Nov. 16, 1954 O. DEGENFELDER 2,694,441

PORTABLE SEAT

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FIG. 1.

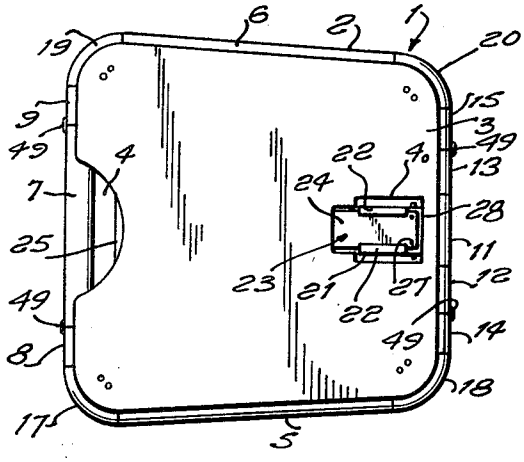


FIG. 2.

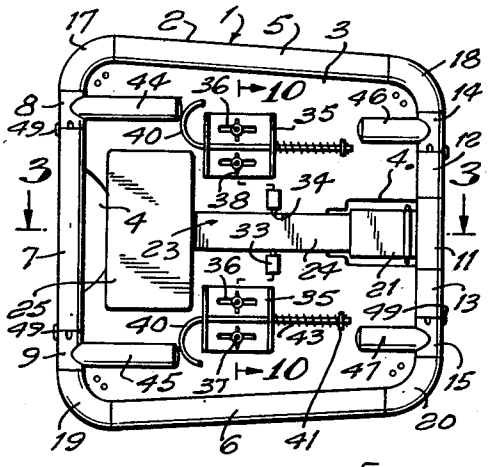
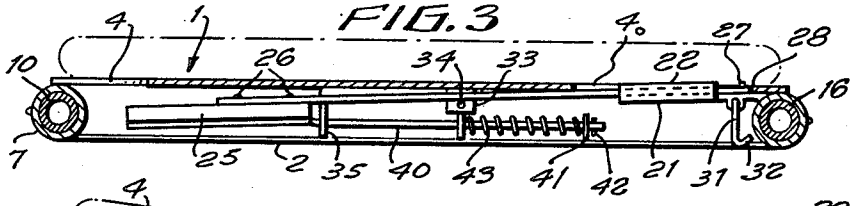


FIG. 3



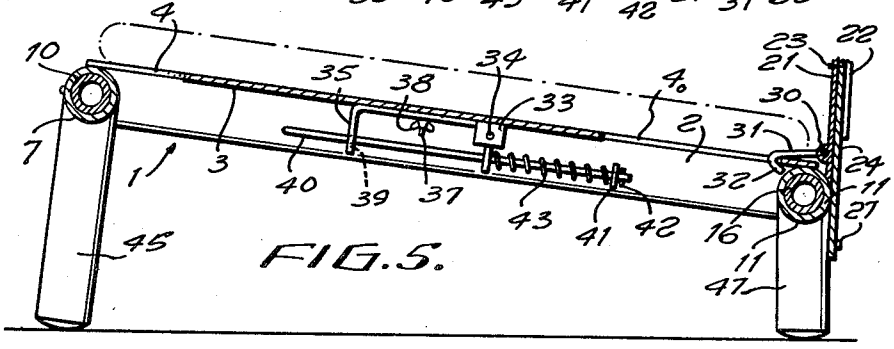


FIG. 5.

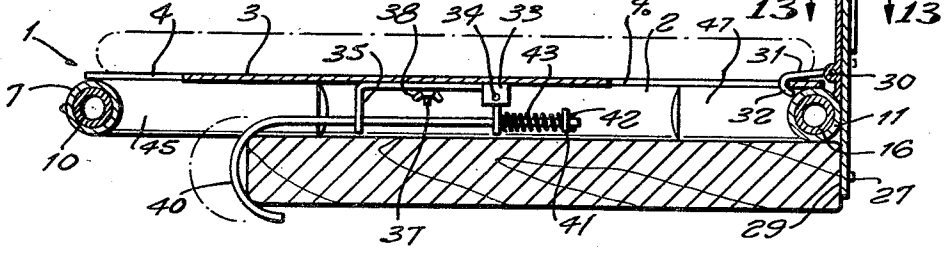


FIG. 4.

