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[54] **COMPARTMENT DOOR STRUCTURE**

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[22] Filed: **Aug. 19, 1971**

[21] Appl. No.: **173,034**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 873,031, Oct. 31, 1969, abandoned.

[52] **U.S. Cl.** **232/25**, 16/171, 16/149, 16/191

[51] **Int. Cl.** **B65d 91/00**

[58] **Field of Search** ..... 49/397, 384, 381, 388, 49/398; 232/19, 20, 21, 29, 25; 16/128 R, 171, 176, 199, 191, 135

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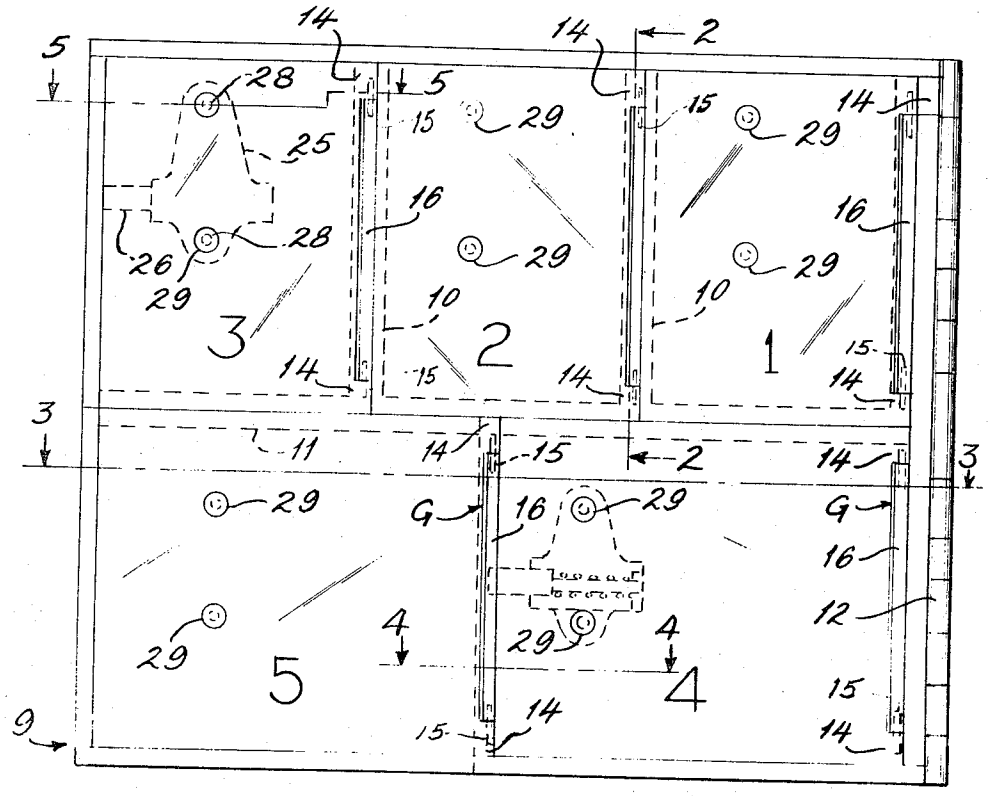
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[57] **ABSTRACT**

A compartment has a door with integral ears spaced apart and projecting from one edge of the door and substantially flush with the outer face of the door, there being a mounting bar extending between the ears and having an outer face flush with the door outer face; a hinge pin extending from each end of the mounting bar into the adjacent door ear; and elements, accessible only from the rear of the door, for securing the mounting bar to a frame closely surrounding the door and flush with its outer face. In a preferred form of the invention the mounting bar includes a flange which normally projects inwardly from the rear face of the door when the door is closed and is secured to the frame by screws or other elements accessible when the door is opened but concealed by the door when closed.

The invention contemplates the mounting of a plurality of doors, as described above, in a common frame which is hinged at one side to a cabinet or wall so as to swing on its hinge as a unit with all of the doors having their outer faces flush with the common frame.

