal section on the line 2 2 of Fig. 3. Fig. 3 is a vertical longitudinal sectional view on a plane through the reciprocating distributor, looking in the direction indicated by the arrow, to show the endless collector-comb, having the plurality of fingers or teeth, and on the line 3 3 of Fig. 1. Fig. 4 is a vertical transverse sectional view on the plane indicated by the dotted line 4 4 of Fig. 1, looking in the direction indicated by the arrow. Fig. 5 is a detail view of one toothed head of the endless collector-comb. Fig. 6 is a detail view in cross-section of the comb-head on the line 6 6 of Fig. 5. Fig. 7 is a detail perspective view of the grooved core-bar forming a part of the finger-head.

Like numerals of reference denote like and corresponding parts in each of the several figures of the drawings.

The frame or casing 10 of my improved machine may be of any suitable construction adapted to support the several operating mechanisms entering into the construction of a machine adapted to eliminate silk fibers from cut corn and to separate pieces of the husk and cob which may accidentally become commingled with the corn after cutting the same from the cob.

One of the important features of my machine resides in an endless collector-comb mechanism by which all or nearly all of the corn-silk will be caught and retained as the cut corn is fed or dropped through the machine, and this collector-comb is positively propelled or driven in order to travel in a horizontal path for the purpose of carrying the fingers or teeth which are loaded with the corn-silk away from the descending stream of the cut corn and to present clean fingers or teeth into the path of the dropping corn. The endless collector-comb of my machine consists of a pair of endless link chains 12 13, a continuous series of cross bars or heads 14, and a series of fingers or teeth 15, attached to the cross bars or heads 14. The link chains 12 13 of the collector-comb are arranged in parallel positions and in the same vertical planes, and the cross bars or heads 14 are ar-

ranged in vertical positions between the horizontally-disposed pair of endless chains, the ends of said cross bars or heads being fastened to corresponding links of the endless chains in any suitable way. Each bar or head 14 has a series of long fingers fastened securely thereto, and the series of fingers are grouped or spaced on the vertical bars at proper intervals from each other, while the bars or heads are arranged quite close together on the links of the endless chains. The endless comb mechanism 11 is propelled positively from a vertical driving-shaft 16, which is journaled in proper bearings at one end of the frame 10, and at the opposite end of said frame is a vertical idler-shaft 18, which is arranged parallel to the driving-shaft and is journaled in proper bearings 19 on said frame. The driving and idler shafts 16 18 are provided with sprocket-wheels 20, arranged in alinement and in positions for the purpose of engaging with the links of the endless chains forming a part of the collector-comb 11, whereby the comb mechanism is supported by said shafts and driven from one of the same.

A vertical partition 22 is fixed within the frame 10 in a plane to one side of the driving and idler shafts, so as to lie between the sides of the endless collector-comb, and on one side of this partition or to a part of the frame 10 is secured a horizontal guide-rail 23, which lies in a plane between the link chains of the collector-comb. The cross bars or heads 14 of the collector-comb are provided with limiting-plates 24, which are fastened securely to said bars or heads on the opposite side to the series of teeth thereon, and said limiting-plates are arranged in planes at right angles to the series of teeth on said bars or heads 14. This arrangement of the limiting-plate and series of teeth on each bar or head of the endless collector-comb is an important feature of this part of my invention, for the reason that the limiting-plates serve to control the position of the series of teeth as they travel in horizontal paths through the machine. When the endless comb mechanism is in service and travels in the plane of a shaking-distributor mechanism, presently described, the limiting-plates 24 are adapted to ride against the partition 22 for the purpose of holding the series of teeth in positions at right angles to the partition 22 and the plane of dropping of the cut corn through the machine, so that the series of teeth or fingers of the comb mechanism will be presented in proper positions to sweep through the path of the dropping corn in order to catch and retain the fibers of corn-silk in the material as it gravitates through the machine; but when the bars or heads of the comb mechanism are carried around one end of the partition and to the reverse side thereof the limiting-plates 24 ride upon the guide-rail 23, which is situated within the vertical plane of the chains and on the rear side of said endless chains forming a part of

