

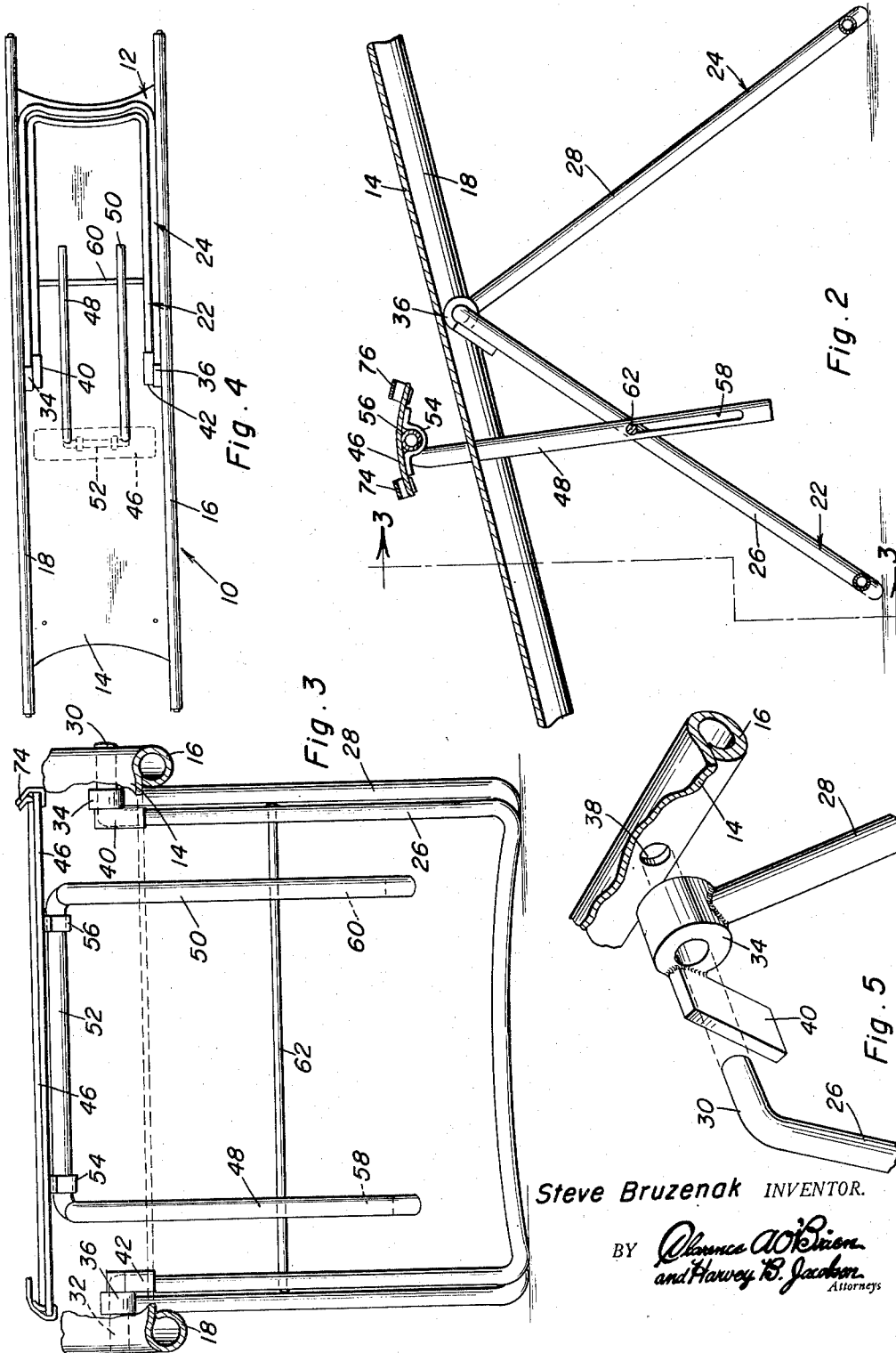
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S. BRUZENAK
RESPIRATING SEE-SAW

