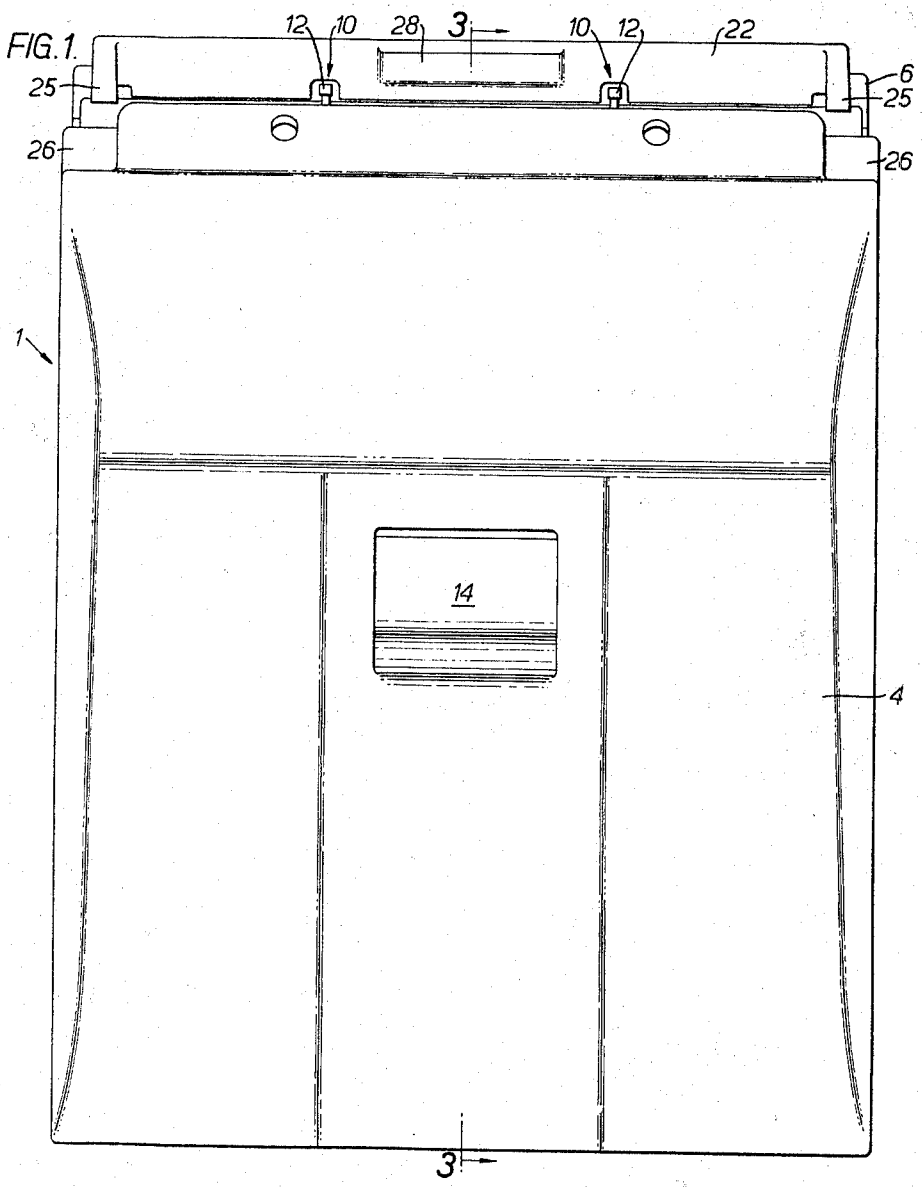
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WASTE DISPOSAL UNIT

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FIG. 1.



