

Aug. 27, 1946.

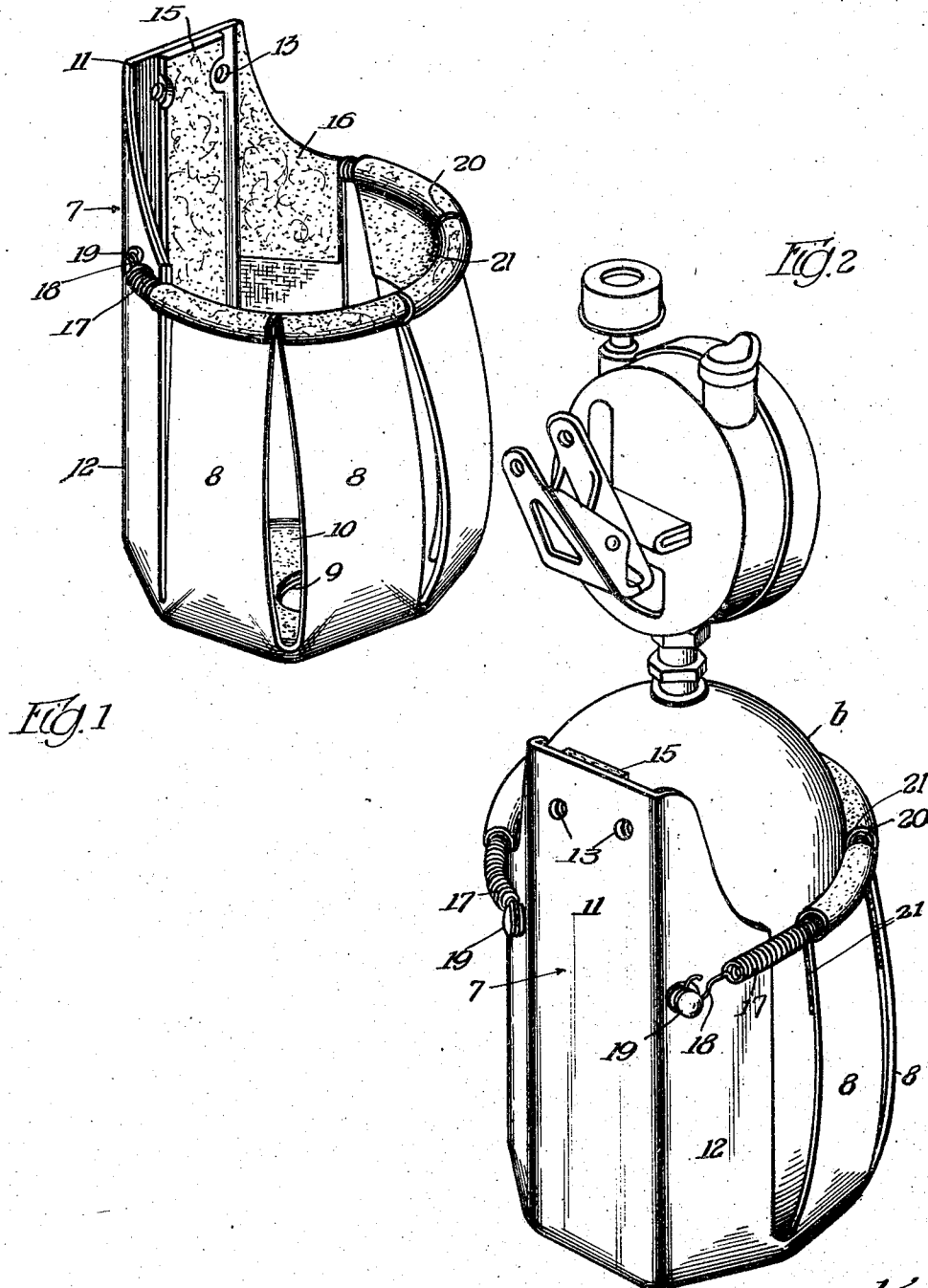
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2,406,334

