July 26, 1927. 1,637,060

A. SIMONS

APPARATUS FOR PLUCKING FOWLS

Filed Sept. 5, 1925 6 Sheets-Sheet 1

Fig. 1.

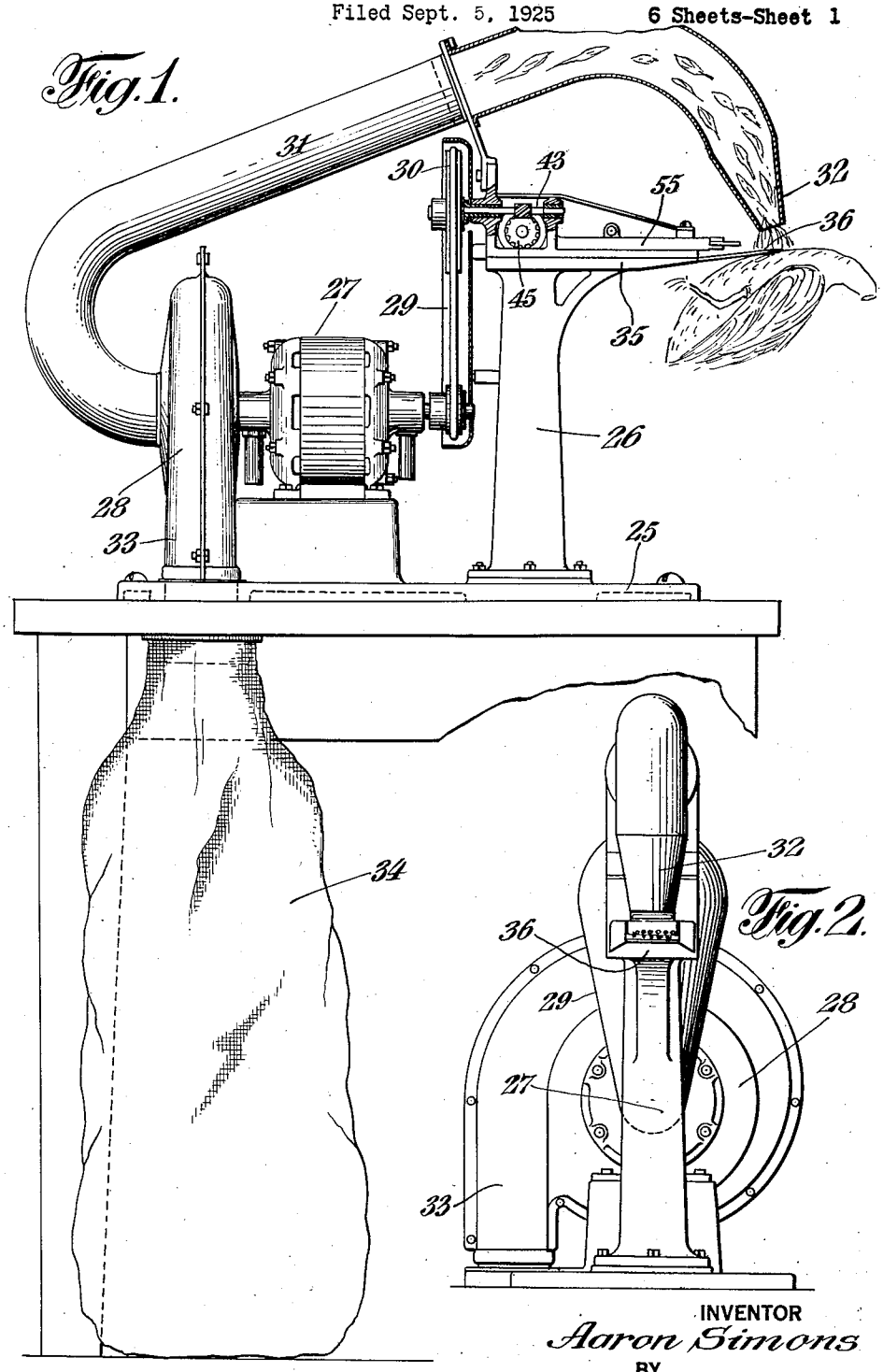


Fig. 2.

INVENTOR

Aaron Simons

BY

Dean Fairbank Albright & Hirsch

ATTORNEYS

July 26, 1927. 1,637,060

A. SIMONS

APPARATUS FOR PLUCKING FOWLS

Filed Sept. 5, 1925 6 Sheets-Sheet 2

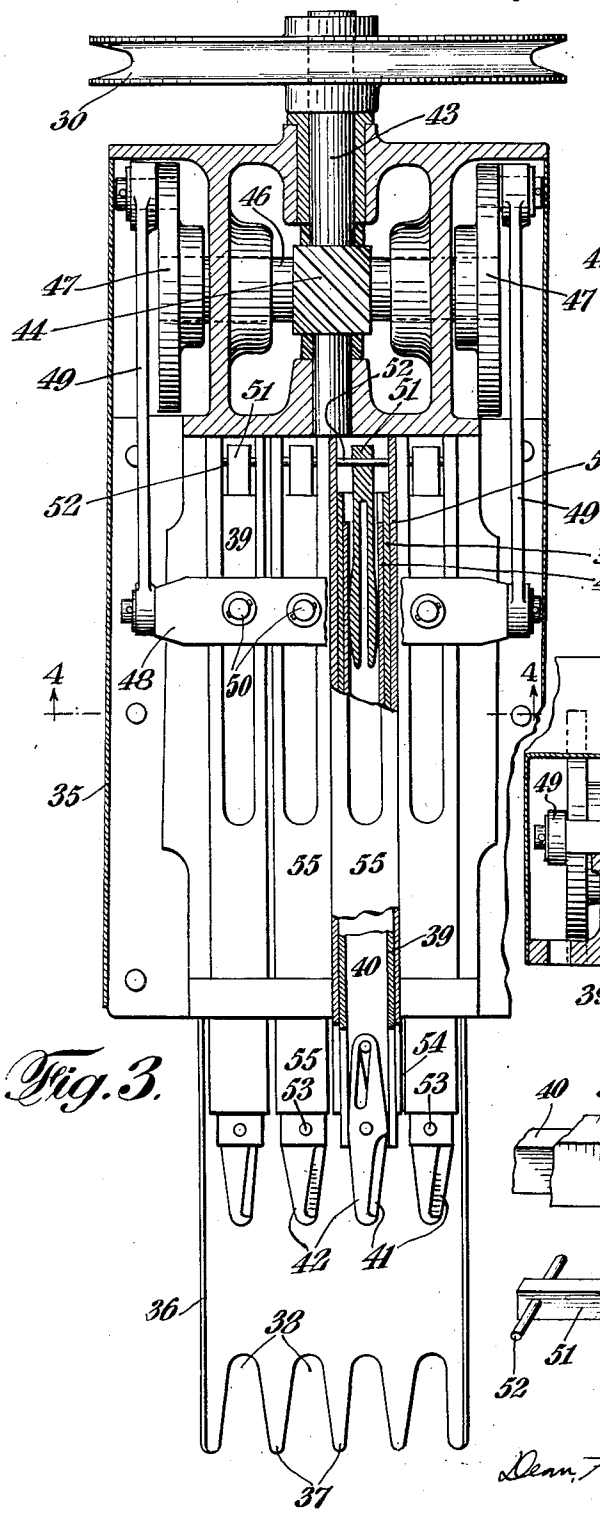


Fig. 3.