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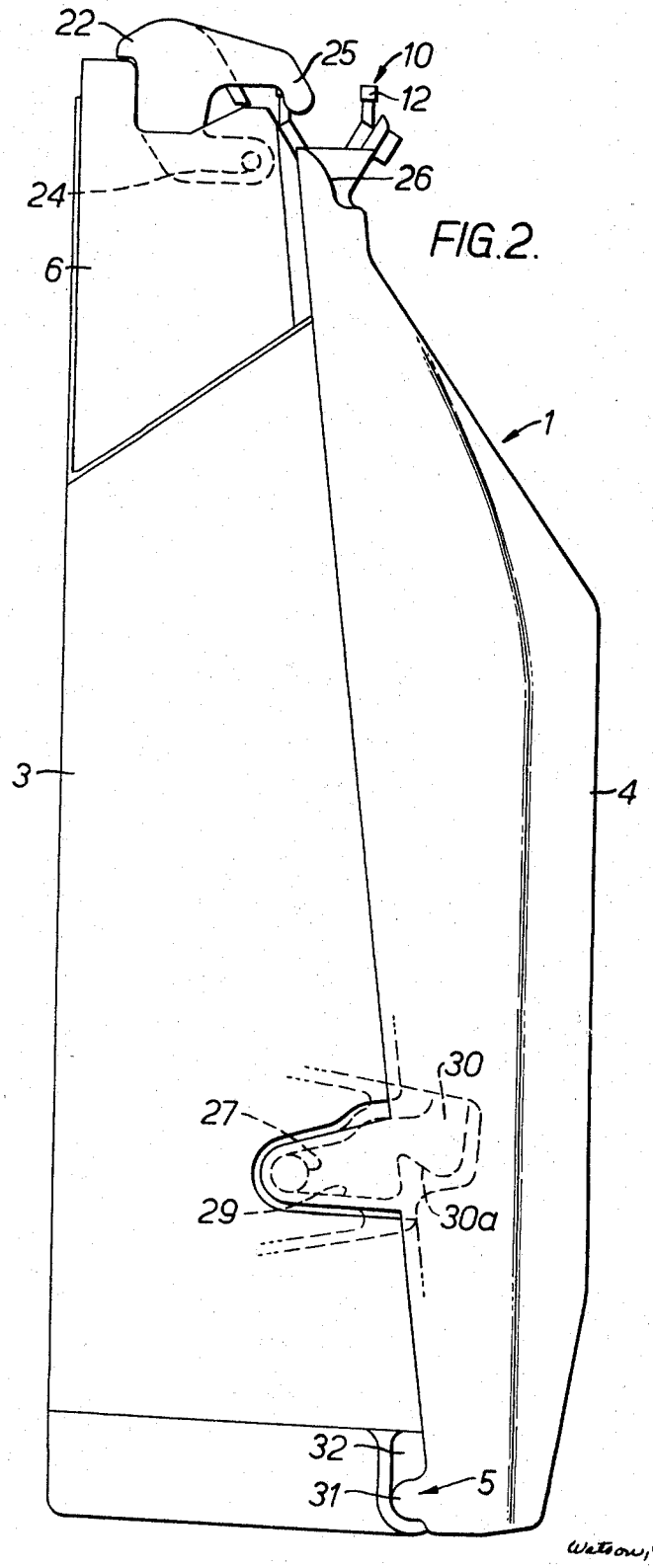


FIG.2.

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WASTE DISPOSAL UNIT

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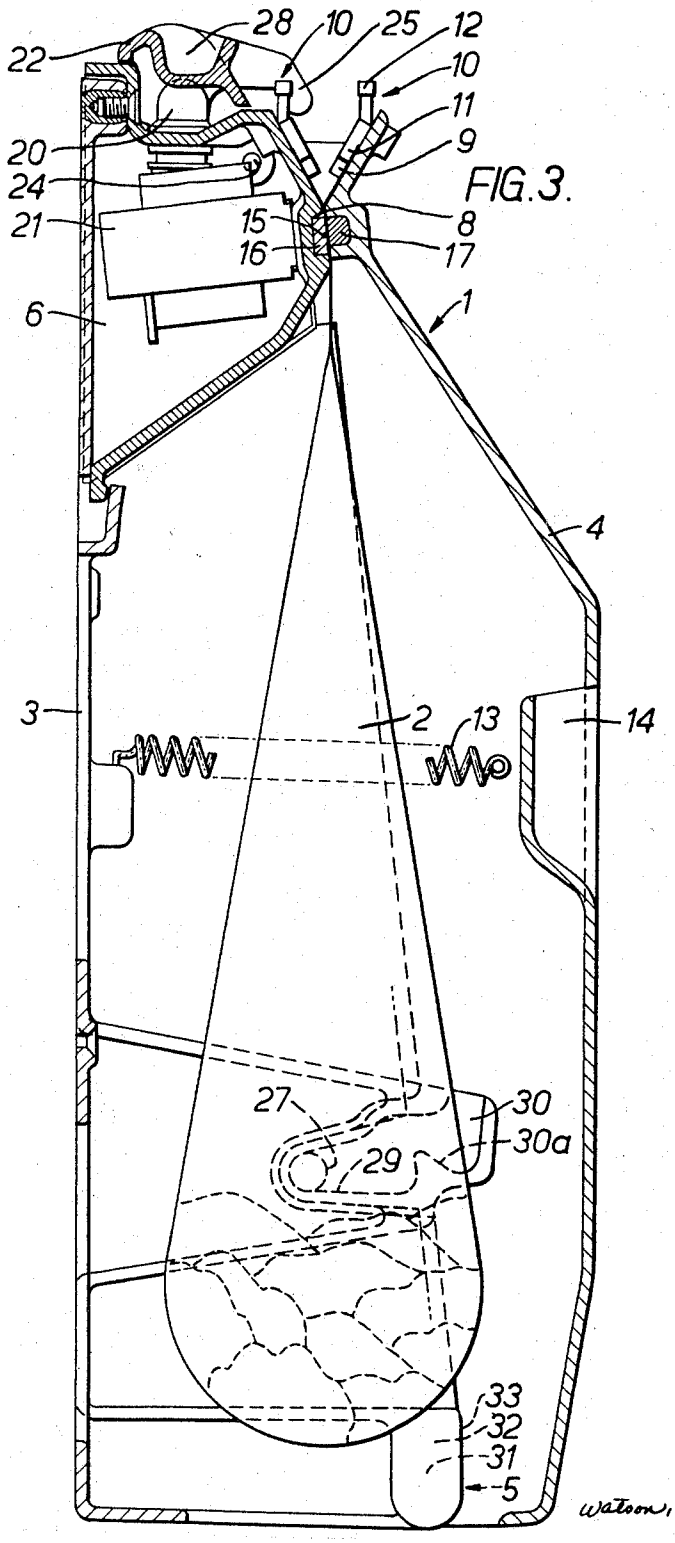


FIG. 3.

