

No. 639,152.

Patented Dec. 12, 1899.

C. S. COX.

MACHINE FOR STEMMING AND CLEANING RAISINS.

(Application filed Jan. 30, 1899.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 1.

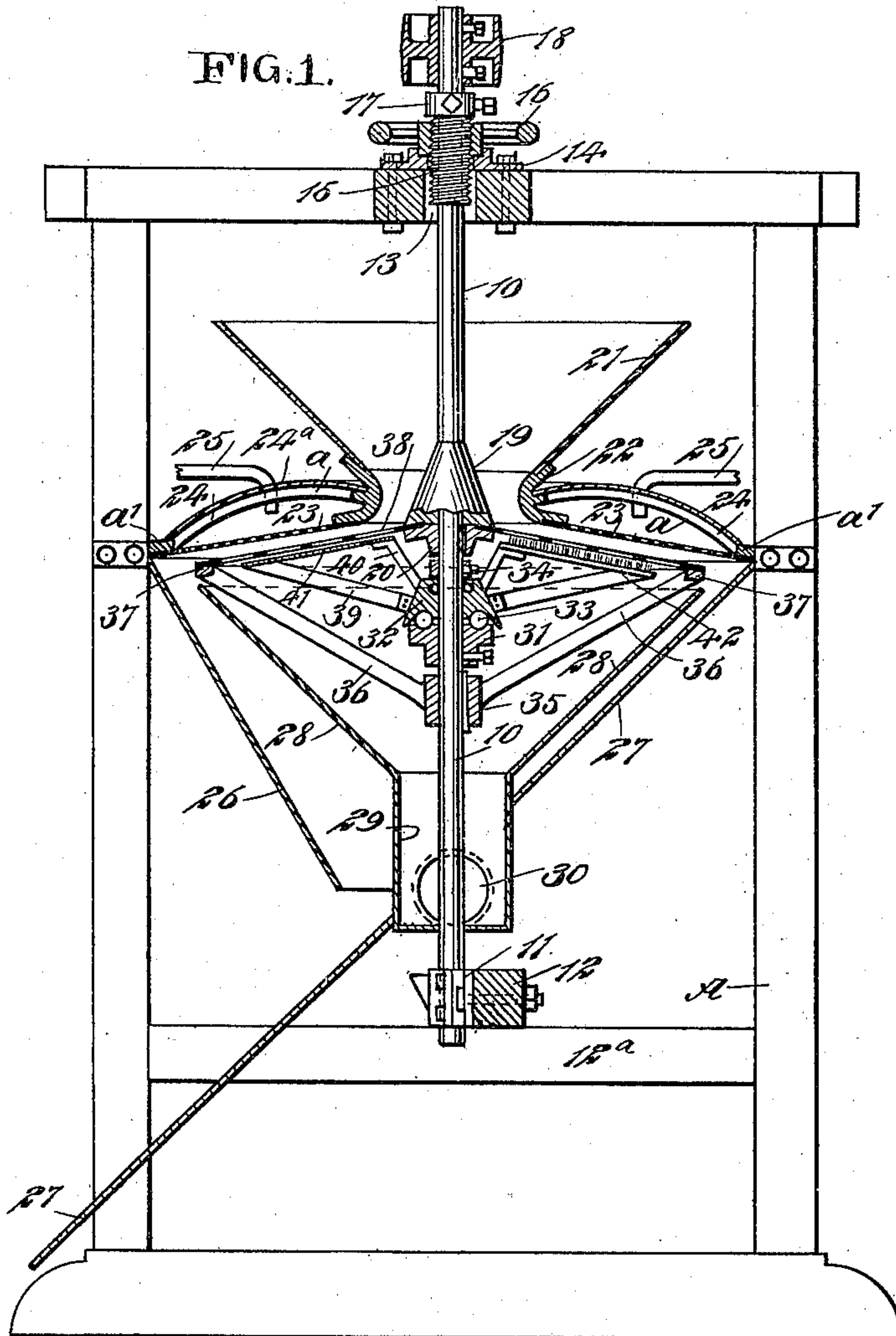


FIG. 3.

