Feb. 8, 1966 C. C. GRAY 3,233,803

COMBINED TAKEDOWN PACKBOARD AND EXPANSIBLE PACKSACK

Filed Aug. 15, 1963 3 Sheets-Sheet 1

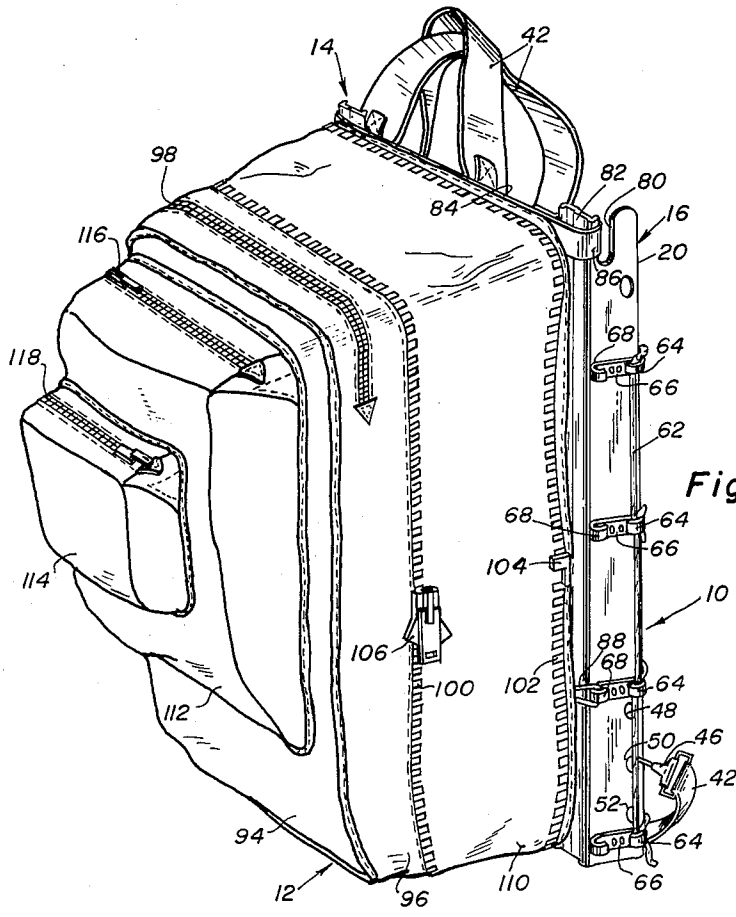


Fig. 1

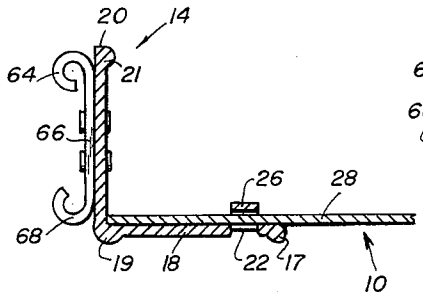


Fig. 6

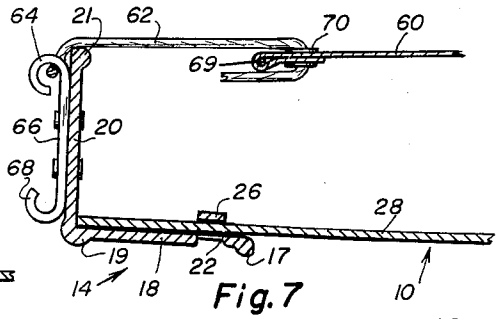


Fig. 7

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COMBINED TAKEDOWN PACKBOARD AND EXPANSIBLE PACKSACK

Filed Aug. 15, 1963 3 Sheets-Sheet 2

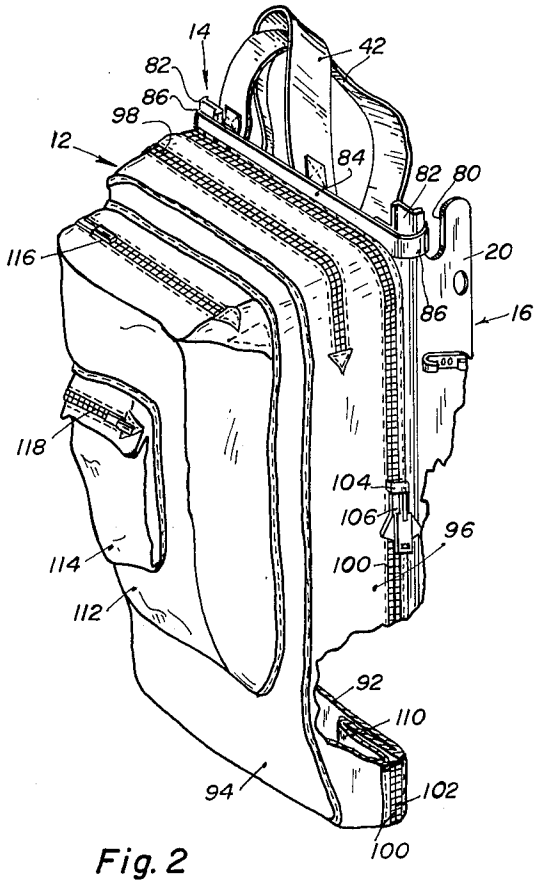


Fig. 2

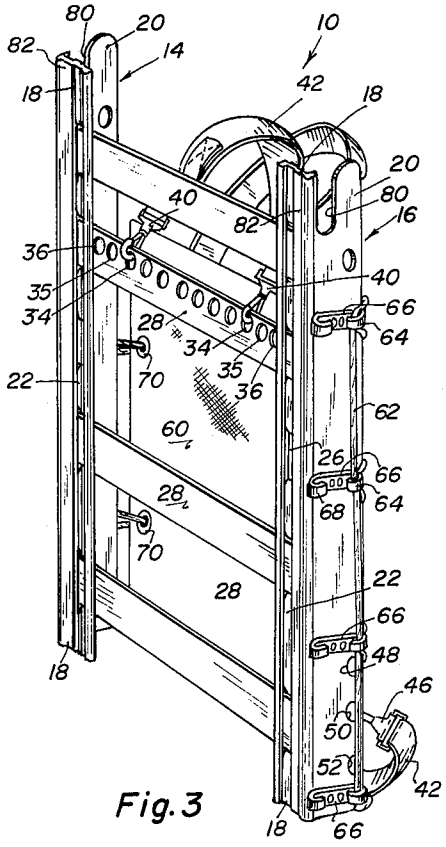


Fig. 3

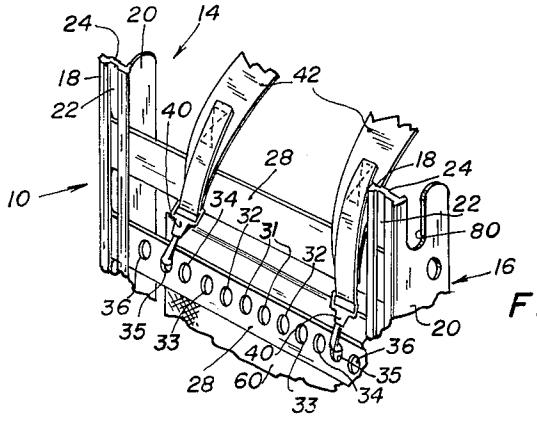


Fig. 8

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COMBINED TAKEDOWN PACKBOARD AND EXPANSIBLE PACKSACK

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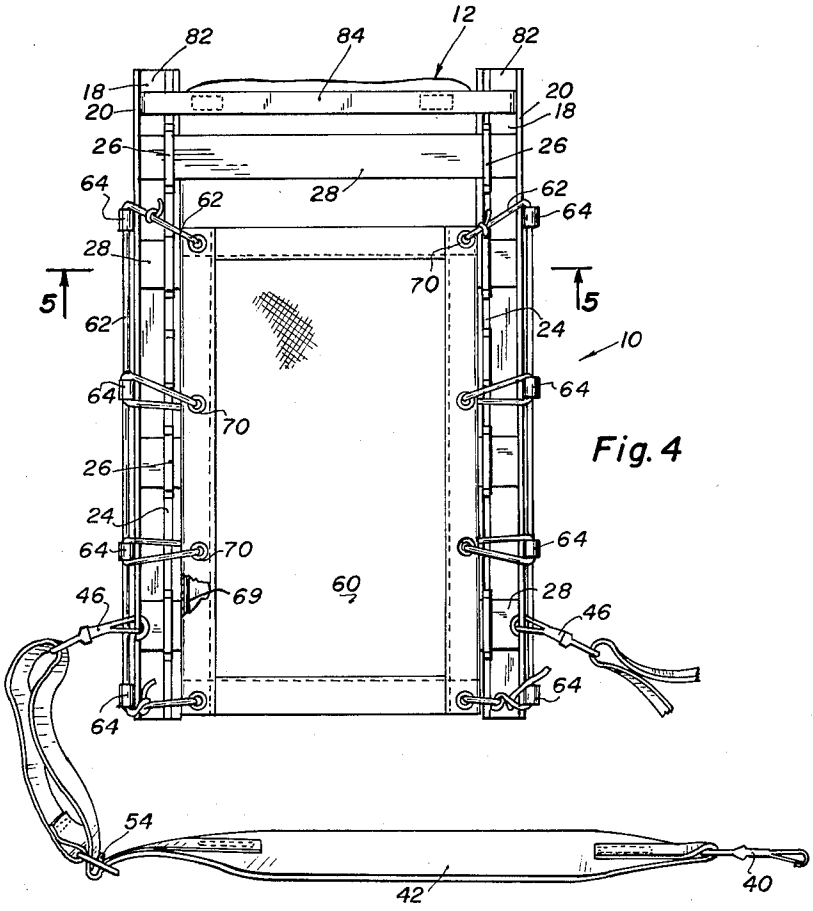


Fig. 4

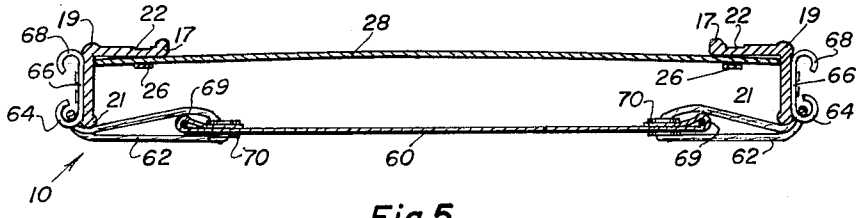


Fig. 5

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COMBINED TAKEDOWN PACKBOARD AND EXPANSIBLE PACKSACK

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Filed Aug. 15, 1963, Ser. No. 302,344
