May 26, 1970 H. J. POHL ET AL 3,513,862

TENT SCREEN DOOR

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FIG. 1

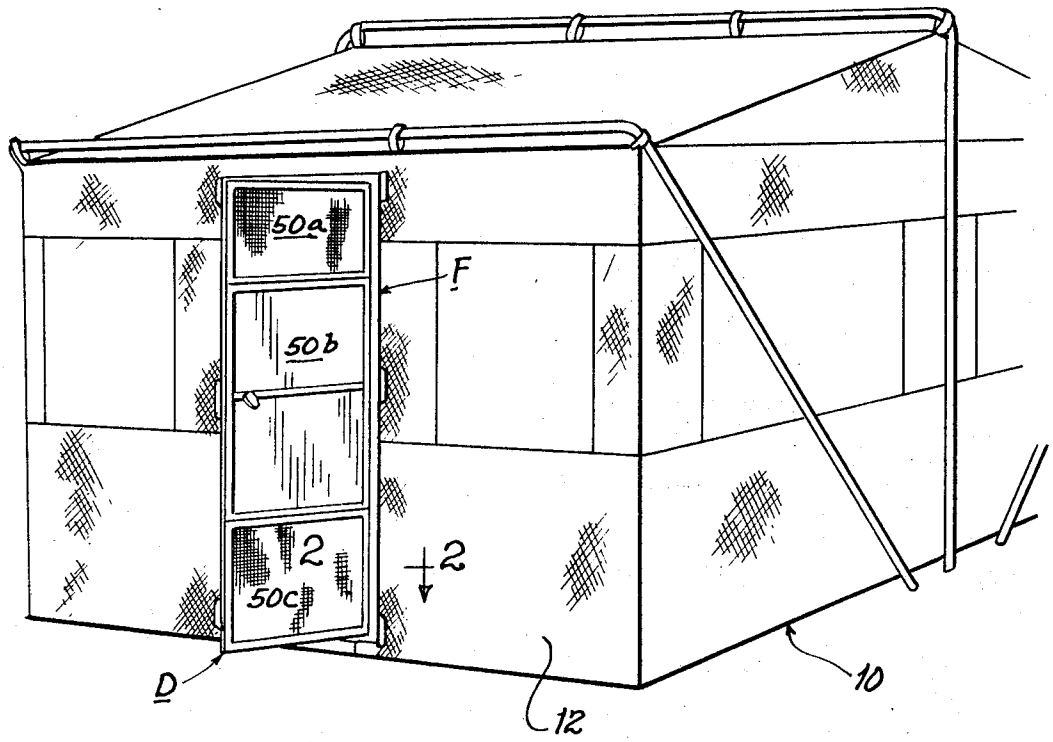
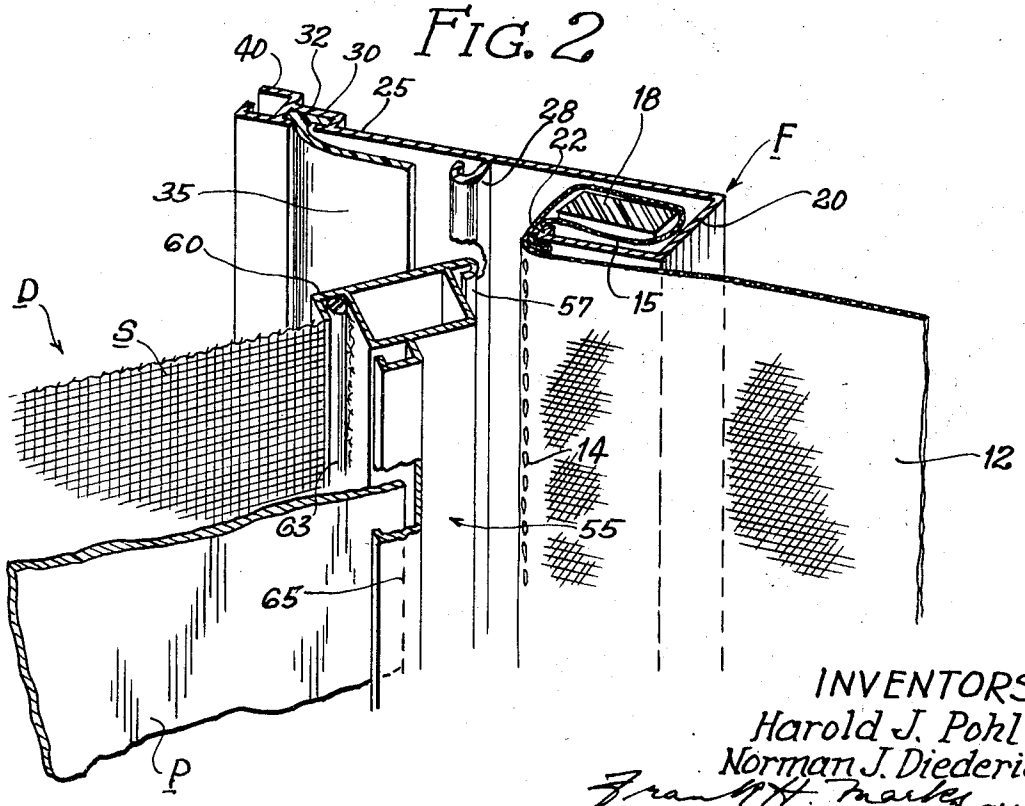


