

July 31, 1962

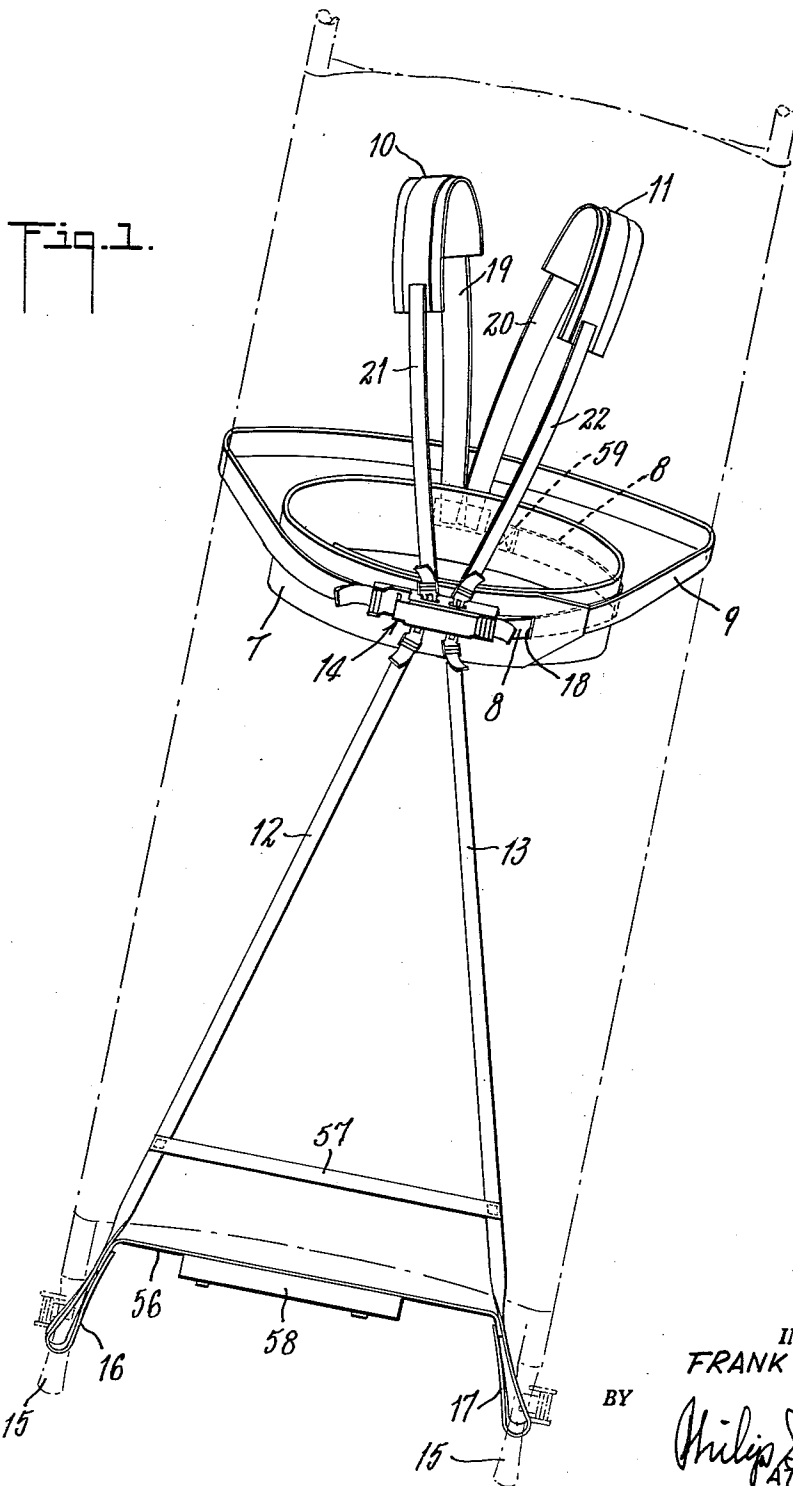
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SAFETY BELT AND HARNESS FOR CONFINING PATIENT TO A LITTER