8 Claims. (Cl. 224—8)

This invention relates to a combined takedown packboard and expansible packsack, and more particularly to a lightweight, rugged, takedown packboard and a packsack therefor.

There has been a great need for a strong, rugged, lightweight packboard which may be taken down and compacted. Takedown packboards have been known in the past, but they have not been satisfactory because they have not been sufficiently rugged and durable to withstand hard usage, and they have not been light in weight. They also have been difficult and expensive to make, and have been complex in structure, which aggravated these problems. It would be desirable to provide a simple, rugged, lightweight, easily made packboard. It also would be desirable to provide a packsack which is expansible.

An object of the invention is to provide a new and improved takedown packboard and expansible packsack.

Another object of the invention is to provide a packboard in which a plurality of lightweight cross-members are locked together by a saddle and are bowed away from the saddle by pulling the side members toward one another.

A further object of the invention is to provide a packboard having a pair of angle side members having a plurality of pairs of means for retaining the end portions of slats against movement away from the bases of the angle members while permitting endwise movement of the slats away from the angle members, together with a saddle secured under tension to the free ends of the flanges of the angle members to flex the slats and bow them away from the saddle.

Yet another object of the invention is to provide a takedown packboard which is formed substantially completely from extruded aluminum elements.

Another object of the invention is to provide a packboard frame having side members provided with notches at the upper ends thereof for receiving loops of a strap supporting a packsack on the packboard.

