United States Patent [19]

Meidell

[11] **3,908,541**

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[54] **CRUSHING DEVICE FOR HOUSEHOLD WASTES**

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[52] **U.S. Cl.** **100/215;** 100/245; 100/255; 100/266; 100/271; 100/294

[51] **Int. Cl.**[2] **B30B 15/30;** B30B 1/38

[58] **Field of Search** ..... 60/477, 479, 400, 402; 100/266, 269 R, 270, 271, 272, 281, 294, 255, 285, 229 A, 286, 245

[56] **References Cited**

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FOREIGN PATENTS OR APPLICATIONS

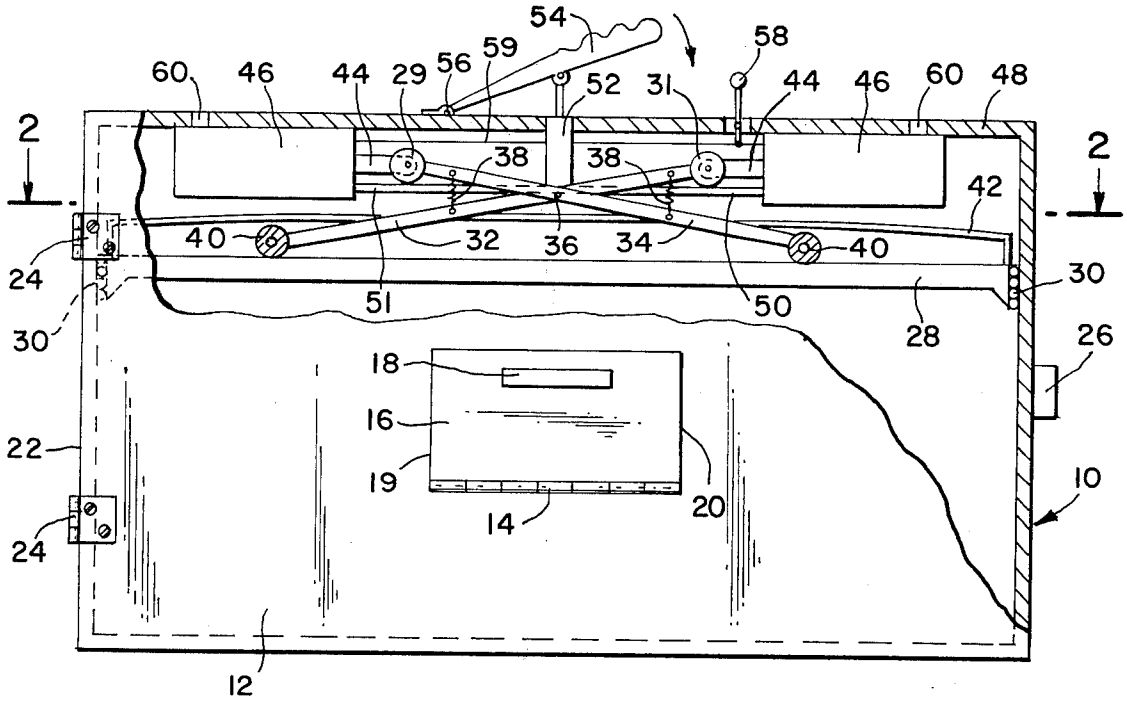
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Primary Examiner—Billy J. Wilhite

[57] **ABSTRACT**

This disclosure is directed to a crushing device for household wastes which includes a closed container having a front door; a ram head vertically movable in the container; a pair of cylinders mounted above the head and connected thereto by a pair of push rods pivoted at their mid point and having rollers at each extremity in contact with the top of the container and the ram head. The upper rollers are connected to a hand pump on the top of the container and actuated thereby.