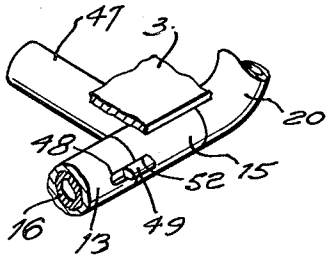
INVENTOR
OTTO DEGENFELDER
BY Lawrence Shurtleff
Atty

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FIG. 6.



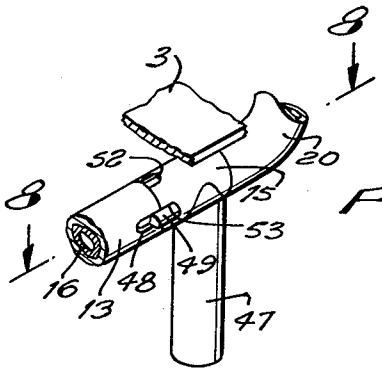


FIG. 7.

FIG. 9.

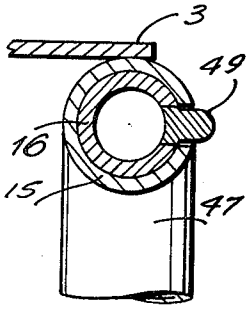
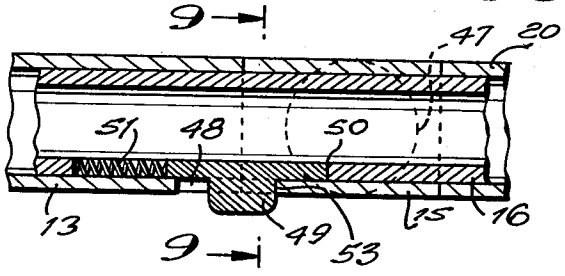


FIG. 8.



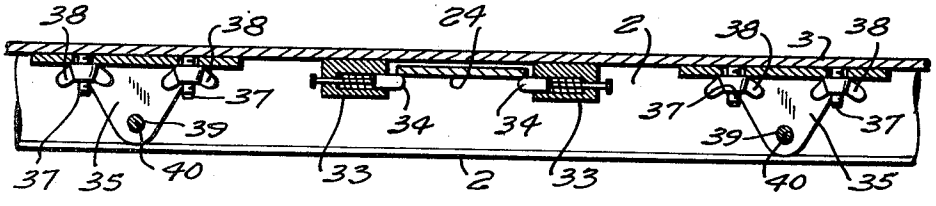
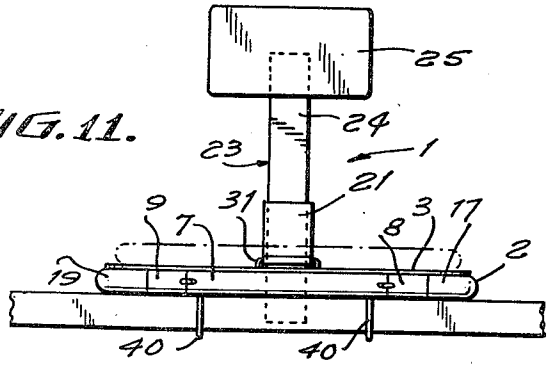


FIG. 10.

FIG. 11.



INVENTOR
OTTO DEGENFELDER
BY

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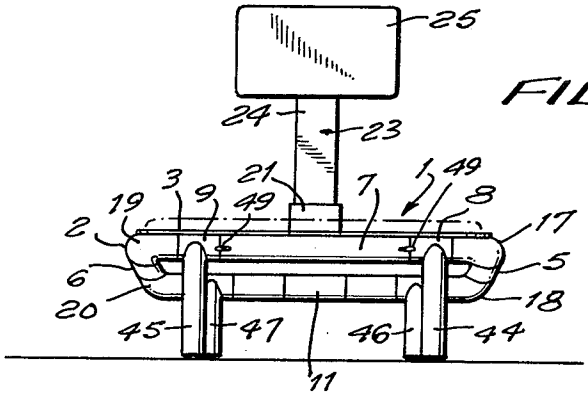


FIG. 12.