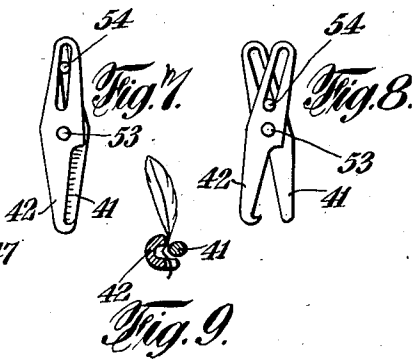


Fig. 7.

Fig. 8.

Fig. 9.

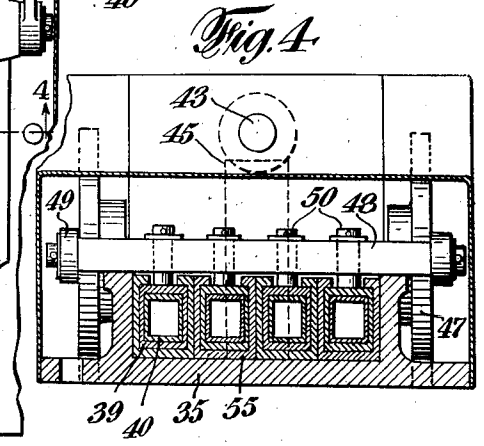


Fig. 4.

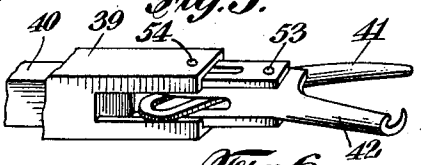


Fig. 5.

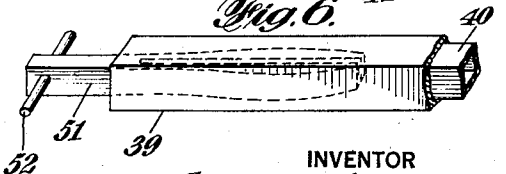


Fig. 6.

INVENTOR
Aaron Simons
BY
Dean, Fairbanks, Albright & Hirsch
ATTORNEYS

July 26, 1927. 1,637,060

A. SIMONS

APPARATUS FOR PLUCKING FOWLS

Filed Sept. 5, 1925 6 Sheets-Sheet 3

Fig. 10.

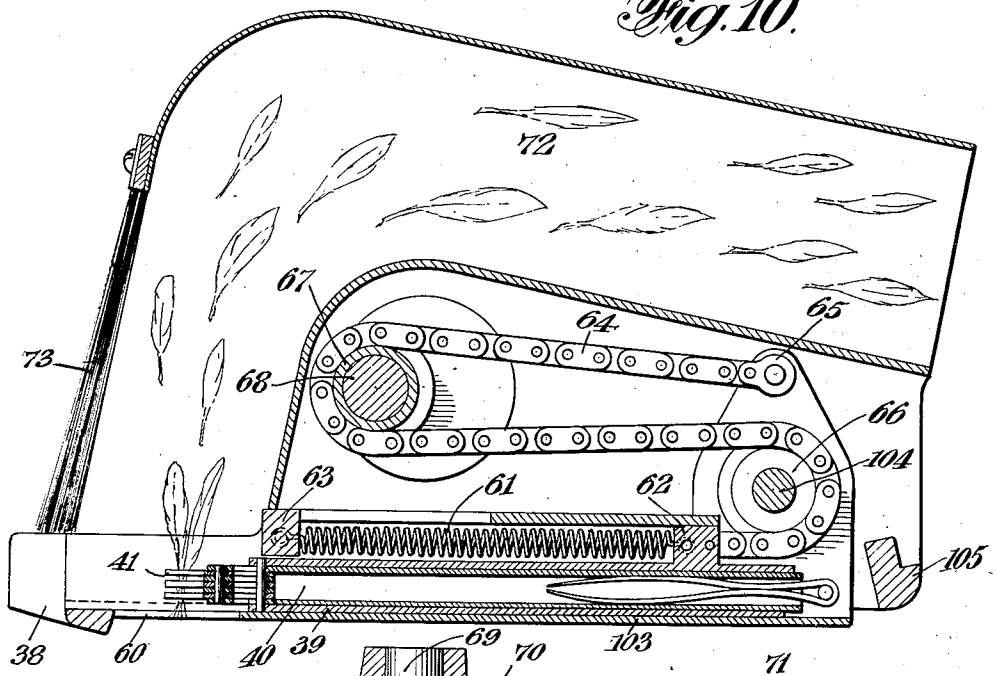
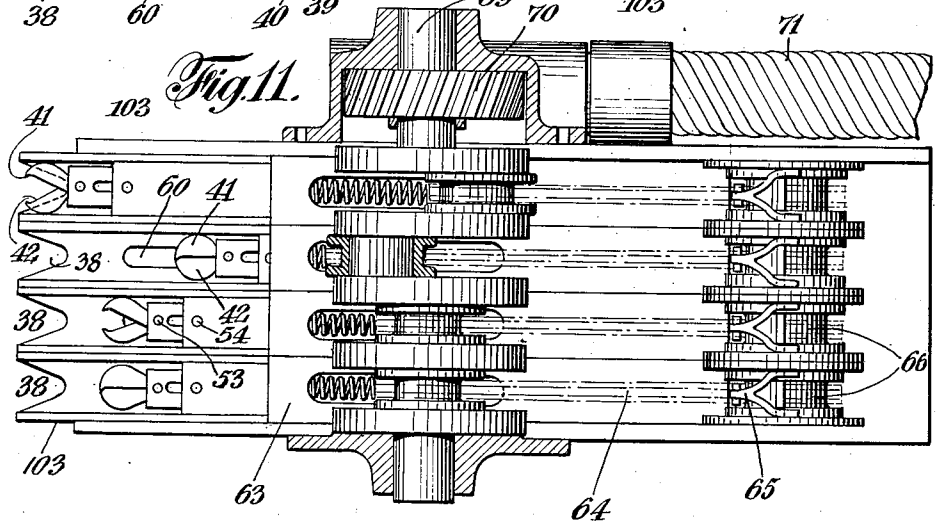


Fig. 11.