FIG. 2



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FIG. 3

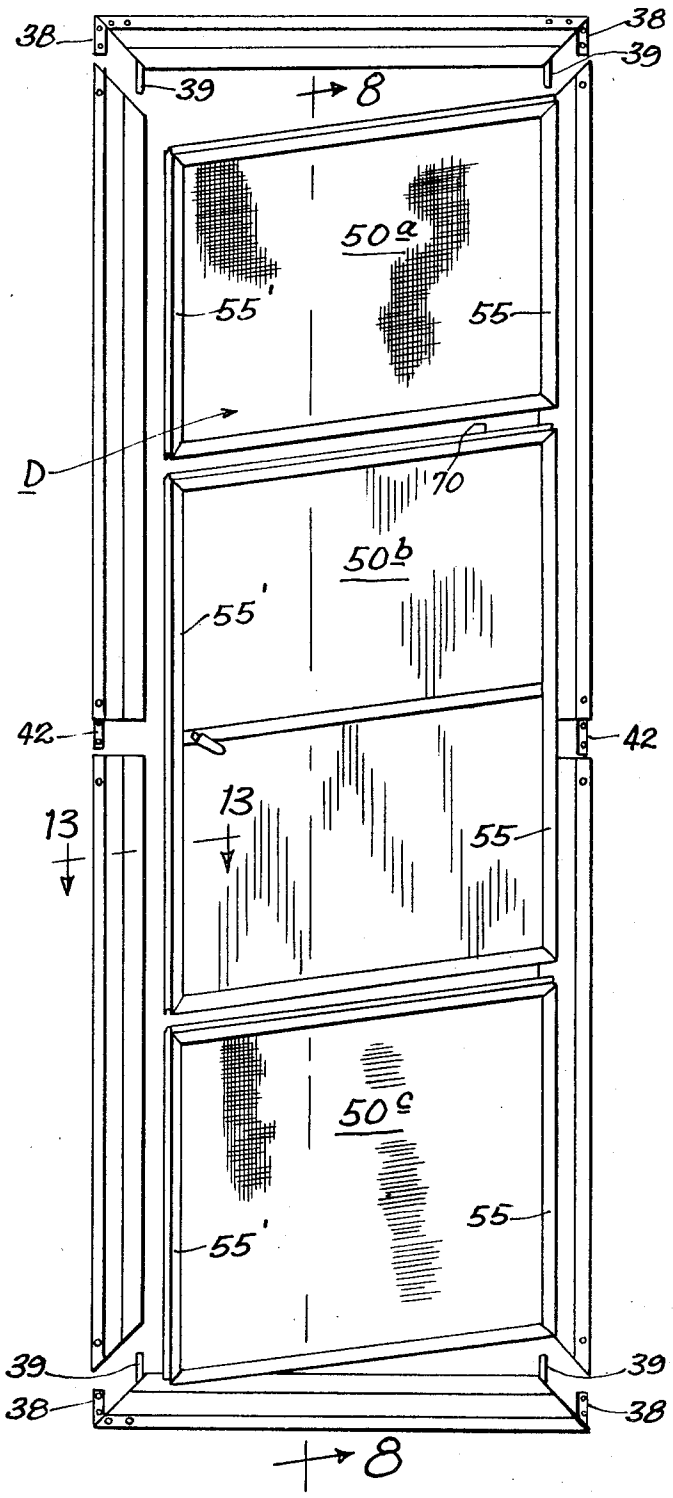


FIG. 4

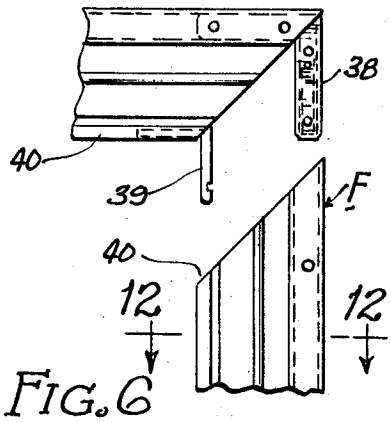


FIG. 6

FIG. 5

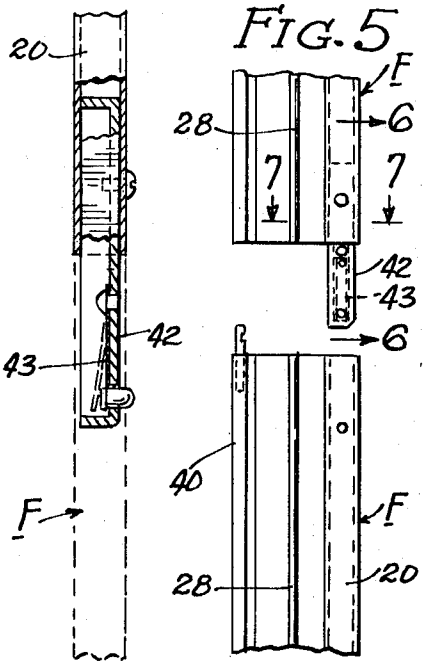
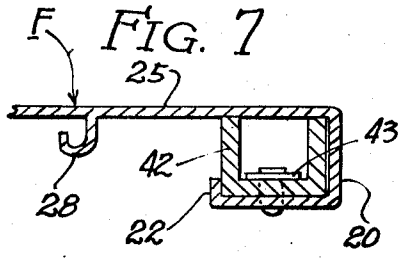