Yet another object of the invention is to provide a packboard frame having a pair of angle members having bases provided with ribs rushed up out of the plane of the bases with portions of the ribs sheared from the bases to form loops extending beyond one face of each of the bases for receiving slidably therein slats.

Still another object of the invention is to provide a packboard frame having a pair of side members provided with flanges together with lashing strips secured in pairs to the outsides of the flanges and provided with hook portions at the ends thereof for lashings.

A still further object of the invention is to provide a packsack having a front panel and a rear panel, together with an expansible pleat connecting the front panel and the rear panel.

The invention provides a takedown packboard including a plurality of slats, a pair of side members having portions interlocking with the end portions of the strips, together with a saddle secured under tension to such portions of the side members spaced laterally away from the strips as to bind the side members to the slats. Preferably one of the slats positioned near the upper end of the packboard has a plurality of pairs of holes spaced therealong adapted to be selectively secured to snap

hooks fixed to the upper ends. of shoulder straps. Also, the slats are preferably interchangeable and are adjustable up and down the side members and may be secured in selected receiving and intorlocking portions in the side members. In a packboard forming one specific embodiment of the invention, the side members are composed of extruded aluminum angle members having base portions provided with ribs extending therealong spaced from flanges of the angle members, with portions of the ribs punched out and formed into loops spaced away from the inner faces of the bases, and the slats fit loosely and slidably through the loops with the ends thereof abutting the flanges of the angle members, a saddle being lashed at opposite side edges thereof to hooks on the outer edges of the flanges to tend to turn the angle members about their longitudinal axes and bind the angle members to the slats. Preferably the angle members have upwardly facing notches formed at the upper ends thereof for receiving loops in a strap secured to a packsack, which preferably is selectively usable in a compressed condition in which a pair of zipper elements secured respectively to a back panel and a front panel thereof are secured together, and an expanded condition in which the zipper elements are unlocked from each other, and a flexible strip of substantially greater width than that of the combined width of the zipper elements secures the panels together in expanded positions.

A complete understanding of the invention may be obtained from the following detailed description of a combined takedown packboard and collapsible packsack forming a specific embodiment thereof, when read in conjunction with the appended drawings, in which:

FIG. 1 is a perspective view of a combined takedown packboard and collapsible packsack forming one embodiment of the invention;

FIG. 2 is a view similar to FIG. 1 but with the packsack in a flattened or collapsed condition;

FIG. 3 is a perspective view of the packboard of FIG. 1;

FIG. 4 is a front elevation view of the packboard of FIG. 1;

FIG. 5 is an enlarged, horizontal section taken along line 5—5 of FIG. 4;

FIGS. 6 and 7 are similar, enlarged, fragmentary, horizontal sections of a portion of the packboard of FIG. 1 with corresponding elements in different conditions; and

FIG. 8 is a fragmentary, perspective view of the packboard of FIG. 1.

Referring now in detail to the drawings, there is shown therein a combined takedown packboard **10** and a collapsible packsack **12** forming a specific embodiment of the invention and forming a combined pack unit. The packboard **10** includes a pair of allochiral side angle members **14** and **16** composed of extruded aluminum or other suitable lightweight metal having bases **18** and flanges **20**. The angle members have rounded beads **17**, **19** and **21**. The bases **18** are provided with offset grooves **22** and ribs or ridges **24** from which, as spaced portions along the angle members on bases **18**, are punched shallow loops or straps **26** for retaining strips or slat **28** and permitting the ends of the slats **28** to slide freely therethrough. At least one of the slats **28** positioned either in the uppermost pair of aligned loops **26** of the angle members **14** and **16** or in one of the two pairs of loops therebelow, is provided with pairs of holes **31** to **36** to which a pair of snaps **40** fixed to the upper ends of straps **42** may be selectively secured. If desired, both the upper slats **28** may be provided with the holes **31** to **36** therein for connecting the upper ends of the straps selectively thereto. Also, the straps may be secured to the slat **28** just below the uppermost slat and may extend directly to the shoulders of the user, the straps crossing over as they so extend, or the

straps may be positioned as illustrated in FIG. 8 with the snaps 40 secured to the next to the top slat 28 and extending back of the uppermost slat 28 and then cross over and pass over the tops of the shoulders of the user to avoid any necessity of a head strap. The lower ends of the straps 42 are provided with snaps 46 which may be positioned selectively in holes 48, 50 and 52 spaced along the lower portions of the flanges 20 of the angle members 14 and 16. The lower ends of the straps 42 also have length-adjusting buckles 54 (FIG. 4) of a known type.