INVENTOR

Aaron Simons

BY

Dean, Fairbank, Albright & Hirsch

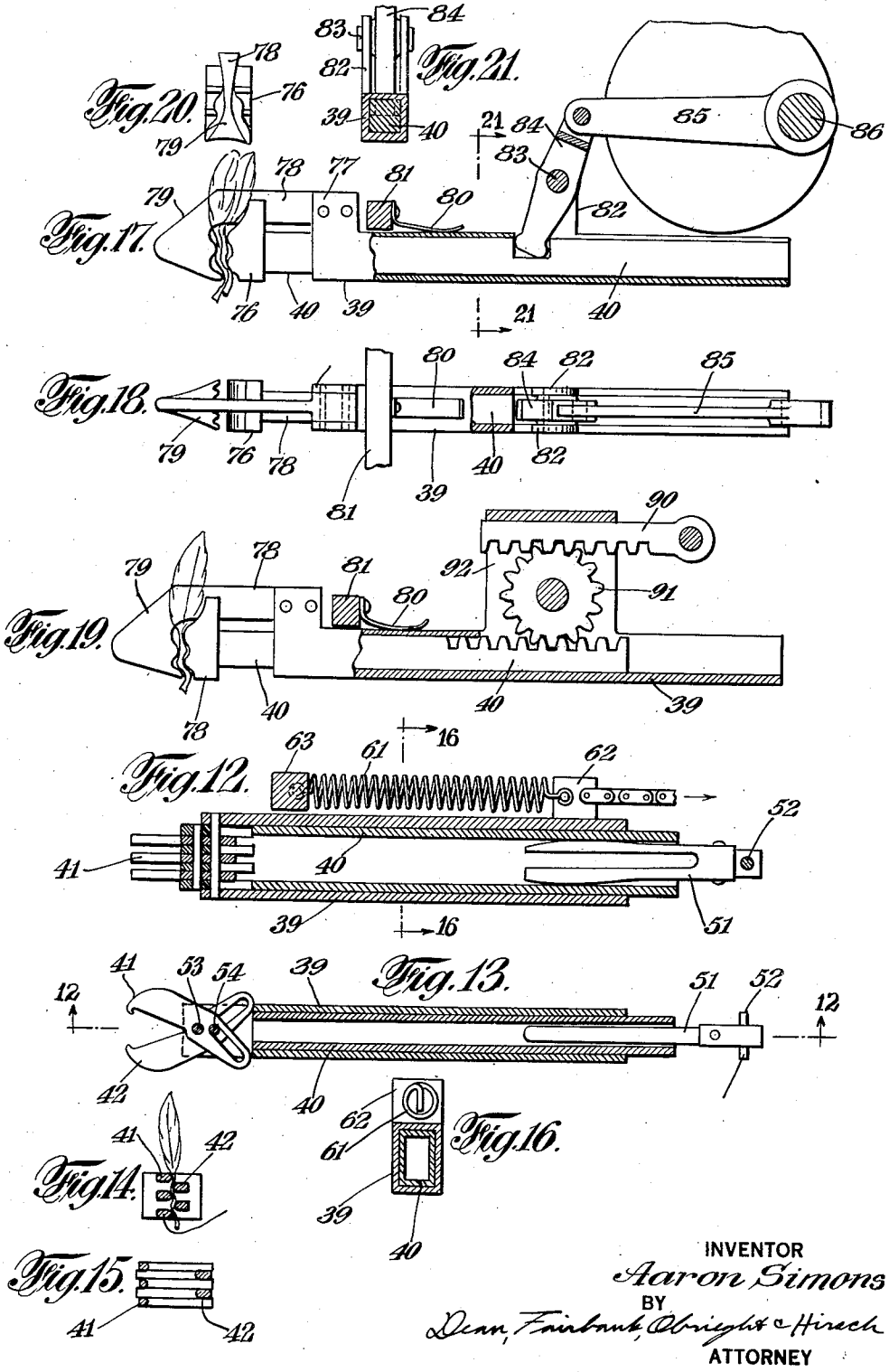
ATTORNEYS

July 26, 1927. 1,637,060

A. SIMONS

APPARATUS FOR PLUCKING FOWLS

Filed Sept. 5, 1925 6 Sheets-Sheet 4



INVENTOR
Aaron Simons
BY
Dean, Fairbank, Albright & Hirsch
ATTORNEY

July 26, 1927. 1,637,060

A. SIMONS

APPARATUS FOR PLUCKING FOWLS

Filed Sept. 5, 1925 6 Sheets-Sheet 5

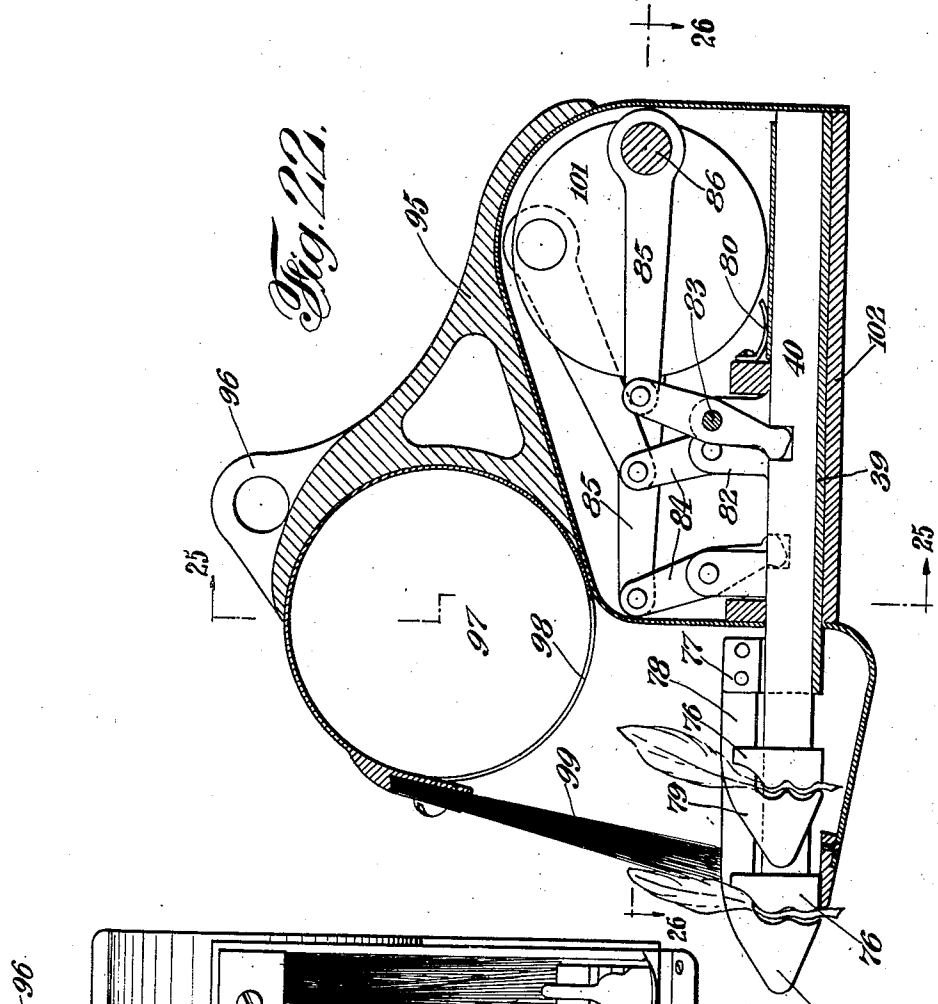