FIG. 7



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FIG. 8

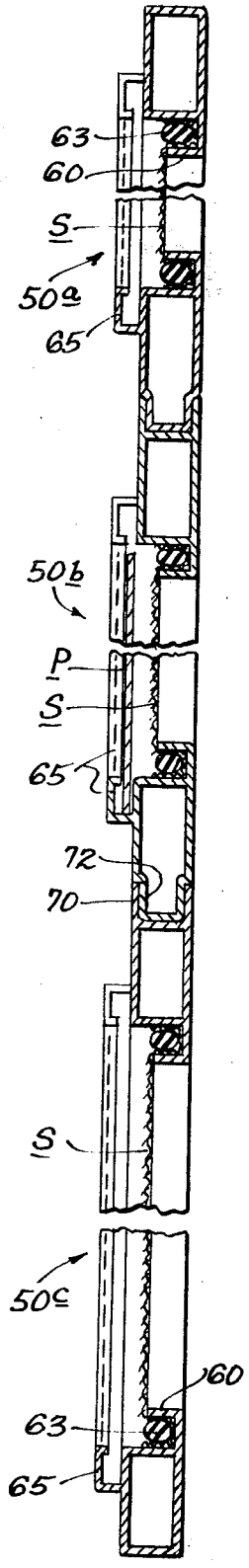


FIG. 9

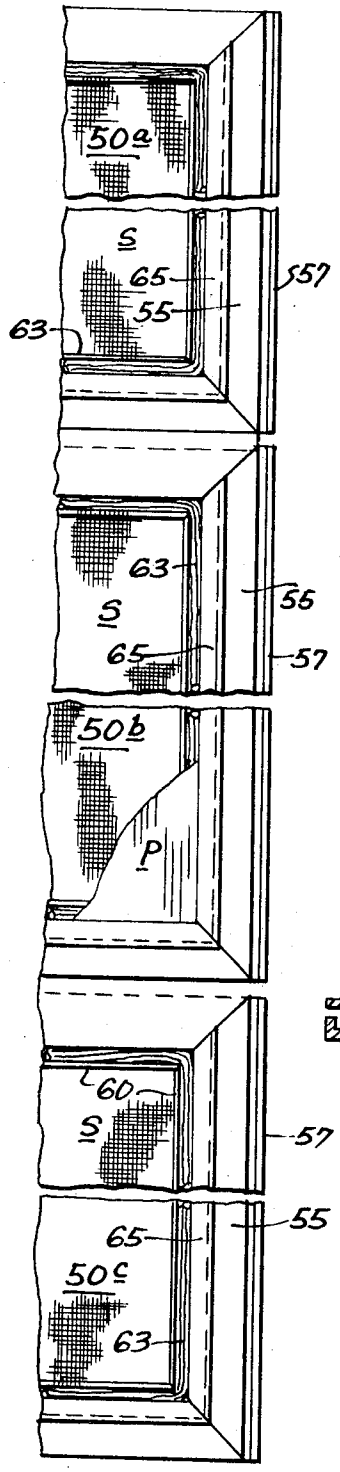


FIG. 10

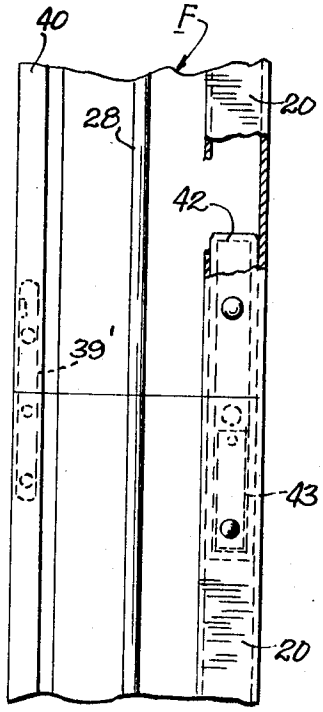


FIG. 11

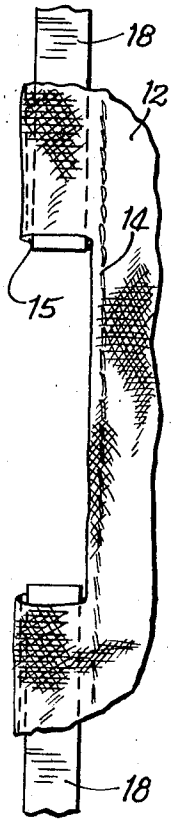


FIG. 12

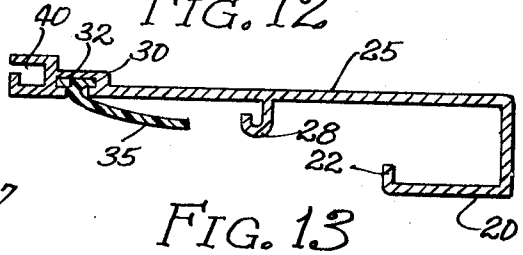
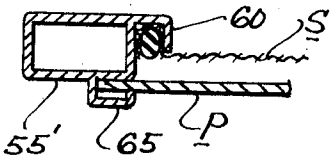


FIG. 13



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3,513,862

TENT SCREEN DOOR

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Int. Cl. A45f 1/08
U.S. Cl. 135—14 8 Claims

ABSTRACT OF THE DISCLOSURE

A knockdown rigid hinged door for a wall tent, comprising a stationary frame detachably connectable to a fabric wall of a tent and hingedly connected to a swingable door, both frame and door being of knockdown construction. The swingable door is formed in a plurality of separable sections each of which comprises a frame which may be provided with detachable screening and detachable weather-impermeable panels, as desired. The entire door assembly is designed to be set up and taken down quickly and, when knocked down, may be stored in a minimum of space.