Filed Sept. 20, 1960

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

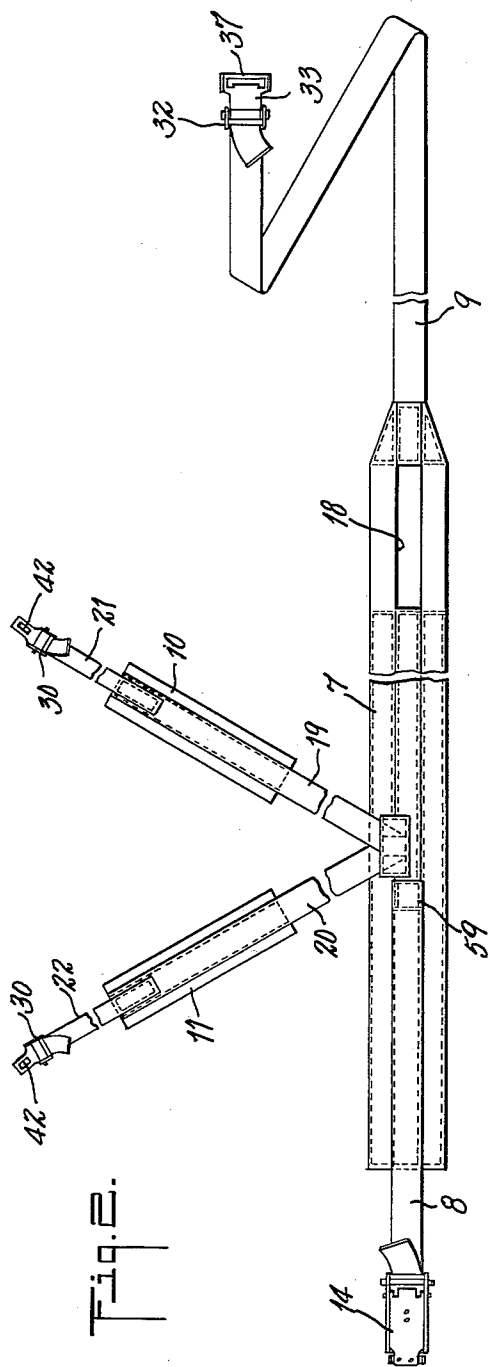


Fig. 2.

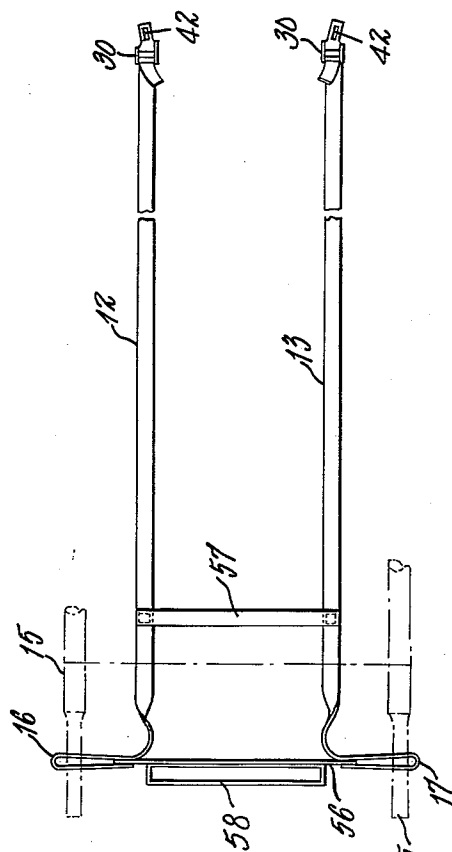


Fig. 3.