Fig. 22.

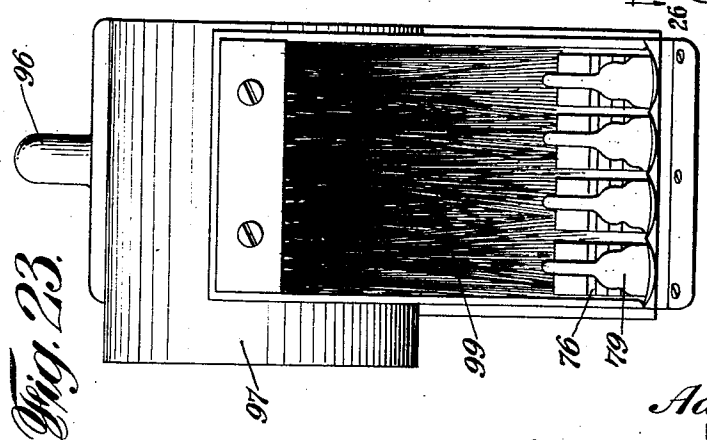


Fig. 23.

INVENTOR
Aaron Simons
BY
Dewey, Fairbank, Albright & Hirsch
ATTORNEY

July 26, 1927. 1,637,060

A. SIMONS

APPARATUS FOR PLUCKING FOWLS

Filed Sept. 5, 1925 6 Sheets-Sheet 6

Fig. 25.

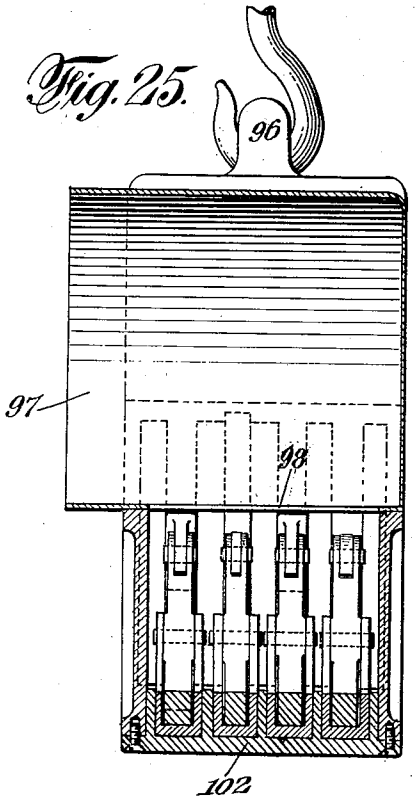


Fig. 26.

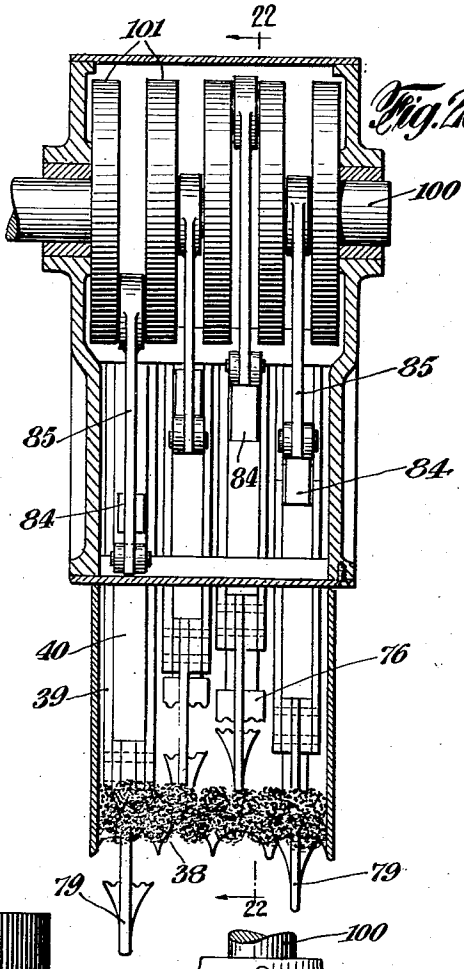
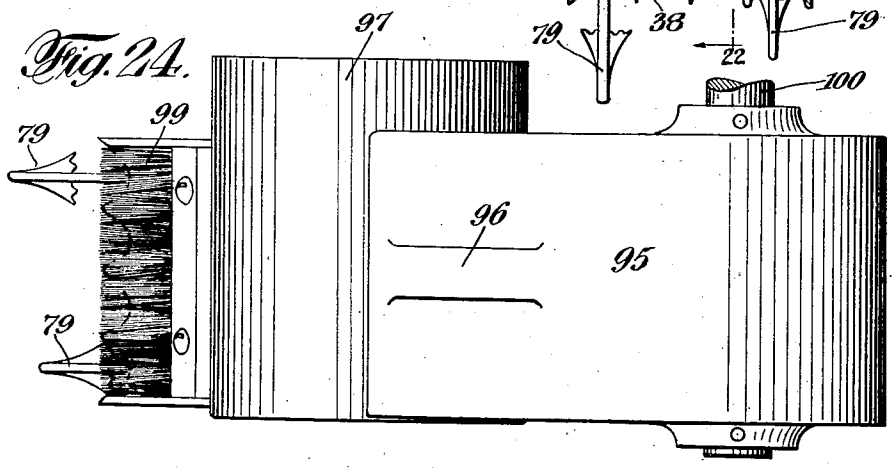


Fig. 24.