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Filed Jan. 31, 1956

2 Sheets-Sheet 1



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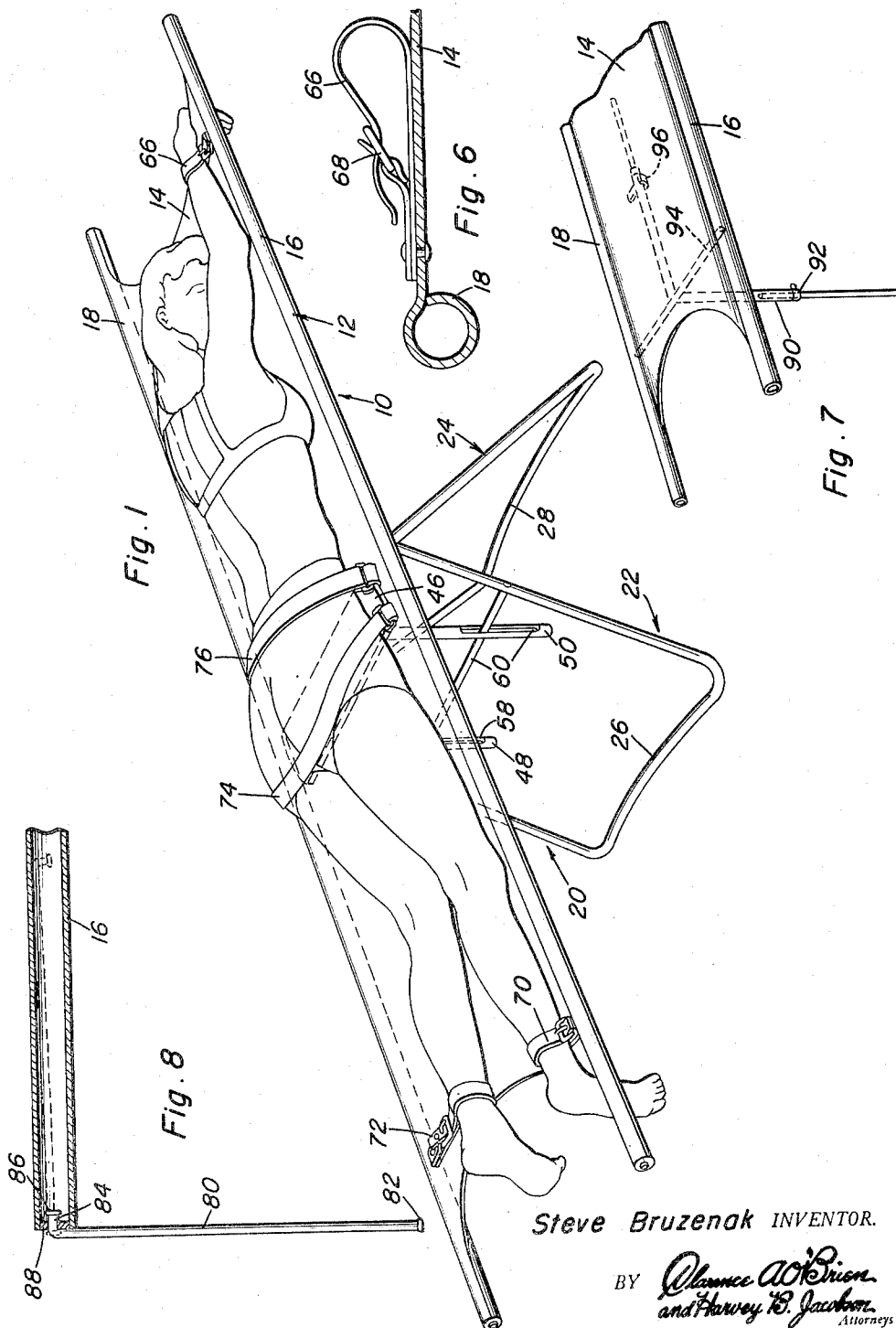
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RESPIRATING SEE-SAW

Steve Bruzenak, Virginia, Minn.

Application January 31, 1956, Serial No. 562,439

15 Claims. (Cl. 128—28)

The invention relates to resuscitating or respirating see-saws, and this is a continuation-in-part of my copending application, Serial No. 504,623.

In order to facilitate the use of the Emerson hip lift method for resuscitation, I constructed a see-saw in accordance with the principles of the invention described in my copending application. Certain alterations in and additions to the see-saw described and claimed in the copending application have been made. For example, when a subject has his pelvic region raised and lowered simultaneously with the elevating and lowering of the entire body in such manner that the subject's head is raised and lowered, fastening devices to hold the subject on the carrier and to hold his hips on the hip rest are desirable inasmuch as the subject is usually unconscious. In addition, when administering to a subject, during or after the administration, it is desirable to permit the subject to rest. Therefore, means such as legs on the carrier, are provided for the purpose of holding the carrier in a fixed position, usually horizontal. In this way a table is formed of the carrier.