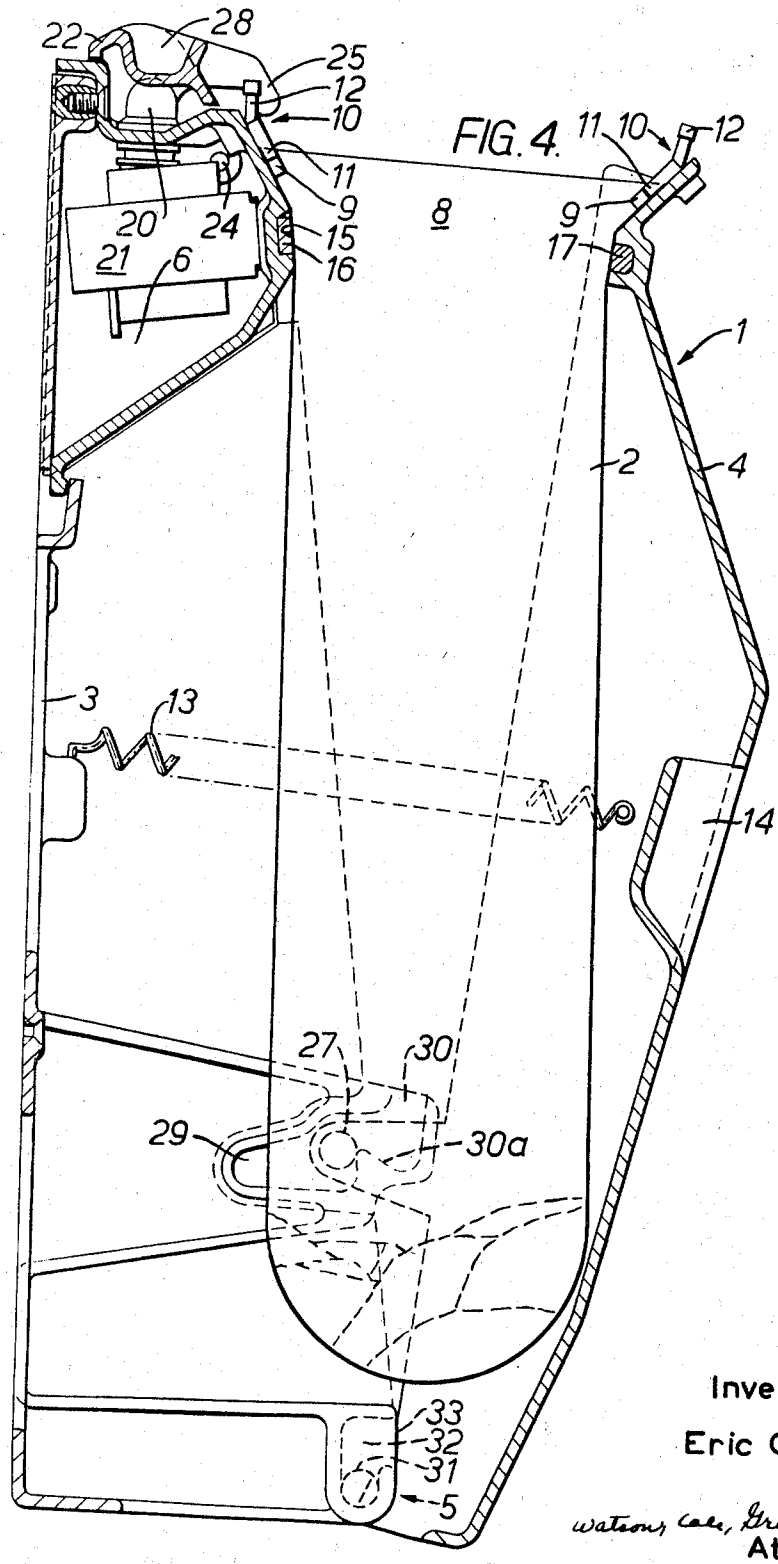
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FIG. 4.



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FIG. 5.