Our invention has to do generally with the art of tentage and relates more particularly to doors for tents.

BACKGROUND OF THE INVENTION

The usual tent is provided with a door consisting of a fabric flap permanently attached as by stitching to the tent body, which may be closed when desired for privacy or to exclude insects and roving animals. The door may be partly of mesh screening to permit passage of air and light. Such an arrangement is entirely satisfactory for most purposes, especially for small tents and even for larger tents when it is to be set up for relatively short camping periods.

However, in the case of larger tent structures, and especially when it is intended to remain erected for a relatively long period, it is desirable that a closure of a more substantial character be provided. Such a feature is especially desirable when the tent is to be used by small children inclined frequently to run in and out, and is considered necessary or desirable to maintain a substantial bar against insects, etc.

BRIEF OUTLINE OF THE INVENTION

A particular object of our invention, therefore, is to provide a tent closure means of rugged and rigid construction, knockdown in character so as to be quickly and easily assembled to or disassembled from a "wall" type of tent structure, permitting convenient transportation and storage in a minimum of space.

Another object of our invention is to provide, in combination with a wall tent of generally standard type, consisting of a flexible fabric body supported by a collapsible frame, a closure in the nature of a door consisting essentially of a rigid frame and a rectangular door pivotally supported by said frame, said frame being of knockdown construction and arranged for quick and simple assembly with the tent fabric, so as to provide a substantial, weatherproof connection therewith, the door also being of knockdown construction and provided with screening and also removable paneling for protection against inclement weather.

Still another object is to provide novel hinge means between the door and frame, permitting quick assembly and detachability.

Another object is to provide a door of the character referred to which may be formed in a plurality of interfitting elements, whereby the structure may be knocked down into relatively small units for convenient transportation and storage in a relatively small space.

Still another object is to provide such a structure wherein the rigid parts are extrusions of light-weight and inexpensive metals, such as aluminum or magnesium, making for quick and convenient mass production at relatively low cost.

Various other objects and advantages will suggest themselves to those skilled in the art as the description proceeds.

BRIEF DESCRIPTION OF THE DRAWINGS

Referring now to the drawings forming a part of this specification and illustrating a preferred embodiment of our invention,

FIG. 1 is a perspective view illustrating one form of tent to which our invention is applicable, showing a door embodying our invention mounted therein;

FIG. 2 is a fragmentary cross section taken substantially along the line **2—2** of FIG. 1, partly in perspective, on an enlarged scale;

FIG. 3 is an exploded perspective-elevational view, on a reduced scale, of a door frame and door embodying our invention;

FIG. 4 is a fragmentary exploded elevation of a door frame corner portion, on an enlarged scale;

FIG. 5 is a similar elevational view of a mid-portion of the door frame;

FIG. 6 is a fragmentary longitudinal section taken substantially along the line **6—6** of FIG. 5;

FIG. 7 is a transverse sectional view taken substantially along the line **7—7** of FIG. 5;

FIG. 8 is a vertical sectional view taken substantially along the line **8—8** of FIG. 3;

FIG. 9 is a fragmentary exploded elevational view of a side portion of the door;

FIG. 10 is a fragmentary elevational view showing the door and frame connection;

FIG. 11 is a fragmentary elevational detail showing means for attachment of the tent fabric to the door frame;

FIG. 12 is a transverse sectional view substantially along line **12—12** of FIG. 4, and

FIG. 13 is a cross-section taken substantially along line **13—13** of FIG. 3.

DETAILED DESCRIPTION

Referring first to FIG. 1, numeral **10** refers generally to a tent of any suitable type to which our invention may be applied. Generally speaking, the invention is especially applicable to a so-called wall tent of fairly substantial proportions. Although, in the illustrated example, we have shown a tent having an outside frame from which the tent fabric is suspended, it will be understood that our invention is equally applicable to a construction wherein the tent fabric is supported over an inside frame. The walls of the tent may if desired be provided with one or more windows permitting passage of air and light.

Our invention is especially concerned with a novel type of door including a door frame F for which a suitable aperture is provided in one of the tent walls, in combination with a hinged door D.