BRACKET FOR SUPPORTING AN OXYGEN BOTTLE OR THE LIKE

Filed June 21, 1944

2 Sheets-Sheet 1



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Fig. 3

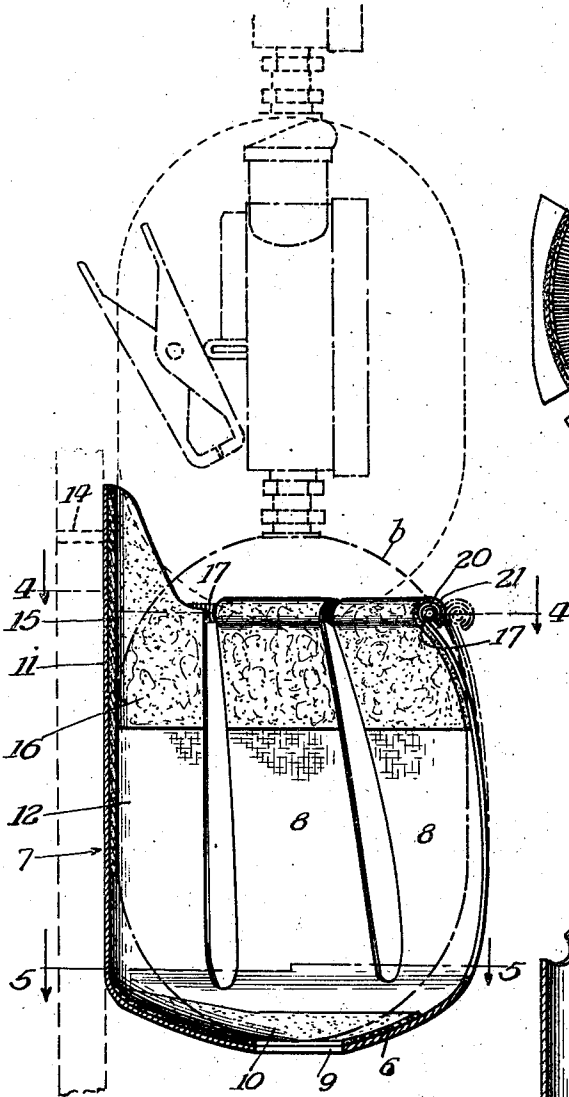


Fig. 4

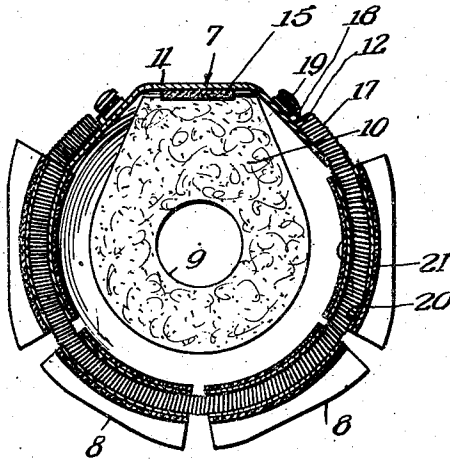
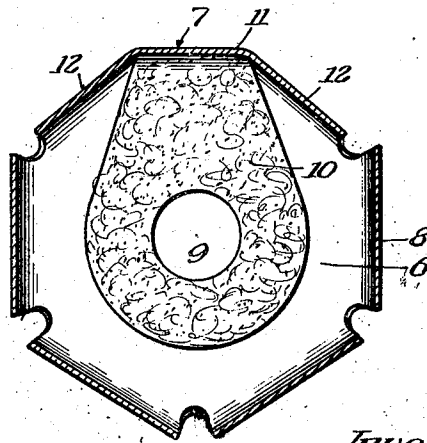


Fig. 5



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UNITED STATES PATENT OFFICE

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BRACKET FOR SUPPORTING OXYGEN
BOTTLES OR THE LIKE

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The present invention relates generally to brackets. More particularly the invention relates to that type of bracket which is adapted to be attached to a wall or panel and serves as a medium or instrumentality for releasably supporting a frequently used article.

One object of the invention is to provide a bracket of this type which is adapted for use in an airplane or other vehicle and is primarily designed and constructed to support a container of the bottle variety such, for example as a portable bottle for supplying oxygen to one of the occupants of the airplane while the airplane is traveling at a high altitude where rarified atmosphere is encountered.

Another object of the invention is to provide a bracket of the last mentioned character which is in the form of a receptacle having an open mouth at the top thereof and has flexible laterally spaced side segments which are shaped conformably to the curved side portion of the oxygen bottle and are adapted when the bottle is in supported relation with the bracket to grip the bottle in such a snug or tight manner that it is not subject to vibration, and in addition cannot be accidentally displaced relatively to the bracket in connection with vertical acceleration of the airplane with which the bracket is employed.