4 Claims, 2 Drawing Figures



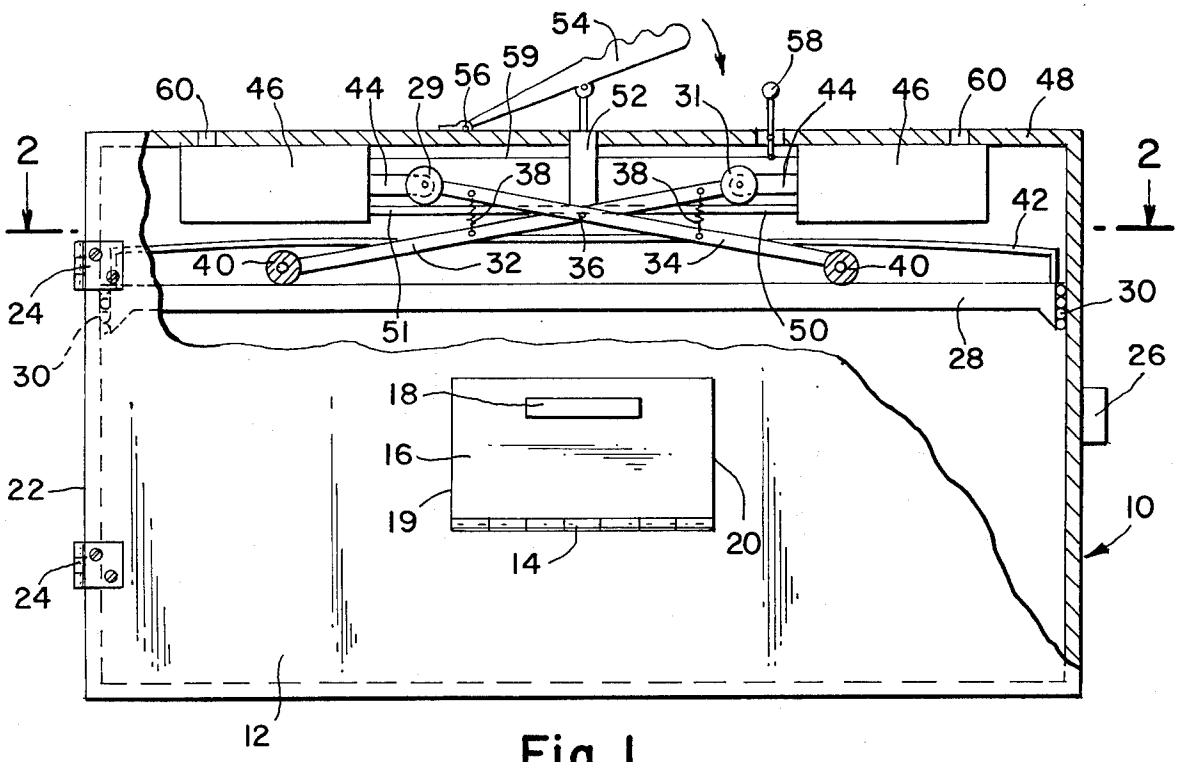

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Fig. 1

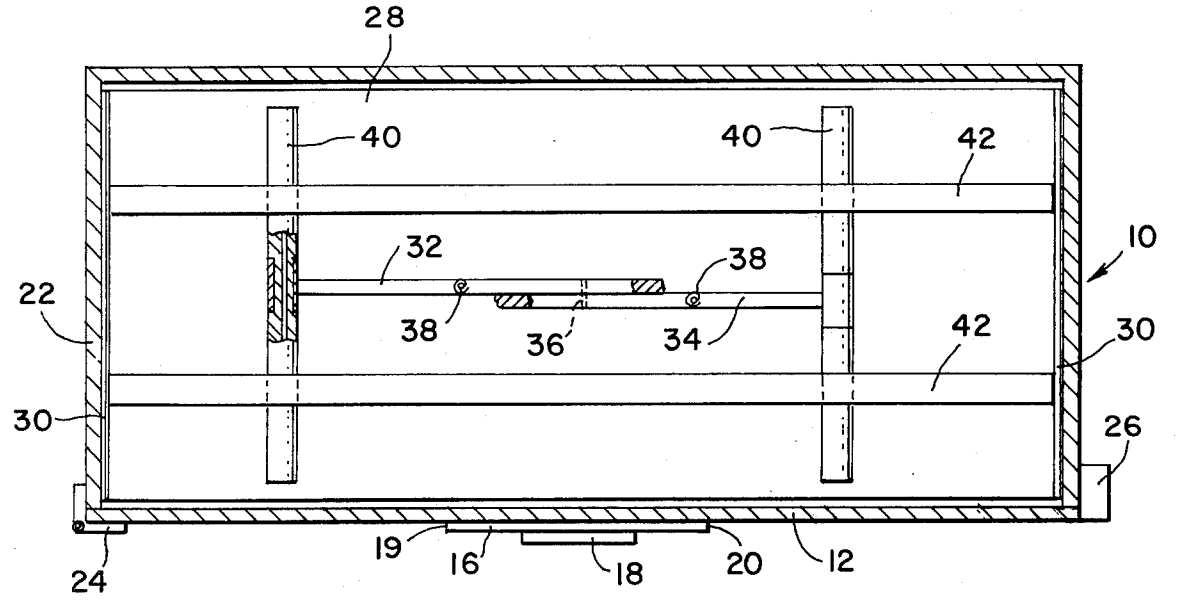

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Fig. 2

CRUSHING DEVICE FOR HOUSEHOLD WASTES

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to an improved crushing and compressing device for household use. This device also can be used to clamp together elements to be bonded by adhesive.

In a consumer society, the problems of collecting and disposing of household wastes becomes ever more critical. The various waste receptacles used become useless too rapidly because their effective volumes are inefficiently occupied by irregularly shaped rubbish or garbage of various sort. Up to now, compactors or crushers of the hand operated type suitable for home use have had complex constructional features such that their cost has been prohibitive in relation to the actual service they gave household occupants.

