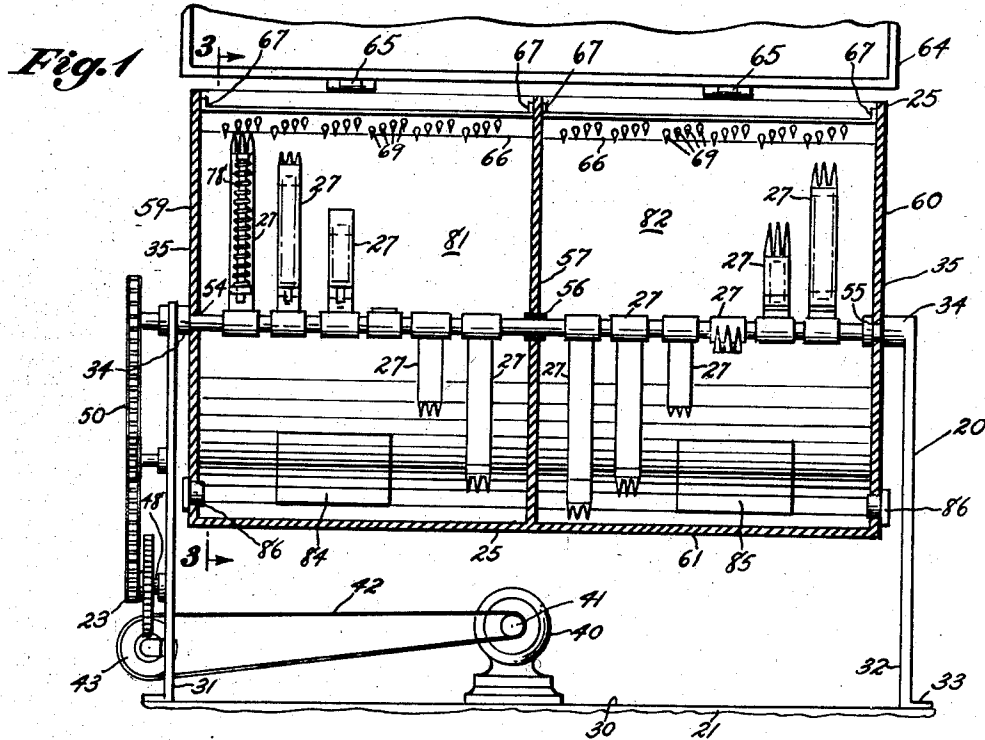
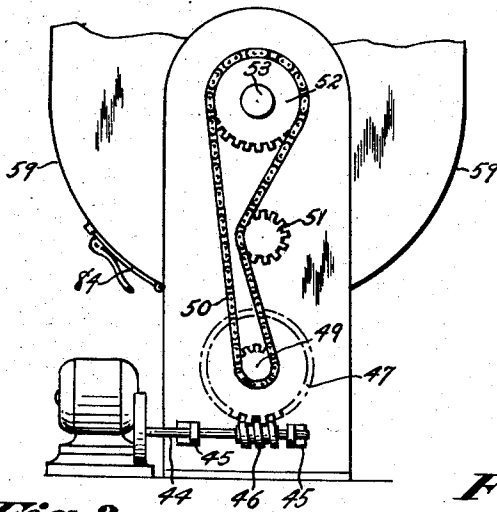
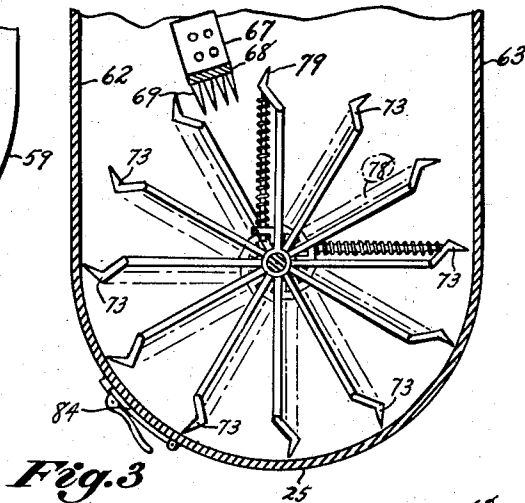
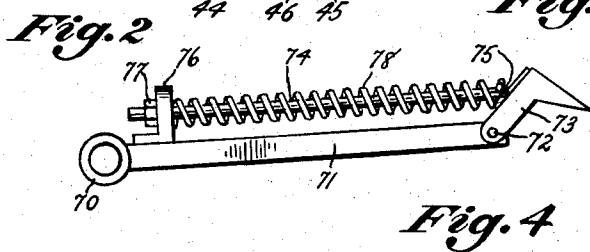
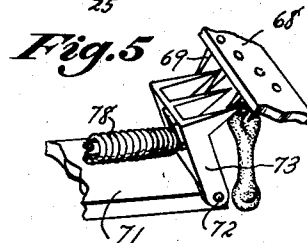


