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Barnes et al.

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[54] **EJECTOR-TYPE REFUSE CONTAINER**

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[52] **U.S. Cl.** ..... **294/69 R**, 214/302, 294/71

[51] **Int. Cl.** **B65f 1/12**

[58] **Field of Search** ..... 294/71, 82 R, 82 SF, 294/88, 69 R; 298/7, 24, 27; 105/247, 260; 214/621, 302; 220/32, 34, 97; 222/502, 503, 561; 232/43.1, 43.3

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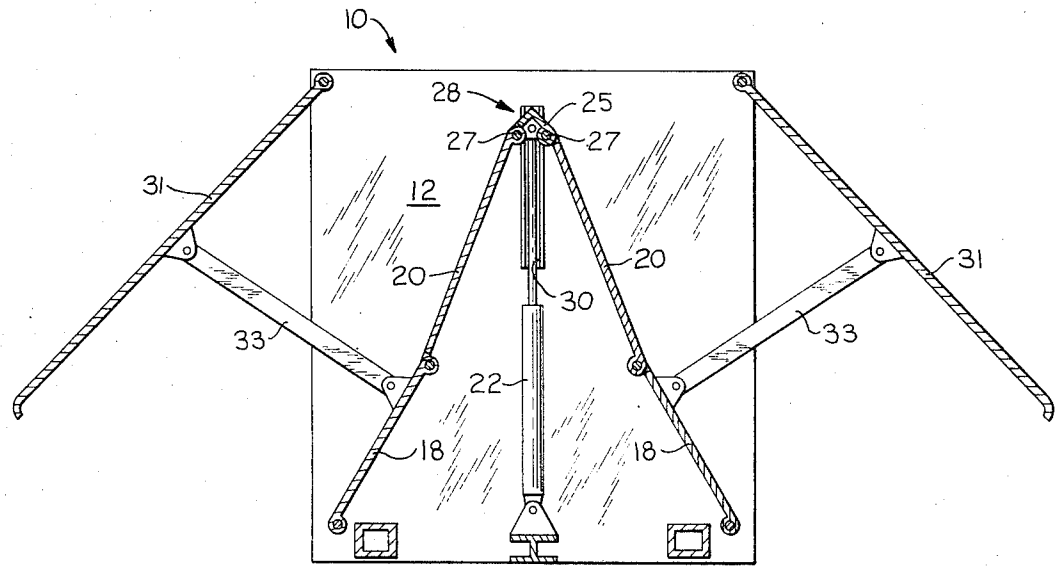
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[57] **ABSTRACT**

A transportable body defines a compartment therein containing back-to-back ejector means, each comprising a vertically disposed inner wall section pivotally connected to a horizontally disposed floor section. A normally closed outer wall section is pivotally mounted on each open side of the body and each is connected to a floor section to open upon actuation of a vertically disposed double-acting hydraulic cylinder. The cylinder is interconnected between the body and the inner wall sections to move them upwardly during the ejecting phase of refuse disposal.