The ends of the slats 28 are square and abut the inside faces of the flanges 20 (FIGS. 4 to 7) at the corners formed by the flanges 20 and the bases 18 of the angle members 14 and 16, and the outer or free edges of the flanges 14 are pulled toward one another by a canvas saddle 60 having side edge stays 69 and a pair of lacings 62 which hook under eyes or hooks 64 of straps 66 riveted to the outside faces of the flanges 20. The straps 66 also have hooks 68 positioned at the other ends thereof for securing lashings strapping loads onto the packboard. The lashings 62 are secured at the lower ends thereof to the lowermost hooks 64, pass through grommet 70 in the canvas saddle 60, back to the lowermost hooks 64, then to the next hook 64, to the next grommet and back to that same hook, and so on, to the uppermost hooks 64 to which the lashings are secured. The lashings 62 are under tension and tension the saddle 60 so that the outer, or forward, ends of the flanges 20 are pulled toward each other and turn to the extent permitted by the slats 28 to move the loops 26 tightly against the slats 28 and to compress the slats 28 somewhat along the longitudinal axes of the slats. This causes the slats to bow outwardly slightly relative to the saddle 60 and also to press hard against the flanges 20 to secure the slats and the angle members 14 and 16 rigidly against movement relative to each other. This makes the packboard very rigid. The lashings 62 are free to slide in the grommets 70 and in the hooks 64 so that the saddle 60, which lies against the back of the user of the packboard, will conform to the shape of the back of the user automatically. This gives maximum comfort to the user.

At the upper ends of the angle members 14 and 16, as viewed in FIGS. 1 and 2, there are provided upwardly facing U-shaped notches 80. This leaves binding post portions 82 formed by the upper ends of the bases 18. The packsack 12 has a flexible strap 84 stitched to the back face thereof. The strap 84 is provided with loops 86 at the ends thereof which fit over the post portions 82 and into the notches 80 to secure the packsack 12 to the packboard. The packsack 12 also has two, lower positioned, flexible loops 88 which hook over a lower pair of hooks 68 to secure the lower portion of the packsack 12 to the packboard.

The packsack 12 is provided with a canvas back panel 92, a canvas front panel 94 and a continuous side panel 96 having a zipper opening 98 therein at the top thereof. The packsack is expandable from a thin condition, as illustrated in FIG. 2, in which zipper elements 100 and 102, secured respectively to an intermediated portion of the side panel 96 and the edge of the back panel 92, extend completely around the side panel 96. The zipper element 100 is provided with a stop portion 104 and a known zipper slide or connector 106. Extending between the two zipper elements 100 and 102 is a continuous pleat or gusset 110 which is folded when the zipper elements 100 and 102 are secured together by the slide 106 and stop 104, as illustrated in FIG. 2. In this condition the packsack is rather shallow or thin. However, when the slide 106 is actuated to separate the zipper elements 100 and 102 completely, the pleat 110 unfolds, and the packsack is quite deep, as illustrated in FIG. 1. The packsack also includes pockets 112 and 114 having zipper openings 116 and 118 therein.

The above described packing unit is very lightweight, while being very strong and rigid, and also is rugged.

The construction thereof is very simple and requires a minimum of fabrication effort. Obviously, the packboard may be used with the packsack or, if desired, the packsack may be removed and loads lashed conveniently to the packboard, or loads may be lashed to the packsack and packboard while retaining the packsack on the packboard. The lashings 62 may be detached from the side angle members 14 and 16, the side members removed from the slats 28, and the side angle members and the slats be positioned parallelly together to form a very compact unit for storage, which unit may be carried is a small tubular bag (not shown). Takedown and reassembly is simple and rapid.