Another object of the invention is to provide a bracket of the type and character last mentioned in which the upper ends of the side segments have a coil or helical tension spring therearound and form therewith a yielding mouth which permits the oxygen bottle to be readily inserted into, and removed from, the bracket.

A further object of the invention is to provide a bracket of the last mentioned character in which the upper ends of the flexible side segments are bent outwards, downwards and inwards to form tubular lips which extend around, and serve to hold in place, the coil or helical tension spring.

A still further object of the invention is to provide an oxygen bottle supporting bracket which is generally of new and improved construction, effectively and efficiently fulfills its intended purpose and is characterized by the fact that it is light in weight and may be produced at an extremely low cost.

Other objects of the invention and the various advantages and characteristics of the present bracket will be apparent from a consideration of the following detailed description.

The invention consists in the several novel

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features which are hereinafter set forth and are more particularly defined by claims at the conclusion hereof.

In the drawings which accompany and form a part of this specification or disclosure and in which like numerals of reference denote corresponding parts throughout the several views:

Figure 1 is a front perspective view of a receptacle type bracket embodying the invention;

Figure 2 is a rear perspective view of the bracket showing an oxygen bottle in place in the bracket;

Figure 3 is a vertical longitudinal section of the bracket;

Figure 4 is a transverse horizontal section taken on the line 4—4 of Figure 3 and illustrating in detail the construction and arrangement of the coil tension spring which serves in conjunction with the upper ends of said segments to form a yieldable restricted entrance mouth at the top of the receptacle type bracket; and

Figure 5 is a transverse horizontal section taken on the line 5—5 of Figure 3 and showing the shape or design of the lower ends of the side segments at the point where they join the bracket bottom.

The bracket which is shown in the drawings constitutes the preferred form or embodiment of the invention. It is of the so-called receptacle type or variety, comprises a bottom part 6, an upstanding back part 7, and a plurality of upstanding laterally spaced side segments 8, and is primarily designed and adapted releasably or removably to support a portable bottle *b* for supplying oxygen to one of the occupants of an airplane travelling at a high altitude or elevation. The bottle *b* is of conventional or standard design and has hemispherical upper and lower ends together with a valve structure for supplying oxygen from its interior to an oxygen mask (not shown). It is contemplated that the bracket will be attached to one of the interior walls or panels of the airplane at a point immediately adjacent one of the permanent or temporary seats or stations for the airplane occupants. It is further contemplated that the oxygen bottle will be inserted into the bracket and supported thereby when the bottle user occupies the station adjacent which the bracket is disposed.

The bottom part 6, the back part 7 and the side segments 8 of the bracket are preferably formed of comparatively thick cotton or other fabric which is impregnated under heat and pressure with Bakelite or any other suitable "plastic" type material having a limited degree of flexibility.

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Because of the type of material of which they are formed the bottom part, back part and side segments are comparatively stiff and hence retain their normal or predetermined shape. The bottom part 6 is dished or downwardly bulged in conformity with the hemispherical lower end of the oxygen bottle b. It embodies in the central portion thereof a comparatively large circular hole 9 and is adapted when the bracket is in use to assume a substantially horizontal position. The hole 9 has a twofold purpose in that it prevents accumulation of foreign matter in the bottom part and also permits the user of the bracket to insert his or her finger upwards through said bottom part in connection with removal of the oxygen bottle from the bracket. A pad 10 of felt or other soft material is glued or otherwise fixedly secured to the upper face of the bottom part 6 and serves as a cushion for the lower end of the oxygen bottle when the bottle is in place in the bracket. As shown in the drawings, the pad 10 is provided with a central hole which is the same in size as, and registers with, the hole 9 in the bottom part 6 of the bracket.

The back part 7 of the bracket extends upwards from, and is formed integrally with, the rear marginal portion of the bottom part 6 and consists of a flat intermediate portion 11 and a pair of flat side portions 12. The side portions of the back part are joined to, and extend forwards and outwards from, the side margins of the intermediate portion 11. The latter portion, i. e., the intermediate portion 11 is adapted to fit flatly against the wall or panel to which the bracket as a whole is attached, and has at its upper end a pair of side by side apertures 13 through which a pair of attaching screws 14 may be inserted. In attaching the bracket the screws 14 are inserted through the apertures 13 and are then driven into the wall or panel of the airplane. When the screws are in place they hold the bracket in a fixed position.