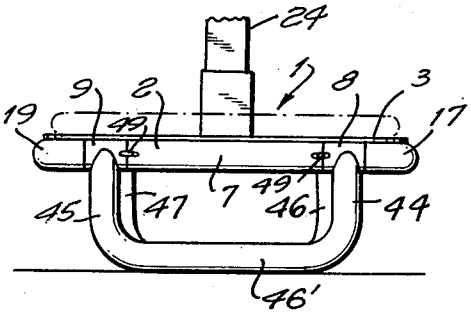


FIG. 16

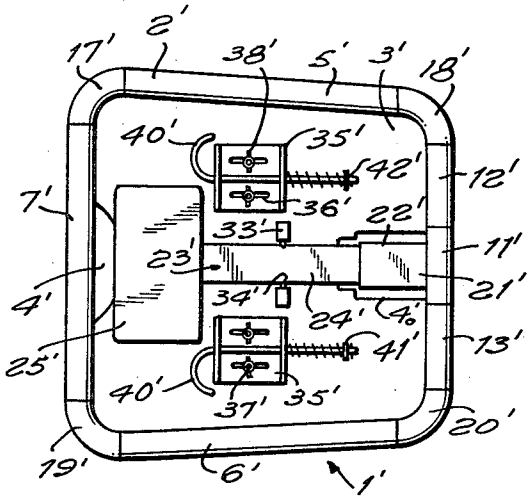


FIG. 14

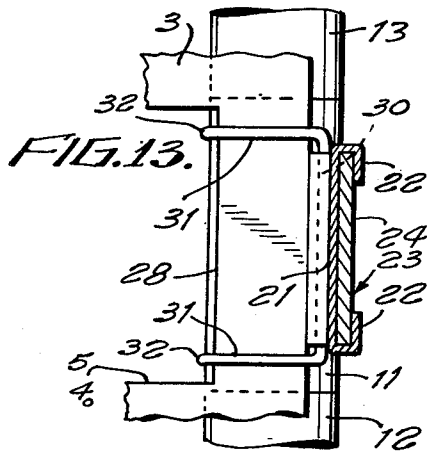


FIG. 13.

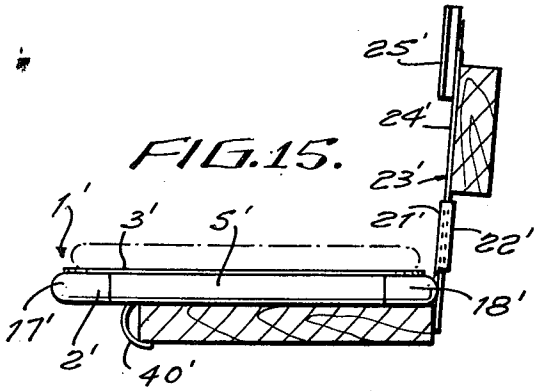


FIG. 15.

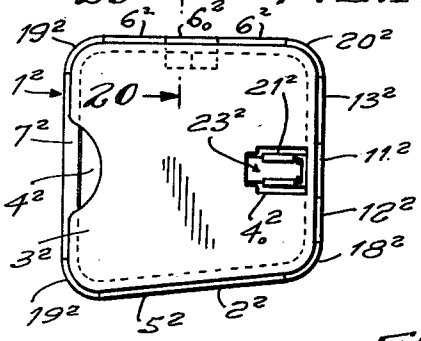
INVENTOR
OTTO DEGENFELDER
BY

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PORTABLE SEAT

Filed June 30, 1953 4 Sheets-Sheet 4

FIG. 17.



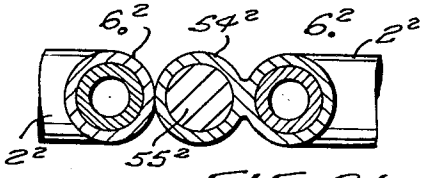


FIG. 21.

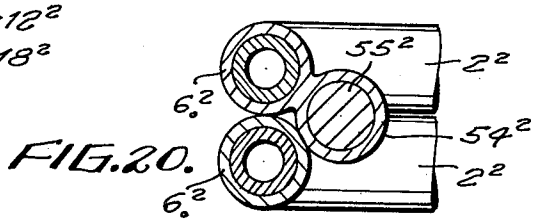


FIG. 20.

FIG. 18.

