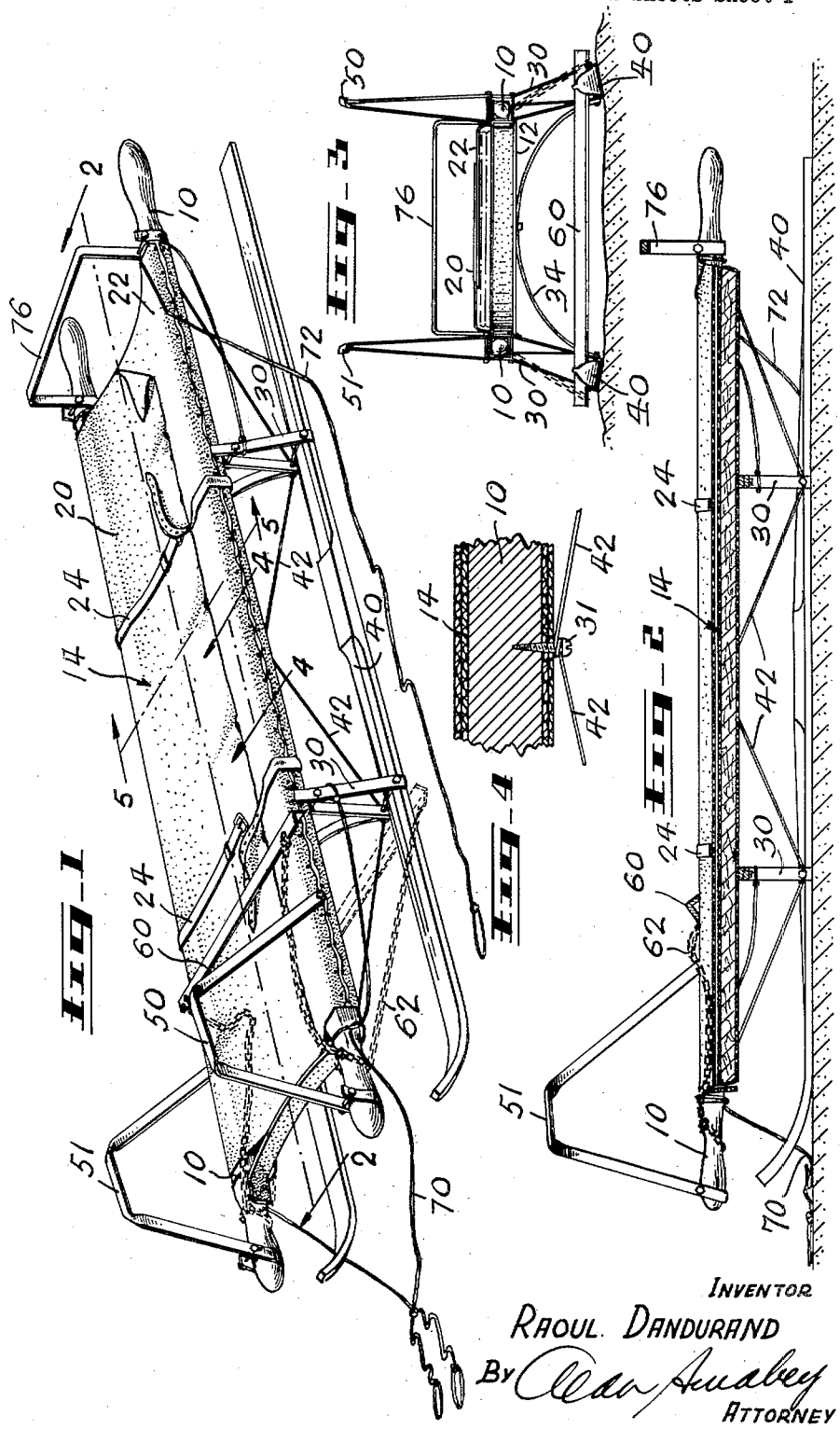
Nov. 13, 1956 R. DANDURAND 2,770,465

RESCUE SLED

Filed March 16, 1953 2 Sheets-Sheet 1



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RESCUE SLED

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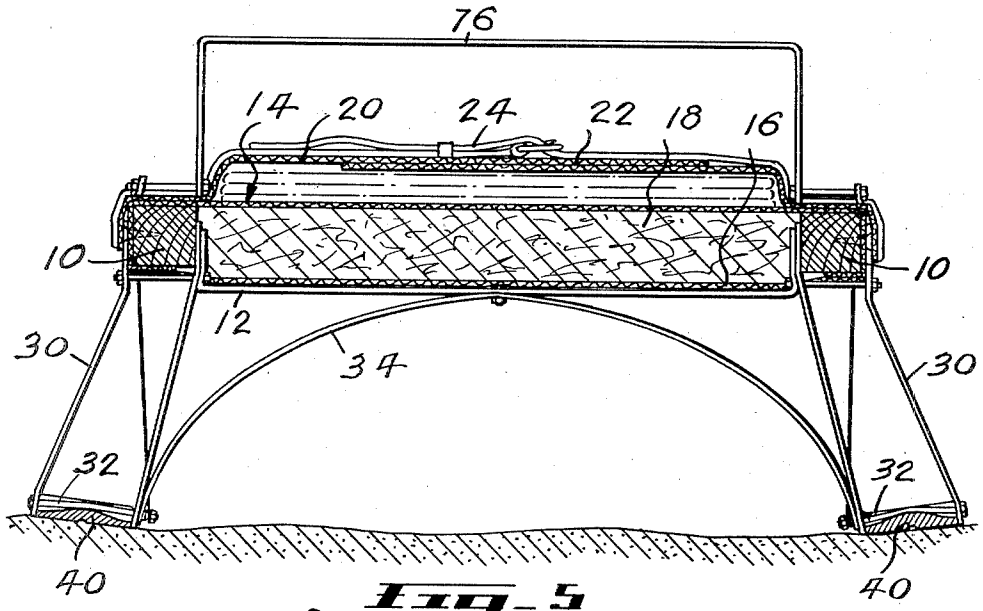


Fig. 5

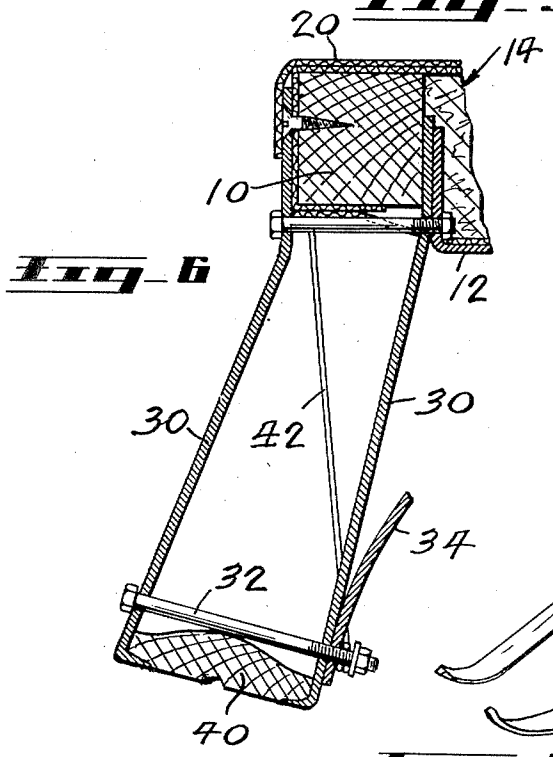


Fig. 6

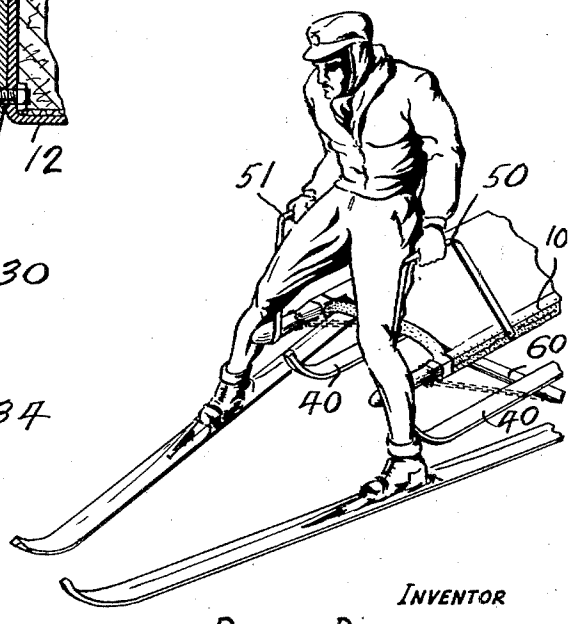


Fig. 7

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United States Patent Office 2,770,465 Patented Nov. 13, 1956

2,770,465

RESCUE SLED

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Application March 16, 1953, Serial No. 342,406

5 Claims. (Cl. 280—12)

The present invention relates to sleds and more particularly to sleds adapted for use in rescue work enabling the safe handling of fracture cases as well as other types of cases.