The tent fabric **12**, such as waterproof canvas, duck, etc., is provided, as by stitching **14** or the like, with a hem **15** (FIG. 2) at the door opening to receive a reenforcing bar **18** formed of relatively stiff synthetic plastic material, aluminum, or other suitable material, whereby the tent fabric adjacent the door opening may conveniently be detachably secured to the door frame.

The door frame F, as contemplated by our invention, is most conveniently formed by extrusion of a suitable lightweight metal of the character of aluminum or magnesium. Said frame is formed at its outer extremity with

a three-sided rectangular channel portion **20** having a terminal inturned flange **22**.

As clearly seen in FIG. 2, after bar **18** has been inserted within the hem or pocket **15** provided in the margin of the tent fabric, said marginal portion may readily be inserted into the rectangular housing **20** formed on the ouside of frame member F, the lip **22** serving as a stop to prevent inadvertent separation of the frame from the tent fabric after the latter has been tightened up on the frame.

Adjacent channel-shaped marginal portion **20** of frame F is a substantially flat plate portion **25**, intermediate the ends of which is a longitudinally extending hook-like hinge member **28**, which might also be described as of J-formation in cross section, designed to interengage with a similarly formed hinge member on the movable door frame, as described herebelow.

Also formed on the frame F inwardly of J-shaped portion **28** is a channel portion **30** for seating a T-shaped head **32** formed on a flexible plastic strip **35** which serves as a bumper and for weather-proofing and bug-proofing the closure adjacent the door hinge. The arrangement just described extends around four sides of the frame, for inhibiting passage of wind, rain and insects.

The door frame F is formed in a plurality of metal extrusion sections, for economy and convenient transportation and storage. In the preferred embodiment shown, each side of the frame is formed in two sections, although there might be more or less; thus, with the top and bottom, there are six extrusions in this embodiment.

As seen best in FIGS. 2–7, the frame sections are provided with interengaging connecting elements at the corners and sides. Thus, at the corner, there is provided an angle bar **38**, also formed of light weight metal such as aluminum, said bar cooperating with the adjacent portions of the frame by means of interengaging spring-biased studs and sockets or apertures or the like, whereby these parts may readily be snapped into place and detached, as desired. Such mechanical expedients will, of course, be obvious to anyone skilled in the art. For furthering the security of the junctures of the frame portions, We provide at the corners an auxiliary connecting angle bar **39** seated in a channel portion **40** (FIG. 2) formed on the inner marginal portion of the frame, said bar **39** likewise being detachably secured.

Thus, the mitered corners of frame F are detachably joined or disconnected by means of angle members **38** and **39** for quickly setting up or knocking down the door frame.

Similar means for detachably joining the side frame sections is provided, as seen in FIG. 5, which may comprise a connecting bar **42** disposed in channel **20** with studs mounted on leaf spring **43**, said studs being engageable in sockets or apertures in the adjacent channel **20** of the frame. Also secured in channel portion **40** of one of the frame parts is auxiliary locking bar **39'** telescoping into the channel portion **40** of the adjacent frame part for added security.

Thus, in this embodiment, the two side sections are quickly, easily and securely connected and disconnected.

Swingable door D is formed in a plurality of separable elements or sections **50***a*, **50***b*, and **50***c*, although the number could be more or less. Each of said sections is rectangular, the top and bottom sections **50***a* and **50***c* being substantially identical in this embodiment, while center section **50***b* may be longer. It will be understood, of course, that the arrangement may be varied as desired as to the number, size and construction of the various panels or sections, the major consideration being that the parts are readily separable for convenient transportation and storage and designed for quick and easy assembly, mounting and demounting.

As seen best in FIGS. 8 and 9, the frame portion of the panels or sections **50***a*, **50***b* and **50***c* are likewise extrusions of aluminum or other suitable material, the side members being permanently secured to the top and bottom members. The side member **55** of each panel (FIG. 2), in cross section, comprises a closed rectangular portion a side of which is extended to provide a J-shaped hinge portion **57** designed to mate with hinge element **28** on door frame F. It will be seen that the panels by this arrangement can be readily hung on the frame to provide a door securely supported to swing on a vertical axis, in the embodiment shown.

