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RESCUE SLED

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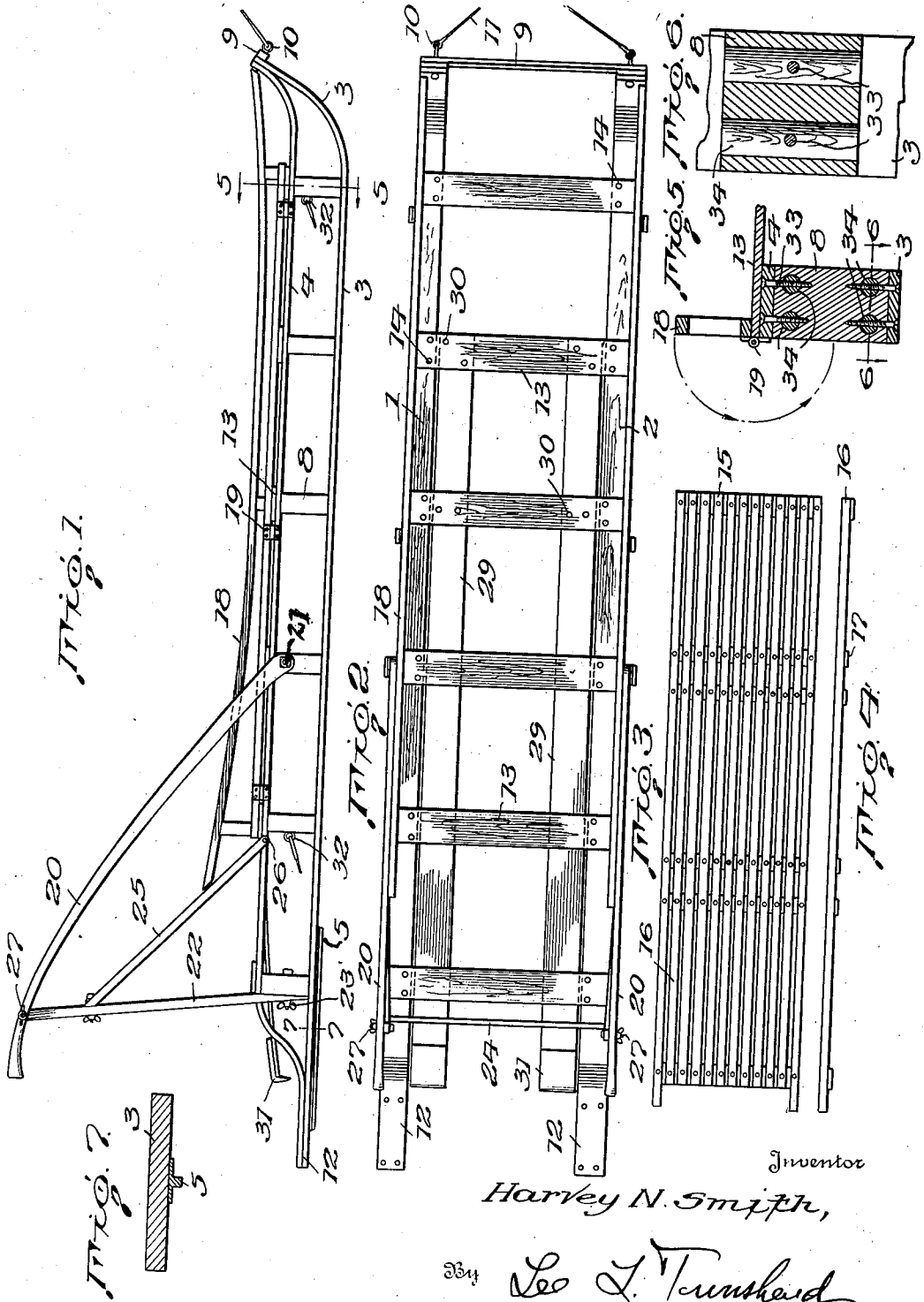


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Inventor
Harvey N. Smith,
By Leo L. Turnbull
Attorney

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## RESCUE SLED

Harvey N. Smith, Fair Haven, Vt., assignor of one-half to Dorothy New Christian, Fair Haven, Vt.

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8 Claims. (Cl. 280—12)

This invention relates to an improvement in a sled that is especially designed for rescue work in transporting injured persons over snow covered mountainous terrain inaccessible to other means of transportation.

The primary object of the invention is to provide a sled having means to reduce to a minimum the physical discomfort to the injured being transported, particularly where the injury relates to a fracture, when moving over rough and uneven snow.