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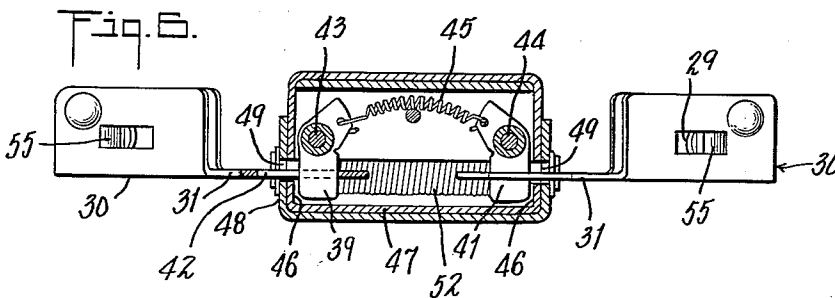
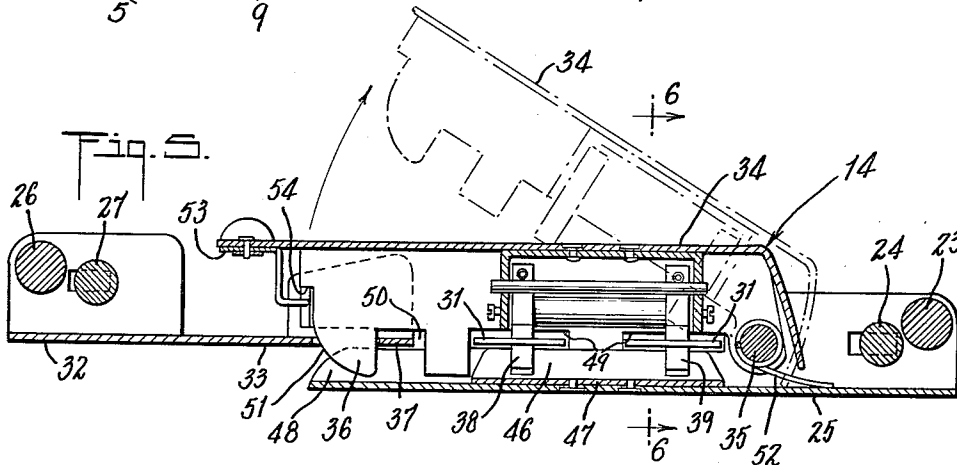
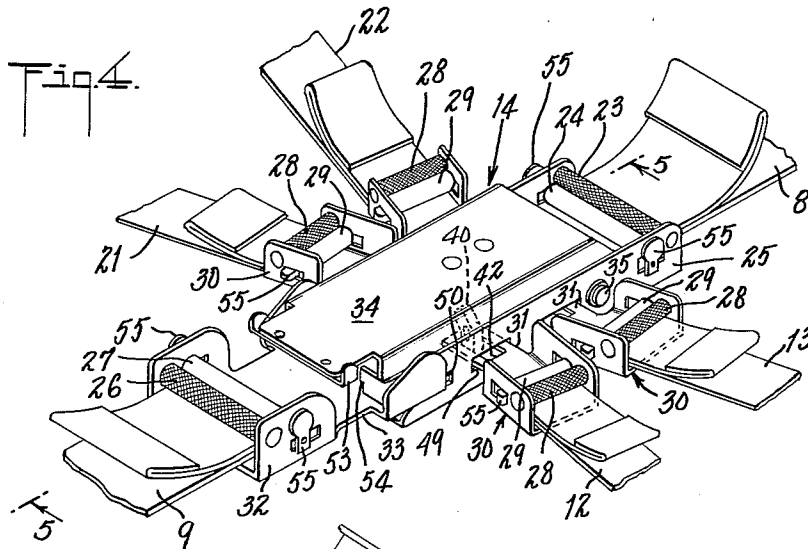
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SAFETY BELT AND HARNESS FOR CONFINING PATIENT TO A LITTER

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3 Sheets-Sheet 3



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SAFETY BELT AND HARNESS FOR CONFINING
PATIENT TO A LITTER
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1 Claim. (Cl. 128—134)

The invention herein disclosed is a restraining kit for confining a patient to a litter.

Special objects of the invention are to provide readily applied means by which a patient may be secured and held on a litter against sudden and unusual movements, such as might be experienced in air transportation.

Particular objects of the invention are to provide such equipment, which will hold the individual firmly but comfortably and which while fully holding the individual against movement in all directions may, when necessary, be immediately released by an attendant or directly by the patient.

Further special objects of the invention are to provide restraining gear such as mentioned, which while amply strong, will be light in weight and of simple durable construction.