11 Claims, 9 Drawing Figures



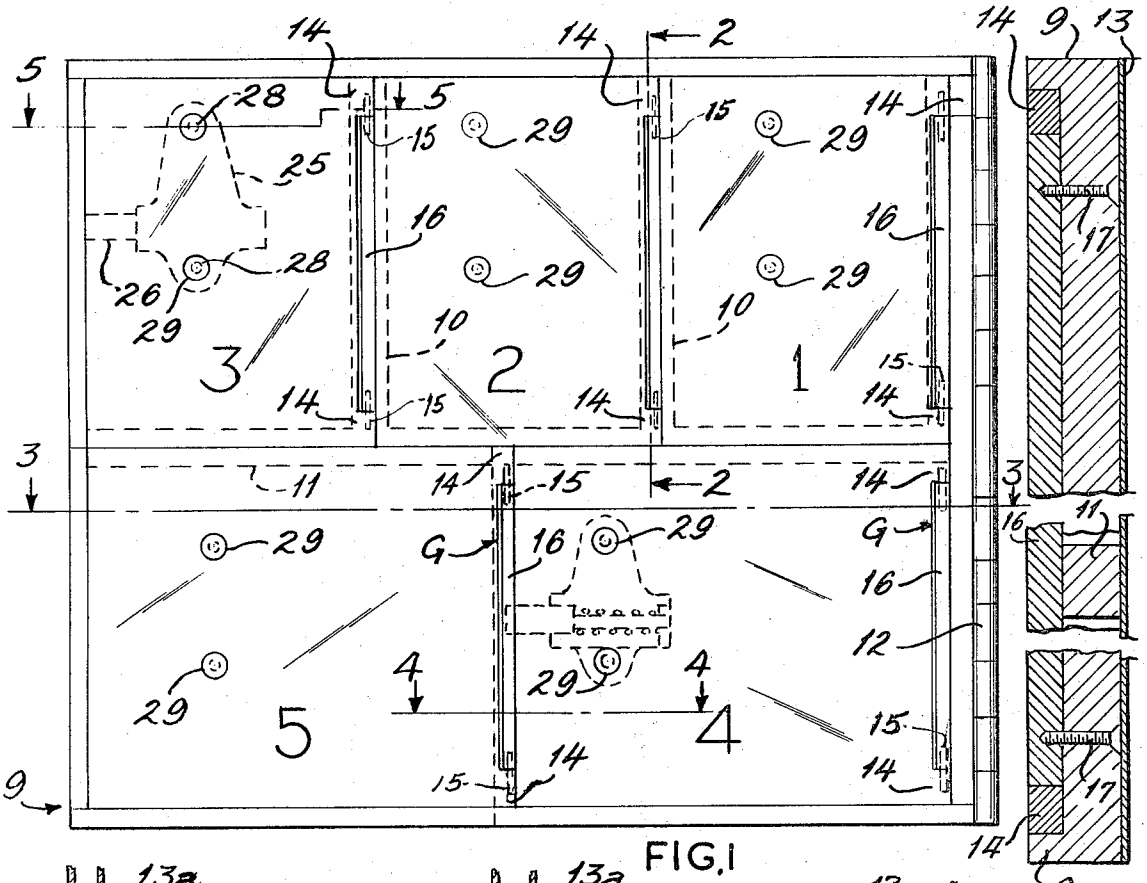


FIG. 1

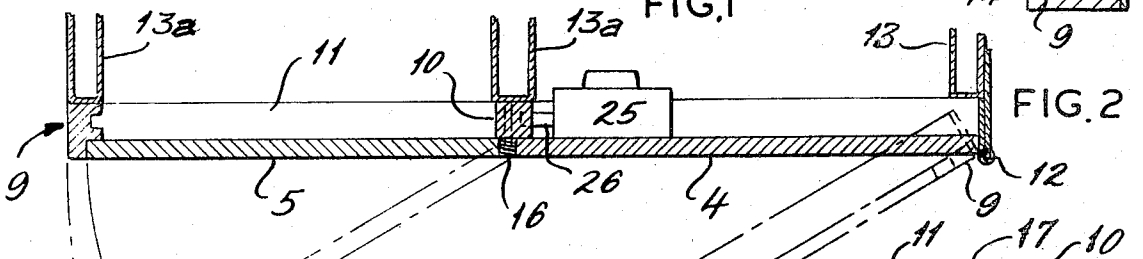


FIG. 2

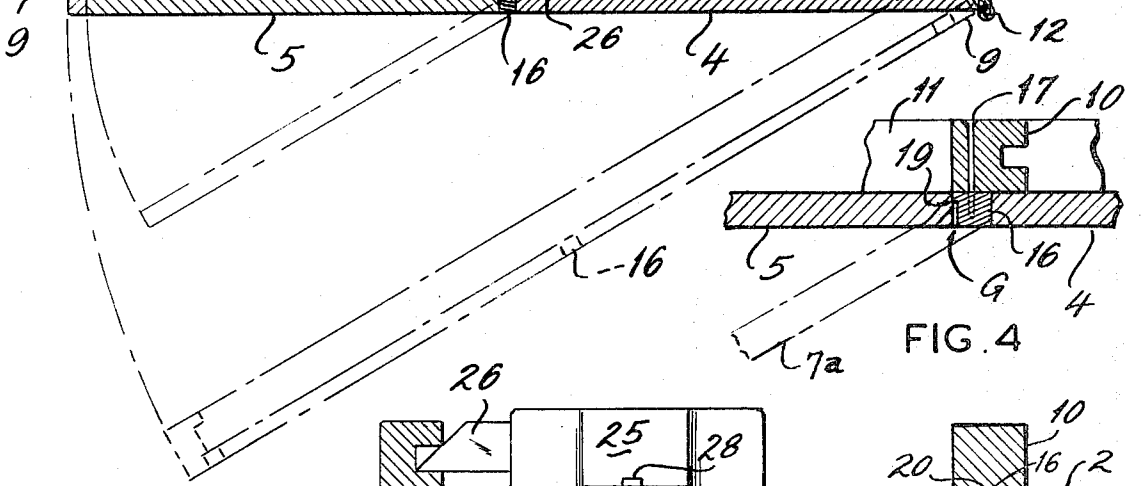