A further object of the invention is to produce a sled for this purpose that is strong and durable enough to withstand the strains to which it is subjected and yet light enough to be easily transported to the locations desired.

Still another object of the invention is to provide the sled with a removable stretcher and hinged side guards to easily place and safely maintain an injured person thereon as well as means to brake and control the sled during the use thereof.

Another object of the invention is to provide a novel runner construction wherein screws may be used to fasten flat runner portions to the ends of the knee posts without danger of the parts being separated.

Other objects will, from the description, be apparent to those skilled in the art. The present disclosure constitutes an exposition of an embodiment of the invention, and illustrates the best means I have thus far devised for reducing the invention to practice. It is to be understood that the structural details shown and described shall not constitute limitations inconsistent with the scope of the invention as claimed.

In the drawing:

Figure 1 is a side elevation of the sled.

Figure 2 is a top plan view thereof.

Figure 3 is a plan view of the stretcher or platform on a reduced scale.

Figure 4 is a side elevation thereof.

Figure 5 is a vertical section on the line 5—5 of Figure 1.

Figure 6 is a horizontal section on the line 6—6 of Figure 5.

Figure 7 is a vertical section on the line 7—7 of Figure 1.

With the increasing popularity of skiing and other winter sports there has been an increasingly large number of accidents to participants generally occurring at points remote and inaccessible to ordinary methods of transportation. Where these accidents involve fractures and broken bones, rescue work is exceedingly difficult and extremely painful to the injured. This sled is especially designed for such work, although it may also be of general utility where such a method of transportation is desirable. While the general plan is that of the ordinary "dog sled," many changes and modifications of the conventional construction of such a type of sled have been made to adopt it for the purpose intended.

The sled comprises a pair of runner units, 1 and 2, which are of identical construction. Each runner is formed of a pair of vertically spaced flat strips, 3 and 4, formed of wood or similar material that is adapted to be bent to the desired configuration. The lower section 3, is the snow engaging portion and is provided adjacent its rear end on the under side with a non-skid metal blade 5 as clearly shown in Figures 1 and 7. The upper and lower portions 3 and 4 are held in spaced relationship by knee posts 8. They are fastened to the knee posts in a manner to be hereinafter more fully described.

The front portions of the runner unit strips 3 and 4 are curved upwardly and the terminals engage in a plane above the top portions 4. The runner units 1 and 2 are pivotally connected by a cross bar 9, and eye bolts 10, extend through the engaged portions and to which lead lines 11 may be connected. The rear ends of the upper runner portions 4 are curved downwardly and suitably engage in superposed relationship corresponding sections of the lower runner portions 3, to form riding steps 12.

The upper portions 4 of the runner units 1 and 2 are connected along their length by spaced cross pieces 13, formed of flat strips of wood or similar material that is slightly flexible and twistable. The ends of the cross strips 13 are suitably secured as by rivets 14 to the top runner portions 4.

A stretcher or platform 15 is adapted to be supported on the frame work formed by the upper runner portions 4 of each runner unit and the cross pieces 13. The stretcher is clearly illustrated in Figures 3 and 4, and is formed of a plurality of light strips 16, connected by cross bars 17. The cross bars 17 are so spaced that they engage the edges of certain cross pieces 13, when the stretcher or platform is positioned on the sled to prevent longitudinal movement thereof.

Side guards 18 are hinged at 19 to the upper portions 4 of the runner units. To permit the lateral insertion of the stretcher on the frame these side guards may be swung down alongside the runners as indicated in dotted lines in Figure 5. They are held upright by any desired means, preferably by a structure to be hereinafter described.

The sled is provided with control handles 20, pivotally mounted at 21 to the outside of certain knee posts 8. The handles 20, are supported by uprights 22, supported on the rear knee posts by a suitable connection 23. Cross bracing 24, is provided for the uprights and additional supporting struts 25 extend forwardly therefrom and

are connected at 26 to the upper runner strips 4. The upper ends of the handles 20 are detachably connected to the uprights 22 by bolt and nut fasteners 27. This arrangement securely holds the control handles 20 in position, but by detaching the fasteners 27, and swinging the handles 20 on the pivots 26, the stretcher 15 can be easily placed on or removed from the frame, when the side guards 18 are dropped.

The sled is provided with a brake comprising a pair of flexible strips 29, extending parallel with the runners 1 and 2, and secured by rivets 30 to the underside of two of the forward cross pieces 13. The brake strips 29 terminate in drag spurs 31, adjacent the riding steps 12, and are normally positioned above the plane of the same, but easily accessible for depression when necessary. Eye bolts 32, on certain knee posts, can receive side control lines when necessary.