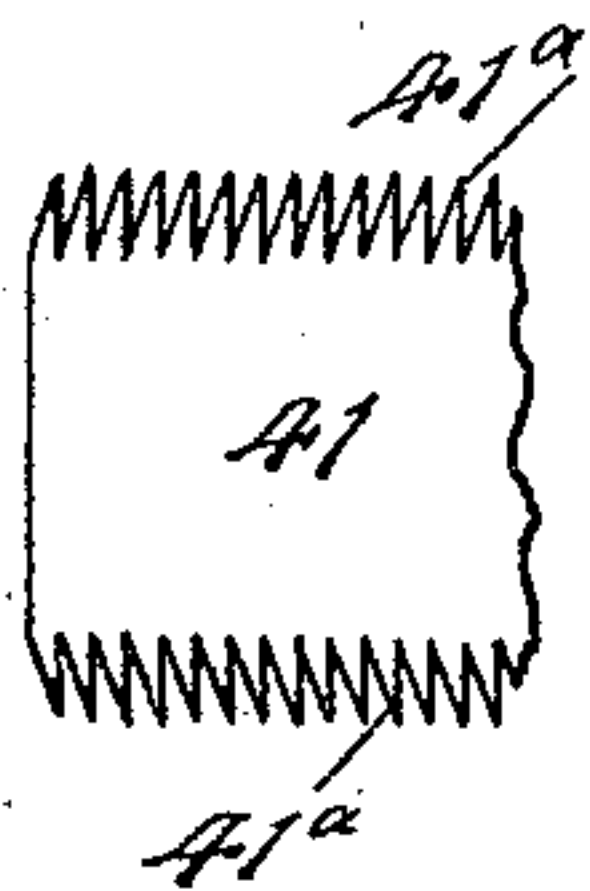


FIG. 4.