While there have been many and varied types of carriers such as sleds devised for the transportation of injured persons over rough terrain, for example in hilly country under snow conditions, these in general are of such structure that any shock encountered by the runners or guiding portions of the sled is conveyed directly to the person being carried on the sled.

With this in mind, the present invention aims to provide an improved rescue sled construction wherein means are provided, by reason of the structure of the sled, so that an injured person may be easily and safely transported over hilly terrain with safety and comparative comfort.

Accordingly, the invention is embodied in a rescue sled wherein a standard stretcher body is combined with runner supporting means in such a manner that the sled can be guided and controlled by a single person and further, a shock dampening effect is achieved between the runners and the stretcher body.

Having thus generally described the nature of the invention, particular reference will be made to the accompanying drawings wherein a preferred embodiment is shown by way of illustration, and in which:

Figure 1 is a diagrammatic view in perspective elevation of a preferred construction of a rescue sled in accordance with the invention.

Figure 2 is a cross sectional view of the construction shown in Figure 1 along the line 2—2.

Figure 3 is a front view of the construction shown in Figure 1.

Figure 4 is a sectional view of the structure shown in Figure 1 along the line 4—4 to show the stretcher frame.

Figure 5 is a cross sectional view of the structure shown in Figure 1 along the line 5—5 to illustrate the construction in more detail.

Figure 6 is an enlarged detail view partially in section of one of the ski supporting members to show the attachment to a ski and the clamping bolt.

Figure 7 is a diagrammatic view showing by way of illustration the sled as it may be guided and controlled while travelling down an incline.

With particular reference to the drawings, there is shown a preferred construction of a rescue sled according to the invention wherein a stretcher body is made up of a pair of spaced apart longitudinal side frame members 10 which are maintained in spaced apart relationship by transverse spacing members 12 and serve as a support for a flexible body portion 14 which extends across and between the frame members 10. Further, in the present construction, there is provided a supplementary flexible body 16 which is filled with a suitable packing material 18 to serve as a cushioning and insulating mattress for the stretcher body 14. There are also provided covering flaps 20, 22 of flexible material which

are secured to the stretcher frame member 10 at each side and overlap centrally. These covering flaps 20, 22 are retained in position, when the sled is in use, by means of hold down straps 24 also secured to the frame members 10.

As is shown in more detail in Figure 5, runner supporting members 30 are secured to each of the frame members 10 and in spaced apart relationship at each side of the stretcher body. These members 30 are preferably formed, as shown, to extend downwardly and slightly outwardly from the stretcher members 10 relative to the centre of the stretcher body. The lower portions of the members 30 are bent inwardly so as to provide runner engaging means and by means of a bolt 32 on each member provide an adjustable clamp which is engaged with the body of the runner, in the present case a ski 40, so as to firmly retain the skis in the desired alignment. To provide a further bracing means and also to act somewhat in the capacity of a spring, arcuate re-enforcing members 34 are secured between each pair of the supporting members 30 with the centre portion extending upwardly to a connection with the transverse frame members of the stretcher 12.

As is shown in Figure 6, the runner supporting members 30, due to their particular formation, are adapted to retain the skis 40 at an oblique angle with respect to their running surface. This is to provide a running edge which would grip the side of an incline if the sled is used to traverse an incline, that is, move transversely to the pitch, the skis 40 being supported by the members 30 so that the inner edges of the opposing skis are lowermost.

As a further bracing means, flexible bracing members 42 are provided, which extend from adjacent the front end of the stretcher body to a connection with the first supporting member 30, that is, down to the lower portion of the first supporting member 30 and up again to the stretcher body frame member 10 intermediate the supporting members 30 as indicated at 31, downwardly again to the rear supporting members 30 and upwardly to the rear portion of the stretcher body. This truss-like arrangement of the flexible re-enforcing member 42 gives the body longitudinal strength without the use of rigid re-enforcing members which would tend to transmit shock from the skis directly to the body of the stretcher.

The guiding and controlling means comprises a pair of spaced apart hand rails 50, 51 which are secured in spaced apart relationship to the front portion of the stretcher body and to the longitudinal side frame members 10. These are shaped, as shown in Figures 1, 2 and 3, so that a hand grip portion is provided at the upper extremity of the hand rails so that a person guiding the sleigh can apply direct upward or downward pressure as is required to suit the terrain or to apply braking or steering forces.

