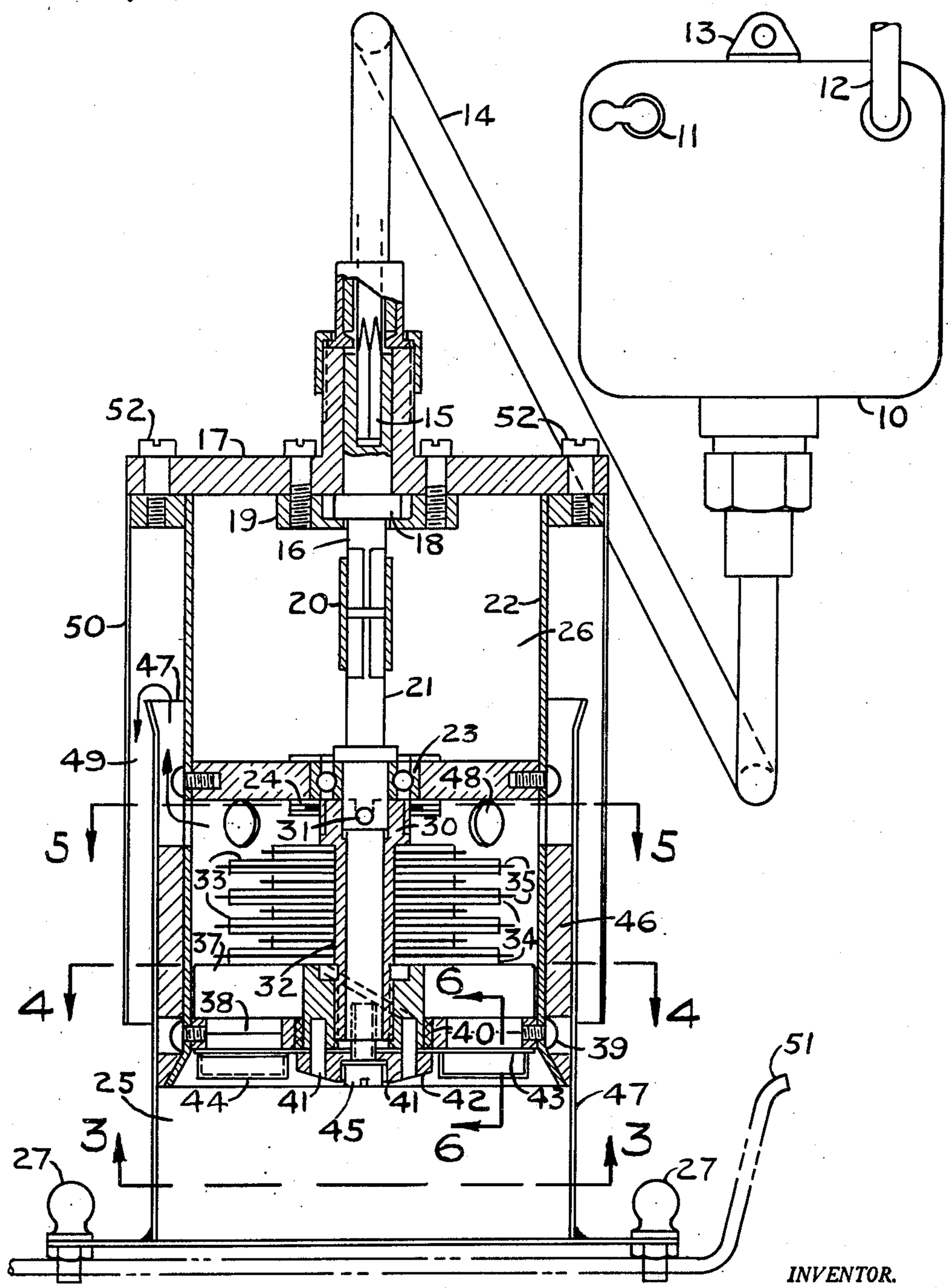
June 7, 1955 H. PLUMMER 2,710,035

PORTABLE GARBAGE DISPOSAL MACHINE

Filed May 26, 1954 2 Sheets-Sheet 1



INVENTOR.