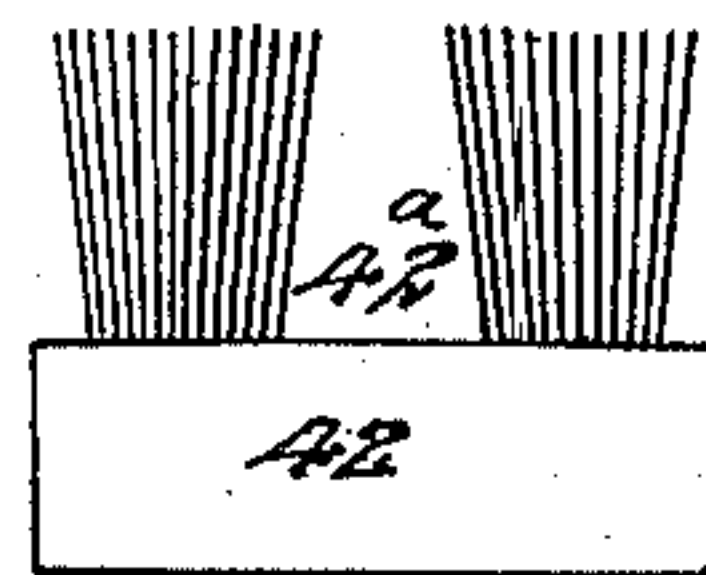
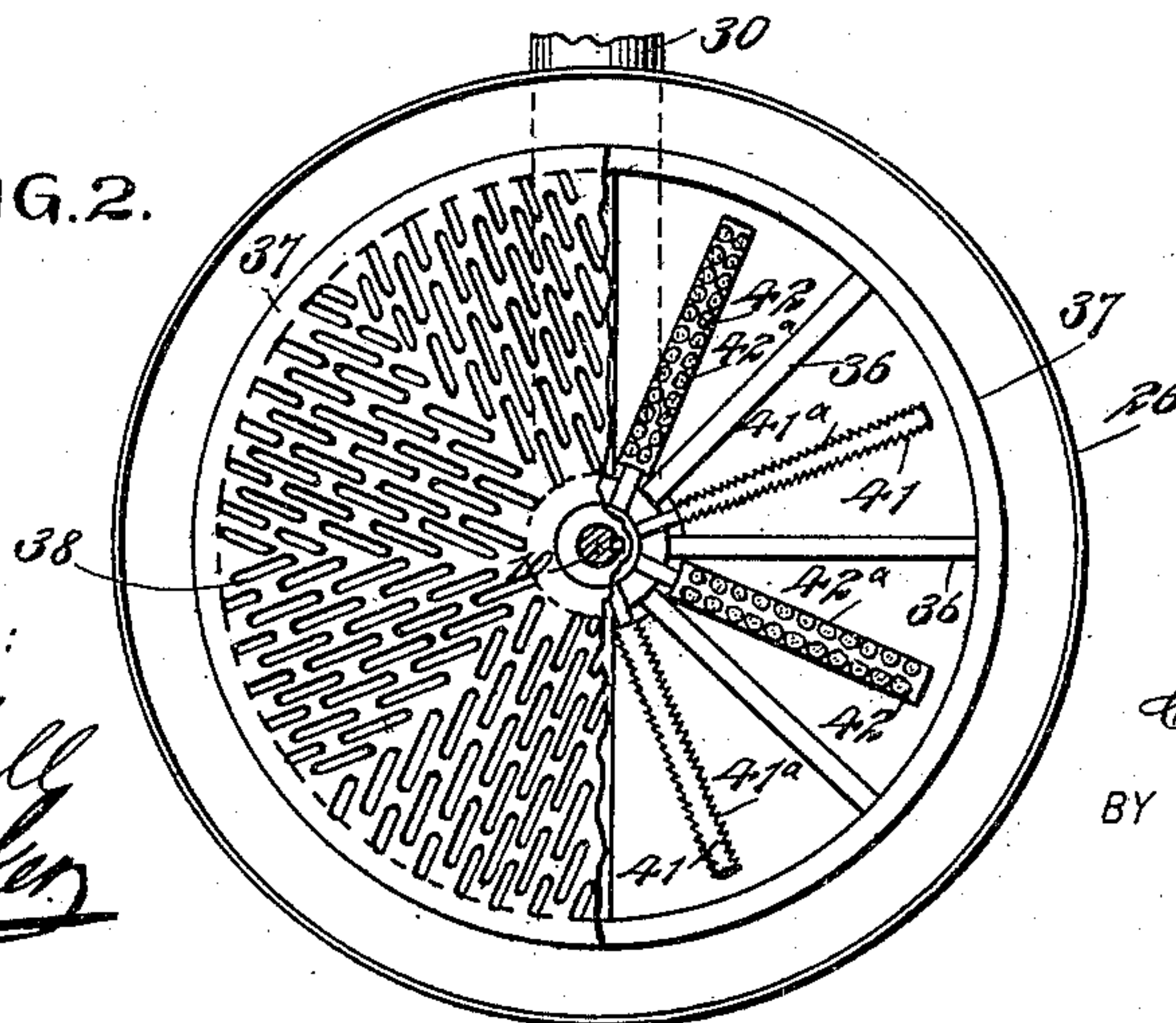


FIG. 2.



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2 Sheets—Sheet 2.

FIG. 5.