Extending oppositely from hinge element **57** on side member **55** is an angular flange **60** forming a channel which serves as a seat to secure wire mesh screening S. The marginal portion of screening material S may be secured to an elongated rod-like member **63** formed of rubber, synthetic plastic or the like seating in channel **60** of extrusion member **55**.

Also formed integrally with member **55** is a channel portion **65**, which may serve to seat an imperforate panel P, which may be a sheet of aluminum, synthetic plastic, composition material, or other suitable stiff sheet material which may be seated in one or more of the panels when it is desired to exclude the wind, dust, etc.

Side member **55'** opposite member **55** is a generally similar extrusion except that it does not require and accordingly lacks a hinge element such as **57** provide on side member **55**.

The horizontal bars for the swingable door sections, which are permanently atached to the side bars just described, are seen best in section in FIG. 8. These members are likewise preferably formed as extrusions of aluminum or the like and may be generally similar to side bars **55** and **55'** in that they provide means for seating a screen section S, such means being essentially similar to that formed on the side members. Also provided is a flange such as **65** for seating an imperforate panel or plate, although such flange may be lacking on the top frame member, to permit insertion of the panel.

As seen in FIG. 8, suitable nesting means is provided on adjacent portions of the panels to insure a unitary door unit swingable as a unit. Any suitable mechanical dovetailing arrangement may be provided for this purpose. In the embodiment shown I provide simple male and female interengaging parts, such as a channel **70** on one horizontal extrusion member which receives in nested relation a snugly fitting bar portion **72** in the adjacent horizontal extrusion member of the adjacent section.

From the above it will be seen that we have provided an extremely simple and convenient arrangement for a door which may be mounted quickly and easily without tools and by a person lacking in mechanical skill, on a tent for permanent or semipermanent camping. The combined door and frame, while provided in a plurality of relatively small parts for convenient packing, storing and shipping, forms when erected an extremely firm and rugged construction which will withstand relatively hard usage for a protracted period of time.

Various changes coming within the spirit of my invention may suggest themselves to those skilled in the art; hence, we do not wish to be limited to the specific embodiments shown and described or uses mentioned, but intend the same to be merely exemplary, the scope of our invention being limited only by the appended claims.

We claim:

1. In combination with a tent having a wall portion of flexible fabric with a door opening therein, a relatively rigid closure arranged in said opening for pivotal movement, comprising

(a) a stationary sectional knock-down frame having means for detachable connection to adjacent fabric of the tent wall opening, and

(b) a door pivotally connected to said frame for swinging movement, said door comprising a plurality of panels interconnected to provide a rigid unitary door unit.

2. A combination as in claim 1, wherein said frame comprises a plurality of detachably connected sections to form the top, bottom and sides of the frame, each section having means for detachably securing an adjacent marginal portion of the tent fabric.

3. A combination as in claim 2 wherein

(a) the frame is formed of extrusions having formed on the outside thereof a longitudinal recess,

(b) the adjacent marginal portion of the tent fabric having a hem,

(c) a longitudinal stiffener disposed in said hem,

(d) the hem and stiffener being securely seated in said recess.

4. A combination as in claim 1, wherein

(a) each of said door panels comprises a rectangular frame having side members and horizontal members, one side member of each panel having hinge means cooperating with a side portion of said frame,

(b) adjacent horizontal members of said panels having interengaging elements, whereby said panels interlock to constitute a rigid unitary door.

5. A combination as in claim 4, wherein each of said panels has means for detachably seating a planar element for restricting passage through the panel.

6. A combination as in claim 5, wherein said planar element is a mesh screen,

(a) a longitudinal stiffener being attached to marginal portions of said screen,

(b) said panel having means for detachably seating said stiffener.

7. A combination as in claim 1, wherein

(a) said frame comprises a top section, a bottom section, and a plurality of interconnected sections on each side,

(b) all of said sections being extrusions having longitudinal recesses,

(c) and means for detachably securing said sections together comprising elements normally disposed in said recesses when the frame is assembled.

8. A combination as in claim 1, wherein said frame and door have interengaging hook-formed hinge-members.

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PETER M. CAUN, Primary Examiner

U.S. Cl. X.R.

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