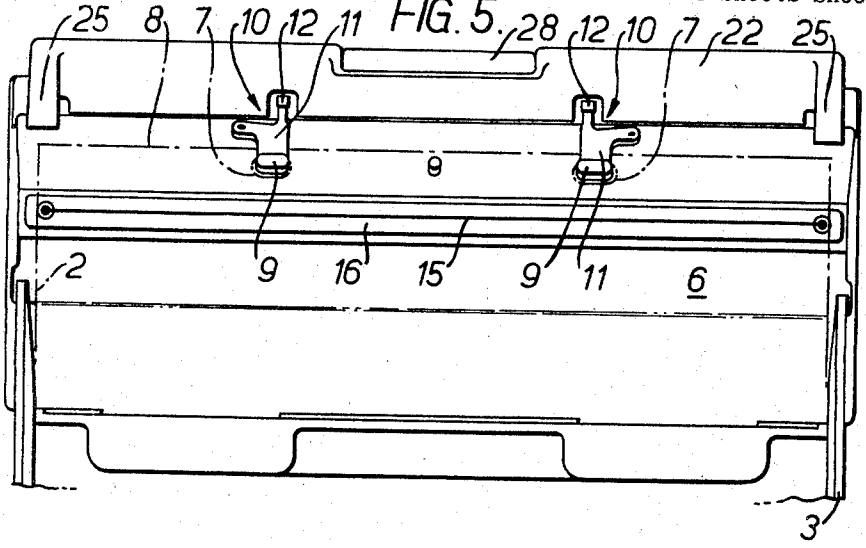


FIG. 6.

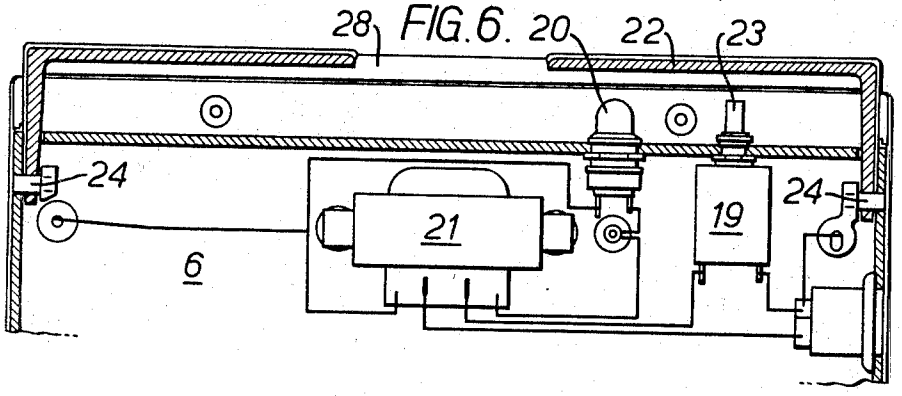
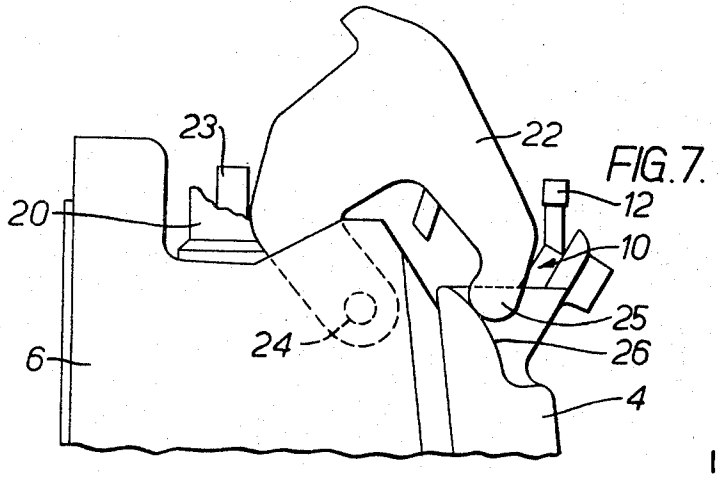


FIG. 7.