In many instances a stationary device is very satisfactory. However, a portable see-saw has obvious inherent advantages. One of the objects of the present invention is to provide a respirating or resuscitating see-saw of the type which has means for raising the hips of the subject in response to the pivotal motion of the subject carrier, the see-saw having an improved support capable of being folded in a generally flush condition with respect to the carrier and having legs in the makeup thereof, these legs being provided with a pivot at their upper ends, the same pivotal connection being for the carrier.

A further object of the invention is to provide an improved see-saw designed to practice the Emerson hip lift method for administering to subjects, the see-saw having means for assuring that the subject will not fall from the see-saw by attaching to the limbs of the subject and by encircling the hips of the subject and holding the pelvic region of the subject firmly on the hip and pelvic region rest.

Another object of the invention is to provide means that are practical in a portable device for the purpose of converting the see-saw to a fixed table both rapidly and effectively.

These, together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a perspective view of one embodiment of the invention having thereon a subject about to be administered to by pivotally oscillating the subject carrier;

Figure 2 is a fragmentary longitudinal sectional view of the structure in Figure 1, this figure being in an enlarged scale;

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Figure 3 is a transverse sectional view taken on the line 3—3 of Figure 2;

Figure 4 is a bottom plan view of the see-saw in the collapsed condition, that is, a condition for storage or for being carried from one location to another;

Figure 5 is an exploded fragmentary perspective view of the improved pivotal connection between the legs of the support and the carrier;

Figure 6 is an enlarged fragmentary sectional view of one of the wrist straps;

Figure 7 is a fragmentary perspective view of a modification wherein the legs to support the subject carrier in a fixed position are of one form; and

Figure 8 is a fragmentary sectional view showing particularly a modification of the legs of Figure 7, wherein four legs will be used, one in each of the side rails of the subject carrier.

The see-saw 10 comprises a carrier 12 having a panel 14 made of lightweight metal and tubular side rails 16 and 18 to which panel 14 is secured. Side rails (Figure 6) 16 and 18 may be of the same material as panel 14. When a fabric or like material is used for panel 14, it will be necessary to have two or more cross members between the side rails in order to form a frame structure that supports the panel 14.

Support 20 for the carrier 12 consists of legs 22 and 24, each being an approximately U-shaped frame of lightweight tubular material. Frame 26 is slightly narrower than frame 28 (Figure 3) so that it fits between the latter. In addition, the innermost frame 26 has trunnions 30 and 32 projecting laterally, outwardly at its upper end. These trunnions pass through bearings 34 and 36 welded or otherwise rigidly fixed to the ends of frame 28. Trunnions 30 and 32 are sufficiently long to pass into apertures 38 that are formed in the rails 16 and 18 of carrier 12. Accordingly, the trunnions 30 and 32 mount the frames 26 and 28 for pivotal movement with respect to each other and with respect to the carrier 12. Moreover, the same trunnions support the carrier for pivotal motion about the common axis of the two trunnions 30 and 32.

Support 20 is arranged so that the legs 22 and 24 open a proper, fixed distance. This is achieved by having stops 40 and 42 fixed to the bearings 34 and 36, respectively, the stops protruding laterally therefrom and contactable by the frame 26 near trunnions 30 and 32. Therefore, when the legs 22 and 24 are spread, as shown in Figure 1, in order to provide a firm support for the carrier 12, the frame 26 is limited in its spreading movement with respect to frame 28 by the stops 40 and 42.

The means for raising and lowering the hips of the subject are seen best in Figures 2 and 3. A transversely curved hip and pelvic region rest 46 in the form of a plate either padded or unpadded, is connected to a structure for supporting it. This structure comprises a pair of push rods 48 and 50, the upper ends of which being passed through openings in panel 14 and connected together by a cross member 52. Saddle bearings 54 and 56 are secured to the undersurface of the hip rest 46 and are located over the cross member 52. This mounts the hip rest 46 for pivotal motion on its supporting structure. The cross member 52 is offset laterally from the push rods 48 and 50 a slight amount (see Figure 3 and Figure 2) so that the limit of pivotal movement of the rest 46 is established by having a part of the lower surface of the rest abut the upper end of the push rods 48 and 50.