INVENTOR

Aaron Simons

BY

Dean Fairbank Albright & Hirsch

ATTORNEY

Patented July 26, 1927. 1,637,060

UNITED STATES PATENT OFFICE.

AARON SIMONS, OF NEW YORK, N. Y., ASSIGNOR OF ONE-FOURTH TO NATHAN WEINBERG AND ONE-FOURTH TO ISSAY WEINBERG, BOTH OF BROOKLYN, NEW YORK.

APPARATUS FOR PLUCKING FOWLS.

Application filed September 5, 1925. Serial No. 54,643.

This invention has for its main object the provision of means whereby certain objections in the operation of prior devices for the same purpose are overcome, and the machine is better adapted to perform the function for which it is designed.

As one important advantage of my invention I am able to effectively grip and remove the feathers, irrespective of the size or kind, the grippers being so designed and operated that the gripping action on small pin feathers, hair or down is just as firm and effective as it is on the largest quills or tufts of quills.

As a further important advantage of my invention the removal of all of the feathers is insured due to the fact that the gripping action on a feather increases directly with the resistance offered to the removal of that feather. In other words, those feathers which are the hardest to pull out are the ones which are most firmly engaged by the grippers, and any tendency of a feather to slip in the gripper due to the fact that it requires a strong pull to remove it from the fowl, is automatically resisted by a tightening of the gripping action on the feather.

As a further important advantage I am able to grip the feathers a few at a time closely adjacent to the skin, whereby the shortest feathers are removed as effectively as the longer ones.

As a further important advantage a comparatively large surface may be picked at one time, and without increase in the power required for the operation of the machine. To accomplish this I provide a plurality of gripping or plucking elements which are arranged side by side and coupled to the drive shaft in such a way that they may be operated in succession, and only a small proortion of the total number are pulling at one time.

As a further advantage the machine may be operated over a surface of varying contour and all of the several gripping or plucking elements will operate equally close to the skin. To accomplish this the pluckers are so mounted that although driven from the same source of power they may move in respect to each other and operate in different planes as the machine is advanced over projections and depressions in the surface being picked.

As a further important feature I employ air suction which tends to hold the feathers substantially at right angles to the skin, and the pluckers operate to grip the feathers closely adjacent to the skin and remove them so that when they are released by the grippers they are carried away by the air suction.

My improved machine embodies various important features of construction whereby the foregoing and other objects and advantages are secured. Various alternative arrangements and designs may be adapted for securing these objects and advantages without departing from the scope of the invention as defined in the appended claims.

In the accompanying drawings I have illustrated certain embodiments of my invention. In these drawings:

Fig. 1 is a side elevation of one form, certain of the parts being shown in section.

Fig. 2 is a face view of the machine shown in Fig. 1.

Fig. 3 is a top plan view of certain of the operating parts, the casing and certain of the parts being shown in section.

Fig. 4 is a transverse section on the line 4—4 of Fig. 3.

Fig. 5 is a perspective view of one end of the reciprocating element.

Fig. 6 is a perspective view of the opposite end of the element.

Fig. 7 is a plan view of the feather gripping members in closed position.

Fig. 8 is a view of the parts shown in Fig. 7, but in open position.

Fig. 9 is an end view of the gripping members shown in Fig. 7, and in engagement with a feather.

Fig. 10 is a longitudinal section of another form of operating and plucking mechanism.

Fig. 11 is a plan view of certain of the parts shown in Fig. 10, the casing being broken away.

Fig. 12 is a longitudinal section of one of the feather gripping members shown in Figs. 10 and 11, said section being taken on the line 12—12 of Fig. 13.

Fig. 13 is a horizontal section of certain of the parts shown in Fig. 12.

Figs. 14 and 15 are end views of the gripping members shown in Figs. 12 and 13, the parts being shown in closed position in Fig. 14, and in open position in Fig. 15.

Fig. 16 is a section on the line 16—16 of Fig. 12.

Fig. 17 is a side elevation of a further form of reciprocating element.

Fig. 18 is a top plan view of the parts shown in Fig. 17.

Fig. 19 is a view similar to Fig. 17, but showing a different form of operating mechanism.

Fig. 20 is an end view of the parts shown in Figs. 17, 18 and 19.

Fig. 21 is a sectional detail on the line 21—21 of Fig. 17.

Fig. 22 is a longitudinal section of a hand machine embodying the operating parts shown in Fig. 17, said section being taken on the line 22—22 of Fig. 26.

Fig. 23 is a front view.

Fig. 24 is a top view, and

Figs. 25 and 26 are sections on the lines 25—25 and 26—26 respectively of Fig. 22.

In Figs. 1 and 2 I have illustrated my invention applied to a machine having a base 25 adapted to support a standard 26, an electric motor 27, and a blower 28. The operating parts of the machine are mounted on the standard 26 and are driven from the electric motor by a belt 29 to a pulley 30. The blower may be directly coupled to the opposite end of the motor, and is provided with an intake conduit 31 leading from a suction nozzle 32 disposed adjacent to the operating parts, and having a discharge conduit 33 for delivering the feathers to any suitable receptacle, such for instance as a bag 34. Although this is a preferred and a convenient means for supporting and operating the working parts, it is obvious that other arrangements may be employed.

In the construction shown, the standard 26 carries a table or frame part 35 serving as a support on which the reciprocatory feather plucking elements are supported and guided. The table 35 also carries a guard plate 36 at its front end, the latter terminating in teeth 37 spaced apart by recesses or notches 38. This guard with its teeth serves as a comb to raise the feathers to or toward a vertical position in respect to the skin, and the teeth separate the feathers into groups which enter the recesses 38 and which are separately gripped by the plucking elements.

In the construction shown in Figs. 3 to 9 inclusive each element includes a pair of reciprocating members 39 and 40 and a pair of gripping members 41 and 42. The members 39 and 40 are mounted for simultaneous endwise movement and are so connected as to have limited relative movement at each end of the stroke. The gripping members 41, 42 are so mounted as to move toward and from each other, and this movement is effected by the relative movement of the reciprocating members. The cycle of movement of the grippers includes a relative movement of the reciprocating members when at the rear end of the stroke, so as to open the grippers, then a forward movement of the reciprocating members with the grippers in open position, then a relative movement of the reciprocating members to close the grippers while at the front end of the stroke, and a return movement of the reciprocating members with the grippers in closed position. Various means may be employed for effecting this cycle of movement. The relative movement of the two reciprocating members is preferably effected by means of a positive drive for one member and lost motion connections, and a friction brake for the other member.