FIG. 3

FIG. 4

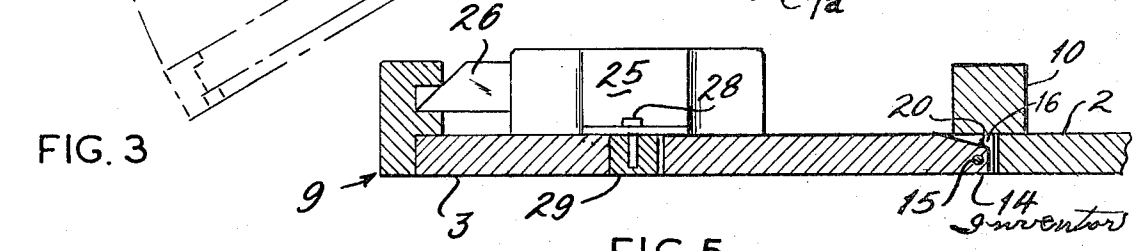


FIG. 5

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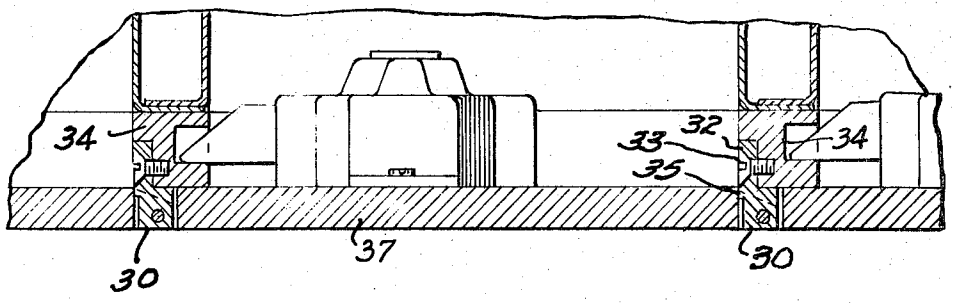