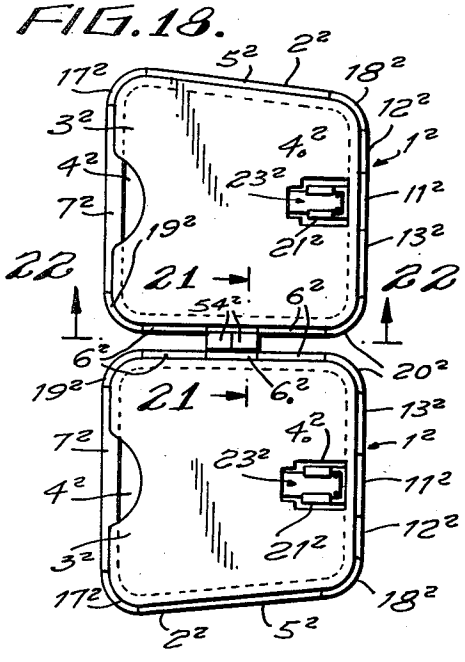


FIG. 19.

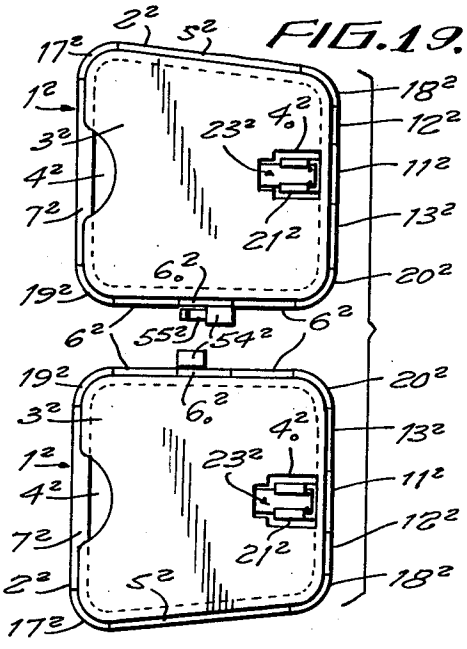
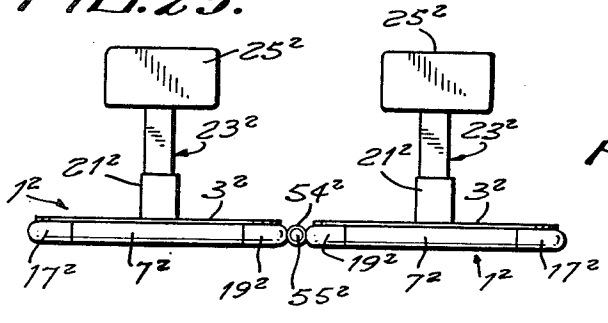


FIG. 23.



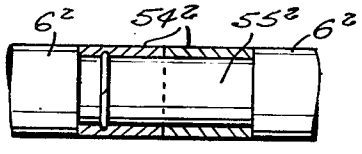


FIG. 22.

INVENTOR

OTTO DEGENFELDER

BY

United States Patent Office 2,694,441 Patented Nov. 16, 1954

2,694,441

PORTABLE SEAT

Otto Degenfelder, New York, N. Y.

Application June 30, 1953, Serial No. 365,148

8 Claims. (Cl. 155—133)

The present invention relates to a portable seat in general and to a seat having a collapsible back to rest thereunder in collapsed position, in particular.

It is well known that stadiums, picnic grounds, beaches, or the like are equipped usually with simple wooden benches which do not render great comfort when sitting thereon for an appreciable length of time.

It is, therefore, one object of the present invention to provide a portable seat which is equipped with a back collapsible below the seat and which is also equipped with collapsible means for securely attaching the seat to a bench or the like. It is another object of the present invention to provide a portable seat having a collapsible back which is equipped with means for securely attaching the seat to a bench or the like, whereby an extension of the collapsible back operates as rear abutment to the bench.

It is still another object of the present invention to provide a portable seat having a collapsible back and at least three legs which may be collapsed into the plane of the seat, so that upon collapsing of the back to the underface of the seat and of the legs likewise to the underface of the seat, the seat becomes a flat unit which lends itself for easy carrying with one hand.

It is yet another object of the present invention to provide a portable double seat comprising two single seats, collapsible one over the other, hinged together at their adjacent sides, and each of the seats having a back collapsible to the underface of the respective seats.