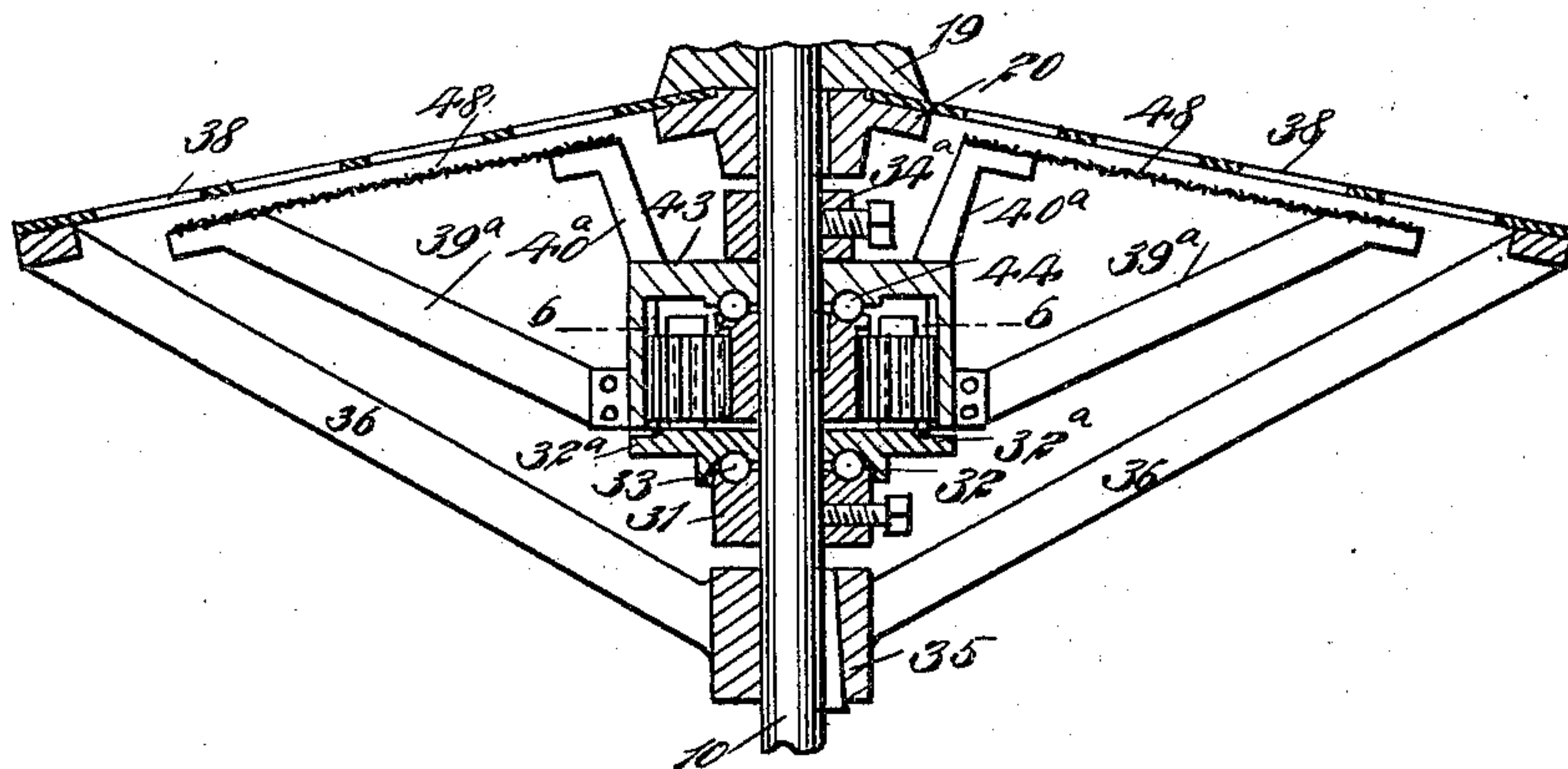
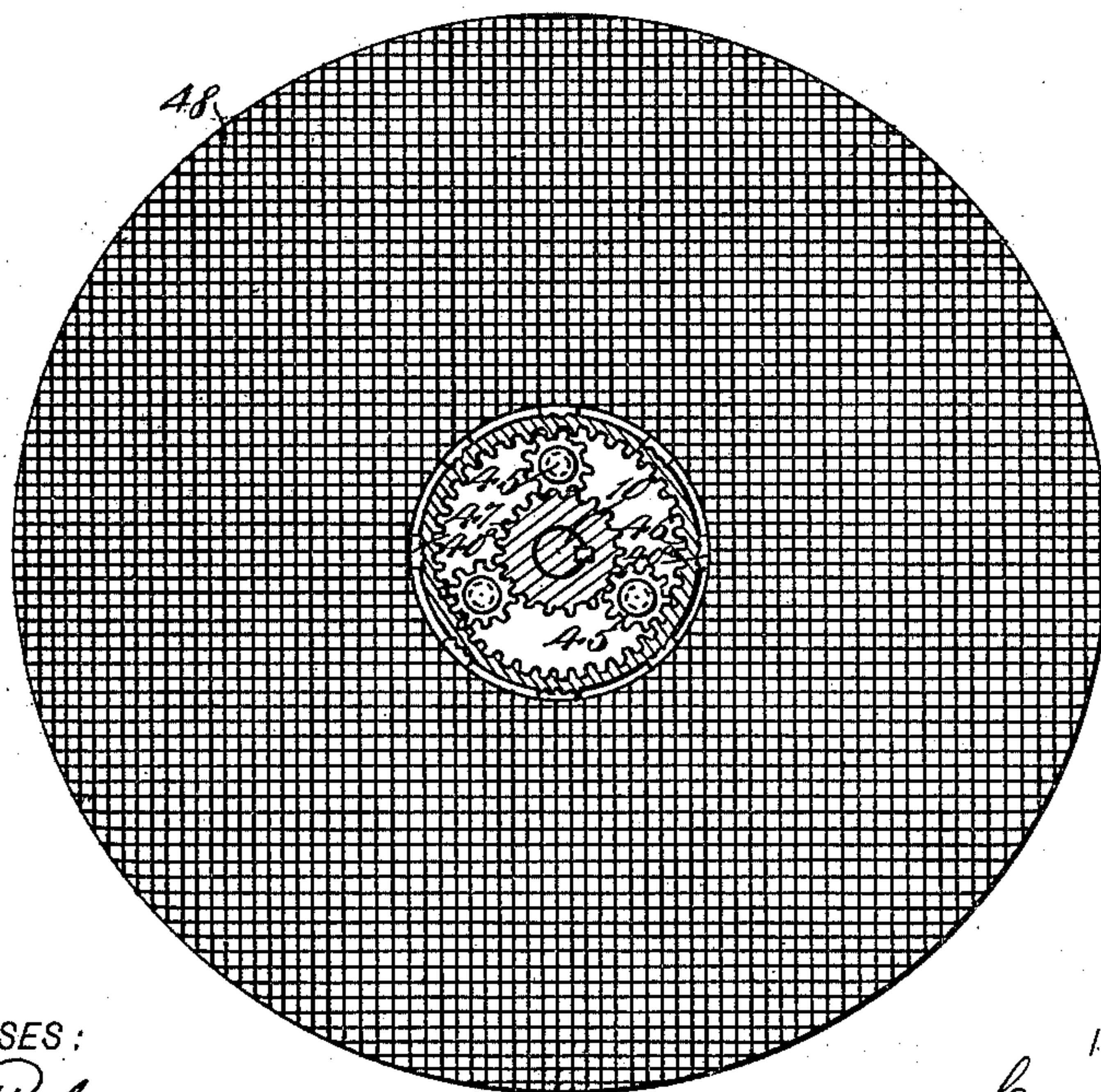


