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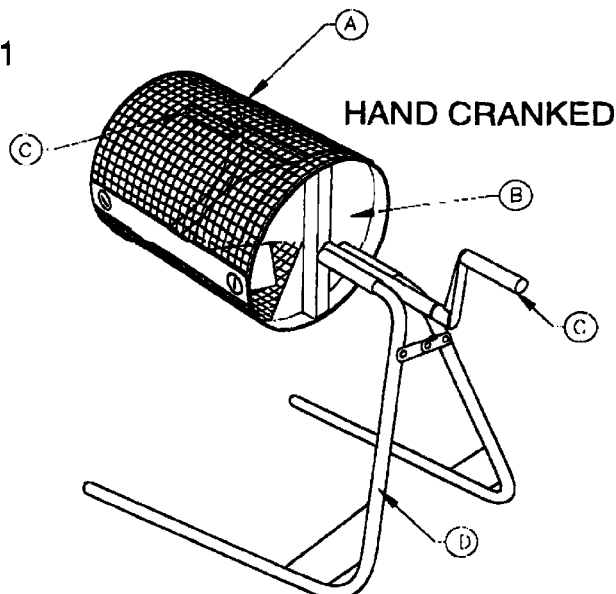
(54) **Soil sifting device**

(57) A soil sifter, eg a soil sifting device, has a body figure 1 which is an inclined mesh drum A, with open end upper most which is loaded with garden material to be sifted. The bottom of the drum is closed except for a helical labyrinth figure 2. On rotating the drum in one direction the material is agitated and separated through the mesh rolling up and over the step shown in the helical back plate figure 4. Sifted soil then falls to a barrow or container below the drum. Larger debris is expelled

from the bottom of A when the rotation is reversed. Debris falls through the labyrinth formed by the helical back plate figure 1,2,3,4.

The inclined drum is supported by a portable frame D, to which is attached the motor housing or crank handle C.

**Figure 1**



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## Description

**[0001]** The invention relates to a soil sifting device.

**[0002]** Gardeners would traditionally prepare the soil for cultivation by removing grass first and then turn over the earth breaking the compacted earth into smaller pieces.

**[0003]** The action of breaking these clods down allows the soil to be permeable to both air and water for healthy growth.

As a finishing operation the gardener may use a garden riddle to remove stones and weeds.

This riddle is a hand held tray made of wood and a perforated material that is shaken back and forth, this has the effect of loosening the soil, so the rocks and weeds are left in the tray.

This is a back-breaking and labour intensive job.

**[0004]** According to the present invention the 'soil sifter' can process soil dug directly from the garden, separating the stones and vegetable matter as quickly as a man can feed the device with material.

**[0005]** The present invention comprises a fabricated mesh drum, a frame holding the drum at an inclined angle, an electric / petrol motor or hand crank, with a means of releasing sifted-out material and a mechanism to deliver sifted soil and debris separately to a barrow or other container.

**[0006]** The inclined drum with open end uppermost is loaded with garden material to be sifted. The bottom end of the drum is closed except for a labyrinth formed by way of a helical (thread like) surface whose ends overlap by a quarter turn. The gap is a result of the pitch of the helix (150-300mm).

On rotating the drum in one direction the soil / material is agitated and separated, allowing fine, broken soil to fall through the mesh walls of the drum, while the larger debris is retained.

**[0007]** By reversing the direction of rotation of the drum the helical back plate actively draws the debris out of the bottom end of the tube, delivering it directly into a barrow or similar container.

**[0008]** A specific embodiment of the invention will now be described by way of example with reference to the accompanying drawing:

**[0009]** Referring to the drawings 'fig 1, 2, 3' the 'soil sifter' comprises:

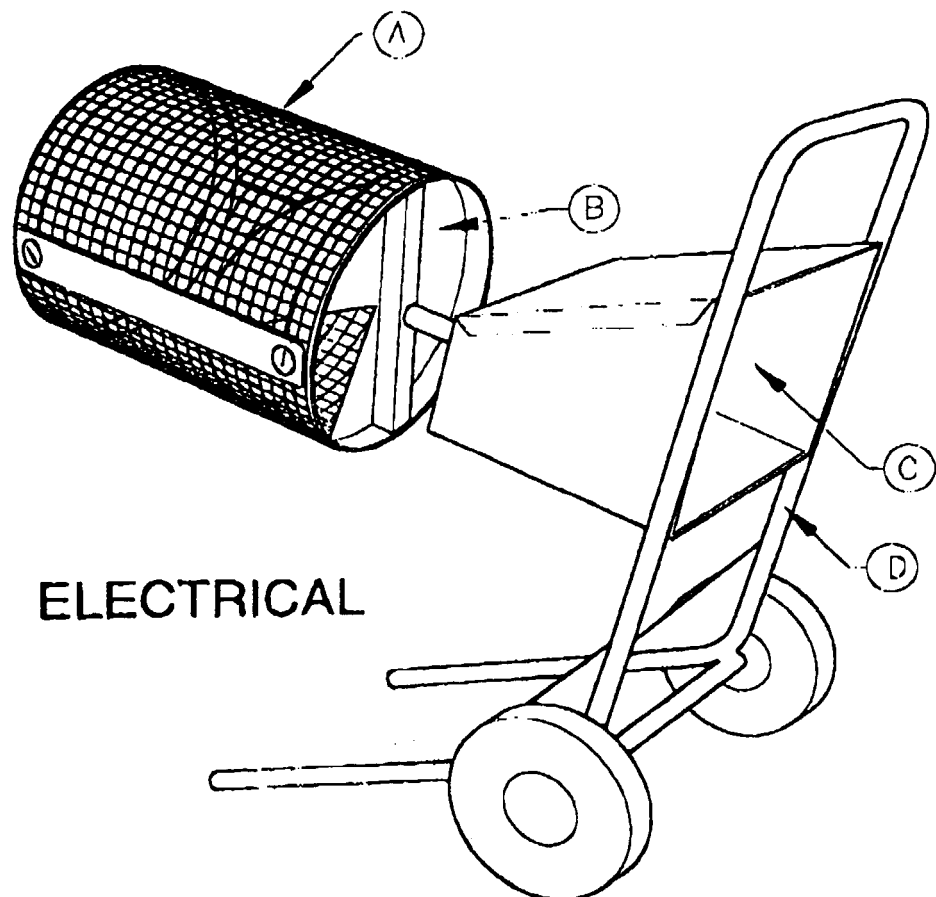
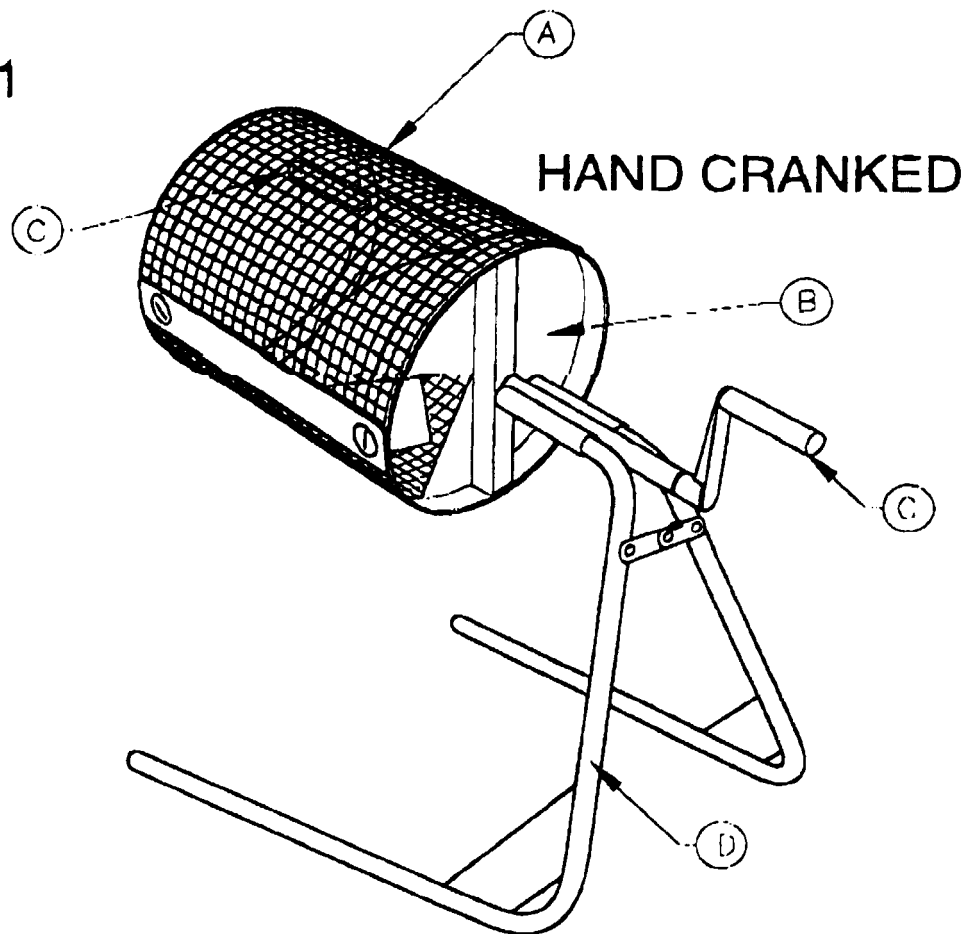
A. Rotating mesh drum.	B. Helical Back plate.
C. Motor or Crank Handle.	D. Frame.
E. Wheels.	