Other desirable objects accomplished by the invention and the novel features through which such objects are attained are set forth and will appear in the course of the following specification.

The drawings accompanying and forming part of the specification illustrate a present commercial embodiment of the invention. Structure however, may be modified and changed as regards the immediate illustration all within the true intent and scope of the invention as herein-after defined and claimed.

FIG. 1 is a perspective view showing diagrammatically the belt, shoulder pads and leg straps as applied to and confining a patient on a litter.

FIG. 2 is a broken outside plan view of the belt and shoulder pad structure.

FIG. 3 is a similar view of the leg securing part of the harness.

FIG. 4 is a perspective view of the six-way quick releasable adjustable securing buckle.

FIG. 5 is a longitudinal sectional view of the same, as on substantially the plane of line 5—5 of FIG. 4.

FIG. 6 is a cross-sectional view on substantially the plane of line 6—6 of FIG. 5.

The complete harness as shown in FIG. 1, consists of a wide body encircling belt 7, having fastening straps 8, 9, extending from the ends of the same for fastening the belt and for tying down on the litter, with shoulder pads 10, 11, attached to the back and the front of the belt, legs straps 12, 13, extending from the foot of the litter to the front of the belt and a combination buckle 14, for securing and for quickly releasing any or all of these holding devices.

In FIGS. 1 and 3 portions of a litter are indicated in broken lines having the usual side bars and handles 15, which are encircled by belt strap 9, and over which the loops 16, 17, on the lower ends of the leg straps are caught.

The straps on the ends of the belt or waist band are of different length, the shorter one 8, being used to hold the belt together and the longer one 9, being long enough to extend completely about the litter, back to the buckle centered over the front of the belt.

To reach the other end of this double ended buckle, that part of the waist band which overlaps and overlies the underlying part of this band is slotted as shown at 18, and the front end strap 8 is passed through this slot to the adjoining end of the buckle, all as shown in FIG. 1.

The shoulder pads 10, 11, are attached to the back of

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the belt on divergent lines by straps 19, 20, and at the front these pads are equipped with straps 21, 22, which are connected with the top of the buckle.

The lower straps 12, 13, are connected with the front of the buckle.

All strap connections with the buckle are adjustable and quickly releasable.

This is effected in the illustration by constructing the buckle as shown in FIGS. 4, 5 and 6, with fixed and slideably mounted companion clamp rods 23, 24, at one end of the buckle frame 25, for securing the short body strap 8, and similar companion fixed and slideable clamp bars 26, 27, for the longer litter encircling strap 9, at the opposite end, with fixed and slideable companion clamp rods 28, 29, on brackets 30, for the ends of the shoulder and leg straps, these brackets having projecting tongues 31, releasably caught in the body of the buckle and the belt clamping rolls 26, 27, being similarly mounted in a bracket 32, having a projecting tongue 33, releasably caught in the end of the buckle.

Release of all these end fastenings is simultaneously effected by making the top of the buckle as a holding lever 34, pivoted on the back end of the frame at 35, this lever having teeth 36, at the front end engageable over the bar 37, on the end bracket 32, of the long belt strap 9, and carrying on the underside of it, the four pivoted pawls or dogs 38, 39, 40, 41, engageable in openings 42, in the end brackets 30, of the shoulder and leg straps.

FIG. 6 shows these pawls mounted on pivot rods 43, 44, at opposite sides of the cover and the pawls at opposite sides as connected by coiled springs 45, so that the pawls may yield to the inward thrust of the strap brackets to enter the openings 42, and then hold the brackets against retraction.

In this locked position, FIG. 6, the holding pawls are stopped against outward releasing movement by engagement with the upstanding edge flanges 46, of a reinforcing plate 47, secured to the bottom of the frame and these edge flanges are braced by the enclosing side walls 48, of the frame, which side walls are slotted at 49, for entry of the tongues 31, of the end brackets.

At the front end of the buckle, these side walls of the frame are slotted at 50, for introduction of the tongue portion 33, of the belt end bracket 32, and the holding shoulders 36, on the cover are bevelled or rounded as indicated at 51, enabling this like the other end brackets to be easily caught by simply pushing it into place in the buckle.