9 Claims, 4 Drawing Figures

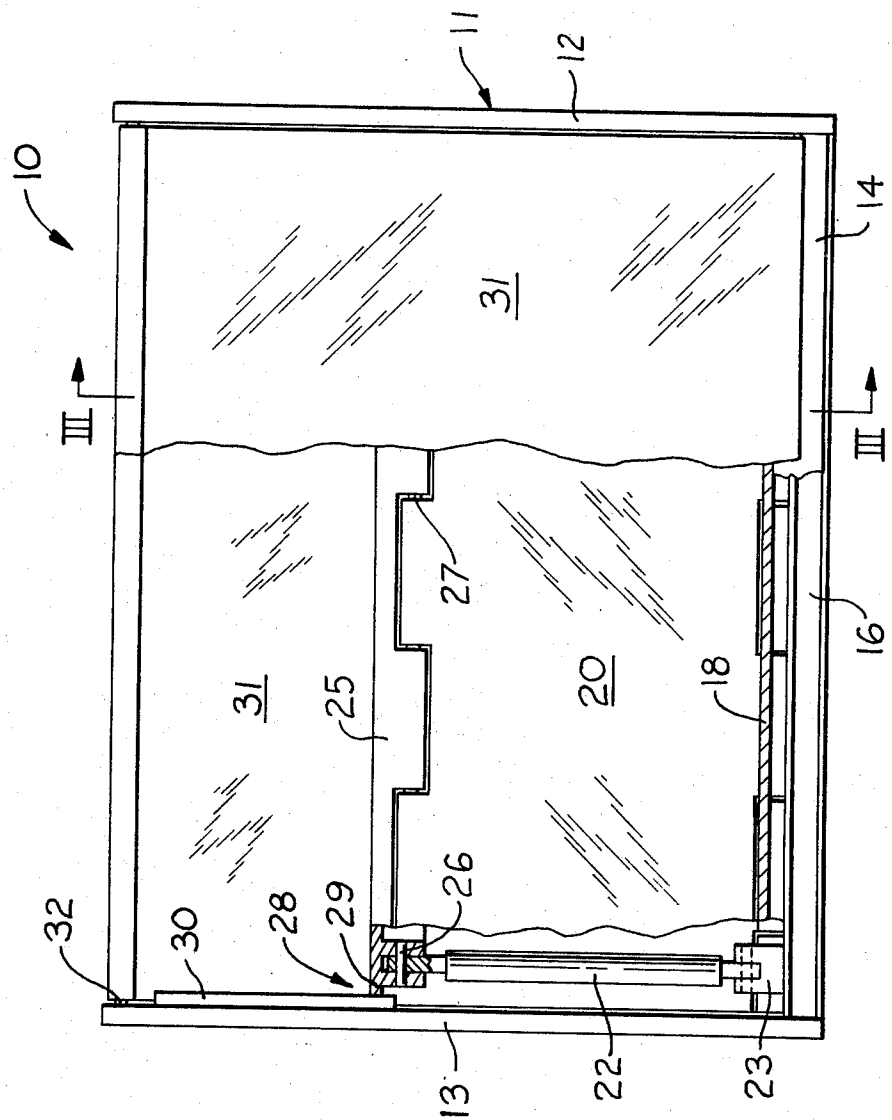


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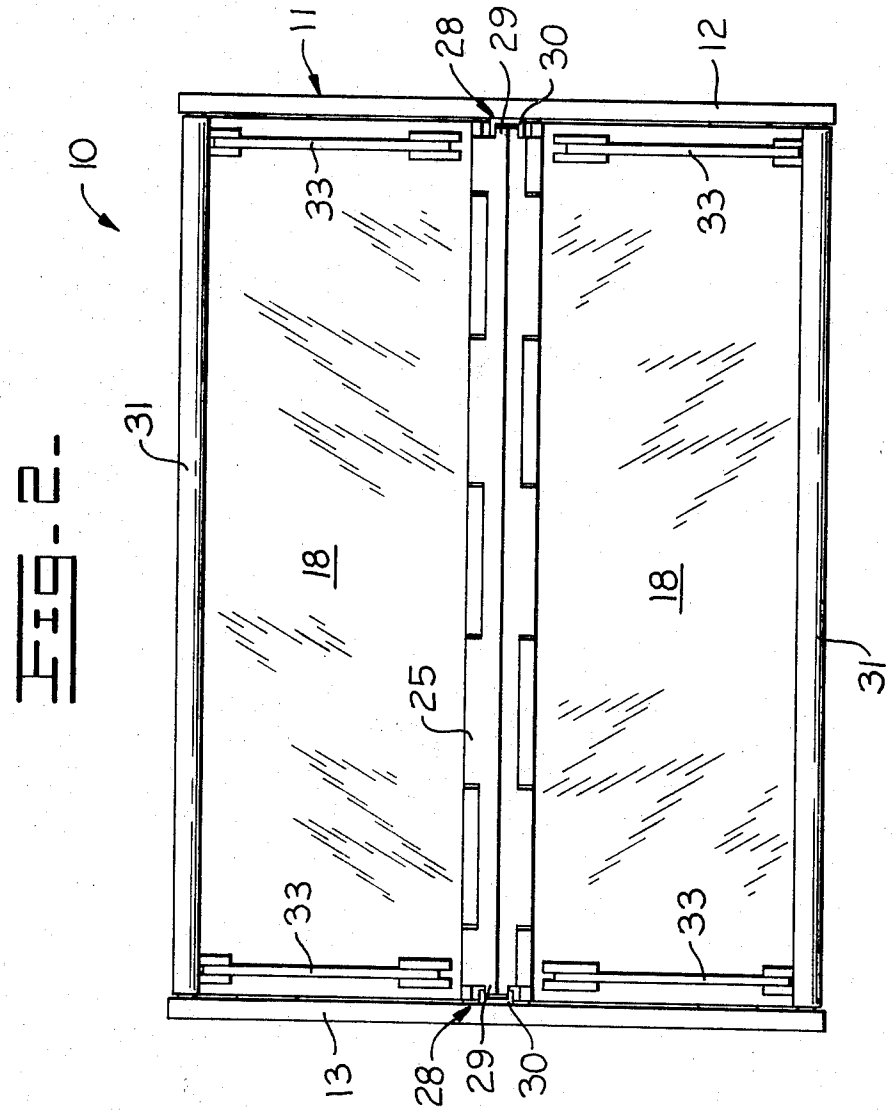
FIG-1-