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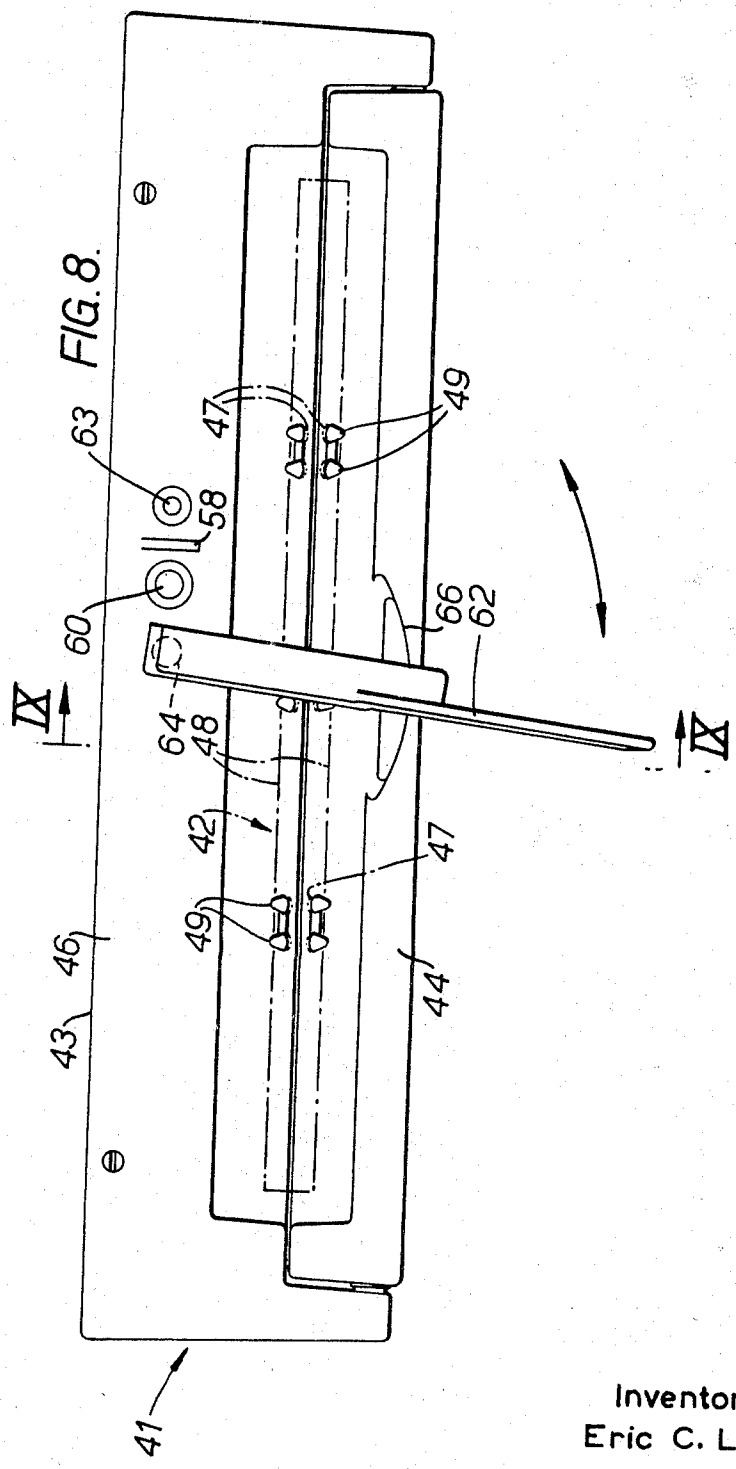
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FIG. 8.



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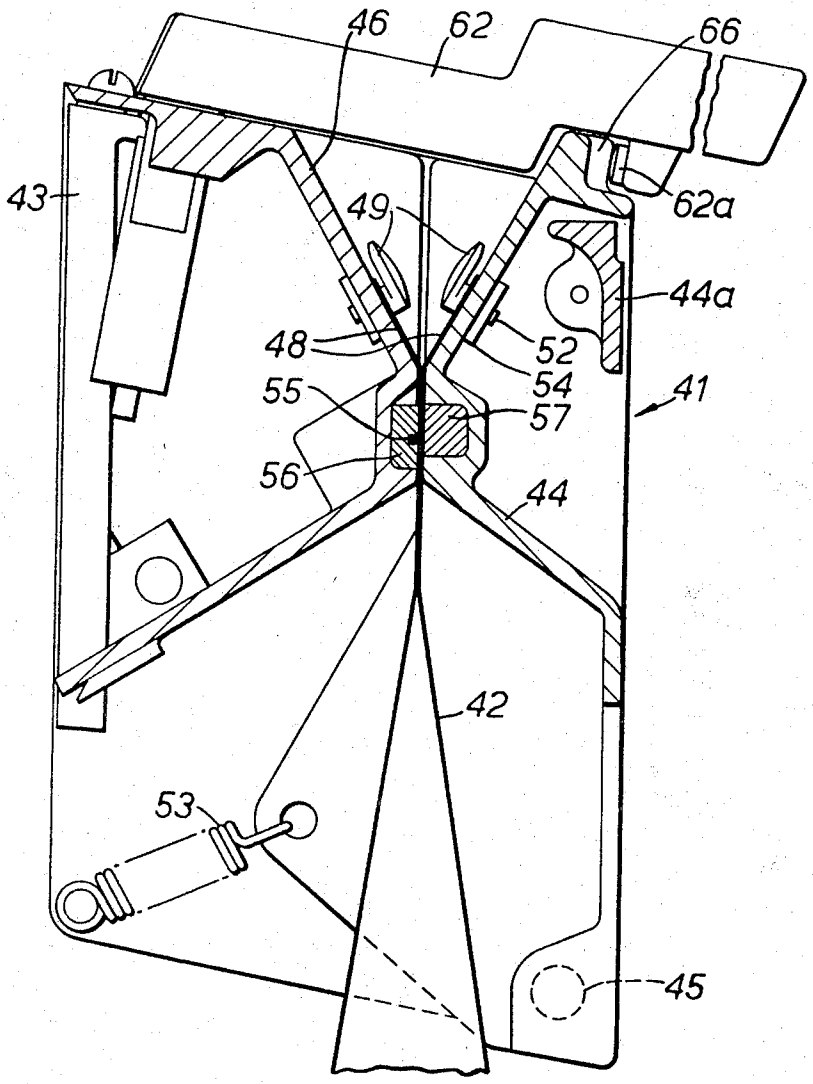
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FIG. 9.