FIG. 6

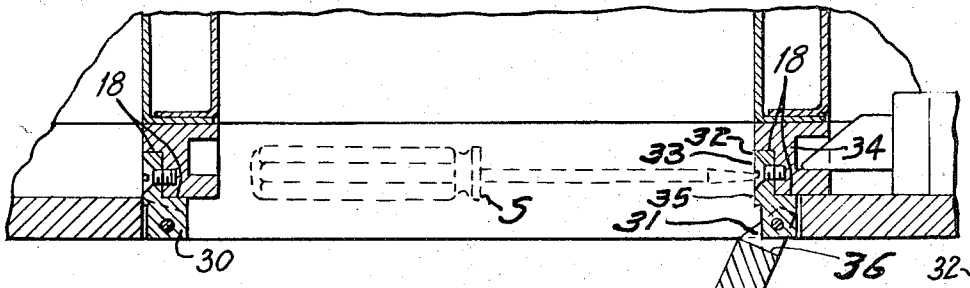


FIG. 7

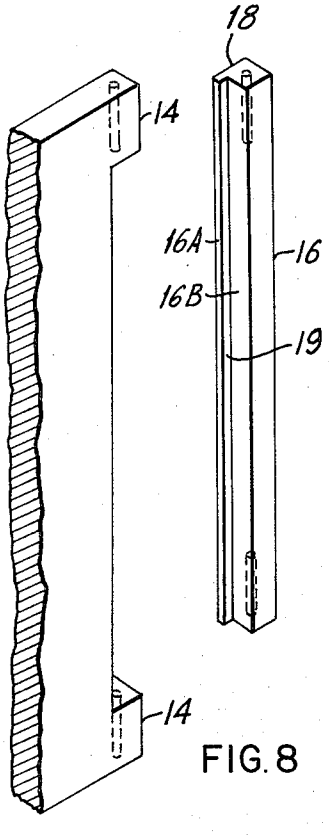


FIG. 8

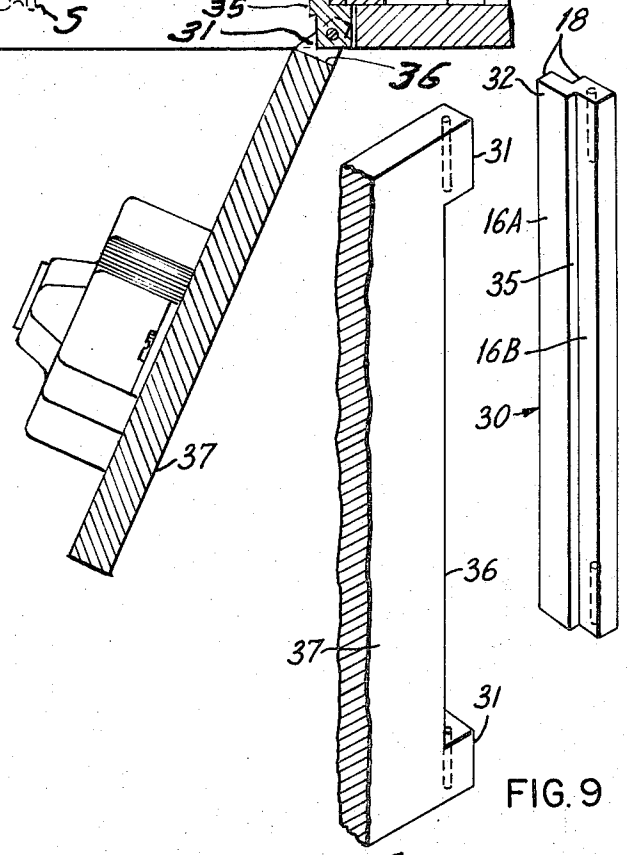


FIG. 9

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COMPARTMENT DOOR STRUCTURE

The present application is a continuation-in-part of a copending application filed Oct. 31, 1969, Ser. No. 873,031, now abandoned.

SUMMARY OF THE INVENTION

The compartment door and associated structure is particularly adapted for a battery of individual boxes such as are mounted in the lobby wall of an apartment building, an office, a hospital, a school dormitory or the like, for receiving mail or other material for a plurality of users. The boxes are equipped with individual locks and have hidden hinges inaccessible from the front of the structure to prevent removal of the doors and access to the boxes by unauthorized persons. The structure may be of either the front loading or rear loading type. If the installation is of the front loading type, the doors may be mounted in a common frame hinged at one side to a wall or a cabinet and swinging to expose all the compartments. Such a frame will have a lock to the wall to facilitate insertion of mail, etc. in all the boxes at one time when the frame is swung open. If the installation is of the rear loading type, a large swinging panel may be used at the rear of the compartments, or they may be left open to a restricted area, for insertion of mail or other material.