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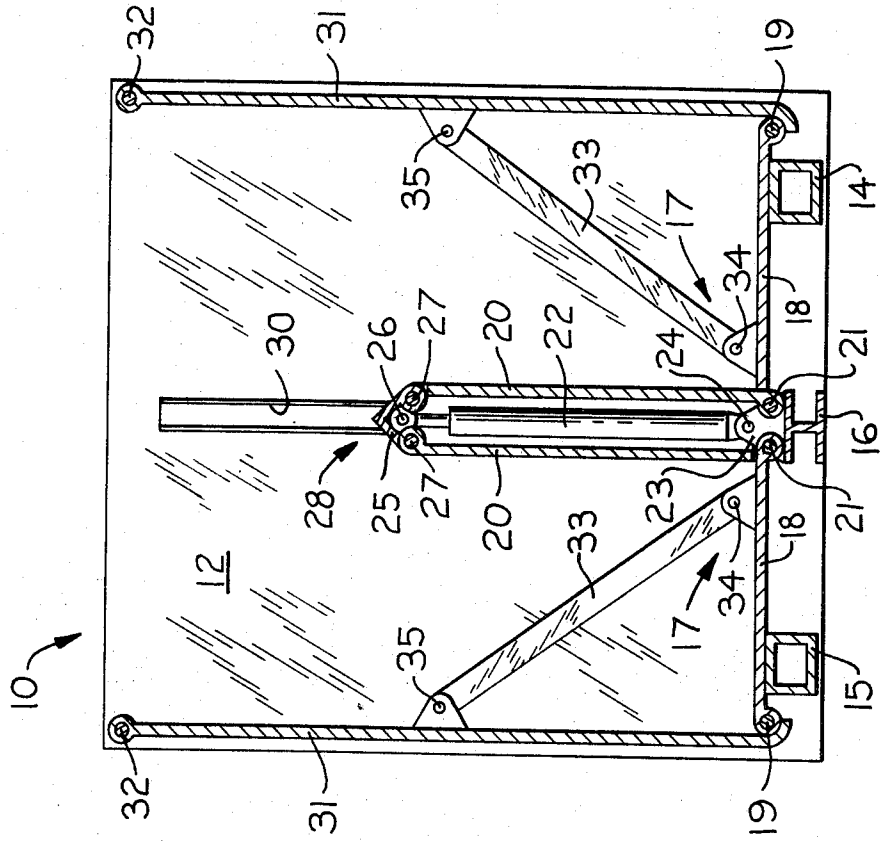
FIG-2-



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FIG. 3.