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FIG.10.

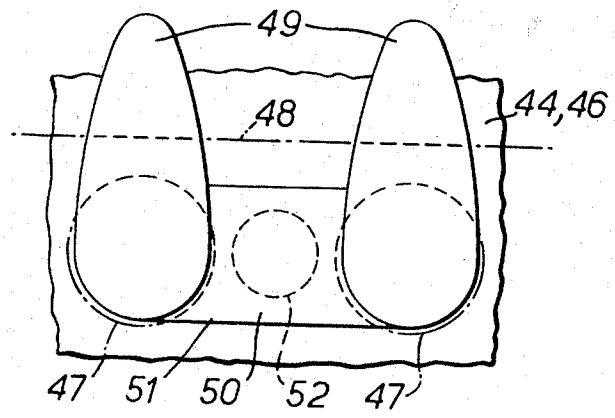
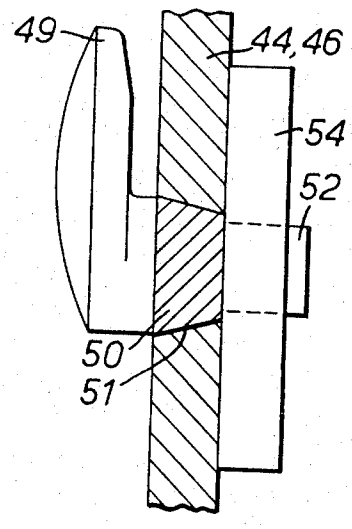


FIG.11.



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United States Patent Office

3,323,714

Patented June 6, 1967

3,323,714

WASTE DISPOSAL UNIT

Eric Crisp Lewis, Ham Common, England, assignor of one-half to Alumasc Limited, London, England, a British company

Filed July 25, 1966, Ser. No. 567,448
6 Claims. (Cl. 232—43.2)

The object of this invention is to provide a unit or apparatus for the ready disposal of waste matter of an unsanitary, obnoxious, or like nature in a hygienic manner and which thus has wide practical application especially but not exclusively, in hospitals and numerous other public establishments, as well as on rail and other vehicles, aircraft, ships, and similar boats. Practical advantages of the invention will be apparent from the following disclosure.

In the accompanying drawings:

FIGURES 1 and 2 are front and side elevations respectively of a disposal unit according to this invention and shown in the closed condition.

FIGURE 3 is a cross section taken on the line 3—3 of FIGURE 1.

FIGURE 4 is a cross section similar to FIGURE 3 but showing the disposal unit in the open condition.

FIGURE 5 is a front view of the upper part of the unit with the hinged front cover removed.

FIGURE 6 is a sectioned front view of the upper part of the unit showing the electrical system;

FIGURE 7 is a detailed side view on an enlarged scale of the upper part of the unit showing the locking action of the top cover.

FIGURE 8 is a plan view of a modified form of the waste disposal unit.

FIGURE 9 is a cross section on the line IX—IX of FIGURE 8 and

FIGURES 10 and 11 are detail front and side views on an enlarged scale of the bag mounting projections shown in FIGURES 8 and 9.

Referring to FIGURES 1 to 7 of the drawings the supporting structure of the disposal unit consists of an outer container 1 within which is suspended a bag or like receptacle 2 of flexible plastic sheet material for actually receiving waste matter.

The container 1 is shown comprising a rear casing 3 which may be well mounted in use and a front cover 4 hinged at its lower end at 5 to the rear casing 3 whereby a hollow interior is provided for accommodating the bag 2.

The bag 2 is suspended by its mouth portion 8 from the upper part of the rear casing 3 (or as shown, from a housing 6 at said upper part) and from the upper part of the front cover 4. In order to enable a bag 2 to be readily mounted and located in position in this way or removed therefrom, opposed parts of the bag mouth portion 8 are provided with perforations 7 which engage over projections or studs 9 on the upper housing 6 and on the upper part of the front cover 4.

For providing adequate support to the bag 2, especially when loaded, the studs 9 are shown of elongated or oblong form in the horizontal direction whilst the perforations or slots 7 in the bag 2 are of corresponding form. The bag 2 may be retained in engagement with the studs 9 by clips or in any suitable manner but in a convenient arrangement shown a pivoted catch 10 is provided in association with each stud 9, which catches 10 are shown in the retaining position with their tongues 11 against their studs 9 and overlapping the edge portions of the mouth of the bag 2 adjacent the slot 7. For enabling the bag 2 to be readily engaged with, or dis-engaged from, the studs 9, the catches 10 are swung clear by means of their finger pieces 12.

When a bag 2 is mounted in position in the manner described and shown it will be appreciated that the bag 2 is opened and closed by corresponding movement of the front cover 4. Thus when it is required to dispose of waste matter the cover 4 is simply opened by means of the handle or finger opening 14 and the matter dropped in the opened bag 2 whereupon the latter can be immediately closed by closing or allowing the cover 4 to close against the rear casing 3. All the time the cover 4 is closed the bag 2 also remains effectively closed so that, in the interests of hygiene, the contents of the bag 2 are not exposed to the atmosphere and are only momentarily exposed when the bag is opened by operating the cover 4 when introducing further waste matter.