Further, to facilitate the control of the sled there is provided a braking member 60 which is connected to the front portion of the sled at each side by flexible lengths 62, preferably of chain or flexible cable, so that when additional braking force is required, the bar 60 is merely dropped beneath the front ends of the skis 40 so that on the continued forward movement of the sled the bar will be drawn beneath the skis 40 and act as a braking member. As will be appreciated, due to the flexible linkage between the bar 60 and the frame members 10, uneven terrain will not have any effect, that is with regard to the transmission of shock to the stretcher body, but will allow the braking member 60 to bounce over the snow or ice and grip as required. On experiment, this structure has been particularly effective in the descent of steep inclines or pitches which would give the sled too much forward impetus to be safely checked and guided by the operator.

As is shown in Figure 1, tow ropes or traces **70** can be attached to the front portion of the stretcher body and check lines **72** can be attached to the rear portion of the stretcher body so that additional guidance may be given to the rear of the device if necessary.

In the preferred construction illustrated, an additional member **76** is provided which forms a bridge between the longitudinal frame members **10** of the stretcher body and extends above the surface of the stretcher body so as to provide a means of supporting and securing a traction splint to the stretcher body if necessary.

As will be noted by reference to the accompanying drawings, the overall dimensions of the sled are such that the entire device can be placed in an ambulance and an injured party carried directly to a location where medical aid is available without the necessity of being moved. This is important as is well known in many fracture cases.

In operation, the device is controlled and guided by the operator, who is necessarily on skis, standing at the front end of the stretcher body and between the guiding hand rails **50—51** with his hands resting on the hand grip portions. As will be appreciated, during the descent of a slope or incline, the operator's skis can be placed in snow plough position and by twisting the weight of his body and applying pressure to one or other of the hand grip rails **50—51**, the sled can be easily guided and controlled.

With particular reference to Figure 7 showing by way of illustration the device in use, it will be noted that in this particular illustration the sled is being used to descend a fairly steep incline, of packed snow or ice, where it has been necessary to use the braking members **60** as previously described.

I claim:

1. A rescue sled comprising in combination with a stretcher body having elongated rigid longitudinal side frame members terminating at each end in carrying handles, at least one rigid transverse frame member secured between said longitudinal members, and a flexible body supporting portion mounted on and extending between said side frame members to terminate at each end short of said handle portions; ski attaching and supporting members secured to and extending directly downwards from said longitudinal side frame members in spaced apart pairs, each of said members having a pair of opposed ski-spanning lower terminal end portions bent inwardly in opposed relationship to constitute ski clamping members adapted to engage the side and lower surface of a ski at each side, an adjustable ski-spanning retaining member extending between each opposed pair of said ski clamping members in spaced apart relationship with and above said terminal ends, a pair of skis mounted on said ski supporting members in spaced apart alignment and beneath said longitudinal side frame members with the body of each ski disposed between said adjustable retaining members and said clamp members terminal ends whereby adjustment of each of said adjustable members in one direction is adapted to urge the corresponding clamp members opposed terminal ends towards each other and into engagement with the side and lower surfaces of said ski and the upper surface of said ski into bearing engagement with said ski-spanning adjustable retaining member, said ski attaching and supporting members being located relative to the overall length of said stretcher body side frame members and skis whereby considerable lengths of the front and rear portions of said skis are free and unattached and adapted to flex in the manner of a free ski, a pair of flexible transverse shock absorber members of arcuate shape mounted beneath said stretcher body in spaced apart relationship with the terminal ends of each member connected at each side to said ski supporting members adjacent said connection with said skis, flexible longitudinal bracing members extending between said longitudinal side frame members and said ski supporting members and being connected thereto at spaced apart points leaving the front and rear portions of said skis free for shock absorbing flexure and constituting a flexible reinforcing truss structure, said stretcher longitudinal side frame members and said skis being of substantially equal length, and controlling handle members mounted on and extending upwardly and outwardly from one end of each of said stretcher longitudinal side frame members from a position in advance of said ski supporting members to a position adjacent the front ends of said skis.

2. A rescue sled, as claimed in claim 1, wherein each of said ski supporting members comprises a pair of opposed formed metal straps and said adjustable ski-spanning retaining members each comprise an elongated threaded bolt passing through both of said straps and one terminal end of one of said arcuate shock absorber members with a retaining nut threadedly engaged with said bolt.

3. A rescue sled, as claimed in claim 1, wherein said ski clamping terminal end portions are formed on said ski supporting members so as to span and retain said skis at opposed angles relative to each other.

4. A rescue sled, as claimed in claim 1, including a supplementary insulating mattress substantially coextensive with the flexible body portion and being suspended between said longitudinal side frame members beneath said flexible body portion.

5. A rescue sled, as claimed in claim 1, wherein said guiding and controlling handle members mounted on said stretcher side frame members comprise a pair of hand rails each having an upper hand grip portion disposed in a plane substantially parallel with said stretcher side frame members.

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