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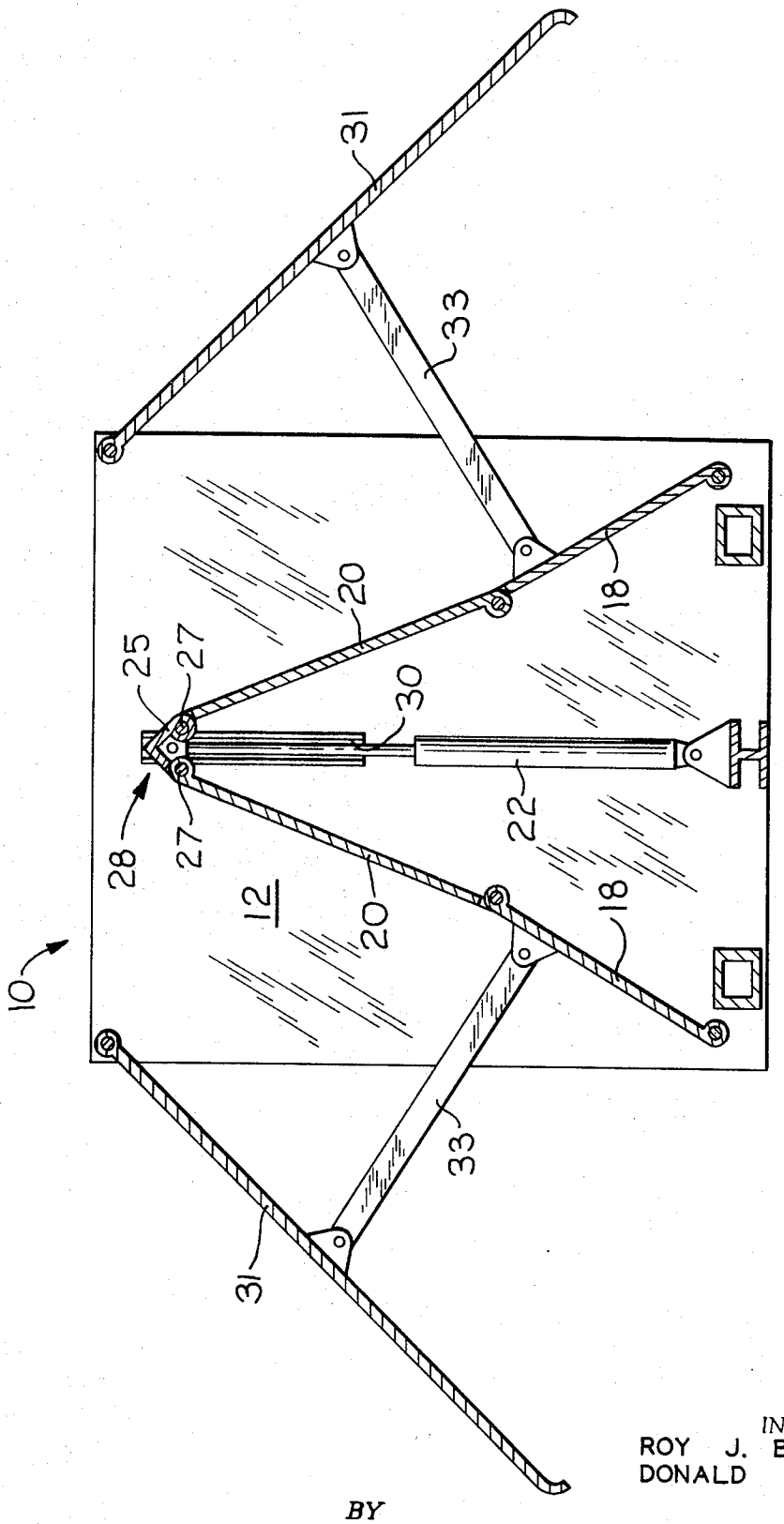


Fig-4-

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EJECTOR-TYPE REFUSE CONTAINER

BACKGROUND OF THE INVENTION

This invention relates to a refuse container and more particularly relates to a refuse container having ejector means positioned therein adapted to eject refuse therefrom.