With these and other objects in view which will become apparent in the following detailed description, the present invention will be clearly understood in connection with the accompanying drawings, in which;

Figure 1 is a top plan view of a single portable seat with the back in collapsible position;

Fig. 2 is a bottom plan view thereof;

Fig. 3 is a section along the lines **3—3** of Fig. 2;

Fig. 4 is a vertical section of the single portable seat with upright back and mounted on a bench;

Fig. 5 is a vertical section through the portable single seat with lowered legs and the back in upright position shown in part only;

Fig. 6 is a perspective fragmentary top view of the leg structure, the leg being in collapsed position;

Fig. 7 is a perspective fragmentary top view of the leg structure, the leg being in lowered position;

Fig. 8 is a section along the lines **8—8** of Fig. 7;

Fig. 9 is a section along the lines **9—9** of Fig. 8;

Fig. 10 is a fragmentary section along the lines **10—10** of Fig. 2;

Fig. 11 is a front elevation of the portable single seat with upright back, the legs being in collapsed position;

Fig. 12 is a front elevation of the portable single seat with upright back and lowered legs;

Fig. 13 is a fragmentary section along the lines **13—13** of Fig. 4;

Fig. 14 is a bottom plan view of a second embodiment of the portable single seat omitting the leg structure;

Fig. 15 is a side elevation of the portable single seat mounted on a bench which is equipped with a back;

Fig. 16 is a fragmentary elevation of the portable single seat showing another embodiment of the leg structure;

Fig. 17 is a top plan view of a portable double seat, the two seats being collapsed one above the other;

Fig. 18 is a top plan view of a portable double seat, the seats being shown in side by side arrangement and hinged together at their adjacent sides;

Fig. 19 is a top plan view of the portable double seat, the seats being separated from each other;

Fig. 20 is a fragmentary section along the lines **20—20** of Fig. 17;

Fig. 21 is a fragmentary section along the lines **21—21** of Fig. 18;

Fig. 22 is a section along the lines **22—22** of Fig. 18; and

Fig. 23 is a front elevation of the portable double seat, the seats being hinged together in side by side arrangement.

Referring now to the drawings and particularly to Figs. 1 to 13, the portable single seat **1** comprises a preferably substantially rectangular frame **2** which may be made of tubular material of a light specific weight as of aluminum. A seat plate **3** is secured to the top of the frame **2** by welding, screwing or any other suitable means. The seat plate **3** has a preferably oval recess **4** at one side thereof and a second preferably longitudinally disposed recess 4_0 adjacent the opposite side thereof. The former recess **4** may extend to the edge of the seat plate **3**, thereby providing an opening between a portion of the frame **2** and the edge of the seat plate **3** in order to make it possible to grip this portion of the frame **2** when carrying the seat **1**, while the latter recess 4_0 does not extend to the edge of the seat plate **3**, one edge of the recess 4_0 operating as an abutment for the back support, as will be described below, when the back support is in its collapsed position.

Referring to the embodiment shown in Figs. 1 to 5, the frame **2** defines a chamber and consists of two tubular side pieces **5** and **6**, three tubular front pieces **7**, **8** and **9**, which pieces **7**, **8** and **9** are axially aligned and maintained in this position by an inner tube **10** of a length greater than the length of the tubular piece **7**. The rear portion of the frame **2** consists of five tubular pieces **11**, **12**, **13**, **14** and **15**, which five tubular pieces **11** to **15** are likewise axially aligned by means of an inner tube **16**. While the inner tubes **10** and **16**, respectively, assure axial alignment of the front pieces **7** to **9** and of the rear pieces **11** to **15**, respectively, they permit relative rotation of all front pieces and of all rear pieces. The side piece **5** is properly connected by curved pieces of substantially 90° **17** and **18** to the end front piece **8** and to the end rear piece **14**, respectively, and the side piece **6** is in similar manner connected by means of curved pieces of substantially 90° **19** and **20** to the front end piece **9** and the rear end piece **15**, respectively.