## Claims

1. A soil sifter comprising a rotating mesh drum wherein the bottom end of the inclined drum is closed except for an exit labyrinth formed by way of a helical (thread like) surface the ends of which overlap by more than 45°.
2. A soil sifter as in Claim 1, wherein the labyrinth is created by the pitch of the helix.
3. A soil sifter as in Claim 1, wherein the rotation of the drum in one direction agitates and separates allowing sifted soil to fall through the mesh walls of the drum. Reversal of the direction of rotation of the drum expels the debris from the lower end of the tube into a barrow or similar container.
4. A soil sifter as in Claim 1, comprising a rotating mesh drum supported on a frame at an inclined angle and driven round by an electric/petrol motor or hand cranked at either end.
5. A soil sifter as in Claim 1, wherein the upper end of the cylindrical mesh drum is open for insertion of soil and debris mixtures.
6. A soil sifter as in Claim 1, wherein the inside of the tube is fitted with blades to assist in the breaking up of clods of earth.
7. A soil sifter as in Claim 1, wherein the tube axis is angled to assist the soil to move down the tube.
8. A soil sifter as in Claim 1, where the speed of rotation is from 10 rpm to 100 rpm.
9. A soil sifter as in Claim 1, wherein the mesh size can be adjusted.

**[0010]** Figure 4 illustrates the helical back plate B and how its contra-rotation expels the unwanted retained debris.

Figure 1



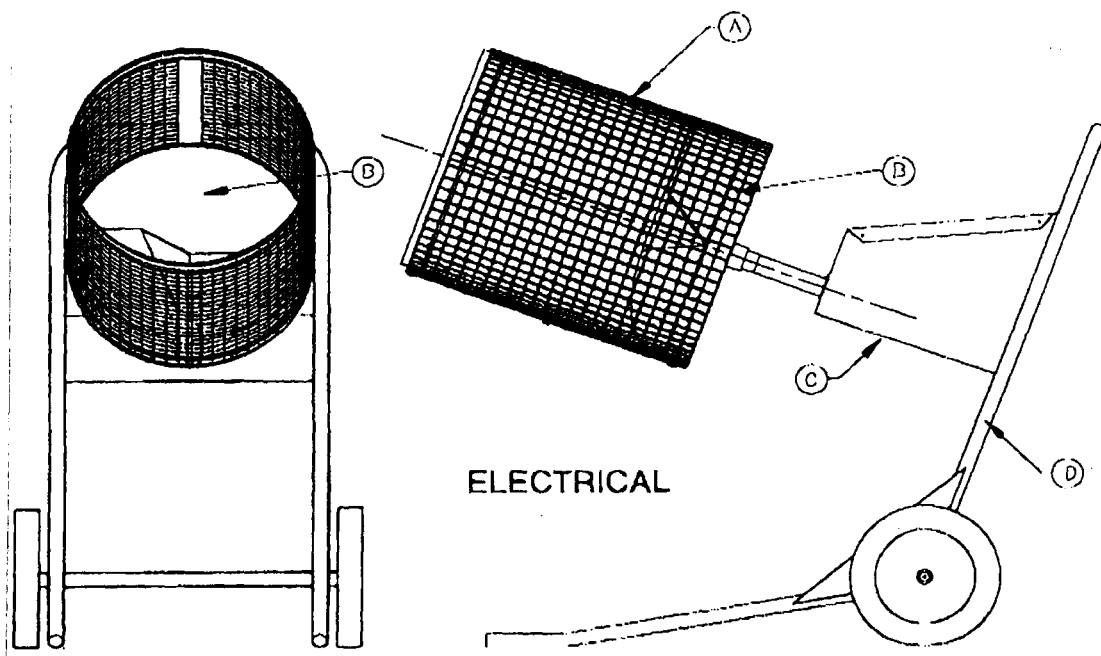
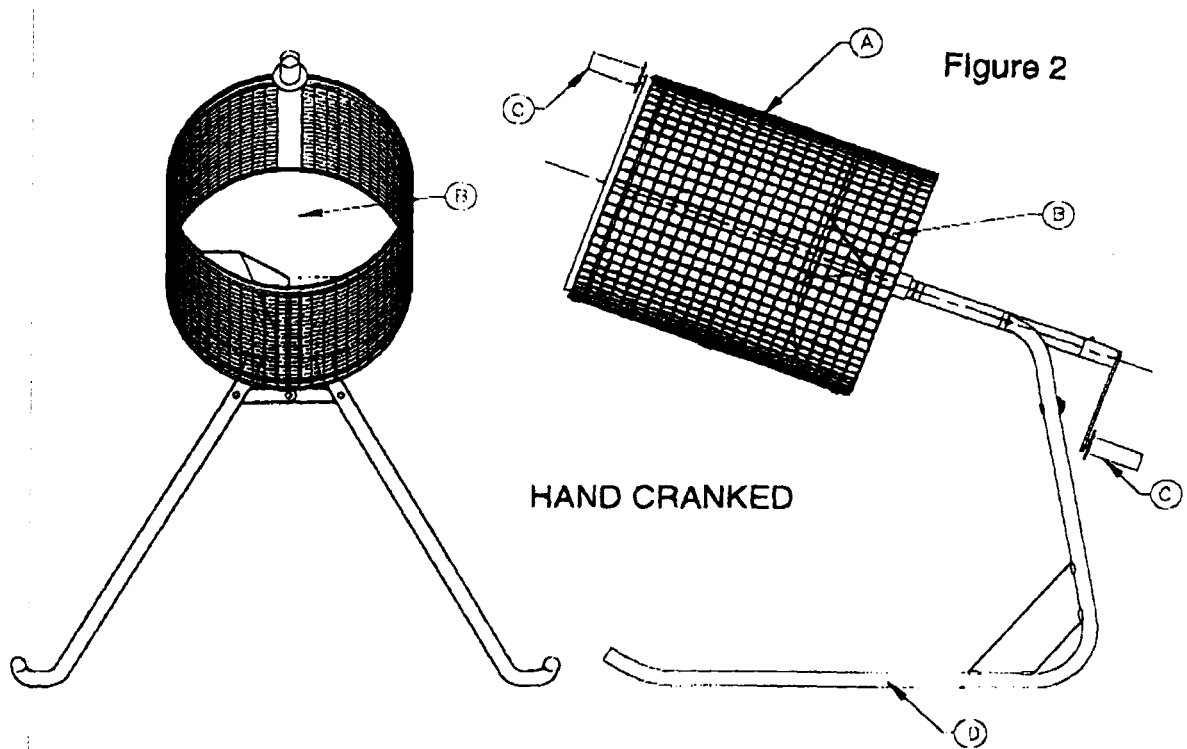