Population increases and related environmental control problems dictate the need for apparatus and methods adapted to economically dispose of refuse. Many such apparatus are unduly complex, weighty, bulky, expensive to manufacture and difficult to operate efficiently. In addition, apparatus employing rear type ejector systems become unstable during the ejecting phase of disposal operation since the center of gravity thereof shifts rearwardly. In addition, the disposed material must normally be pushed the entire length of the body, thus requiring ejecting forces of very high magnitude. Also, it is difficult to dump refuse while the apparatus is in motion and spillage problems arise during transport of the refuse to a disposal site.

SUMMARY OF THE INVENTION

This invention overcomes the above, briefly described problems by providing a non-complex and highly efficient ejector-type refuse container for rapidly unloading refuse therefrom. The container comprises a body defining a compartment therein and a vertically disposed actuating means connected between the body and at least one articulated ejector for selectively discharging refuse from an open side of the body.

In the preferred embodiment, the ejector means comprises a horizontally disposed floor section pivotally mounted on the body and a vertically disposed inner wall section pivotally mounted to the floor section and to the actuating means. In addition, such embodiment further comprises a vertically disposed outer wall section pivotally mounted on the body for normally closing the open side thereof to normally define the closed refuse containing compartment with end wall members of the body and the inner wall and floor sections.

BRIEF DESCRIPTION OF THE DRAWINGS

Further objects of this invention will become apparent from the following description and accompanying drawings wherein:

FIG. 1 is a partially sectioned, side-elevational view of an ejector-type refuse container;

FIG. 2 is a top plan view thereof;

FIG. 3 is a sectional view taken in the direction of arrows III—III in FIG. 1; and

FIG. 4 is a view similar to FIG. 3, but showing the container in a refuse ejecting mode of operation.

DETAILED DESCRIPTION

Referring to FIGS. 1–3, a refuse container 10 comprises a body 11 including vertically disposed and longitudinally spaced end wall members 12 and 13. Such members are secured together by longitudinally extending box section beams or support members 14 and 15 (FIG. 3) and a centrally disposed I-beam 16. Identical articulated ejector means 17, positioned in the container's refuse containing compartment, are adapted to discharge refuse therefrom in a manner hereinafter described with reference to FIG. 4.

Since the ejector sides of the container are identical, only one such side will be described in detail. In particular, each ejector means comprises a normally horizontally disposed floor section 18 positioned at a lower end of the body. First pivot means 19 pivotally mount a first end of the floor section on the lower end of the body, adjacent to an open lateral side thereof.

A vertically disposed inner wall section 20 is positioned laterally inwardly and has a first, lower end thereof pivotally connected to a second end of the floor section by second pivot means 21. Vertically disposed extensible and retractable actuating means 22, preferably constituting a pair of double-acting hydraulic cylinders positioned at each longitudinal end of the body, have their first or lower ends pivotally attached to brackets 23 secured to I-beam 16 by pivot pins 24. The cylinders are preferably positioned at the ends of body 11 and intermediate the lateral sides thereof so that they do not interfere with the refuse loading and unloading operation.

The second or upper rod end of the cylinder is pivotally attached to a bracket member 25 by a pivot pin 26. The second or upper end of each inner wall section 20 is pivotally mounted to the bracket by a pivot pin 27. Guide means 28, comprising a projection or tongue 29 (FIG. 1) secured on each end of member 25 to engage an operatively associated and vertically disposed track 30 secured to each end wall 12 and 13, guide vertical movements of member 25 and thus cylinder 22.

Each open lateral side of body 11 is normally closed by a vertically disposed outer wall section 31 pivotally mounted on an upper end of the body, adjacent to a respective lateral side, by a pivot pin 32. As shown in FIG. 3, sections 18, 20 and 31 and end walls 12 and 13 define two sub-compartments which join at their upper ends to define a large closed compartment. In certain applications, it may prove desirable to extend an inner wall section 20 vertically upwardly to be substantially coextensive with outer wall section 31, for example, and employ only one ejector means.