As shown the cover 4 may be spring loaded relative to the rear casing 3 such as by tension spring means 13 between them so that the cover 4 automatically closes on release and is retained in the closed condition.

When the bag 2 has become full of waste matter or it is desired to finally dispose of or destroy any waste matter therein, the bag 2 is sealed in a permanent manner by heat sealing at its mouth portion 8 when in the closed condition. For this purpose an electric heating element or strip 15 is shown carried by a pad 16 of heat resistant material such as asbestos on the upper housing 6 a short distance below the bag suspension studs 9 on the latter. A co-operating pad 17 also of similar heat resisting material is carried by the front cover 4 and when the latter is closed the mouth portion 8 of the bag 2 is clamped between the two pads 16, 17 so that effective heat sealing is obtained on appropriate current being supplied to the element 15.

The element 15 is brought into operation for the required period by means of a manually operated time switch 19, the element circuit including an indicator lamp 20 whilst in the interests of safety the element 15 is shown arranged for low voltage operation (e.g., 5 volts) through a transformer 21 from a main supply. The transformer 21 and general circuit to the heating element 15 are shown accommodated in the upper housing 6 whilst the setting of the time switch may be of the order of 5 to 10 seconds.

In order to prevent unauthorised operation of the switch 19, the upper part of the housing 6 is provided with a top cover 22 which under normal conditions of public use of the unit encloses the switch button 23 and also the indicator lamp 20, the top cover 22 being locked in this position in any suitable manner (not shown).

When it is desired to effect heat sealing of a bag 2 prior to its removal the cover 22 is swung open by its finger recess 28 in a forward direction about its pivotal mounting 24 (FIGURE 7).

In addition to exposing the switch button 23 for operation and also the indicator lamp 20 the cover 22 also as shown, performs the dual function of locking or clamping the front cover 4 against the rear casing 3 so that, in particular, the mouth portion 8 is firmly clamped between the pads 16, 17 for proper heat sealing. For this purpose the top cover 22 is provided with fingers 25 which

co-operate with corresponding cam surfaces **26** on the front cover **4** for obtaining locking of the latter when the top cover **22** is swung to the open position.

After heat sealing and on return of the top cover **22**, the front cover **4** is opened and the bag **2** is disengaged from the studs **9** in the manner already described whereupon it can then be taken away for destruction together with its contents such as by burning in an incinerator.

Since prior to removal the bag **2** is effectively sealed it can be subsequently handled and transported after removal without exposure of its contents in any way so that a high degree of cleanliness and hygiene can be maintained through its use.

For normal opening and closing movement of the front cover **4** for waste disposal purposes, the extent of opening movement may be limited to prevent damage to the bag such as by a stud **27** at each side of the front cover **4** operating in a corresponding limit slot **29** in the rear casing **3**.

The slot **29** is shown provided with an outer and upwardly open extension **30** for permitting further opening movement of the front cover **4** e.g. for bag removal or replacement purposes. It is necessary to lift the cover **4** slightly so as to cause each stud **27** to engage its corresponding slot extension **30** which engagement locks the cover **4** in the fully open position against the action of the return spring **13**. However owing to the incline **30***a* of the slot extension **30** moderate hand pressure on the cover **4** returns each stud **27** to the slot **29** for closing of the cover **4**.

When each stud **27** engages its slot extension **29** the front cover **4** can be lifted away from the rear casing **3** for which purpose the hinging studs **31** at the lower end of the front cover **4** have a corresponding engagement with a vertical slot **32** of appropriate open form at **33** on the rear casing **3**. Prior to such removal of the cover **4** the spring **13** is disconnected from an end anchorage thereof.

As will be apparent from the foregoing and in addition to its simplicity of operation the unit is also of simple construction, the main structural parts of which may be produced from castings or mouldings or otherwise formed.

Whereas permanent closing of the bag **2** prior to removal by heat sealing is preferred, if desired permanent closing may be effected by other means such as stapling in which latter case the bag **2** may be of flexible sheet material other than plastics material such as a suitable paper. Alternatively the interior of the mouth portion **8** of a paper or other suitable bag **2** may be treated with a heat responsive adhesive which is temporarily softened for adhesion on permanent closing by operation of the heating element **15**.

Referring to FIGURES 8 to 11 an alternative arrangement of supporting the bag **42** is shown in a supporting structure **41** suitable for kitchen use and comprising a rear wall mounting member **43** and a front cover **44** hinged at **45** to the rear member **43** whereby a hollow interior is provided for accommodating the upper part of the bag **42**.

The bag **42** is suspended by its mouth portion **48** from the rear mounting member **43** (or as shown, from a housing **46** thereof) and from the upper part of the front cover **44** by means of upwardly directed projections or teeth **49** spaced from the adjacent surface of the housing **46** or front cover **44** as the case may be, a sufficient distance to easily accommodate the wall thickness of the material of the bag mouth portion **48** after corresponding perforations **47** in the latter have been engaged over or hooked by the teeth **49**.