FIG. 6.



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MACHINE FOR STEMMING AND CLEANING RAISINS.

SPECIFICATION forming part of Letters Patent No. 639,152, dated December 12, 1899.

Application filed January 30, 1899. Serial No. 703,880. (No model.)

To all whom it may concern:

Be it known that I, CARY S. COX, of Fresno, in the county of Fresno and State of California, have invented a new and Improved Machine for Stemming and Cleaning Raisins, of which the following is a full, clear, and exact description.

The object of my invention is to provide a machine especially adapted for stemming and cleaning raisins and to construct such a machine in a simple and durable manner and so that the machine will be under the complete control of the operator.

Another object of the invention is to so construct a machine that the stems will be entirely removed from the raisins without injury to the latter and the dirt or dust that may be mingled with the fruit will be removed therefrom and conducted from the machine through a medium independent of that employed for conducting the cleaned fruit.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical section through the improved machine. Fig. 2 is a plan view of the stationary funnel of the machine and the screen, brushes, and stem-collectors, a portion of the screen being in section, the screen shown in Fig. 2 being that in connection with which the brushes and stem-collectors operate. Fig. 3 is a plan view of a portion of one of the stem-collectors. Fig. 4 is an end view of one of the brush-carrying arms used in connection with the stem-collectors. Fig. 5 is a vertical section through revolving screens and their supports, the carrying-shaft being in elevation, which screens and supports represent modifications of the construction shown in Fig. 1; and Fig. 6 is a transverse section through a gearing for the inner screen, taken practically on the line 6 6 of Fig. 5, the inner screen appearing in plan view.