BY Harold Plummer

FIG. 1

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PORTABLE GARBAGE DISPOSAL MACHINE

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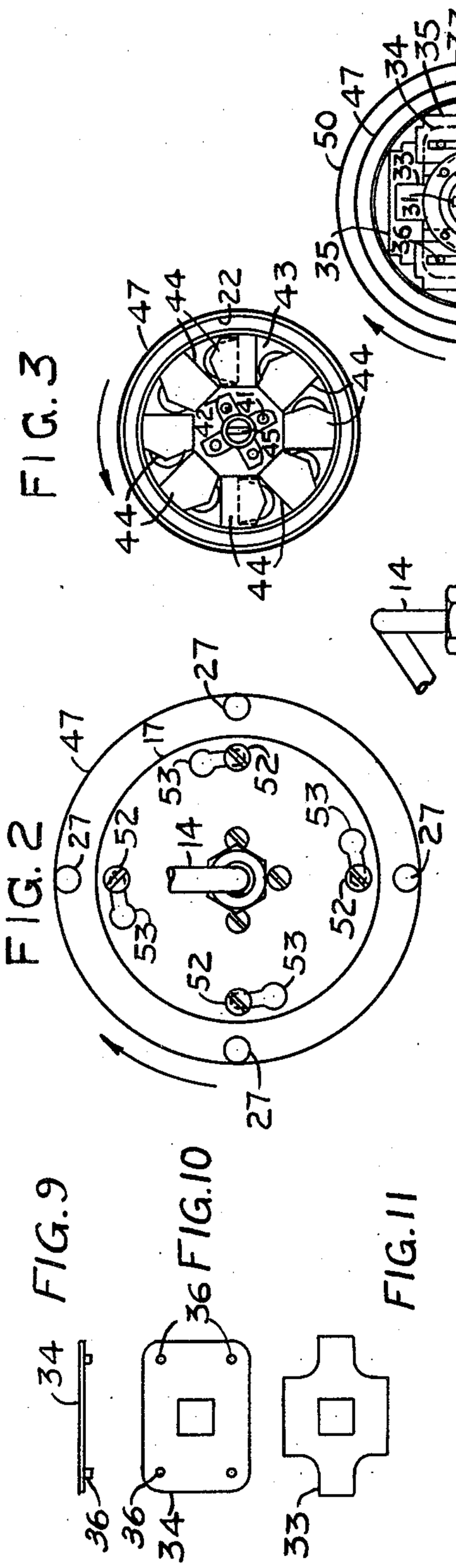