the comb mechanism, whereby the limiting-plates are adapted to ride on the guide-rail 23 in order to change the positions of the bars or heads 14 and to incline the series of teeth or fingers 15 rearwardly to the path of travel of the endless comb mechanism. The front or working side of the collector-comb is confined in close relation to the partition 22 by the cleats 25, which are fixed to said partition in juxtaposition to the edges of the link chains 12 13, and to these cleats are firmly secured the guide-plates 26, which are adapted to confine the link chains laterally with respect to the partition 22. By the employment of the cleats and the guide-plates, as hereinbefore described, the link chains and the limiting-plates of the collector-comb are confined in close relation to the partition 22, and thus the limiting-plates are made to ride against the partition for the purpose of disposing the series of teeth or fingers 15 at right angles to said partition.

The cut corn is adapted to be dropped through a shaking-distributor 27, which is supported in a position above the path of the endless collector-comb, and this shaking-distributor is vibrated or oscillated in a positive manner for the purpose of uniformly distributing the cut corn along only the working side of the comb mechanism, thereby increasing the capacity of the machine for the performance of useful work. Said shaking-distributor consists of the horizontal rails 28 and of two series of fingers 30 31, which are secured to the rails 28. The series of fingers converge downwardly toward the median line of the distributor, thus giving to said distributor a V-shaped appearance in cross-section, and the fingers of the distributor terminate on a plane above the path of the uppermost fingers or teeth of the series of fingers 15 on the collector-comb. The shaking-distributor is provided at its ends with the supporting-stems 32, which are shown as attached to the horizontal rails 28, and said stems are fitted slidably in guides 33, which are fixed to the upper part of the frame 10.

I will now proceed to describe the means for cleaning the corn-silk which may be collected by the series of teeth on the endless collector-comb, and the preferred embodiment of the cleaning mechanism is an endless comb mechanism situated in a plane contiguous to the neutral or reverse side of the endless collector-comb, said cleaning-comb being compelled to travel in a reverse direction to the collector-comb and having fingers adapted to sweep through the intervals or spaces between the collecting-fingers when the latter are in the inclined positions on the rear side of the collector-comb. A vertical driving-shaft 34 is journaled in bearings of the frame 10 at one side and in rear of a shaft 16, and at a proper distance from this shaft 34 is an idle shaft 36, also journaled in the bearings of the frame and disposed parallel to and in the same vertical plane with said shaft 34.

The two shafts are equipped with sprocket-wheels 37 38, adapted to receive the link chains of the endless cleaning-comb, and the driving-shaft for said cleaning-comb is driven from the shaft 16 of the collector through the medium of the sprocket-gear 39, fast to the shaft 34, a sprocket-chain 40, and a sprocket-wheel 41, fixed to said shaft 16, whereby the shaft 34 is driven positively in the same direction as the shaft 16 of the collector-comb. The cleaning-comb consists of a pair of endless chains 42, a series of cross heads or bars 43, and a series of cleaning-teeth 44 on each of the cross heads or bars. The endless chains 42 are fitted into operative engagement with the sprocket-wheels 37 38 of the shafts 34 36, and the cross heads or bars 43 are secured at proper intervals to these endless chains 42. The cleaning-comb is considerably shorter than the endless collector-comb, and the toothed cross-heads 43 are fastened at greater distances apart to the chains 42 than the cross-heads 14 are fastened to the link chains 12 13. This endless cleaner-comb is supported by the shafts in proper relation to the rear or neutral side of the endless collector-comb, so that the series of cleaning-teeth 44 sweep through the spaces between the collector-teeth 15 on the endless collector-comb when said collector-teeth occupy the inclined positions represented more clearly by Fig. 2 of the drawings. Each cross head or bar of the cleaning-comb is provided with a limiting-plate 45, which is adapted to ride upon a horizontal rail 46, which is fixed to vertical bars 47 on the rails 48 of the frame 10, and this rail 46 thus lies in a vertical plane between the front and rear sides of the endless cleaning-comb and in a horizontal plane between the two endless chains forming a part of the cleaning-comb mechanism. The limiting-plates are arranged to ride laterally against the rail 46 and in position to make the teeth 44 assume positions at right angles to the plane of the rail 46 in order that said cleaning-teeth may properly sweep through the inclined comb-teeth for effectually removing the corn-silk therefrom in order to clean the endless collector-comb.