A represents a frame of any suitable or improved construction. A vertical shaft 10 is mounted in the frame A, the lower portion of said shaft being held to turn in a bearing 11,

attached to a cross-bar 12, which is shown as supported by a second cross-bar 12^a, the two cross-bars being at angles to each other. The upper end of the shaft 10 is made to pass through an opening 13 at the top of the frame, and the said shaft 10 may extend any desired distance above the upper portion of the frame. A plate 14 is attached to the top of the frame, the said plate being provided with a circular opening, said opening being in longitudinal alinement with the opening 13, through which the shaft is passed. An exteriorly-threaded sleeve 15 is loosely mounted upon the upper portion of the shaft 10, and a hand-wheel 16, the hub of which is interiorly threaded, is mounted upon the threaded sleeve 15, the hub 16 of the hand-wheel being made to turn in a socket in the bearing-plate 14, and the hand-wheel is prevented from having vertical movement by securing a collar 17 on the shaft 10 just above the hand-wheel. Thus by operating the hand-wheel 16 the shaft 10 may be raised or lowered, as desired. The shaft at its upper end is provided with a pulley 18, adapted for belt connection with any source of power.

Between the ends of the shaft 10, within the frame, a conical enlargement 19 is formed on the said shaft, the base of the conical projection facing downward, and a collar 20 is keyed or otherwise secured on the shaft immediately below the conical projection 19. A hopper 21 is made to surround the shaft 10, the conical projection 19 of the shaft being at the bottom portion of said hopper, which bottom portion is open. The bottom portion of the hopper 21 usually consists of a casting or forging 22, outwardly flared at its lower edge, and a screen or a sieve 23 is attached to the bottom of the hopper, said screen or sieve at its outer edge being secured to a sustaining-frame 24, comprising, preferably, convexed spokes or arms *a*, that extend from the exterior of the bottom portion of the hopper, and an annular rim *a'*, to which the outer ends of the arms or spokes are attached or of which they may form an integral part, and preferably the outer edge of the screen or sieve is secured to the said rim *a'*. The construction of the sustaining-frame is completed by a covering 24^a, of sheet metal, that extends over the arms *a* of the sustaining-frame to the

rim a' thereof. Pipes 25, connected with a blower or other source of air-supply, (not shown,) are passed at intervals through the sustaining-frame, as shown in Fig. 1.

5 A funnel 26 is stationarily secured to the frame, the said funnel being preferably attached to the frame immediately below the rim a' of the sustaining-frame, and what may be termed the "back portion" of the funnel
10 consists of a plate 27, that is inclined from the rim a' of the sustaining-frame downwardly and outwardly to the base of the main frame A, thus projecting beyond the bottom of the funnel-frame 26, which is open.

15 The funnel-frame or main funnel 26 contains a funnel 28 of lesser diameter, a space intervening the top of the inner funnel 28 and the screen or sieve 23. The lower end of the inner funnel 28 is contracted to form a box-
20 like outlet 29, and this outlet is secured to the inclined plate 27 of the outer funnel 26 in any suitable or approved manner; but the inner funnel 28 may be otherwise held stationary, and the box-like outlet of the inner funnel is
25 provided with an opening 30, to which a pipe or tube may be connected for the purpose of conducting from the machine the stems and dirt removed from the raisins.

A sleeve 31 is adjustably secured on the
30 shaft 10, within the inner funnel 28, and a second sleeve 32 is loosely mounted on the shaft 10, ball-bearings 33 being made to intervene the two sleeves 31 and 32, and ball-bearings are likewise located in the upper
35 loosely-mounted sleeve 32, engaging with the shaft 10. As stated, the lower sleeve 31 is vertically adjustable, being held in position by means of a set-screw or like device, and the upper loosely-mounted sleeve 32 may be
40 vertically adjusted also, but is held in engagement with the lower sleeve 31 by an adjustable collar 34, located between the said loosely-mounted sleeve 32 and what may be termed the "base portion" 20 of the cone 19 on the
45 said shaft 10.