The intermediate portion 11 of the bracket back part 7 has glued or otherwise fixedly secured to the front face thereof a longitudinally extending strip 15. The upper ends of the side portions 12 of the back part 7 have glued or otherwise fixedly secured to their inner faces longitudinally extending strips 16. Such strips 15 and 16 are formed of felt or like material having a low coefficient of friction and serve to permit the oxygen bottle to be slid readily into and out of the bracket. Preferably the upper front corners of said side portions 12 of the bracket back part 7 are cut away so as to facilitate insertion of the bottle into the bracket. The felt strip 15 is preferably of greater thickness than the strips 16 and is of such thickness that it covers the heads of the attaching screws 14.

The upstanding side segments 8 of the bracket are spaced laterally apart and, as best shown in Figures 4 and 5, are arranged in an arcuate series. They are preferably four in number and have the lower or root ends thereof formed integrally with the side and front marginal portions of the bracket bottom part 6. As shown in Figure 5 the lower or root ends of the segments 8 are straight at the point where they join the bottom part in order that the side segments are permitted to flex inwards and outwards without appreciable likelihood of fracture at their points of juncture with the bottom part. The side segments 8 are outwardly bulged in a lengthwise direction and are transversely curved except at their lower ends where, as previously pointed out,

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they are straight or flat and join the subjacent marginal portions of the bracket bottom part 6. The upper ends of the side segments extend inwards and in conjunction with a coil or helical tension spring 17 form a yieldable restricted entrance mouth at the top of the receptacle type bracket. Such mouth is of less thickness than the diameter of the central portion of the oxygen bottle. The height of the side segments 8 is such that when the bottle is in place in the bracket the restricted entrance mouth at the top of the bracket extends around the central portion of the upper hemispherical end of the bottle, as shown in Figure 1. The spring 17 is arranged in the form of an arc and surrounds the upper ends of the side segments 8. The ends of the spring are provided with circular loops 18 and these are detachably connected to externally disposed hooks 19 on the upper ends of the side portions 12 of the bracket back part 7. The upper extremities of the side segments 8 are bent outwards, downwards and slightly inwards in order to form outwardly disposed tubular lips 20 which surround and serve to hold in place the adjacent portions of the spring 17. When the oxygen bottle is inserted part way into the receptacle type bracket the spring 17 permits the upper ends of the side segments 8 of the bracket to flex or expand outwards in order to accommodate the bottle. As soon as the bottle is shifted further downwards so that the lower end thereof is in abutment with the bracket bottom part 6 the spring 17 contracts and swings or flexes inwards the upper ends of the side segments 8 until they are in gripping relation with the central portion of the upper end of the bottle. When the bottle is in place in the receptacle type bracket it is tightly and snugly gripped or confined by the side segments 8 and hence not subject to vibration due to looseness. By reason of the fact that the mouth at the top of the bracket is yieldable and of the restricted entrance variety the bottle when in place in the bracket is not likely to be accidentally displaced in connection with vertical acceleration of the airplane with which the bracket is employed. The upper ends of the side segments have glued or otherwise secured to their inner faces strips 21 of felt or like material in order to permit the bottle to be slid readily into and out of place with respect to the bracket. The upper ends of the strips 21 extend around the lip defining upper extremities of the segments 8. The spring 17 is of such length that the convolutions thereof abut against one another after the spring has urged inwards the side segments 8 to a limited extent directly following removal of the oxygen bottle b from the bracket. As the result of this spring arrangement the mouth of the bracket does not contract to such a great extent as to preclude easy insertion of the bottle into the bracket. As previously pointed out the spring serves after full or complete insertion of the bottle into the bracket so to contract the upper ends of the side segments 8 that they firmly grip the central portion of the upper or hemispherical end of the bottle and thus hold the bottle in place in the bracket.