A back carrier **21** is secured, preferably, by welding to the rear center piece **11**. The back carrier **21** extends tangentially from the rear center piece **11** and is formed as a longitudinal member the side edges of which are formed to flanges **22** at its outer portion to operate as a guide for the back support **23** which consists of a comparatively heavy metal band **24** to which a back **25** is secured by rivets **26** or any other suitable means at one of its ends. By sliding the metal band **24** through the flanges **22**, the back **25** may assume any position of predetermined height permissible in accordance with the length of the metal band **24**. The other end of the metal band **24** is equipped with stop pins **27** which operate as limiting means for sliding the narrow band **24** in outward direction, the stop pins being disposed in the path of the flanges **22** abutting against the latter in the outermost position of the metal band **24**. As indicated before, the inner edge of the metal band **24** engages the edge **28** of the recess 4_0, thereby, providing a limit for the downward movement of the metal band **24** in its collapsed position. Since the back carrier **21** is permanently secured to the rear center piece **11** of the frame **2**, the back support **23** and, thereby, also the metal band **24** and the back **25** are rotatable from their collapsed position (Fig. 3), in which the rear face of the back **25** is adjacent the under face of the seat plate **3**, for more than 270° to reach the upright, operative position of the back (Fig. 4). The lower end of the metal band **24** engages, when in its operative, upright position, the rear face of a bench seat **29** (Fig. 4) and

thereby prevents a rearward return movement of the metal band 24 and of the back 25. In order, however, to provide means for retaining the back in its upright, operative position, which means are particularly important if the seat 1 is not used in combination with a wooden bench, a hinge means 30 is secured to the front face of the back support 23, which hinge means 30 carry turnably a U-shaped locking member 31, the ends of its legs forming two hooks 32 which are adapted to engage the edge 28 of the recess 4_0. While the locking member 31 permits a sliding forward movement of the metal band 24 and the back 25, it limits its rearward movement and retains the metal band 24 and the back 25 in its operative, upright position.

In order to retain the metal band 24 and the back 25 in its inoperative, collapsed position, in which the metal band 24 and the back 25 are disposed adjacent the underface of the seat plate 3, two hollow blocks 33 are secured to the underface of the seat plate 3 in aligned position and spaced apart at a distance which is slightly greater than the width of the metal band 24. A spring biased bolt 34 having preferably a rounded head extends from each of the opposite faces of the blocks 33 in such manner that the outer ends of the spring biased bolts 34 are disposed at a distance which is slightly smaller than the width of the metal band 24. Upon turning the metal band 24 together with the rear center piece 11 of the frame 2 towards the underface of the seat plate 3 the side edges of the metal band 24 will suppress the spring biased bolts 34 and upon passing these bolts, the latter will be pressed again to the outermost position by spring action and, thereby, retain the metal band in its inoperative position adjacent the underface of the seat plate 3.

As indicated before, the lower end of the metal band 24 engages in its operative, upright position the rear face of a bench seat 29 and, thereby, prevents forward movement of the seat 1 on the bench seat 29. Additional means are provided to prevent rearward movement of the seat 1 on the bench seat 29 and these means comprise U-shaped brackets 35 the base of which engages the underface of the seat plate 3 and which is equipped with preferably two longitudinal slots 36 therein for the purpose of adjustment in longitudinal direction of the seat 1. Screw bolts 37 extend from the underface of the seat plate 3 through the slots 36 of the brackets 35 and nuts 38, which are preferably formed as wing nuts, secure adjustably the brackets 35 to the underface of the seat plate 3. The leg portions of the brackets 35 are equipped with openings 39 to receive a rod 40 extending through the openings 39 of both leg members of the bracket 35. One end of the rod 40 is bent backwardly for the purpose to engage the front face of a bench seat 29 (Fig. 4) while the other end of the rod 40 carries a washer 41 retained in position against endwise movement by a cotter pin 42 and a helical spring 43 is disposed on the rod 40 and engages with one of its ends the outer face of the leg member farthest from the bent end of the rod 40, while the other end of the spring 43 engages the washer 41. As clearly shown in Fig. 4 of the drawing the seat 1 may be securely mounted to a bench seat 29 by turning the metal band together with the back 25 into upright position so that the lower end of the metal band 24 engages the rear face of the bench seat 29, while the bent front end of the rod 40 engages the front face of the bench seat 29 in which position the spring 43 is compressed and, thereby, securely contains the seat 1 on the bench seat 29.