2. Description of the Prior Art

The art to which this invention relates already is aware of the following U.S. Pat. Nos.: **3,455,234; 2,330,165; 2,970,533** and **3,357,346.** The devices described therein are not generally powerful enough to crush harder wastes such as bottles and the like.

SUMMARY OF THE INVENTION

The main object of the present invention is to provide a crushing or compacting device for household use which readily can reduce all household rubbish and trash to a relatively small volume so as to facilitate final disposal thereof.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction of the device hereinafter described, and of which the scope of application will be indicated in the following claims.

In the accompanying drawing, in which is shown one of the various possible illustrative embodiments of this invention, wherein like reference character identify the same or like parts:

FIG. **1** is a front elevational view partly in section of a device embodying the features of the invention; and

FIG. **2** is a top plan view of the same.

Referring to the drawing there is shown a rigid, metallic container **10** of generally rectangular shape. Pivoted to front wall **12** by hinge **14** is door **16** with handle **18** for inserting trash into the container. Door **16** is of the type used on incinerators of apartments and opens out. Door **16** has sides **19** and **20** to funnel trash down the container without spilling. By opening door **16** it is possible to see whether the container is full.

Front wall **12** is hinged to side wall **22** by hinges **24** and is hermetrically locked by lock **26.** As shown, the front wall can be opened to discharge the contents of the container.

A ram head or compactor **28** which moves vertically in container **10** provides the crushing action. Suitably, this member is of reinforced metal such as steel, aluminum, capable of withstanding deformation by relatively hard objects. As shown, the head is equipped with ball bearings **30** on its outer periphery or edge so as to readily move vertically along the sides of the container.

A pair of arms **32** and **34** pivoted by pin **36** and normally urged together by retention springs **38** have rollers **40** at their lower ends. These rollers move along the upper surface of ram head **28,** and are held thereagainst by metal straps or channels **42.** Friction wheels **29, 31** are mounted on the upper or shorter segments of arms **32** and **34,** to which are pivoted plunger rods **44** themselves slidably connected to air or hydraulic cylinders **46** mounted on the underside of top **48** (FIG. **1**). The cylinders are connected by conduits **50, 51** to hand pump **52** mounted on top **48** and actuated by handle lever **54** pivoted to the top at **56.** A pressure release valve lever **58** pre-set for a pressure compatible with the internal resistance of the container is connected to conduit **59** to prevent excessive pressure build-up.

In use, trash is introduced in container **10** through trap door **16** and after closing the door handle **54** is pumped up and down actuating the cylinders and in turn ram head **28** which will crush the trash in the container as it descends. When the pressure of the cylinders on arms **32** and **34** ceases springs **38** will bring the arms to the position shown on FIG. **1** thereby raising ram head **28** to the position also shown on FIG. **1.**

While the drawing shows cylinders **46** to be air cylinders with air intake **60** these cylinders can instead be hydraulic.

The device of the invention conveniently can be installed in the incinerator or garbage room of an apartment building to prevent accumulation of garbage. With minor modifications, the device can be installed in the chute itself. In that modification, the bottom of the device will have a bottom or side trap door communicating with the chute to discharge the crushed garbage directly into the chute.

In another modification, a disposable waste container or bag which can be a rectangular-shaped paper or plastic bag is placed within the container **10** about the peripheral bearings of the ram head or otherwise secured to the walls of the container **10.** The crushed garbage will thus be collected in the bag and the front door of the device opened to remove the bag.

It will be realized that the present device can be used to compress to a pre-selected pressure objects to be glued such as sections of wood.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiments above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawing is to be interpreted as illustrative and not in a limiting sense. The invention is defined in the appended claims and is to be deemed comprehensive of all forms of structure encompassed within their scope.

Having herein described the invention, what is claimed as new is:

1. A device for crushing and compacting refuse comprising, in combination, a container including a side door hinged thereto, and a top trap door in said side door for introducing refuse in said container; a slidable ram head vertically movable in said container; ball bearings mounted along the periphery of said head for facilitating vertical movement thereof in said container; a pair of pivoted arms having rollers at their

lower ends adapted to roll on the top of said ram head; straps holding said rollers on said head; cylinders connected to the upper ends of said arms for pushing said rollers against said head to lower same and to crush refuse in said container; a pump operatively connected to said cylinders; return means stretched between said arms for normally urging said arms together for raising said ram head when pressure of said cylinders on said head is stopped.

2. The device of claim **1,** further including conduits connecting said cylinders to said pump and a pressure release valve in one of said conduits for pre-setting a pressure compatible with the internal resistance of said container.

3. The device of claim **1,** wherein said pump is mounted on said top of said container.

4. The device of claim **1,** wherein said cylinders are air cylinders.

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