A hub 35 is keyed or otherwise secured on the shaft 10 below the adjustable sleeve 31, and spokes or arms 36 are made to radiate in an upwardly and outwardly direction from
50 the hub 35, the spokes 36 extending above the upper edge of the inner funnel 28. The upper ends of the spokes or arms 36 are secured to a rim 37, and a sieve or screen 38 is attached to said rim 37, said sieve or screen
55 38 extending upwardly from the rim, being attached to the shaft 10 through the medium of the body 19 of the conical projection of the shaft and its base 20, between which parts the central portion of the screen 38 is clamped.
60 The screen 38, as shown especially in Fig. 2, is provided with series of elongated openings, and these series of elongated openings are triangularly arranged, said elongated openings of the screen 38 being adapted to receive the
65 stems of the raisins to be treated.

Arms or spokes 39 are projected outwardly and slightly upwardly from the loosely-mount-

ed ball-bearing sleeve 32, and an additional set of arms 40 is likewise projected from the said ball-bearing sleeve 32 at a point above
70 the arms 39, the arms or spokes 40 being at a more acute angle to the ball-bearing sleeve than the arms or spokes 39. The two sets of arms or spokes 39 and 40 are the same in number and location, and corresponding arms of
75 alternate sets of arms 39 and 40 are adapted to support plates 41, provided with saw-teeth 41^a at their side edges, the other sets of arms or spokes 39 and 40 being adapted to support bars 42, carrying brushes 42^a. The brushes
80 42^a are adapted to engage with the under face of the sieve or screen 38, through which the stems of the raisins are adapted to extend, and the serrated or toothed plates 41 are adapted
85 likewise to travel in close relation to the under surface of said screen 38. The teeth 41^a of the plate 41 serve to receive between them the projecting ends of the stems and draw
90 said stems from the raisins, while the brushes 42^a clean the apertures in the screen 38 from any dust or foreign substance that might be likely to clog the same.

It will be observed that the screen 38 revolves with the shaft 10 and that the cleaners—namely, the toothed plates and the
95 brushes—travel much slower, since they are given motion only through the frictional engagement of their supports with the shaft.

Under the construction shown in Figs. 5 and 6 I have illustrated a means whereby the
100 cleaning device for the upper revolving screen 38 is mounted to revolve in a direction opposite to the path of revolution of the said upper screen. In the modified form of construction the sleeve 32, loosely mounted on the
105 shaft 10 and having roller bearing upon the adjustable-sleeve 31, is provided with a disk extension 32^a at its upper face, and a cup-casing 43 is placed over the disk extension 32^a, the said cup-casing 43 being provided
110 with roller-bearings 44, that engage with the upper surface of a gear 47, secured upon the shaft 10 within the cup-casing; but the roller-bearings 44 may be otherwise placed.

Arms 39^a are projected from the outer surface of the cup-casing 43, the arms 39^a corresponding to the arms 39, (shown in Fig. 1,) and shorter arms 40^a are projected from the upper portion of the cup-casing, corresponding to the arms 40. (Illustrated in Fig. 1.)
120 The arms 39^a and 40^a receive and support a wire screen 48 of disk or circular form, as shown in Fig. 6, the said screen 48 having an opening at its center, since the inner edge of said screen-wire disk does not extend beyond
125 the inner faces of the upper arms 40^a. The screen-wire disk 48 is located below yet somewhat close to the under face of the upper or main revolving screen 38.

The cup-casing 43 is held in position and
130 is rendered capable of adjustment by placing a collar 34^a, provided with a suitable set-screw, between the upper collar 20 and the said casing, as shown in Fig. 5. The screen-

wire disk 48 is adapted to revolve in a contrary direction to the direction of revolution of the outer or main screen 38, and this is accomplished by forming teeth 46 upon the interior side surface of the cup-casing, which teeth are engaged by pinions 45, said pinions being mounted to turn upon spindles carried by the disk or table extension 32^a of the sleeve 32, and said pinions 45 likewise mesh with the gear 47, secured to the shaft 10 and located within the said cup-casing 43.