FIG. 3

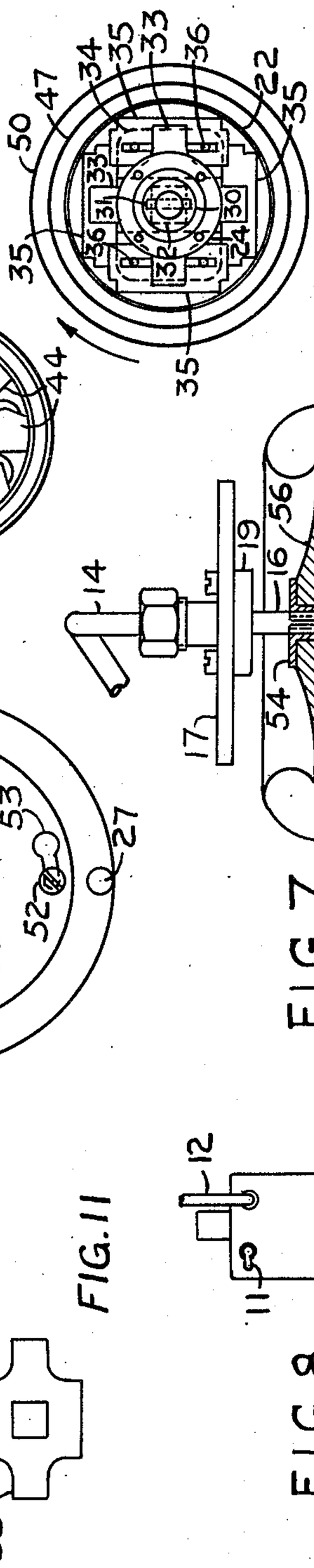

FIG. 5

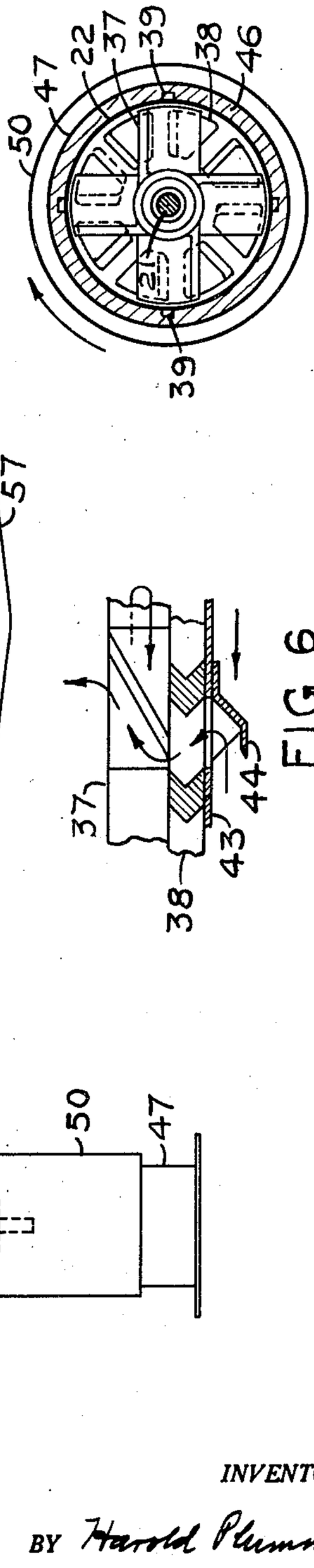

FIG. 4

FIG. 2

FIG. 7

FIG. 6

FIG. 9 FIG. 10

FIG. 11

FIG. 8

INVENTOR.

BY Harold Plummer

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PORTABLE GARBAGE DISPOSAL MACHINE

Harold Plummer, La Jolla, Calif.

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9 Claims. (Cl. 146—192)

This invention relates to a portable form of electrical garbage disposal machine, which may be used without any change being made to the existing plumbing and may be removed at will by the owner. The machine is so constructed, that it may also be used for the shredding, slicing and mincing of various food products, used in making salads, cakes and other food products. The cutting unit may be quickly disconnected and the remaining portion can then be used for various cleaning and polishing operations, such as dirty kitchen utensils, shoe cleaning or automobile cleaning and polishing; and may also be used for drilling, grinding and sanding, when special attachments are furnished.

Other purposes will appear from time to time in the course of the specification and claims.

My invention is illustrated in the accompanying drawings wherein,

Figure 1 is a vertical sectional view of the shredding, cutting and mincing unit, connected to a flexible drive shaft and motor.

Figure 2 is a plan view on reduced scale of this same unit.

Figure 3 is a bottom view on a reduced scale of the shredding unit, taken on line **3—3** of Figure 1, the arrow head indicating the direction of rotation.

Figure 4 is a cross sectional view on reduced scale taken through line **4—4** of Figure 1, showing the propeller and material flow guide and cutting plate, the arrow head indicating direction of rotation.

Figure 5 is a cross sectional view on reduced scale on line **5—5** of Figure 1, showing the upper layer of razor blades and clamp plates and also shows the square drive bushing seal and driving pin.

Figure 6 is a sectional view on line **6—6** of Figure 1, to show more clearly the flow and cutting action, in the first three cutting stages.

Figure 7 shows the machine with the cutting assembly removed and the shaft connected to a polishing wheel.

Figure 8 shows the machine with an electric motor and speed reducing gear box, direct connected to the garbage disposal or mincing unit.

Figure 9 is a side view on reduced scale of a lower clamp plate.

Figure 10 is a plan view on reduced scale of a lower clamp plate.

Figure 11 is a plan view on reduced scale of an upper clamp plate.