In fabricating the bracket the bottom part 6, the side parts 7 and the side segments 8, before application of the felt strips and the spring, are molded to the proper shape by way of a suitably shaped die (not shown). By utilizing a suitable die the side segments may be so shaped that the lower ends thereof have the desired straightness or flatness at their points of juncture with the

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adjacent portions of the dished or downwardly bulged bottom part 6. When the molding operation is completed the back part 7, due to its cross sectional design, is substantially rigid and the side segments, due to their shape and design, are flexible inwards and outwards to a limited extent. At the conclusion of initial shaping the upper extremities of the side segments are bent so as to form the tubular lips 20. Thereafter the felt strips 15, 16 and 21 are glued or otherwise secured in place. After mounting of the felt strips the spring 17 is threaded through the tubular lips 20 and then the loops 18 at the ends thereof are mounted on the hooks 19 at the upper ends of the side portions 12 of the back part 7.

The herein described receptacle type bracket is essentially simple in design and hence may be produced at an extremely low cost. It effectively and efficiently fulfills its intended purpose and is light in weight. Because of the arrangement and design of the side segments 8 of the bracket the oxygen bottle 5 may be readily inserted into place even though it is roughly handled and is not inserted truly perpendicularly to the top of the bracket. By reason of the fact that the bracket includes the spring 17 the bottle is tightly held in place and when in place in the bracket may be withdrawn from the bracket by exerting but a comparatively small amount of upward pressure.

It is contemplated that the bracket will be used with like brackets in the interior of an airplane and that the brackets will be positioned adjacent the temporary and permanent positions of the crew and other occupants of the airplane and the crew and occupants will each be supplied with an oxygen bottle prior to ascension of the airplane. The bottles will be employed when the airplane reaches such a high altitude that rarified atmosphere is encountered. When the bottles are in use they will be placed in, and supported by, the brackets. When a member of the crew or an occupant of the airplane desires to go from one station to another in the airplane he or she will withdraw his or her bottle from the bracket in which it is supported and then after reaching the other station in the airplane will insert it in the bracket that is there disposed. Because of the specific design, shape and construction of the present bracket an oxygen bottle, as hereinbefore pointed out, may be inserted into the bracket and removed from the bracket with facility.

Whereas the receptacle type bracket has been described as being primarily adapted for use in an airplane to support an oxygen bottle it is to be understood that it may be used in other locations and to support other articles. It is also to be understood that the invention is not to be restricted to the details set forth since these may be modified within the scope of the appended claims without departing from the spirit and scope of the invention.

Having thus described the invention what we

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claim as new and desire to secure by Letters Patent is:

1. As a new article of manufacture, a bracket designed releasably to support a container having substantially hemispherical upper and lower ends and comprising an upstanding substantially rigid back part adapted to fit against and be connected to a supporting structure, a substantially rigid dished or downwardly bulged bottom part connected to, and projecting forwards from, the lower end of the back part, a plurality of laterally spaced upstanding and comparatively thin side segments formed of such comparatively stiff material that they tend to retain a predetermined shape, arranged in an arcuate series in front of the back part and so as to define with the latter and the bottom part an open top receptacle for snugly receiving and supporting the container, bulged or curved outwards longitudinally and transversely thereof, having the lower extremities thereof substantially straight or flat and joined to the subjacent marginal portions of the bottom part and their upper extremities extending outwards, downwards and inwards to form tubular open ended lips, and adapted to flex inwards and outwards, and an elongated elastic element extending through the lips, having the ends thereof connected to the upper end of the back part, and serving to urge said side segments inwards.

2. As a new article of manufacture, a bracket designed releasably to support a container having substantially hemispherical upper and lower ends, and comprising an elongated upstanding substantially rigid back part consisting of a flat intermediate portion adapted to fit flatly against and be connected to a supporting structure and a pair of forwardly and outwardly extending flat side portions connected to the side margins of the intermediate portion, a substantially rigid horizontally disposed downwardly bulged bottom having the rear portion of the margin thereof connected to the lower ends of the intermediate and side portions of the back part, a plurality of comparatively thin laterally spaced upstanding side segments formed of such comparatively stiff material that they tend to retain a predetermined shape, arranged in an arcuate series in front of the back part and so as to define with the latter and the bottom part an open top receptacle for snugly receiving and supporting the container, bowed outwards longitudinally and transversely thereof, having the lower extremities thereof substantially straight and joined to the subjacent portions of the margin of the bottom part and their upper extremities extending outwards, downwards and inwards to form tubular open ended lips, and adapted to flex bodily inwards and outwards, and a coil variety tension spring extending through the lips, having the ends thereof connected to the upper ends of the side portions of the bracket part, and serving yieldingly to urge said side segments inwards.

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