The positive drive connections for the reciprocating member 39 are shown as including a shaft 43 mounted in suitable bearings at the rear end of the table or bracket 35, and carrying the pulley 30. The shaft has a worm 44 engaging a worm wheel 45 on a transverse shaft 46. This shaft has crank disks 47 upon opposite ends thereof, which are connected to a slide 48 by connecting rods 49. The slide 48 is connected to each of the several reciprocating members 39 by means of pins 50, whereby the motor operates to simultaneously move the reciprocating members 39 back and forth.

These members 39 are shown as tubes, rectangular in cross section, and supporting and guiding the members 40 which are also in the form of tubes, rectangular in cross-section. The tubes 40 have limited reciprocatory movement within and in respect to the tubes 39. For effecting this movement there is provided a friction or drag means which is shown particularly in Fig. 6 as a rod 51 held against endwise movement by a pin 52 extending through the rear end thereof. The front end of the rod 51 projects into the tube 40 and is bifurcated with the two prongs engaging the tube with spring pressure. As the tube 39 is drawn back, the member 51 holds the tube 40 stationary until the lost motion between the tubes 39 and 40 has been taken up, and then the two tubes move rearwardly together. At the end of the rearward stroke the tube 39 starts on its forward stroke, but the member 51 holds the tube 40 stationary until the lost motion has been taken up in the opposite direction.

The grippers as shown particularly in Figs. 5, 7, 8 and 9 include a pair of members 41 and 42 connected together by a pivot pin 53 so that they may open and close like a pair of pliers. One of the members, for instance the member 42, is grooved to receive the member 41, and thus better engage the feathers which are gripped between the members, and one of the members, for instance the member 42, is hooked at its outer end so as to reduce the liability of any

feather slipping out endwise from between the members when they are in closed position.

The members 41 and 42 extend rearwardly from the pivot pins 53 and are slotted to receive a second pin 54. The slots are so inclined that when the pin 54 is at the front end of both slots the members are in open position, as shown in Fig. 8, while a rearward movement of the pin 54 to the position shown in Fig. 7, forces the members together into feather gripping position. Thus the opening and closing of the grippers is effected by a relative movement of the pins 53 and 54.

As shown particularly in Fig. 5, the pin 53 is carried by extensions of the top and bottom walls of the inner tube 40, while the pin 54 is carried by extensions of the top and bottom walls of the tube 39, and extends through slots in the tube 40. Thus a relative endwise movement of the tubes 39 and 40 brings the pins 53 and 54 together or separates them, and opens or closes the gripping members. By reason of this connection, as the slide 48 moves forward from its rearmost position, it first forces the member 39 forward in respect to the member 40 and opens the grippers. When the pin 54 reaches the front end of the slots in the grippers, further relative movement of the members 39 and 40 is prevented, and the member 40 is carried along with the member 39, and with the grippers in open position. As the slide 48 starts back the member 40 with the pivot pin 53, remains stationary, while the tube 39 moves the pin 54 back along the slots in the grippers to bring them together. When the pin reaches the rear end of the slots, or when the grippers have been brought together to the limiting position defined by the amount of feathers between the gripping members, the member 40 is forced to travel along with the member 39 and against the action of the friction means 51.

It will be evident that by reason of this operative connection between the parts, the amount of relative movement of the two gripping members, and the amount of relative movement of the reciprocating members will depend upon the amount of feathers which are gripped at each stroke. Furthermore, as the gripping members come together and engage a feather or group of feathers, their rearward movement is retarded or prevented by the pull of the feathers. The driving mechanism, acting solely on the member 39, acts first to more and more tightly grip the feathers by forcing the pin 54 back along the slides in the gripping members. When the gripping members cannot be forced into any firmer engagement with the feathers the gripping members are forced to travel along with the reciprocating member 39. Thus the greater the resistance which is encountered in the pulling of the feathers, the tighter will be the gripping action of the members on the feathers. The distance to which the gripping members approach each other is automatically controlled by the amount of feathers between the gripping members, and the action is equally effective on a single hair or piece of down as it is upon the largest group of quills.

The teeth and recesses of the guard 36 are so designed and positioned that as the gripping members advance in open position they move along the teeth with the space between the gripping members registering with the recesses 38. Thus the teeth tend to separate the feathers into groups, and the gripping members are brought directly into engagement with the several groups thus formed in the recesses 38.

The nozzle 32 is positioned directly above the guard or comb 36 so that the air suction holds the feathers in erect position as they are lifted by the teeth of the comb. As the gripping member is pulled rearwardly it carries the base or lower end of the feather with it, while the upper end is still held up by the air suction. As soon as the gripper releases the air current carries the feather up the air pasasge and delivers it to the container 34.

The reciprocatory members 39 may be arranged in closely juxtaposed position, but preferably each member is positioned and guided by a separate tubular casing section 55. These casing sections are shown as rectangular in cross section, and they may be rigidly secured in any suitable manner to the table 35. They are slotted along the upper side to receive the pins 50, and at their rear ends may be provided with apertures to receive and retain the ends of the pins 52. In the construction illustrated all of the gripping members advance at the same time and recede at the same time, and the tubular guides 55 are held rigid in respect to each other, but this is not essential as is hereinafter pointed out in connection with an alternative form.

In the construction shown in Figs. 12 to 16 there are provided similar reciprocatory members 39 and 40, but the gripping members 41 and 42 are mounted in series in superposed relationship so as to grip the feather along a longer section of the quill. This also gives a more effective gripping action, although it is not necessary in most constructions.

In Figs. 10 and 11 I have shown a somewhat different type of machine and embodying the gripping members shown in Figs. 12 and 13. Here the table or frame plate has a comb construction at its front end, but in the rear of the recesses 38 there are

provided slots 60 up through which the air may be drawn to carry away the feathers when they are released by the grippers.

For operating the reciprocating members each member is provided with a coil spring 61 connecting a lug 62 at the rear of the member with a stationary lug or attaching part 63 adjacent to the front end of the member. Thus the springs continually tend to pull the members forwardly to limiting position. For positively retracting the members to pull out the feathers, I provide each member with a chain or other flexible element 64 which has one end secured to a stationary bracket 65 and the other end to the lug 62. Each chain passes over a roller or idler 66 rotatable about a fixed axis, and also over a roller or idler 67 which is carried by the crank pin 68 of a crank shaft 69. As the crank shaft rotates to bring a crank pin to advanced position, as shown in Fig. 10, the idler 67 is at the maximum distance from the idler 66 and the reciprocating members are pulled back to limiting position. It will be evident that the range of movement of the reciprocating pluckers is equal to twice the throw of the crank.