To assist in the operation of cleaning the collector-comb, I employ a wiper 49, which is disposed in advance of the cleaning-comb and in the path of the fingers forming a part of the collector-comb, whereby the collector-fingers are adapted to impinge against the wiper as said fingers travel around the sprocket-gears on the shaft 16 to partly shake off the corn-silk from the collector-fingers by impact of the latter against said wiper. The wiper 49 is preferably of elastic material—as, for example, rubber—and this elastic surface is reinforced by a rod 50, which passes through the tubular wiper and is supported in brackets 51, secured firmly to the frame 10 in proper relation to the bearings of the driving-shaft 16.

Another wiper is provided in my machine for the impingement of the teeth and fingers

on the cleaning-comb, and with the cross heads or bars and the plates of this cleaning-comb mechanism is associated a spring which serves to forcibly press the fingers of the cleaning-comb into contact with the last-named wiper. The wiper 52 for the cleaning-comb consists of a piece of elastic material, preferably doubled upon itself and having its edges confined between the members of a two-part clamping-bar 53. The members of this clamping-bar are secured together by through-bolts 53^a, and the clamping-bar is fastened to arms 54 on the frame 10, which support the wiper in the path of the cleaning-fingers on the rear or neutral side of the endless cleaning-comb. A spring 55 of any suitable construction, preferably of the leaf-spring variety, is attached to the rider-rail 46 for the cleaning-comb mechanism, and this spring 55 lies in the path of the limiting-plates 45 and is disposed opposite to the wiper 52 for the purpose of pressing against the limiting-plates 45 to move the bars or heads 43 into positions for the cleaning-fingers to ride against the elastic wiper-surface 52, said spring being yieldable for the plates 45 to assume positions where the fingers of the bars or heads 43 may properly pass said wiper-surface 52.

In my machine I employ a vibratory screen mechanism, which is disposed below the endless collector-comb and in the vertical plane of the shaking-distributor 27 for the purpose of receiving the cut corn after it drops or falls through the machine, and this screen mechanism is adapted to separate the pieces of corn-husks and fragments of the cobs or ears from the desirable grains of corn. The screens of my invention are carried by a shaking-frame 56, which is suspended or slidably supported below the collector-comb in any suitable or preferred way, and this frame carries two screens, (indicated at 57 58,) the perforations or meshes of which are of such size as to permit the green corn to pass through said screens, while they catch and retain the pieces of husks and fragments of the cob. These screens are inclined from the ends of the carrying-frame 56 toward the middle of the frame, thus making the screens assume oppositely-inclined positions from the middle toward the ends of said frame, and the screens are widened or offset at the inner contiguous ends thereof, as indicated at 59 in Fig. 6. The screens are thus disposed in the vertical plane of the shaking-distributor 27 in order that the material freed from the corn-silk may lodge upon the screens, and the offset or extended portions 59 of these screens are projected below the endless collector-comb, as partly represented by Fig. 4. In addition to inclining the screens longitudinally of the carrying-frame 56 the entire screen-frame is inclined laterally with respect to the horizontal plane of the endless comb for the purpose of discharging the pieces of husk and corn-cob from the extended portions 59 of the screens, whereby the desirable grain may pass

through the screens, while the fragments of refuse are discharged laterally from said screens below the collector and cleaning mechanisms.