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COMPOST MAKING DEVICE

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2,880,074

COMPOST MAKING DEVICE

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1 Claim. (Cl. 23—259.1)

This invention relates generally to the field of compost making and more particularly to an improved device for converting ordinary household garbage into humus of a grade suitable for household gardening purposes.

Such devices function by maintaining the waste in a warm, moist condition while maintaining a sufficient aeration to prevent putrefaction, and operate most efficiently when the material being treated is broken into relatively small pieces.

It is therefore among the principal objects of the present invention to provide a device capable of accomplishing the above process within a relatively short period of time.

Another object of the invention lies in the provision of structure of the class described which includes means for breaking up the material being treated into small particles simultaneously with the aerating operation.

A further object of the invention lies in the provision of structure possessed of the above advantages in which the cost of fabrication may be of a reasonably low order, with consequent wide sale, distribution and use.

Still another object of the invention lies in the provision of a humus making device which may be operated with facility by housewives and others possessed of only ordinary skill, and which may be employed within the home with a substantially complete absence of objectionable odor.

A feature of the invention lies in the provision of improved means for breaking up frangible waste material such as chicken bones, fruit rind, mineral solids and the like.

Another feature lies in the provision of means whereby non-decomposing substances such as large bones, pebbles and the like may be contained within the humus mass without damage to any parts of the device.

These objects and features, as well as other incidental ends and advantages, will become more clearly apparent during the course of the following disclosure, and be pointed out in the appended claim.

On the drawing, to which reference will be made in the specification, similar reference characters have been employed to designate corresponding parts throughout the several views.

Figure 1 is a fragmentary vertical longitudinal sectional view showing an embodiment of the invention.

Figure 2 is a fragmentary view in elevation as seen from the left hand portion of Figure 1.

Figure 3 is a fragmentary vertical transverse sectional view as seen from claim 3-3 on Figure 1.

Figure 4 is an enlarged view in elevation showing one of the rotating toothed elements employed to stir, aerate and break up the mass of material being treated.

Figure 5 is an enlarged fragmentary view in perspective corresponding to the right hand portion of Figure 4 and showing the flexing of the toothed elements upon meeting an unbreakable obstacle.

In accordance with the invention, the device, generally indicated by reference character 20, comprises broadly a

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base element 21, a drive element 23, a tank element 25 and a plurality of toothed chopping elements 27.

The base element 21 may be of any suitable design, including a base member 30 which may be a portion of a floor, a pair of upright support members 31 and 32 each having an anchoring flange 33, and bearing support means 34 and tank element support means 35.

The drive element 23 serves to rotate the toothed elements 27 and preferably includes a prime mover in the form of a fractional horsepower electric motor 40 having a motion output pulley 41 which drives through belt 42 to a pulley 43 on shaft 44 (see Fig. 2). The shaft 44 is journaled in brackets 45 for rotation about a substantially horizontal axis and also mounts a worm 46 which drives a gear 47 on shaft 48. The shaft 48 also mounts a driving sprocket 49 which transmits motion through a sprocket chain 50 to a tensioning idler member 51 and a driven sprocket 52 on shaft 53. Shaft 53 is supported in bearing supports 34 and extended through openings 54 and 55 in the tank element 25 as well as an opening 56 in a septum 57.