Whereas they may be provided singly, the teeth **49** are shown provided in groups or pairs suitably disposed along the housing **46** and front cover **44** for providing adequate support for the bag **42**.

As will be appreciated the bag mouth perforations **47** can be quickly engaged over the teeth **49** in fitting a bag **42** in position in the unit and also just as simply disengaged on removal of a sealed bag therefrom. It is thus unnecessary to operate any clips or retaining catches whilst strong local support of the bag **42** is provided by each pair of separate perforations **47** engaging a corresponding pair of teeth **49**.

Each pair of teeth **49** is shown carried by a mounting or cross piece **50** (FIGURES 10 and 11) which is accommodated in a recess **51** in the housing **46** or front cover **44** whilst a shank **52** to the cross piece receives a retaining washer **54**. Whereas such mounting facilitates assembly and provides positive location of the teeth **49**, it will be appreciated that the latter or their cross pieces **50** may be otherwise mounted in position of use such as by screw mounting or rivetting.

As before opening and closing movement of the front cover **44** effects opening and closing of the bag **42** for the insertion of waste matter therein whilst the front cover is urged to the closed position by tension springing **53** and is operated by a handle **44***a*.

When it is desired to seal the bag **42** and in this example the front cover **44** is locked or clamped in the closed position such as by means of the handle **62** pivoted at **64** on the housing **46** and co-operating at **62***a* with the cam formation **66** on the front cover **44** whereupon heat sealing of the mouth portion **48** of the bag **42** can be effected by the electrical heating element **55** at that part of the mouth portion clamped between the two pads **56**, **57** of asbestos or other suitable heat resisting material.

Even if the bag **42** is deliberately or accidentally torn from its hook engagement with the teeth **49** when removing a sealed bag, the seal of the latter is not affected since only that part of the bag mouth portion **48** above the seal would be torn.

For normal opening and closing of the front cover **44** and of the bag **42** therewith the handle **62** is swung clear to a rear position where it can lie on a rest **58** and at the same time conceal the switch button **63** and indicator lamp **60** of the control circuit to the heating element **55**.

I claim:

1. A waste disposal unit comprising supporting structure having two relatively movable members for removably suspending a bag of flexible sheet material by its mouth portion whereby on appropriate relative movement of said members the bag is opened and closed for the purpose of introducing waste matter therein; and means carried by at least one of said members and operable when required for effecting closure of a said bag in a permanent manner prior to its removal from the supporting structure.

2. A waste disposal unit comprising a support member; a cover member hinged along its lower end part to said support member for opening and closing movement relative to the latter; means carried by opposed upper parts of said members for releasably suspending from and between them a bag of flexible sheet material by its mouth portion for opening and closing movement with said members for the purpose of introducing waste matter into said bag; and electrical heating means carried by at least one of said members and operable when required for effecting heat sealing of the mouth portion of a said bag in a permanent manner when closed by said members and prior to its removal from the latter.

3. A waste disposal unit according to claim **2** wherein the support member and cover member each carry a pad of heat resistant material for clamping a mouth portion of a said bag when suspended from said members, at least one of said pads carrying said electrical heating means.

4. A waste disposal unit according to claim **2** wherein the support member and cover member each carry at their opposed upper parts studs for engaging corresponding perforations in the mouth portion of a said bag whilst catches one to each stud are also carried by said members for releasably retaining a said bag mouth portion in engagement with said studs.

5. A waste disposal unit according to claim 2 wherein the support member and cover member each carry at their upper parts upwardly directed projections for releasable hook engagement with corresponding perforations in the mouth portion of a said bag.

6. A waste disposal unit comprising a rear support member; a front cover member hinged along its lower end part to said support member for opening and closing movement relative to the latter; projections carried by opposed upper parts of said members for releasably engaging corresponding perforations in the mouth portion of a bag of flexible plastics sheet material in suspending the latter from and between said members for opening and closing movement therewith for the purpose of introducing waste matter into said bag; a pair of pads of heat resistant material carried one each by said members for clamping shut the mouth portion of a said bag in the closed condition of said members; an electrical heating element carried by one of said pads and operable when required for effecting heat sealing of the mouth portion of a said bag in a permanent manner when closed by said members and prior to its removal from the latter;

and locking means carried by one of said members and arranged to act on the other for locking said members in the closed condition during said heat sealing.

References Cited

UNITED STATES PATENTS

652,331	6/1900	Rudolph	232—43.2
787,476	4/1905	Sheley	232—31
2,079,592	5/1937	Battin	248—99
2,363,699	11/1944	Smith	220—1
2,470,271	5/1949	Steinbacher	248—97
2,636,800	4/1953	Downey	248—95
2,815,186	12/1957	Miller	248—99
2,878,849	3/1959	Lingenfelter et al.	150—3
2,964,275	12/1960	Atkinson	248—95
3,260,488	7/1966	Kliewer et al.	248—99

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