In operation the raisins are placed in the hopper 21, and after the screen 38 has been adjusted relative to the screen 23 the raisins in passing between the two screens will be subjected to blasts of air introduced through the pipes 25. These air-blasts will serve to clean the raisins from dust or dirt adhering thereto, while the stems of the raisins as they are tumbled between the screens will enter the openings in the lower screen or sieve 38, and if any stems are not at this time detached from the raisins they will be withdrawn therefrom by the toothed plates 41 and brushes 42^a under the construction shown in Fig. 1 and by the screen-wire disk 48 under the construction shown in Fig. 5. The raisins find an exit from the machine through the space between the inner and outer funnels 26 and 28, being delivered upon the inclined plate 27, while the stems and dust fall into the box-receptacle 29 of the inner hopper and pass off through the outlet-opening therein.

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

1. In a machine for stemming and cleaning raisins, a fixed screen, a rotary screen, a feed device arranged to deliver the fruit between the two screens, means for subjecting the fruit thus introduced to currents of air, and a cleaning mechanism for the rotary screen, adapted to remove stems or other material that may lodge in the meshes of the rotary screen, as described.

2. In a machine for stemming and cleaning raisins, a stationary screen, air-delivery pipes having their outlets above said screen, a second screen of different mesh mounted to revolve below the stationary screen, a feed device in communication with the space between the two screens, and an automatically-operated cleaning mechanism for the rotary screen, as set forth.

3. In a machine for stemming and cleaning raisins, a stationary screen, a feed device with which said screen is connected, a second screen mounted for rotary movement adjacent to the fixed screen, and for adjustment to and from the fixed screen, a cleaning device capable of movable engagement with the rotary screen and adapted for adjustment therewith, and means whereby currents of air may be passed through the fixed screen and directed upon the rotary screen.

4. In a machine for stemming and cleaning raisins, two screens, one fixed and the other

mounted to rotate, an adjustable shaft supporting the rotary screen, means for rotating the shaft, a feed device in communication with the space between the screens, a cleaning device for the undersurface of said rotary screen, an interiorly-toothed casing arranged to support the cleaning device, being loosely mounted upon the said shaft, a table likewise loosely mounted upon the said shaft, over which said casing is placed, a gear secured to the shaft within said casing, and pinions carried by the said table, meshing with the gear and teeth of the casing, whereby the casing is turned in a direction contrary to the direction of rotation of the shaft as said shaft revolves.

5. In a machine for stemming raisins, a screen mounted to rotate, having openings sufficiently large to permit the passage of raisin-stems through them, and serrated arms mounted to turn at the under surface of the screen and independent of the screen, said arms being adapted to remove stems or other material that may lodge in the meshes of the rotary screen.

6. In a machine for stemming raisins, a screen mounted to revolve, means for directing raisins to the screen and guiding them thereon, and serrated arms adapted to remove stems or other material from the meshes of the screen, and brushes adapted as cleaners for the rotary screen, the arms and brushes having movement independent of the movement of said rotary screen.

7. In a machine for stemming and cleaning raisins, a hopper adapted to receive the raisins, a stationary screen carried by the hopper, pipes adapted to be connected with a source of air-supply, having their outlets above the stationary screen, a second screen mounted to revolve below the stationary screen, brushes and serrated arms arranged for movement at the under surface of the rotary screen, the movement of the said serrated arms being independent of the movement of the said rotary screen, a conducting-casing connected with the stationary screen, and an inner stationary casing over which the revolving screen and serrated arms have movement, the inner casing being adapted to receive the stems and dust, the space between the two conducting-casings being adapted to receive the cleaned fruit, and the said hopper being adapted to conduct the fruit to the space between the screens, as described.

8. In a machine for stemming and cleaning raisins, a hopper adapted to receive the raisins, a stationary screen carried by the hopper, pipes adapted to be connected with a source of air-supply and having their outlets above the stationary screen, a second screen mounted to revolve below the stationary screen, brushes and serrated arms arranged for movement at the under surface of the rotary screen, the movement of the said serrated arms being independent of the movement of the said rotary screen, a conducting-casing connected with

the stationary screen, an inner stationary casing over which the revolving screen and serrated arms have movement, the inner casing being adapted to receive the stems and dust,
5 the space between the two conducting-casings being adapted to receive the cleaned fruit, and the said hopper being adapted to conduct the fruit to the space between the screens, and means, substantially as set forth, for ad-

justing the serrated arms and brushes to and from the rotary screen, and for adjusting the rotary screen to and from the stationary screen, as specified. 10

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Witnesses:

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