The tank element 25 may be fabricated from suitable sheet metal (e.g. stainless steel) includes sidewalls 59 and 60, a lower curved wall 61 longitudinal walls 62 and 63, and a cover member 64 which may be provided with hinge means 65 for interconnecting the same with the wall 62. Suspended between the inner surface of the sidewalls 59 and 60 and the septum 57 are toothed carrying bar members 66 which are substantially identical, each including mounting bracket 67 and a central portion 68, the lower surface of which is provided with a plurality of teeth 69 which are arranged in staggered groups as best seen on Figure 1, the number of groups corresponding to the number of tooth elements 27.

The tooth elements 27 are generally similar, and accordingly, a detailed description of one of such elements will suffice for all. Each element includes the mounting collar 70 having a splined interconnection upon the shaft 53, a relatively fixed arm 71 interconnected through hinge means 72 to a tooth-bearing arm 73. An erecting rod 74 is hingedly connected at 75 to the relatively movable arm 73, and extends at an opposite end thereof to a guide bracket 76 mounted upon the fixed arm 71. The stop-nut 77 adjustably limits the path of motion of the rod 74 within the bracket 76, and thus the ultimate position to which the spring 78 will urge the arm 73. The spring 78 is of relatively high modulus so as to prevent the arm 73 flexing with respect to the arm 71 except under conditions of substantial load.

Operation

Operation of the device consists in accumulating a substantial amount of household waste of organic type in one of the chambers 81 or 82 at suitable periodic intervals, and operating the drive means for short periods to aerate and chop the waste. The softer material will be broken into small particles by the reaction of the teeth 69 with the teeth 79 on the toothed elements 27. Where large relatively tough pieces of material, such as chicken bones, remains of animal carcasses and the like are caught between the teeth, the spring 78 permits flexing of the elements 27 as shown on Figure 5 of the drawing to prevent damage to the moving parts of the device. Should the piece become lodged upon a particular element 27, the same will be repeatedly subjected to the action of the same teeth with each revolution of the shaft 53, until the material is finally broken down.

Substantially continuous operation of the device is obtained by alternating the use of the chambers 81 and 82, that is to say all waste will be disposed in one of the chambers for a given period of time until a substantial load is accumulated, following which all subsequent ma-

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terial will be disposed in the other chamber, permitting the first chamber to continue the process of oxidation in a relatively undisturbed cycle. Upon completion of the process the humus may be removed through doors 84 and 85 as needed. During the chopping and aerating process, it will be observed that only to the disposition of the teeth 69 on the toothed carrying bar member 66 and the radial disposition of the toothed elements 27, only one set of teeth are in engagement at a given time, permitting a relatively small electric motor to perform adequately with a minimum of load upon the same. Where desired, small aneroid humidity indicators 86 may be incorporated in the sidewalls 59 and 60 to assist the user in maintaining proper atmospheric condition for optimum fermentation.

It may thus be seen that I have invented novel and highly useful improvements in compost making devices, in which there has been provided a relatively small compact unit which may be kept within the confines of a domestic establishment without disturbing the occupants thereof by reason of noise, offensive odors or the like. The device may be fabricated at a cost consistent with wide spread usage, and in addition to providing a means for disposal of garbage, the same provides a source of fertile humus for the home gardener, thus converting an otherwise wasted product into a utilizable material.

I wish it to be understood that I do not consider the invention limited to the precise details of structure shown and set forth in this specification, for obvious modifications will occur to those skilled in the art to which the invention pertains.

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I claim:

In a device for making compost, a tank element, a shaft extending into said tank element, a plurality of toothed elements mounted upon said shaft at spaced intervals along the axis thereof and extending radially therefrom, a toothed carrying bar member having a principal axis supported in fixed parallel relation with respect to the axis of said shaft, said bar member having a plurality of teeth thereon extending in a direction toward said shaft; said toothed elements each having a first arm member fixed with respect to said shaft and a second arm member pivotally associated with said fixed arm member, said second arm member having teeth thereon which are adapted to pass between said teeth on said toothed carrying bar member when said first and said second bar members are in given predetermined position; and resilient means for urging said first and second arm members to said predetermined position; said last mentioned means including a bracket on said first arm, a rod slidably disposed in said bracket and hingedly anchored to said second arm member, a spring surrounding said rod resiliently interconnecting said bracket and said second arm member.

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