It is to be understood that the above-described arrangements are simply illustrative of the application of the principles of the invention. Numerous other arrangements may be readily devised by those skilled in the art which will embody the principles of the invention and fall within the spirit and scope thereof.

What is claimed is:

1. In a packboard,
a plurality of normally straight, flexible slats,
a pair of side members,
the slats and the side members having releasable interlocking portions restraining lateral movement and longitudinal movement of the end portions of the slats relative to the side members,
and a back-engaging saddle secured under tension to such portions of the side members spaced laterally away from the slats so as to flex the slats away from the saddle and bind the side members to the slats.

2. In a packboard,
a pair of angle members positioned generally parallel and having bases lying substantially in a single plane and also having flanges projecting from the same side of each base,
a plurality of cross slats,
the bases of the angle members and the end portions of the cross slats being provided with loose interlocking portions preventing turning of the angle members relative to the end portions of the cross slats and permitting disengagement of the angle members from the end portions of the slats by movement of the angle members away from each other,
and tension means including a saddle adapted to engage the back of a user and secured to and extending between the outer edge portions of the flanges to pull the outer edge portions of the flanges toward each other, whereby the interlocking portions are tightened and the angle members are held against movement away from each other.

3. In a packboard,
a pair of side members having first fasteners spaced therealong,
flexible, normally straight, cross members extending between and releasably engaged by the side members,
a saddle having second fasteners spaced along opposite edges of the saddle,
and a pair of lashing cords each slidably engaging the first and second fasteners of one of the side members and an adjacent edge of the saddle, whereby the saddle can conform to the back of a user and the side members compress the cross members longitudinally and bow the cross members away from the back of the user and lock the side members to the cross members.

4. The packboard of claim 3 wherein the first fasteners comprise hook members,
the second fasteners comprising grommet members.

5. In a packboard,
crossframe means,
a pair of side frame members releasably engaging the crossframe means and each side frame member including a flat, strip-like element facing the other flat, strip-like element,

a plurality of strips having hooks on the ends thereof fixed in pairs to the side frame members in positions extending across the outside faces of the flat, strip-like elements so that some of the hooks are positioned adjacent the rear edges of the flat, strip-like elements,
a saddle,
and a pair of lashings securing side edges of the saddle to said some of the hooks to tie the side frame members together and position the saddle in front of the crossframe means,
said others of the hooks being provided for lashing loads to the rear of the packboard.

6. In a packboard,
a pair of side frame angle members each having a flange and a strip-like base,
each base having portions punched through to provide loops at spaced points therealong spaced from the flanges,
the loops extending away from the same side of the bases as the flanges,
a plurality of cross slats having end portions adapted to fit slidably in the loops and abut the flanges,
and tension means connected to the flanges at points spaced from the bases and including a saddle for holding the angle members against movement apart and compressing the cross slats.

7. In a packboard,
a pair of side frame angle members having bases and also having flanges projecting from the same face of each respective base,
a plurality of cross slats having end portions adapted to extend across the bases and abut the portions of the flanges adjacent the bases,
a plurality of retaining means on the angle members spaced from the flanges for holding the end portions of the cross slats against lateral movement away from the bases and permitting the slats to be pulled longitudinally relative to the slats away from the angle members,
and means including a saddle connected to the angle members at points spaced laterally from the bases and pulling the angle members toward each other to compress the cross slats and lock the angle members and cross slats together.

8. In a packboard,
a pair of extruded metal, parallel, side frame angle members having base portions lying substantially in the same plane and flange portions facing each other and positioned at the edges of the base portions more remote from each other,
a plurality of slats extending transversely between the angle members in positions in which the end portions of the slats engage the inner faces of the base portions and the ends of the slats abut the flange portions,
means preventing substantial movement of the end portions of the slats transversely away from the inner faces of the base portions,
and saddle means carried by the angle members and pulling the outer edges of the flange portions toward each other, whereby the saddle means is tensioned and the angle members and slats are held tightly together.

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