Slots 58 and 60 are formed longitudinally in the push rods 48 and 50, these slots coacting with a brace 62 to form a lost motion drive connection between the rest and the stationary support 20. Brace 62 extends through

slots 58 and 60 and is secured at its ends to the legs 20 and 22 of frame 26.

Two flexible wrist straps 66 are riveted or otherwise fixed to the carrier panel 14 and/or rails 16 and 18. A fastening device is provided in each wrist strap, for example, a buckle 68 (Figure 6). Ankle straps 70 and 72 having similar buckles or the like therein are attached near the opposite end of the carrier 12. Means for holding the hips of the subject on the rest 46 are attached to the hip rest. A suggested structure for this purpose is seen best in Figure 1 and consists of a pair of straps 74 and 76 which are connected at one end in apertures in rest 46 and which are fastened by means of buckles or the like at their opposite ends to the rest 46.

A leg, such as leg 80 (Figure 8) is extensibly connected with each end of each rail 16 and 18. Accordingly, there are four legs in all. The function of the legs 80 is to support the carrier 12 in a fixed, preferably horizontal position. This is an option for the person administering to the subject inasmuch as it is often necessary to hold the subject in a horizontal position for various reasons. Moreover, the see-saw is a table when the legs 80 are extended. Each leg 80 is constructed of an elongated rod having a hand grip and foot 82 at one end and a right angular extension 84 at the opposite end. This extension has a knob or other enlargement 86 to prevent the leg from being separated completely from its side rail. In normal use of the see-saw the legs 80 are located in the side rails. However, when it is desired to use the see-saw as a table, each leg 80 is withdrawn from the side rail. This is done by grasping the knob 82 and pulling until its right angular extension 84 contacts the end plate 88 in the rail. Then, the leg 80 is swung ninety degrees downwardly with the extension 84 acting as a support for the rail with which it is associated. There is enough friction between the opening in the end plate 88 and the leg 80 to prevent the leg from inadvertently sliding from its rail. Additional locking devices for this purpose may be used where it is found desirable.

In Figure 7 a modification of leg 80 is illustrated. This is an instance wherein there are only two legs rather than four. In this regard an extensible leg 90 is fixed at its upper end to a pivot 94 which is located in aligned openings in the side rails 16 and 18 of a carrier. Collar 92 with a setscrew in it is used to hold one of the sections of the extensible legs 92 in a selected adjusted position in order that the combined length of the two sections forming leg 90 may be adjusted in accordance with the needs and desires of the attendant.

Leg 90 is moved to the inoperative position by swinging it together with pivot 94 until it assumes a position approximately parallel to the carrier. In this position a latch 96 beneath panel 14 is clamped over it to hold it in place.

In use, the see-saw, assuming it to be in the collapsed position of Figure 4, is set up. This is done by pulling the legs 22 and 24 outwardly so that their lower parts are spread. After this the see-saw is ready for use. A subject is placed on the see-saw face down, with the subject's hips located on the rest 46. After securing the limbs of the subject on the carrier and securing the hips to the hip rest by the straps provided for these purposes, the attendant rocks the see-saw carrier.

Upon rocking movement of the carrier push rods 48 and 50 cause the rest 46 to be elevated with respect to the plane of the panel 14 when the carrier is rocked down at one end. When the carrier is moved upwardly at the same end the rest 46 becomes nested upon the upper surface of the panel 14 and is elevated along with the panel. Slots 58 and 60 permit the rest 46 to be raised in this manner. However, upon return movement of the carrier, the push rod 48 and 50 are lowered with respect to brace 62 of support 20 until at the desired position, cross member 62 abuts the upper end of the

slots 58 and 60 whereby the rest 46 does not lower any farther but the one end of the carrier does. This causes an elevating movement of the subject's hips and pelvic region with respect to the adjacent parts of the anatomy. Thereafter, support 20 is collapsed and folded under the carrier 12 by merely bringing the legs 22 and 24 together and swinging them as a unit beneath carrier 12. During this swinging movement the trunnions 30 and 32 establish the axis of pivotal movement. In so swinging the leg 22 and explicitly, the cross member 62 of leg frame 26, rest 46 is brought to bear on the upper surface of the panel 14.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A respirating see-saw comprising a support, a subject carrier pivoted between its ends to said support and having a subject supporting surface, means connected to said support and movable to a position above said surface for raising the hips of the subject above said surface in response to pivotal movement of said carrier, and means for fastening the hip region of the subject to said hips raising means.