5 The means for driving the shaft 16 of the endless collector-comb may be of any approved construction; but, as shown by Figs. 1, 3, and 4 of the drawings, I prefer to employ a horizontal power-shaft 60, which is jour-
10 naled in suitable bearings of the standards 61, that are attached to the framework or casing of the machine. This power-shaft is provided with fast and loose pulleys 62 62^a, on either of which may be fitted the bolt 62^b, so
15 that the machine may be thrown into or out of service. This power-shaft 60 is geared to the shaft 16 through the intermeshing bevel-gears 65 65^a, and this shaft 16 in turn drives the shaft 34 of the endless cleaner-comb
20 through the sprocket-gearing hereinafter described, which sprocket-gearing should be arranged to drive the shaft 34 in a manner to propel the endless cleaner-comb in a reverse direction to the endless collector-comb.

25 The framework 10 of the machine is designed to be closed on the sides, ends, top, and bottom, and the sides of the casing may be parallel, while the ends thereof should be curved to inclose the fingers of the collector
30 and cleaning combs. The shaft 16 may protrude from the casing and be equipped with a suitable driving-pulley or bevel-gear for the application of power to the machine from a line-shaft or other power-transmitting ap-
35 pliance. The cleaned corn is deposited in and collected by a corn box or receptacle 63, which is placed on the bottom of the machine below the shaking-screen mechanism. The corn-silk and other refuse from the cleaning-
40 comb and shaking-screens are delivered into a refuse-box 64, which is disposed below the comb mechanism, the wipers, and the offsets 59 of the shaking-screen in order to receive the corn-silk and refuse from these elements.
45 I prefer to leave one side of the corn-box 63 open in order that the cleaned corn may be removed expeditiously from the machine.

I will now proceed to describe the means by which the distributor and the shaking-screen
50 are operated; but it will be understood that I do not desire to strictly confine myself to the specific embodiment of the driving mechanism to be described. The stems 32, which support the finger-bars 28 of the distributor,
55 are preferably of angular or polygonal form, as shown by Fig. 1, in order to support the two series of fingers in their reversely-inclined positions, and said stems are slidably fitted in the guides 33, which are fixed to the
60 frame, whereby the guides and stems maintain the bars 28 and the fingers in their proper relations. I prefer to employ a mechanism which will simultaneously reciprocate the two finger-bars 28 in the same direction, and to
65 this end the bars 28 are provided with horizontal arms 66, which are extended laterally from the bars for suitable distances to re-

ceive the inner ends of pitmen 67. These pitmen are disposed lengthwise of the machine to be driven by crank-disks 68, said
70 disks having wrist-pins 69, on which are loosely fitted the outer ends of the pitmen 67. The crank-disks are fixed to the respective ends of a horizontal driving-shaft 70, dis-
75 posed at one end of the machine and mounted in suitable bearings 71, which are fixed either to the framework or the casing. Said shaft 70 is equipped with fast and loose pulleys 72 73, on either of which may be fitted the belt
80 74, that is adapted to be shifted by a suitable appliance from one pulley to the other. The shaft 70 is thus adapted to be positively driven for reciprocating the distributor through the pitmen 67, and this shaft is
85 geared to another shaft, which is adapted to impart reciprocating play or movement to the screen mechanism. On the shaft 70 is secured a sprocket-wheel 75, and below said shaft is arranged another horizontal shaft
90 76, which lies substantially in the plane of the reciprocating screen and is journaled in proper bearings 77, secured to the end of the machine-frame below the bearing 71 of the upper shaft 70. On the screen-operating shaft
95 76 is fixed a sprocket-wheel 78, which is disposed in alignment with the sprocket-wheel 75, (see Fig. 4,) and these two sprocket-wheels are connected operatively by an endless chain
100 79, which transmits the motion of the shaft 70 to the screen-shaft 76. The screen-operating shaft 76 is provided at its ends with crank-disks 80, adapted to rotate with said shaft and provided with the wrist-pins 81, and to
105 said wrist-pins are pivoted the upper ends of the pitmen 82, which have their inner ends fitted loosely on horizontal arms 83, which are fixed to the screen-frame and project laterally from opposite sides thereof, as clearly shown
110 by Fig. 4, whereby the rotary motion of the shaft 76 is communicated through the pitmen to the screen-frame to reciprocate the latter in a horizontal path. It will be recollected that this reciprocating screen-frame is adapted to carry the reversely-inclined screens 58,
115 and the entire screen-frame, as well as the screens 58, supported therein, is inclined laterally or transversely, so that the screens 58 will discharge the refuse sideways into the refuse-receptacle 64. To provide for this lateral inclination of the screen-frame and to
120 slidably support the screen below the endless collector-comb, I employ the two pairs of slide-arms 84, which are disposed on the respective sides of the screen-frame and are arranged at different elevations, so as to permit of the
125 transverse inclination of the screen-frame. The slide-arms 84 85 are fixed to the skeleton supporting-frame within the casing in positions on opposite sides of the screen-frame, and to this screen-frame are secured the plates
130 86, which are slidably fitted to the fixed slide-arms in order to permit the screen to travel on the slide-arms when the shaft is rotated to reciprocate the pitmen 82.