All fastenings being held by the cover of the buckle, it is only necessary to lift this cover as indicated in the broken lines in FIG. 5, to release all fastenings which have been connected with the buckle, including the body fastening, the fastening about the litter and the shoulder and leg fastenings.

The cover is normally retained in the holding position by a spring 52, coiled about the hinge pin 35.

The cover may be locked in the holding position by a slide 53, transversely slideable on the cover into and out of position beneath a holding shoulder 54, on the side wall of the frame.

This one element, the slide 53, thus serves by engagement with the shoulder on the frame, to lock all the holding devices against accidental release and on sliding this latch free of the frame, all holding devices may be simultaneously released.

Both the cover or front 34, of the buckle and the latch 53, on the cover are within easy reach of the patient held on the litter or of a nearby attendant.

The belt and body restraining straps may be of webbing and these by reason of the sliding clamps, may be individually adjusted for tightening or slackening purposes.

The webbing in each instance, is shown looped about

the movable roll and brought out between the movable and fixed roll, where the free end of the strap can be reached for necessary length adjustments. The ends of the movable rolls, such as 24, 27 and 29, are shown equipped with thumb grips 55, exposed at the sides of the brackets for shifting the movable rolls to release grip and permit easy adjustment of the straps.

The lower or leg confining straps 12, 13, are shown connected at their lower ends by a cross strap 56, and at their intermediate portions by a spacing strap 57, both aiding to some extent in the confinement of the individual on the litter.

The lower spacing cross strap 56, may have an elastic mid portion or be of elastic material, so as to hold confining straps 12, 13, snugly to the litter handles and this bottom cross strap may be utilized as a hanger for a kit bag 58, of a size to contain the complete confining equipment and thus adapted to serve as a kit holder for storage or shipment of the equipment.

In use, the buckle 14, may be left attached to the short belt strap 8, ready to be passed through the slot 18, when the belt is wrapped about the patient, where it will be in place at the front of the belt when the long belt strap 9, is passed about the back of the litter. Then with the bracket 32, in position on the end of strap 9, the securing of the belt about the patient and the securing of the patient on the litter can be completed by simply pushing bracket 32, into the free end of the buckle, as in FIG. 1, whereupon any slack may then be taken up by adjustment of straps 8 and 9, in their respective holding devices. With these adjustments, the buckle may be centered, as necessary, over the patient.

The shoulder pad straps and leg straps may be quickly fastened by pushing the tongues 31, of the brackets 30, on the ends of those straps in through the appropriate openings 49, provided in the top and bottom of the buckle.

The short strap 8, may be attached to the wide portion of the belt at a point inward from the end of that part as at 59, FIG. 2, so that it may be used to pull this part of the belt into the overlapping relation shown in FIG. 1.

The belt may be used alone or with either or both the shoulder and leg confining straps.

The bag 58, suspended from the leg straps is out of

the way but forms a convenient receptacle suspended from the end of the litter and provides a convenient means for containing the entire equipment when not in use.

5 What is claimed is:

A safety belt construction for litter patients, comprising a belt buckle frame having opposed parallel side walls, a hand lever pivoted to said side walls at one end of the frame, means at said end of the frame for securing one end of a body encircling belt thereto, spring means for yieldingly holding said hinged hand lever down on the frame, the free end of said hand lever having a holding abutment shoulder and a beveled edge leading from the end of said lever to said abutment shoulder, 15 a body belt connected at one end with said belt end securing means on the frame, a securing plate on the opposite end of said belt insertable into the end of the frame into engagement with said beveled edge and holding shoulder of the yieldingly hinged hand lever, said 20 side walls of the frame having openings therein, body holding webs having end fittings inserted through said openings into position beneath the hand lever, inwardly displaceable holding dogs for said end fittings pivotally mounted on said lever over said openings in holding engagement with said web end fittings inserted through 25 said openings whereby said hand lever will secure or release all of said body holding webs and belt, and a slide on the free end of said hand lever manually shiftable into and out of locking engagement with one of 30 the side walls of said buckle frame whereby to lock or release all of the body holding webs and belt secured by said hand lever.

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