As indicated above, the front portion of the frame 2 comprises three front pieces 7, 8 and 9 while the rear portion of the frame 2 comprises five rear pieces 11, 12, 13, 14 and 15, each of the front and rear pieces being turnable relative to the respective adjacent pieces. The purpose of arranging the front and rear portions, respectively, of the frame 2 of a plurality of independently rotatable pieces is to provide legs which are turnable from an inoperative position in which they are disposed substantially parallel to the seat plate 3 into an operative position in which they are extending substantially perpendicularly in downward direction from the seat plate 3. The front pieces 8 and 9 of the front portion of the frame 2 carry the front legs 44 and 45 and the rear pieces 14 and 15 of the rear portion of the frame 2 carry the rear legs 46 and 47. The legs 44, 45, 46 and 47 are preferably likewise of tubular material and secured by welding or any other suitable means to the respective pieces 8, 9, 14 and 15. In this manner the legs may be turned together with their corresponding pieces. Since it is preferable to arrange the seat, when operative, into a rearward inclined position the front legs are of slightly greater length than the rear legs.

As clearly indicated in Figs. 6 to 9, special means are provided to retain each one of the legs in its respective operative and inoperative position. In order to achieve this end each one of the front and rear pieces disposed adjacent of a leg carrying front or rear piece is equipped with a longitudinally disposed slot which is open adjacent its corresponding leg carrying piece, which structure is particularly demonstrated in connection with the rear leg 47 in Figs. 6 to 9. Thus, the rear piece 13 is equipped with a longitudinal slot 48 which is adapted to receive a slide 49, which slide 49 seats in a recess 50 of the inner tube 16 and is urged outwardly from the rear piece 13 by means of a spring 51. The leg carrying piece 15 is equipped with two longitudinally disposed slots 52 and 53 open at their ends adjacent the rear piece 13 and substantially 90° apart. Thus, it is possible to align either slit 52 or slot 53 of the leg carrying piece 15 with the slot 48 of the rear piece 13. As shown in Fig. 6, where the leg 47 is in inoperative position the slot 52 of the leg carrying piece 15 is aligned with the slot 48 of the rear piece 13, so that the slide 49 enters by pressure of the spring 51 the slot 52 of the leg carrying piece 15 and locks the latter against turning, since the slide 49 extends partly into the slot 48 and partly into the slot 52 (Fig. 8). As shown in Fig. 7, where the leg 47 is in operative position, the slide 49 extends into the slot 53 of the leg carrying piece 15 and thus locks the leg 47 in operative position. It is to be understood that the same locking arrangement is provided for the other legs 44, 45 and 46 in their respective operative and inoperative positions.

The embodiment shown in Fig. 14 is substantially identical with that of the above described first embodiment with the exception that the leg structure is there eliminated so that the frame 2′ consists of the side pieces 5′ and 6′, however, of one single front piece 7′ and of three rear pieces 11′, 12′ and 13′, which front and rear pieces are connected by curved corner pieces 17′, 18′, 19′ and 20′. The rear piece 11′ has secured thereto the back carrier 21′ with the flanges 22′ in which the metal band 24′ carrying the back 25′ is slidably secured. The underface of the seat plate 3′ has secured thereto again brackets 35′, the leg members of which receive the spring biased rods 40′.

In order to provide a better leg support, particularly when the seat is used on comparatively soft ground, it is preferably to provide U-shape formed legs 46′ (Fig. 16) by connecting each pair of front or rear legs by a ground engaging connecting member.

As particularly shown in Figs. 17 to 23, the seat may be constructed as a double seat to permit the use of the seat by couples in such manner that the seats are comparatively close together. The structure of each individual seat is identical with that shown in Figs. 1 and 2 or in Fig. 14, depending upon the use of the first embodiment having legs or the second embodiment having no legs. The frame 2^2 comprises the front piece 7^2, the rear pieces 11^2, 12^2, and 13^2, as well as the side pieces 5^2 and 6^2 and the corner pieces 17^2, 18^2, 19^2, and 20^2. In this case, however, the side pieces 6^2 consist of two separate elements between which a third piece $6_0{}^2$ is disposed in axial alignment with the pieces 6^2. The two corresponding pieces $6_0{}^2$ which are disposed on the adjacent sides of the two frames 2^2 have preferably welded thereto a tubular hinge member 54^2 which is about of half the length of the side pieces $6_0{}^2$, the axis of the side pieces $6_0{}^2$ and that of the tubular hinge 54^2 being parallel. As clearly indicated in Fig. 19 the hinge 54^2 is disposed on one end of the side piece $6_0{}^2$ while the hinge 54^2 secured to the other frame is disposed at the other end of the side piece $6_0{}^2$ of the said other frame, so that upon inserting a bolt through both hinges 54^2 the two seats are hingedly connected and may assume a side by side position as shown in Fig. 18 or a collapsed position in which one seat is disposed above the other, as clearly shown in Figs. 17 and 20. The bolt 55^2 disposed in the two hinges 54^2 may be equipped with a circular groove in which a split ring is inserted to retain the hinges 54^2 on the bolt 55^2.