One of the peculiar features of the invention is a novel construction of the head for each of the collector and cleaning comb mechanisms. This head is represented in detail by Figs. 5 and 6 of the drawings, and it consists of a core and a yieldable clamp. The core of the comb-head is indicated by the numeral 88, and it is of angular form in cross-section and is peculiarly constructed to receive the series of fingers and the pivotal rod. Said core is provided with angular grooves 89, which are formed in the faces of the core, and said core is also provided with a straight continuous longitudinal groove 90. The fingers are provided with bent ends 92, and said fingers are fitted in the grooves for the fingers to occupy the angular portions of the grooves. The clamp 91 is arranged to embrace three sides of the square core, and through the longitudinal groove 90 passes the rod which serves to pivotally attach the head to the endless chains forming in part the comb mechanism. The clamp 91 is constructed of elastic sheet metal, so as to frictionally embrace the core and hold itself in position against displacement thereon, and this clamp binds against the fingers and the angular ends thereof, so as to firmly retain the fingers within the core against displacement in any direction. By fitting the angular ends of the fingers in the grooves of the core said ends prevent the fingers from turning, and as the clamp embraces the ends of the fingers they cannot be forced endwise in either direction relatively to the core, because the clamp prevents the fingers from moving in one direction while the core prevents the fingers from moving in the opposite direction. The fingers are thus attached to the clamp in a manner to prevent any displacement of the parts, and the clamp may easily be detached for the operator to gain access to the fingers in order to replace them in the event of injury thereto.

In operation the green corn is deposited in the path of the fingers on the working side of the collector-comb. This comb mechanism is adapted to sweep through the dropping corn in order to collect the corn-silk therefrom, and in this connection it is desired to state that the fingers of the shaking-distributor also collect in a measure the corn-silk which is adapted to lodge upon the fingers of the collector-comb. The collector-comb is propelled for its fingers to impinge against the wiper 49 to partly remove the collected silk from such fingers, and on the neutral or rear side of the collector-comb the limiting-plates ride against the rail 23 to make said fingers assume the inclined positions for the cleaning-fingers of the endless cleaning-comb to travel through the collector-fingers. The cleaning-comb is driven positively in a reverse direction to the collector-comb and the fingers of said cleaning-comb are adapted to be pressed against the wiper 52 in order to remove the silk from the cleaning-comb. The grains of corn lodge upon the shaking-screen which catches the

refuse, and said screen permits the desirable grains of corn to pass through the same into the receptacle 63, while the refuse is discharged from the screen into the box 64, adapted also to receive the corn-silk from the wipers and the cleaning-comb.