2. A respirating see-saw comprising a support, a subject carrier pivoted between its ends to said support and having a subject supporting surface, means connected to said support and movable to a position above said surface for raising the hips of the subject above said surface in response to pivotal movement of said carrier, means for fastening the hip region of the subject to said hips raising means, and means near the opposite ends of said carrier for securing the arms and legs of the subject to said carrier.

3. A respirating see-saw comprising a support, a subject carrier pivoted between its ends to said support and having a subject supporting surface, means connected to said support and movable to a position above said surface for raising the hips of the subject above said surface in response to pivotal movement of said carrier, means for fastening the hip region of the subject to said hips raising means, legs for said carrier to support said carrier in a fixed position, and means releasably holding said legs in an inoperative position.

4. A respirating see-saw comprising a support, a subject carrier pivoted between its ends to said support, means connected to said support for raising the hips of the subject in response to pivotal movement of said carrier, said means including a hip rest, push rods secured to said rest, and a lost motion abdominal rest driving connection between said push rods and said support.

5. A respirating see-saw comprising a support, a subject carrier pivoted between its ends to said support, means connected to said support for raising the hips of the subject in response to pivotal movement of said carrier, said means including a hip rest, push rods secured to said rest, and flexible means connected to said rest for fastening the hips of the subject to said rest.

6. In a respirating see-saw which has a pivoted subject carrier provided with a subject supporting surface, means to elevate the hips of the subject above said surface in response to pivotal movement of said carrier, a support on which said carrier is mounted, said support having legs, and means pivotally connecting said legs and carrier together so that said legs are foldable to a position generally flush with said carrier and to a position of mounting said carrier for pivotal movement.

7. The respirating see-saw of claim 6 together with legs connected with said carrier for selectively holding said carrier in a fixed position.

8. In a respirating see-saw which has a pivoted subject carrier, means to elevate the hips of the subject in response to pivotal movement of said carrier, the improvement comprising a support on which said carrier is mounted, said support having legs, means pivotally connecting said legs and carrier together so that said legs are foldable to a position generally flush with said carrier and to a position of mounting said carrier for pivotal movement, said hip elevating means including a pair of push rods which have slots and a brace forming a part of said support and passing through said slots.

9. The improvement in a respirating see-saw of claim 7 wherein said hip elevating means includes also a hip rest, and means pivotally connecting said rest to said push rods.

10. The combination of claim 7 wherein said means which connect said rest to said push rods includes at least one bearing connected to said abdominal rest, a cross member secured to and off-set laterally from the upper ends of said push rods, said hips elevating means having a hip rest, and means pivotally connecting said hip rest to said push rods.

11. In a respirating see-saw which has a pivoted subject carrier provided with a subject supporting surface, means to elevate the hips of the subject above said surface in response to pivotal movement of said carrier, a support on which said carrier is mounted, said support having legs, means pivotally connecting said legs and carrier together so that said legs are foldable to a position generally flush with said carrier and to a position of mounting said carrier for pivotal movement, and flexible means for fastening the subject to said elevating means.

12. In a see-saw for resuscitating use, a support, said support including legs, a subject carrier, common means pivoting said legs together and said carrier to said legs, hip elevating means including a pelvic region rest and at least one push rod, said carrier having an aperture through

which said push rod passes, and means responsive to pivotal movement of said carrier for holding said push rod while said carrier is being pivoted so that said rest and said carrier move with respect to each other.

13. The see-saw of claim 12 together with legs carried by said carrier and adapted to be extended to hold said carrier in a fixed position to function as a table.

14. In a see-saw for resuscitating use, a support, said support including legs, a subject carrier, common means pivoting said legs together and said carrier to said legs, hip elevating means including a hip rest and at least one push rod, said carrier having an aperture through which said push rod passes, means responsive to pivotal movement of said carrier for holding said push rod while said carrier is being pivoted so that said rest and said carrier move with respect to each other, and means connected to said rest for retaining the hips of the subject thereon.

15. In a see-saw for resuscitating use, a support, said support including legs, a subject carrier, common means pivoting said legs together and said carrier to said legs, hip elevating means including a hip rest and at least one push rod, said carrier having an aperture through which said push rod passes, means responsive to pivotal movement of said carrier for holding said push rod while said carrier is being pivoted so that said rest and said carrier move with respect to each other, means for attaching the subject to the carrier, and means for attaching the hips of the subject to the rest to prevent the subject from shifting on the carrier while the carrier is being pivoted.

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