In the drawings:

FIG. **1** is a front elevation of an installation embodying five mailboxes or like compartments with individual front doors mounted in a common grid or frame for all the doors and hinged at one side to a cabinet or like structure.

FIG. **2** is a detail vertical section on line **2—2** of FIG. **1** and on a larger scale.

FIG. **3** is a horizontal section on line **3—3** of FIG. **1,** drawn to a larger scale and showing in full lines two individual doors and common frame in boxclosing position; and in broken lines showing one door opened to remove contents of a single box and the common frame in open position for loading material in a plurality of the boxes.

FIGS. **4** and **5** are detail horizontal sections on lines **4—4** and **5—5** of FIG. **1** and on a larger scale.

FIG. **6** is a horizontal section similar to FIG. **3** but illustrating another form of the invention.

FIG. **7** is a similar section of the door mounting as shown in FIG. **6** but with the door swung to an open position.

FIG. **8** is an isometric, exploded view of the mounting bar and an adjacent portion of the door shown in FIGS. **1–5.**

FIG. **9** is a similar view of the corresponding elements shown in FIGS. **6** and **7.**

FIG. **1** shows a plurality of flush doors identified as **1, 2, 3, 4** and **5,** all mounted in a common frame **9** having intersecting ribs or subframe members **10** and **11** forming a rectangular grid. Frame **9** has a hinge **12** at one side secured to the outer face of a double wall **13** of a cabinet which ordinarily will be received in an opening in a building wall and attached to a building wall. Other walls of the cabinet forming portions of compartments are indicated at **13***a*.

Preferably, each door is formed by a rigid plate of metal having a flat outer or front face, although it may be ornamented in bas relief, by paint, by machined striation or otherwise. Each door body is substantially

rectangular except that it has integral upper and lower ears **14** projecting from a side edge of the door and spaced apart vertically and, with the remainder of the door edge, forming an elongated recess between ears **14.**

A correspondingly elongated hinge bar **16** of rectangular cross section is received in each recess with a first side surface **18** thereof engaged with the outer face of the frame, and a second side surface normally opposing the inner side of the recess and with its ends facing opposing surfaces of ears **14.** Vertical hinge pins **15** centered on the hinge bar extends therefrom into each ear **14.** Preferably, each hinge bar **16** has a longitudinal shoulder **19** (FIGS. **4, 8**) which abuts the opposing inner edge of the door, when the door is closed, and closes the inner end of a slight gap G between the door and the hinge bar which permits the door edge to swing past the adjacent outer corner of the hinge bar to the open position shown in dotted lines **7***a*. The shoulder is defined by a pair of laterally offset, parallel surfaces **16**A and **16**B on the second side surface of the bar. Each hinge bar **16** is securely attached to one of ribs **10** by screws **17** (FIG. **4**) inserted from the rear face of frame **9** extending transversely thereof and accessible only from the rear of frame element **10.** The inner face of each ear **14** is relieved at **20** (FIG. **5**) to accommodate the angular movement of the door without interfering with the adjacent corner of a grid element **10.**

When the door is closed the front faces of the doors, including ears **14,** and the hinge bars **16** are flush with each other and form a substantially continuous flat surface except for the slight gaps G which are effectively closed at their inner ends by hinge bar shoulders **19.**

Each door is provided with an individual lock, as indicated at **25,** including a bolt **26** which may be withdrawn from a striker on the frame by turning a key or by a combination lock mechanism. Locks **25** are secured by screws **28** threaded into hardened steel inserts **29** seated in the door body and flush with the outer face of the door.

Frame **9,** or a cabinet including the frame, may be set in a building wall recess or like structure.