It will be noted that all the elements of my machine are kept in a cleaned condition, thus increasing the capacity of the machine. The several working parts are driven at a slow speed, and hence the parts are not subjected to excessive friction and wear, thereby increasing the durability of the structure. The machine itself can readily be cleansed in all of its parts by supplying water from a hose or other suitable source of supply, and when the machine is in motion the water is adapted to wash the various parts of the machine in order to lessen the liability of sour corn being packed in the cans.

In the embodiment of the invention herein illustrated and described the collector-comb is adapted to be driven continuously; but it is evident that suitable mechanism may be provided for intermittently propelling the collector-comb.

The invention is represented as embracing a single collector-comb operating in connection with a distributor and a screen mechanism; but I reserve the right to duplicate the collector-combs, to provide a cleaning-comb for use in connection with the neutral side of each collector-comb, and to dispose the two collector-combs in operative relation to a single screen mechanism.

Changes in the form, proportion, size, and the minor details of construction within the scope of the appended claims may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having thus described the invention, what I claim is—

1. In a corn-silk-gathering machine, a collector-comb mechanism having a series of pivoted fingered bars, and means for holding the pivoted bars in operative positions as they traverse the space through which corn is dropped, combined with a cleaner mechanism having fingers arranged to traverse the fingers of the collector mechanism when they are inclined to inoperative positions, substantially as described.

2. In a corn-silk-gathering machine, the combination with means for dropping corn, of an endless collector-comb having a plurality of pivoted bars provided with fingers, means for holding the fingers in a plane at right angles to the path of the comb mechanism as said fingers sweep through the space below the distributor mechanism, and a fingered cleaner mechanism contiguous to the neutral side of the collector-comb to sweep through the latter while the fingers thereof are in inclined positions, substantially as described.

3. In a corn-silk-gathering machine, a fingered collector mechanism comprising an endless carrier and fingers arranged in series and

connected pivotally with said carrier, in combination with means above the collector mechanism to drop corn through the path pursued by the fingers, guides for holding the collector-fingers at right angles to the carrier as they travel beneath the corn-dropping means and also for permitting the fingers to assume inclined positions on the rear side of the collector mechanism, and an endless cleaner-comb arranged to traverse the spaces between the fingers of the collector-comb, substantially as described.

4. In a corn-silk-gathering machine, the combination of an endless collector-comb having a plurality of pivoted bars each provided with a series of fingers, means for dropping corn through the path pursued by the fingers on one side of said comb, guide-plates attached to said pivoted bars, rails arranged to one side of the axis of the collector-comb and holding the fingers of said comb on its working side at right angles to the path of the comb and also permitting the fingers on the neutral side to assume inclined positions, and an endless cleaning-comb having fingers which sweep through the space between the inclined fingers on the neutral side of the collector-comb, substantially as described.

5. In a corn-silk-gathering machine, the combination of an endless collector-comb having the pivoted fingers, means for holding the pivoted fingers in right-angular and inclined positions on the working and neutral sides respectively of the collector-comb, an endless cleaner-comb mounted for its fingers to travel in a path contiguous to and parallel with the neutral side of the cleaner-comb, whereby the fingers of the cleaner-comb may sweep between the fingers of the collector-comb, and means for driving the cleaner-comb in an opposite direction to the collector-comb, substantially as described.

6. In a corn-silk-gathering machine, the combination of an endless collector-comb having the series of pivoted fingers, a cleaning-comb movable in an opposite direction to the collector-comb and disposed contiguous to the neutral side thereof for the cleaning-fingers to traverse the collector-comb, and means for holding the pivoted fingers of the collector-comb in inclined positions during the travel of the cleaning-fingers therethrough, substantially as described.

7. In a corn-silk-gathering machine, the combination of an endless collector-comb, an endless cleaner-comb contiguous thereto, and a wiper disposed in the path of the fingers of the collector-comb and in advance of the cleaning-comb, substantially as described.