As this sled is formed of wood or material having the same characteristics, the method of attaching the runner portions 3 and 4 of each runner unit to the ends of the knee posts 8 is an important feature of the assembly. This connection is made by screws 33 extending through the runner portions into the knee posts as clearly shown in Figure 5. However, due to the strains and stresses to which the sled is subjected in use such a connection alone would soon loosen and the connected posts would pull apart. To prevent this, I provide cross wooden dowel pins 34 in the knee posts through which the screws pass. As clearly shown in Figure 6, the grain of the pins is cross or at an angle to the grain of the knee posts 8, which securely holds the screws in position.

By the construction described, I have provided a rescue sled which may be constructed of wood or material having the same characteristics that is light, durable and adaptable for the purpose intended. The side guards prevent any possibility of the injured person rolling off the sled and the coaction between the bottom cross strips of the stretcher and cross pieces that connect the runner units hold the stretcher against longitudinal movement. When the side guards are swung down the stretcher may be readily placed on or removed from the frame at a minimum discomfort to the injured person thereon.

Due to the fact that separate runner units are provided and the connecting cross strips 13 are slightly flexible and twistable, the runners are slightly movable in a vertical plane so that the stretcher may be held in a substantially horizontal position when the runner units are moved with respect to each other due to an uneven surface over which they pass. This permits a portion of the supporting contact to drop away from the stretcher, yet the remaining engagement is sufficient to accomplish this result. This maintenance of the stretcher substantially level irrespective of the roughness of the surface over which the sled passes relieves the injured person of considerable jars and twists. Where the injury involves fractures or broken bones, this feature adds materially to the comfort as well as eliminating the possibility of further injury during transportation.

The method of securing the runners to the knee post ends is an important feature, as it provides a simple, satisfactory and efficient manner of connecting these parts without the use of supplemental braces or other metal structures that would add to the weight of the sled.

I claim:

1. A sled including a pair of runner units each formed of vertically spaced flat strips connected by knee posts, a plurality of slightly flexible and twistable cross strips connecting the upper runner strips, and a platform supported thereby.

2. A sled including a pair of runner units each formed of vertically spaced flat strips connected by knee posts, a plurality of slightly flexible and twistable cross strips connecting the upper runner strips, a platform supported thereby, side guards hinged to the upper portions of the runner units, and control handles extending upwardly and rearwardly at the rear portion of the sled.

3. A sled including a pair of runners each formed of horizontally extending flat upper and lower strips connected by knee posts, the front portions of said strips extending upwardly and connected at a point above the plane of the upper strips, the rear portions of the upper strips extending downwardly and superposed on the adjacent portions of the lower strips to form riding steps, cross strips connecting the upper runner strips, a platform supported thereon, a pair of brakes disposed adjacent and above the plane of the runner riding steps, and control handles at the rear of said sled.

4. A sled including runners each formed of a pair of vertically spaced horizontally extending strips, knee posts, connecting the upper and lower portions of said strips, retaining screws passing through said strips into the ends of the knee posts, means in the posts for preventing the screws from being pulled therefrom, cross strips connecting the upper portions of the runner strips, and a platform supported thereby.

5. A sled including runners each formed of a pair of vertically spaced horizontally extending flat strips, wooden knee posts connecting the upper and lower portions of said strips, retaining screws passing through said strips into the ends of the knee posts, cross dowel pins of similar material in the posts through which the screws pass, the grain of the dowel pins being at an angle to the grain of the knee posts, cross strips connecting the upper portions of the runner strips, and a platform supported thereby.

6. A rescue sled including spaced separate runner units, slightly flexible and twistable cross pieces connecting the runner units, and a platform supported thereby and held in substantially horizontal position when one runner unit moves vertically with respect to the other.

7. A rescue sled including a pair of runner units each formed of vertically spaced flat strips connected by knee posts, a plurality of slightly flexible and twistable cross strips connecting the upper runner strips, a platform supported thereby, and a pair of side guards for said sled hinged to the upper strips of the runner units and normally extending above the plane of the platform.

8. A rescue sled including a pair of runner units each formed of vertically spaced flat strips connected by knee posts, a plurality of slightly flexible and twistable cross strips connecting the upper runner strips, a removable stretcher supported thereby, and means on the bottom of the stretcher cooperating with certain cross strips to prevent longitudinal movement of the stretcher and side guards hinged to the upper runner strips.

HARVEY N. SMITH.