To mount or replace one of the doors described above necessitates access to the heads of screws **17** irrespective of whether the door is open or closed. Access to these screw heads may be blocked by a cabinet or wall element **13, 13***a* making it necessary to dismantle the structure to replace a door. FIGS. **6** and **7** of the drawings illustrate a modified structure in which the hinge bar **30** retains the portion of square cross section fitting in the recess between door ears **31** but also includes a flange **32** projecting rearwardly of the door. The flange and the opposing grid element **34** are apertured to receive screws **33** for attaching the hinge bar to the grid, or to a compartment wall. The screws **33** parallel the plane of the closed door **37.** When the door is open the screw heads are readily accessible to a screw driver S. When the door is closed, a small portion **35** of flange **32** abuts the bottom **36** of the recess and blocks the insertion of a prying tool inwardly of the door.

The individual door closures with "blind" hinge bars and pins may be combined with individual compartments irrespective of the common frame feature, and the exclusive use of such modification and others coming within the scope of the claims is contemplated.

I claim:

1. A tamper-proof door, comprising a substantially rectangular frame having an inner marginal surface defining a central opening and having an outer face, said door mounted in said opening to close the opening and comprising a substantially flat, rectangular plate having inner and outer faces and opposite side edges, said outer face of the door substantially coplanar with the outer face of the frame, a pair of spaced apart mounting ears on one side edge of the door projecting laterally therefrom substantially flush with the outer face of the door and defining an elongate recess therebetween, an elongate hinge bar received in said recess and extending throughout the length of the recess, said hinge bar having opposite ends contiguous with said ears, pivot pins extending from said opposite ends into said ears to pivotally mount said door to said hinge bar, fastening means extended into said hinge bar and frame to secure said door and hinge bar as a unit to said frame, said hinge bar having a first side surface thereof engaged with the outer face of the frame and having an outer face thereof flush with the outer face of the door, a second side surface of said hinge bar in opposed, contiguous relationship to said one side edge of said door and including first and second, parallel, laterally offset surfaces extending the length of the hinge bar, with one of said offset surfaces substantially flush with the inner marginal surface of the frame and engaged with said one side edge of said door and the other offset surface spaced from the said side edge of the door, to thus prevent access to said fastening means when said door is closed to preclude unauthorized removal of said door and at the same time providing clearance between said door and said hinge bar to enable said door to be opened.

2. A tamper-proof door as in claim 1, wherein said hinge bar is substantially square in transverse cross section, and said fastening means extends forwardly through said frame from a rear surface thereof into said hinge bar.

3. A tamper-proof door as in claim 1, wherein said hinge bar includes a portion with a generally square transverse cross sectional shape and a flange projecting rearwardly from said first side surface thereof, said flange received in a complementary recess in the inner marginal surface of the frame, and said fastening means extended through said flange and into said frame.

4. A tamper-proof door as in claim 1, wherein a key operated lock means is secured on the inner face of the door and includes a bolt 26 rearwardly of the door at the side edge thereof opposite said one side edge thereof.

5. A tamper-proof door as in claim 1, wherein said frame circumscribes a receptacle subdivided into a plurality of box-like compartments for receiving mail and the like, a plurality of elongate subframe members extending between opposite sides of said frame and defining a plurality of openings each in registry with a respective one of said compartments, and a door and associated hinge bar is mounted to said subframe members in each opening to close each said opening and its associated compartment.

6. A tamper-proof door as in claim 5, wherein said hinge bar is substantially square in transverse cross section, and said fastening means extends forwardly through said frame from a rear surface thereof into said hinge bar.

7. A tamper-proof door as in claim 5, wherein said hinge bar includes a portion with a generally square transverse cross sectional shape and a flange projecting rearwardly from said first side surface thereof, said flange received in a complementary recess in the inner marginal surface of the frame, and said fastening means extended through said flange and into said frame.

8. A tamper-proof door as in claim 6, wherein said fastening means comprise screws.

9. A tamper-proof door as in claim 7, wherein said fastening means comprise screws.

10. A tamper-proof door as in claim 5, wherein the frame, subframe elements, and doors are pivotally movable as a unit about one side edge of said frame to simultaneously expose all of said compartments.

11. A tamper-proof door as in claim 10, wherein each compartment comprises walls perpindicular to the plane of the frame, said walls having front edge surfaces which abut the subframe members when the frame, subframe members and doors carried thereby are pivoted into closed position over said compartments.

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