8. In a corn-silk-gathering machine, an endless collector-comb consisting of a series of bars provided with fingers or teeth and said bars pivotally supported on suitable endless chains, a limiting-plate attached to each pivoted bar, and guides against which the limiting-plates are adapted to ride, the combination with a distributor mechanism above the

path of the fingers on the working side of the collector-comb, and an endless cleaner-comb contiguous to the neutral side of said collector-comb and adapted to cooperate therewith when the collector-fingers assume inclined positions, substantially as described.

9. In a corn-silk-gathering machine, the combination of an endless collector-comb, an endless cleaner-comb mounted to travel in a path parallel to the collector-comb and having pivoted fingers arranged to traverse the collector-comb on the rear side thereof, fixed and yieldable guides supported within the leads of the collector-comb and disposed in the path of the pivoted fingers thereof, and a wiper supported in rear of the collector-comb and in the path of its fingers, substantially as described.

10. In a corn-silk-gathering machine, the combination of a collector mechanism, an endless cleaner-comb in operative relation to the collector mechanism and having toothed heads provided with limiting-plates, a wiper lying in the path of said heads on the cleaning-comb, and a spring device arranged to ride against the limiting-plates of the cleaning-comb, substantially as described.

11. In a corn-silk-gathering machine, the combination with a silk-collector mechanism, of an endless cleaning-comb in operative relation thereto and provided with limiting-plates on the toothed heads thereof, and a rider-rail against which the limiting-plates are adapted to travel, substantially as described.

12. A corn-silk-gathering machine comprising an endless fingered collector-comb, a horizontal screen-frame arranged in a plane below the fingers on the working side of the collector-comb, and the individually-removable screens mounted in the same screen-frame and abutting against each other at their inner ends, said screens being correspondingly inclined reversely one to the other longitudinally of the screen-frame and each screen being also inclined transversely across said screen-frame toward a common discharge-point, whereby the refuse collected by the screens is directed toward one side of the screen-frame and discharged from the middle thereof, substantially as described.

13. A corn-silk-gathering machine comprising an endless fingered collector-comb, a horizontal screen-frame arranged below the fingers on the working side of the collector-comb, the guides secured to the machine-frame on opposite sides of the screen-frame and in positions parallel with the path of travel of the fingers on said collector-comb, keepers fast with the screen-frame and fitted slidably to the guides, a screen carried by the screen-frame and movable therewith in a path parallel to the line of travel of the collector-comb, and means for giving endwise movement to the screen-frame, substantially as described.

14. In a corn-silk-gathering machine, the combination with an endless collector-comb,

of a horizontal distributor slidably mounted above and in the same vertical plane as the fingers on the working side of the collector-comb, said distributor having two series of
 5 fingers made fast with a frame and said fingers inclined downwardly in reverse directions and occupying fixed relations one to the other, and means for reciprocating the distributor and its fingers bodily in a path parallel to that of the collector-comb, substantially as described.

15. In a corn-silk-gathering machine, a comb mechanism having a head consisting of a core, a series of fingers fitted to said core,
 15 a pivotal shaft also fitted to the core, and a clamp for retaining the fingers and the pivotal shaft in engagement with the core, substantially as described.

16. In a corn-silk-gathering machine, a
 20 comb mechanism having a head consisting of a core provided with angular grooves, a pivotal shaft, the bent fingers fitted in said

grooves of the core, and a clamp which frictionally engages with the core and the shaft to confine the fingers in position thereon, substantially as described. 25

17. In a corn-silk-gathering machine, a comb mechanism having a head comprising a core having a series of angular grooves and a longitudinal groove, a pintle-rod fitted in the
 30 longitudinal groove, a series of bent fingers occupying the angular grooves, and a clamp fashioned to frictionally grip three sides of the core and confine the fingers and the pintle-rod in the grooves thereof, substantially as
 35 described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

F. S. ULERY.

Witnesses:

J. S. STANLEY,
 J. W. BREWER.