In Fig. 11 it will be noted that I have shown four of the pairs of grippers with the four cranks equally spaced about the axis of the crank shaft, so that the four will operate in succession and the power required to drive the machine is merely that necessary to retract one gripping member rather than all four at the same time as in the construction shown in Fig. 3. The crank shaft 69 may be driven in any suitable manner, as for instance by a worm on a flexible shaft, and engaging with a worm wheel 70 on the shaft 69. The flexible shaft may be enclosed in a cable or flexible casing 71, and the entire device held in the hand and moved over the fowl, rather than held stationary and the fowl moved, as in Figs. 1 and 2. The air conduit 72 which leads up from the slots 60 and the operating positions of the grippers, may have its lower wall forming the upper wall of a casing for the operating parts including the crank shaft, chains, etc. The front wall 73 of the conduit may be in the form of a brush or of other flexible construction which will retard the passage of air therethrough, but which may move to permit the rearward movement of the upper portion of long, stiff feathers which may be pulled back at the base by the grippers.

In Figs. 17 to 20 inclusive I have shown a different form of gripping members. Here the inner tube 40 has a head 76 provided with transverse corrugations in its front surface. The member 39 has a lug 77 which is connected by a bar 78 to a front gripping member 79. This has transverse corrugations on its rear side to match those on the front side of the head 76 which forms the other gripping member. The front gripping member 79 is tapered forwardly, as shown particularly in Fig. 18, and is also tapered from the lower edge toward the other, as shown particularly in Fig. 20. This permits the member to enter between the feathers and push them apart laterally until they may spring back together as they pass the rear edge of the member 79. They thus come between the corrugated gripping surfaces.

After the member 39 has moved forward to the limiting position, and before it starts to return, the member 40 with its head 76 is pushed forward to grip the feathers and the two gripping members then move rearwardly together. The cycle of operations is the same as that previously described. The inner member 40 may be in the form of a solid rod, as shown particularly in Fig. 21, and the frictional resistance to the movement of the outer member may be produced by a spring 80 carried by a transverse bar 81 and pressing down on the upper surface of the rod 39, as shown particularly in Fig. 17.

In Figs. 17 and 18 I have shown another form of operating mechanism for the members. The outer member 39 is provided with upwardly extending side lugs 82 carrying a pivot pin 83 for a lever 84. The lower end of this lever sets in a recess in the member 40, while the upper end is connected by a link 85 to the crank pin 86 of a crank disk.

With the parts in the position shown in Fig. 17, where the grippers are at the rear end of the pulling stroke and about to open, the crank disk may rotate and move the link 85 toward the left. This will swing the lever 84 about its pivot because the member 39 and pivot 83 are held stationary by the spring friction 80. The lower end of the lever moves toward the right and moves the member 40, and the gripping member 76 toward the right to separate the grippers. When the grippers have opened to the limiting position, a further movement of the link 85 toward the left will move the two members 39 and 40 together until the crank disk has passed through approximately 180° of rotation. As the crank disk passes through dead center and moves toward the right, it will carry the link with it and the movement of the member 39 will again be retarded or prevented by the spring friction and the lever 84 will swing in the opposite direction to carry the rear gripping member and the rod 40 forwardly in respect to the parts 39 and 76 to grip the feathers. When the feathers are firmly gripped the parts 39, 40, 76 and 79 will move rearwardly together.

A further form is shown in Fig. 19, in which the reciprocatory driver is in the form of a rack bar instead of a link 85. This engages a pinion 91 which is carried by lugs 92 extending up from the outer reciprocatory

member 39. The inner member 40 has rack teeth engaging with the lower side of the pinion. The movement of the rack bar in one direction will move the two members 39 and 40 together without rotation of the pinion except immediately after the reversal of the direction of movement of the member 90. When the direction of movement is reversed the two gripping members may move in respect to each other until the lost motion is taken up, and this movement is insured by resisting the movement of one member through the action of the spring friction 80. It will of course be obvious that the operating mechanism shown in Figs. 10, 17 or 19 could be employed in place of that shown in Figs. 3 and 4 with the grippers shown in the last mentioned figures, or that the grippers shown in Figs. 5 to 9 inclusive could be operated by any of the other actuating means illustrated.

Furthermore the operating mechanism of the construction shown in Fig. 3 is preferably so designed that several grippers act in succession rather than simultaneously. One such operating mechanism is shown in Fig. 10. Another and preferable design is shown in Figs. 22 to 26 inclusive, in which the grippers are of the type shown in Fig. 17. The device shown in these figures is intended as a hand machine rather than a stationary one, as shown in Figs. 1 and 2. The machine includes a casing 95 having a ring or other means 96 whereby the machine may be supported and suspended from an overhead chain or cable so that the operator does not have to carry the entire weight of the machine in his hand. The casing has a transverse tubular air chamber 97 closed at one end and adapted to be connected to a suction pipe at the other. The lower side of the chamber has an opening 98 directly above the grippers and in front of this is a brush 99 through which the upper end of the feathers may be pulled. In the rear of the casing is a transversely extending shaft 100 which may be driven from a suitable flexible drive shaft, and this shaft has a series of crank disks 101 connected by cranks so disposed that the links 85 operate in succession.

In Fig. 26 the left hand gripper is shown in advancing open position, the third in receding closed position, the second in advancing open position, and the fourth in front closed position. The crank shaft and crank disks shown in this form may be substituted for the crank shaft and crank disks shown in Fig. 3, with the several connecting links secured to the pins 50.

In the form shown in Figs. 22 to 26 inclusive several reciprocating members are supported by and guided on the floor or base 102 of the casing, so that they all operate in the same plane. This is not essential as they may be arranged as shown in Figs. 10 and 11, in which each reciprocating element is guided in a separate channel 103, each of which has lugs at its rear end pivotally mounted on the cross shaft 104 which supports the idler 66. The casing has a transversely extending bar 105 with which the rear ends of the several guiding channels 103 may engage to limit the downward movement of the front end. As the device moves over the fowl, or as the fowl is moved beneath the device, the front ends of the several guiding channels 103 may move up and down to follow irregularities in the contour, and each gripper will thus operate as close as possible to the skin, and the recess 38 of the comb will move up and down with the grippers.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A fowl plucking device including a reciprocatory member, a pair of relatively movable feather gripping members carried thereby, and means for opening said gripping members when said first mentioned member is in open position and closing them when it is in another position.