Figure 3

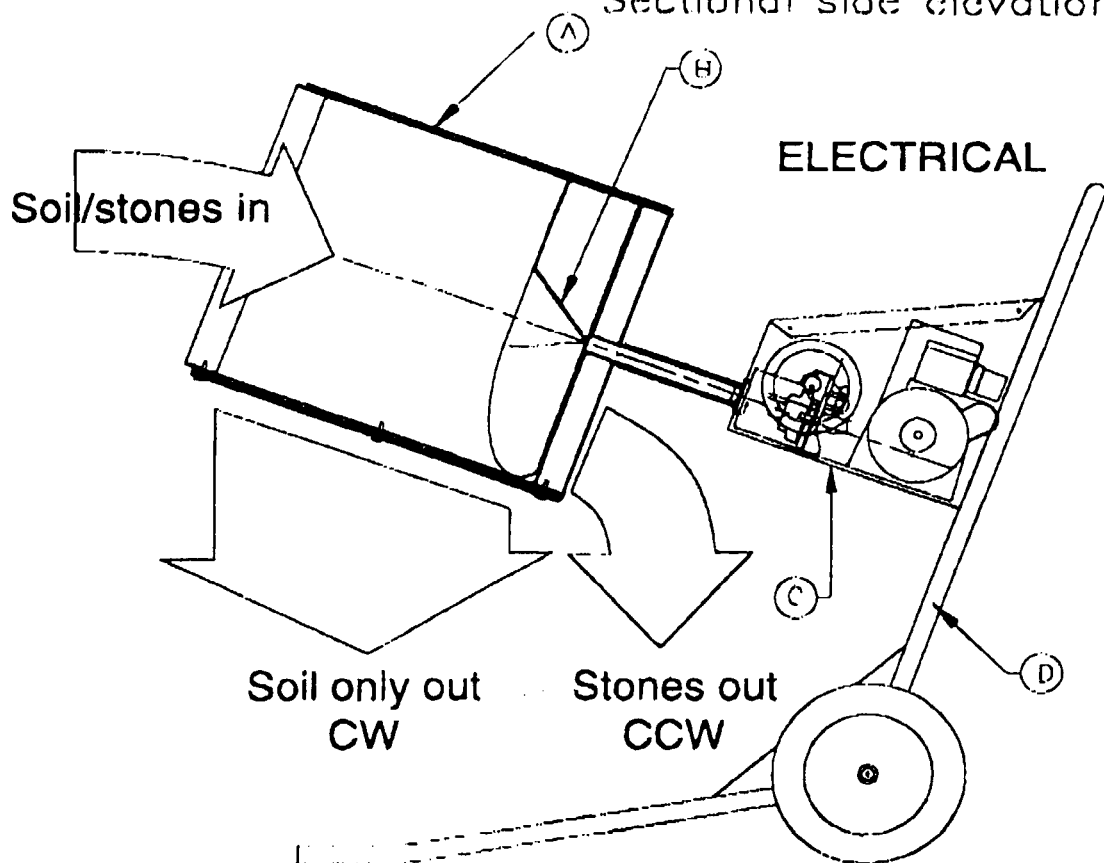
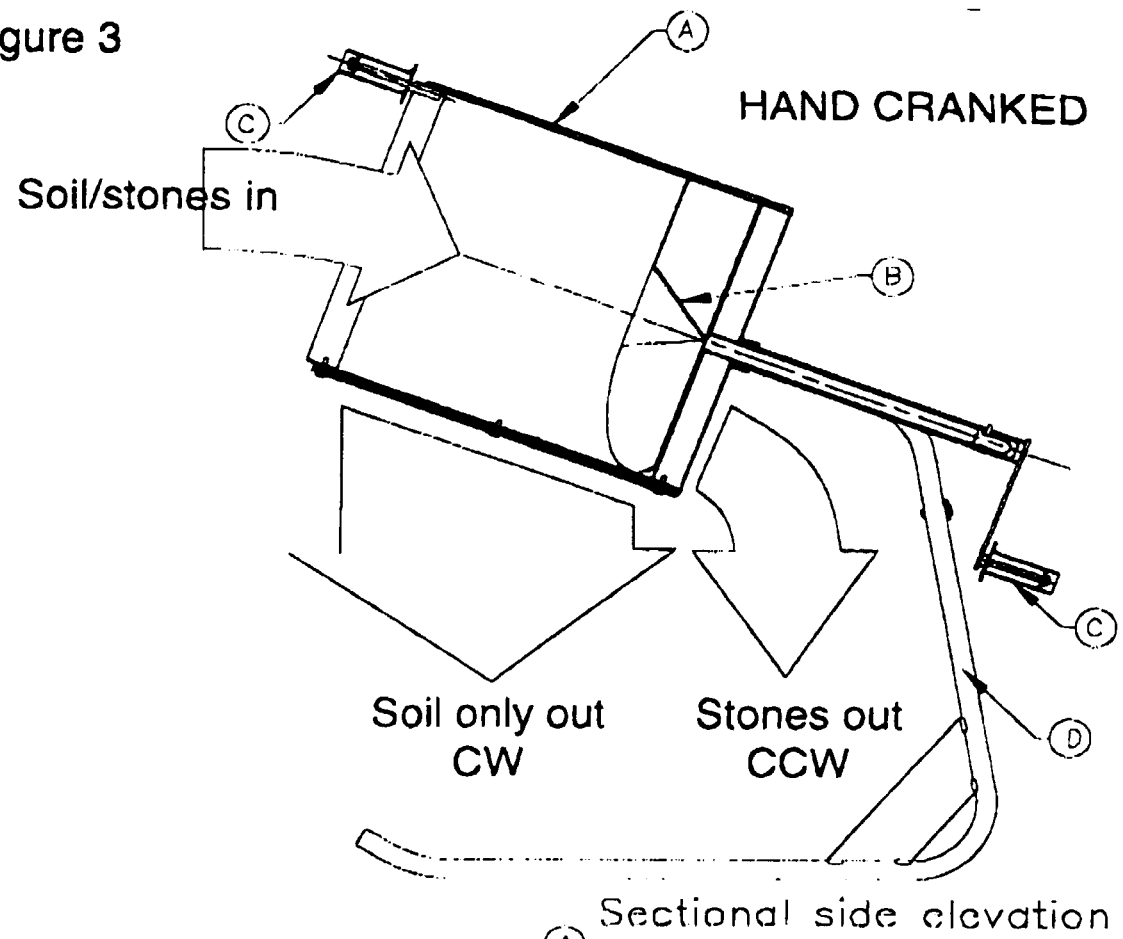


Figure 4

Helical Back plate B