Linkage means 33 are pivotally interconnected between the floor and inner wall sections and outer wall sections 31 by pins 34 and 35, respectively for automatically opening the lateral sides of the container. In the FIG. 2 preferred embodiment, a pair of links are disposed at each end of the container. Such arrangement adds stability to the system and will not interfere with the refuse filling or discharge operations.

FIG. 3 illustrates the container in its normal condition of operation wherein the compartment thereof may be filled with refuse and transported by a lift truck, railroad car, truck or other suitable transport means to a dump site. When it is desired to discharge the refuse from the container, suitable control means (not shown) are attached to hydraulic cylinder 22 to extend it to its ejecting, FIG. 4 position. Such extension will function to raise pivot pins 27 and thus move floor section 18 and wall section 20 into a generally coplanar relationship relative to each other. Simultaneously therewith, linkage means 33 will function to automatically open the lateral sides of the body by moving outer wall sections 31 outwardly.

The articulated inner wall and floor sections aid in efficiently ejecting the refuse by forming an inclined ramp on each side of the container to thus permit the influence of gravity to aid in dumping the refuse. It should be further noted that during transport of the re-

fuse the weight thereof (FIG. 3) will aid in maintaining outer wall sections 31 in a closed position since there will be a substantial force vector tending to pull downwardly on linkage means 33. Also, during transport a cover (not shown) may be secured over the container to aid in preventing spillage of the refuse.

In a typical operation, the container may be left at a strategic location and filled with refuse. The container may then be loaded onto the flat bed of a truck by a fork lift, adapted to have its tines engage the longitudinal openings of members 14 and 15. The truck may then be driven to a railroad flat car whereat the container may be transferred thereto and further transported to a disposal site.

What is claimed is:

1. An ejector-type refuse container comprising

a body including vertically disposed and spaced wall members,

at least one normally horizontally disposed floor section positioned at a lower end of said body,

first pivot means pivotally mounting a first end of said floor section on a lower end of said body adjacent to an open lateral side thereof,

at least one normally vertically disposed inner wall section positioned laterally inwardly of the lateral side of said body,

second pivot means pivotally connecting a first, lower end of said inner wall section to a second end of said floor section, and

vertically disposed extensible and retractable actuating means having a first end thereof attached to the lower end of said body and a second end thereof pivotally attached to a second, upper end of said inner wall section.

2. The invention of claim 1 further comprising a normally vertically disposed outer wall section pivotally mounted on said body for normally closing the open lateral side thereof to define a closed compartment with said wall members and said inner wall and floor sections.

3. The invention of claim 2 wherein said outer wall section is pivotally mounted on an upper end of said body adjacent to the lateral side thereof and further comprising linkage means pivotally interconnected between said floor and inner wall sections and said outer wall section for automatically moving said outer wall section to open the lateral side of said body upon extension of said actuating means.

4. The invention of claim 1 wherein the second end of said actuating means is attached to second, upper ends of two of said inner wall sections and wherein one of said floor sections is attached to the first, lower end of each of said inner wall sections.

5. The invention of claim 4 wherein said body is open on each lateral side thereof and further comprising two normally vertically disposed outer wall sections each pivotally mounted on an upper end of said body for normally closing a respective open lateral side thereof and means operatively connected between each of said floor sections and a respective outer wall section for automatically moving said outer wall sections to open the lateral sides of said body in response to extension of said actuating means.

6. The invention of claim 5 wherein said actuating means is positioned intermediate, between the lateral sides of said body.

7. The invention of claim 6 wherein said actuating means comprises a hydraulically actuated cylinder positioned at each longitudinal end of said body adjacent to a respective one of said wall members.

8. The invention of claim 1 further comprising guide means operatively associated between said body and said actuating means for guiding vertical movements of said actuating means upon extension and retraction thereof.

9. The invention of claim 1 wherein said body further comprises at least two laterally spaced and longitudinally extending support members secured to said wall members at lower ends thereof, each support member defining a longitudinal opening therein adapted to receive the tine of a fork lift.

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