While I have disclosed several embodiments of the

invention, it is to be understood that these embodiments are given by example only and not in a limiting sense, the scope of the invention being determined by the objects and the claims.

I claim:

1. A portable seat comprising a continuous frame having front, rear and side portions, a seat plate secured to and resting on the top of the said frame, the said seat plate combined with the said frame defining a chamber open at its bottom, one part of the rear portion of the said frame forming a hinge rotatable relative to the other part of the said rear portion, a back carrier secured to the said hinge, a back structure consisting of a back and a back support, the said back being secured to the latter, means for slidingly connecting the said back support to the said back carrier to adjust the said back to any predetermined vertical position, the said hinge permitting the turning of the said back from its upright operative position into its inoperative position adjacent the underface of the said seat plate, and means for retaining the said back structure in its inoperative position adjacent the underface of the said seat plate.

2. The portable seat, as set forth in claim 1, in which the said means for retaining the said back support in its inoperative position adjacent the underface of the said seat plate comprises two oppositely disposed spring biased bolts having rounded heads and movably supporting a housing, the latter secured to the underface of the said seat plate, the space between the oppositely disposed ends of the said spring biased bolts being slightly smaller than the width of the said back support.

3. The portable seat, as set forth in claim 1, in which the front and the rear portions of the said frames have additional hinges turnable relative to the remaining part of the respective front and rear portions, leg extensions rigidly secured to the said last mentioned hinges, the said leg extensions assuming an inoperative position substantially parallel to the said seat plate within the said chamber and an operative upright position substantially perpendicular to the said seat plate and projecting from the said chamber, and means for retaining the said last mentioned hinges in the respective operative and inoperative position of the said leg extensions.

4. The portable seat, as set forth in claim 3, in which the parts of the respective front and rear portions adjacent the said additional hinges have an axially disposed slot, and a spring biased slide being mounted to move in the said slot, and in which the said additional hinge is of tubular shape and has at one of its ends two axially disposed slots, the said slots being substantially 90° apart, so that the said slide enters the corresponding slots of the said hinge in the respective operative and inoperative positions of the said leg extensions and thereby locks the latter in their respective positions.

5. The portable seat, as set forth in claim 1, in which the said seat plate has a recess adjacent the said hinge carrying the said back carrier, the said back carrier has a U-shaped member pivotally mounted to the front face thereof and the front ends of the leg portions of the said U-shaped member being turned downwardly to engage the rear edge of the said recess in the said seat plate to form abutment means for the rearward movement of the said back carrier.

6. The portable seat, as set forth in claim 1, in which the said means for slidingly connecting the said back carrier to the said back support comprises flange portions formed by the side edges of the said back carrier, thereby forming guides for the said back support.

7. The portable seat, as set forth in claim 1, in which at least one of the side portions of the said frame has a tubular portion axially aligned and rotatable relative to the other part of the said side portion to form a hinge member adapted to be connected with the corresponding hinge portion of another seat to form a multiple seat, the said hinge portion permitting to collapse the said second seat over the said first seat in inoperative position for easy carrying and to arrange the said first and second seats in side by side operative position, respectively, and the back structure of each of the said seats being received by the corresponding chamber defined by the respective seats combined with their corresponding frames in its inoperative position.

8. A portable seat comprising a continuous frame, a seat plate secured to and resting on top of the said frame, the said frame combined with the said seat plate defining a chamber open at its bottom, and hinge means pivotally secured to the rear portion of the said frame, a back carrier extending substantially tangential to the said rear portion of the said frame in upward direction in its operative position and positioning the said back carrier within the said chamber and turnable for substantially 270° in rearward direction into the said chamber in its operative position, a back structure slidably secured to the said back carrier, the area of the combined back carrier and back structure being smaller than the area of the said chamber in order to receive the former in the latter, and means secured to the said seat plate for retaining the said back structure in its inoperative position below the said seat plate within the said chamber.

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