2. A fowl plucking device including a reciprocatory member, a pair of relatively movable feather gripping members carried thereby, and means for opening said gripping members when said first mentioned member is at one end of its stroke and closing them when it is at the other end of its stroke.

3. A fowl plucking device including a pair of parallel reciprocating members, a pair of gripping members pivotally connected to one of said reciprocating members, and means for effecting a relative movement of said gripping members upon a relative movement of said reciprocating members.

4. A fowl plucking device including a reciprocating member, a pair of feather gripping members pivotally connected thereto at one end thereof, means for reciprocating said member, and means for opening said gripping members when said reciprocating member is at one end of its stroke and closing them when at the other end of its stroke.

5. A fowl plucking device including a pair of parallel reciprocating members, a pair of feather gripping members pivotally connected to one of said reciprocating members at one end thereof, driving means connected to the other of said reciprocating members, lost motion connections between said reciprocating members, and means for effecting a relative movement of said gripping members upon a relative movement of said reciprocating members.

6. A fowl plucking device including a pair of parallel reciprocatory members, driving connections secured to one of said members

for moving the latter back and forth, a pair of gripping members pivotally connected to the other reciprocating member, lost motion connections between said reciprocatory members, and means carried by the driven reciprocatory member for opening and closing the gripping members at the opposite ends of the stroke of the other reciprocatory member.

7. A fowl plucking device including a reciprocatory member, driving connections for moving the latter back and forth, a second reciprocatory member parallel to the first mentioned member and having lost motion connections with said first mentioned member, friction means for resisting the movement of the second mentioned member to take up lost motion at opposite ends of the stroke, and a feather gripping device connected to said members and opened and closed by the relative movement of said members.

8. A fowl plucking device including a plurality of parallel reciprocatory members, driving means therefor, and separate feather gripping devices carried by each member.

9. A fowl plucking device including a casing, a drive shaft, a plurality of reciprocatory members operatively connected to said shaft, to be reciprocated thereby, and separate feather grippers carried by said members.

10. A fowl plucking device including a casing, a plurality of reciprocatory members mounted therein, a drive shaft having a plurality of angularly spaced crank pins, separate driving connections between each crank pin and the corresponding reciprocatory member, and separate feather grippers carried by each member.

11. A fowl plucking device including a casing, a plurality of reciprocatory members mounted therein, a drive shaft having a plurality of angularly spaced crank pins, separate driving connections between each crank pin and the corresponding reciprocatory member, separate feather grippers carried by each member, and means for opening each gripper at the rear end of its stroke and closing it at the front end of its stroke.

12. A fowl plucking device including a casing, a plurality of reciprocatory members mounted therein, separate feather grippers carried by each member, and an air conduit having an air inlet adjacent to the path of movement of said members, and means for creating a partial vacuum in said conduit.

13. A fowl plucking device including a casing having a plurality of reciprocatory members, separate feather grippers carried by said members, an air conduit having a suction nozzle adjacent to the path of movement of said grippers, and means for creating a partial vacuum in said conduit.

14. A fowl plucking device including a casing having a plurality of reciprocatory members, separate feather grippers carried by said members, an air conduit having a suction nozzle adjacent to the path of movement of said grippers, an electric motor, a blower directly connected to said motor for sucking air through said conduit, a drive shaft having operative connections to said members for reciprocating the latter, and driving connections between said shaft and said motor.

15. A fowl plucking device having a casing including a guard plate terminating in a plurality of teeth and intervening recesses, a plurality of feather grippers corresponding in number to said recesses and including spaced members, means for moving said last mentioned members together to engage the feathers within the corresponding recesses, and means for moving said members rearwardly in respect to said plate.

16. A fowl plucking device including a base plate having a recess, a pair of pivotally connected feather gripping members, means for moving said members forwardly upon opposite sides of the recess, and means for bringing said members together across the recess to grip the feathers projecting through the latter and retracting the gripping members to pull out the feathers.

17. A fowl plucking device including a plate having a recess therein through which the feathers may extend, a reciprocating member having a pair of gripping members pivoted thereto, means for advancing said reciprocating member to move said gripping members along opposite sides of the recess, means for bringing said gripping members together across the recess, and means for pulling said members rearwardly along said plate.

18. A fowl plucking device including a pair of feather gripping members pivotally connected intermediate of their ends, and each having a slot therein extending rearwardly from the pivotal connections, a reciprocating member secured to said pivotal connections, and a second reciprocating member having a pin engaging the slots of both gripping members to effect a relative movement of the latter upon a relative movement of the reciprocating members.

19. A fowl gripping device including a casing having an air suction conduit provided with a flexible front wall adjacent to the inlet end, and means for gripping the feathers adjacent to the lower end of the latter and pulling them into the conduit, the upper portion of the feathers passing through said flexible wall.

20. A fowl gripping device including a casing having an air suction conduit provided with a brush adjacent to the inlet end, and means for gripping the feathers adjacent to the lower end of the latter and

pulling them into the conduit, the upper portion of the feathers passing through said brush.

21. A fowl plucking device including a plurality of guides pivoted to permit independent vertical movement of the free ends thereof, a reciprocating member carried by each guide, and a feather gripping device carried by each member at the front end thereof.

22. A fowl plucking device including a plurality of guides pivoted to permit independent vertical movement of the free ends thereof, a reciprocating member carried by each guide, a feather gripping device carried by each member at the front end thereof, and means for retracting said reciprocating members in succession.

23. A fowl plucking device including a tubular reciprocatory member, a second tubular member within the first mentioned member, lost motion connections between said members and permitting relative reciprocation, a friction device projecting into the inner member to resist endwise movement of the latter, and a pair of feather gripping members pivotally connected to one of said first mentioned members and operated upon a relative movement of said reciprocatory members.

24. A fowl plucking device including a tubular reciprocatory member, a second tubular member within the first mentioned member, lost motion connections between said members and permitting relative reciprocation, a friction device projecting into the inner member to resist endwise movement of the latter, a pair of feather gripping members pivotally connected to one of said first mentioned members and operated upon a relative movement of said reciprocatory members, a crank shaft, and driving connections between said crank shaft, and the first mentioned reciprocatory member.

25. A fowl plucking device including a plurality of tubular guides, a reciprocatory member mounted in each guide, a crank shaft, connections between said shaft and each of said reciprocatory members, and a feather gripping device carried by each of said reciprocatory members at the end thereof opposite to said connections.

Signed at New York, in the county of New York, and State of New York, this 4th day of September, A. D. 1925.

AARON SIMONS.