Referring to the drawings, **10** is an electric motor with switch **11** and flexible cable **12** containing current supply wires. Motor **10** is suspended from the wall, or a body belt, by means of bracket **13** and drives a flexible shaft **14**, which has a squared end **15**, at the end of the internal drive shaft, engaging with a slot or squared hole in the intermediate drive shaft **16**. Intermediate drive shaft **16** rotates in cover **17** and is held in place by means of the thrust collar **18** and thrust collar cap **19**. A square tubular coupling **20** is used to connect the cutting unit shaft **21** to the intermediate drive shaft **16**. Shaft **21** rotates in a stationary cylindrical housing **22**, which has a double seal ball bearing **23** for shaft support. A rubber seal **24**, is used to prevent any leakage of water from the lower cutting chamber **25**, to upper dry chamber **26** and also to prevent any possible leakage of water to ball bearing **23**. On shaft **21**, a squared or splined drive bushing **30** is mounted, which is slotted and driven by means of pin **31**, a part of shaft **21**. Drive bushing **30** has a squared or splined section **32**, which drives upper razor blade clamp plates **33** and lower clamp plates **34**. Each lower clamp plate **34** locates and drives razor blades **35** by means of drive pins or keys **36** two of which pass through each blade. End of drive bushing **30** is threaded and a cutting propeller **37** is tapped and screwed on to said threaded end as a nut, to keep all razor blades **35** and clamp plates **33** and **34**, secure and in place, the direction of the thread being such that it is self locking. Immediately below the cutting propeller **37** there is a material flow guide plate **38** which has cutting edges on the underside and is stationary, being secured to housing **22** by screws **39**. Guide plate **38** has a bushing **40**, which acts as a bearing for the lower end of the cutting assembly. In the boss of the cutting propeller **37**, there are four driving pins **41**, which drive the small center shredding plate **42** and also the main shredding plate **43**. The purpose of the center shredding plate **42**, is to drive the material from the center out, into the main shredding plate, which is provided with several projecting cutting receptacles **44**. Fillister head screw **45** is used to secure the whole shredding and cutting assembly, to the cutting unit drive shaft **21**, the shaft being tapped in the center to receive screw **45**. On the peripheral face of housing **22**, a ring **46** of plastic material, is cemented to form a piston or plunger, which slides in a cylinder or garbage container cup **47**. To use the machine the garbage or other material to be ground is placed in the bottom of cup **47** and motor **10** started. Housing **22** and its associated shredding and cutting mechanism is then lowered into container **47**, the cutters **44** shredding the material and, in association with flow plate **38** and cutting propeller **37**, forcing the material from chamber **25**, through the cutting elements and discharge holes **48** into discharge chamber **49**, formed by external duct **50**, which carries the material downward through the drying frame **51** into the sink drain. Stop pins **27** engage one or more of the spaced apart wires composing frame **51** and are used to prevent rotation of garbage container cup **47**.

When the machine is required for such purposes as cleaning and polishing or sanding and grinding, cover **17** is removed from the shredding and cutting assembly by giving said cover a partial turn so that the heads of shouldered studs **52** may pass through an enlargement in slots **53** formed in cover **17**. Motor **10** and drive shafts **14** and **16** are then ready to receive an adaptor bushing **54**, held in place by screw **55**, a rubber disc **56** being also added on which is tied a sheep skin polisher **57**. If the machine is to be used for sanding, sand paper may be clamped in place against disc **56** by means of washer **58**. Or an emery wheel may be used in place of disc **56** for grinding purposes, or a drill chuck may be added for drilling purposes.

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

1. A garbage disposal machine comprising; a garbage container having a cylindrical interior wall; a plunger slidable along said wall; a rotary shaft supported by said plunger and coaxial therewith; means for connecting the top of said shaft to an electric motor; a plurality of razor blades connected to said shaft for rotation therewith; a plate secured to said plunger below said blades,

said plate having a plurality of channels therethrough arranged to cut and convey shredded garbage up toward said blades; and a plurality of shredding blades secured to the lower end of said shaft arranged to shred the top portion of the garbage and direct it up into said channels.

2. A machine as claimed in claim 1, in which the top end of said shaft is provided with a sleeve having a socket adapted to receive the lower end of an intermediate shaft; and means connecting said intermediate shaft to an electric motor.

3. A machine as claimed in claim 1, in which the intermediate portion of said shaft is provided with a plurality of spaced apart plates for receiving the razor blades therebetween and means projecting from said plates arranged to hold and drive the blades.

4. A machine as claimed in claim 1, in which the top portion of said plunger is provided with a depending thin cylindrical wall partly surrounding and spaced outwardly from said garbage container to provide a duct to convey finely cut garbage leaving the top of said garbage container downwardly.

5. A machine as claimed in claim 1, in which the top end of said plunger is provided with a cover; an intermediate shaft journaled in said cover; a flexible shaft having one end detachably connected to the top of said

intermediate shaft; and its other end connected to an electric motor.

6. A machine as claimed in claim 1, in which said plunger is used for manual force feeding of the garbage to an outer discharge duct.

7. A machine as claimed in claim 1, in which a cutting propeller is mounted above said plate to cut and mechanically force feed the garbage to the razor blades.

8. A machine as claimed in claim 1, in which a cutting propeller is mounted above said plate to first suck and then mechanically force feed the garbage from the container to an outer discharge duct.

9. A machine as claimed in claim 5, in which said cover is readily detachable from the plunger.

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