Sept. 25, 1928.

1,685,599

J. P. FLETCHER

COLLAPSIBLE DENTAL CHAIR

Filed Aug. 13, 1927

3 Sheets-Sheet 1

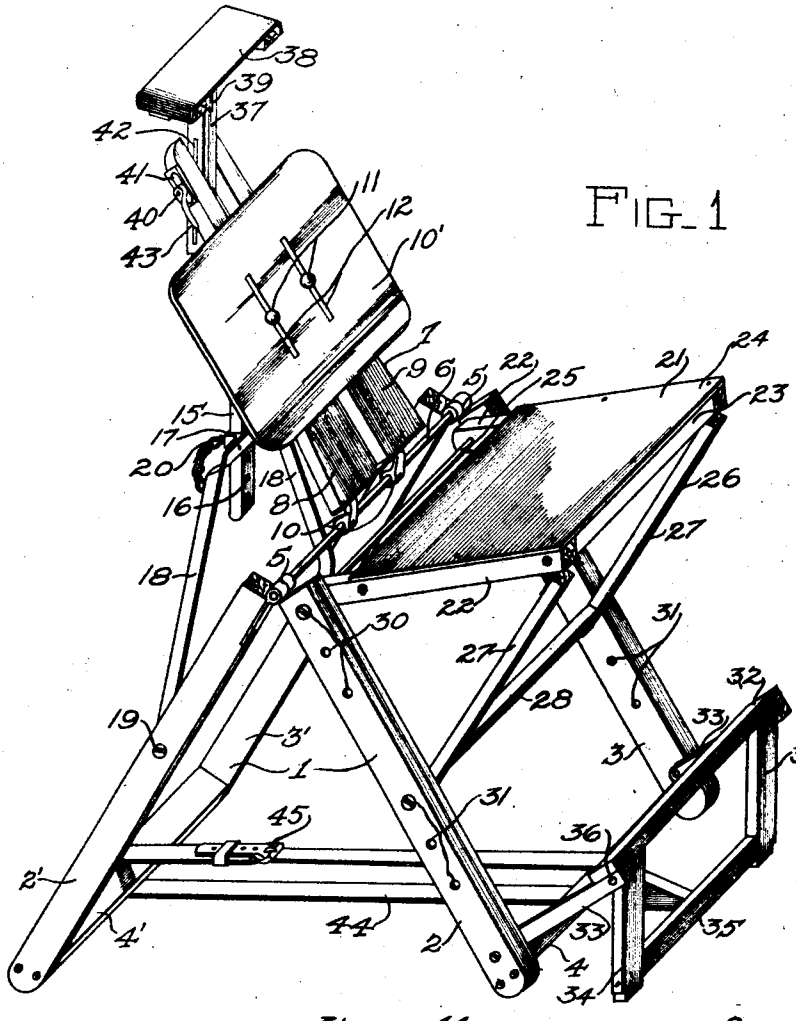


FIG_1

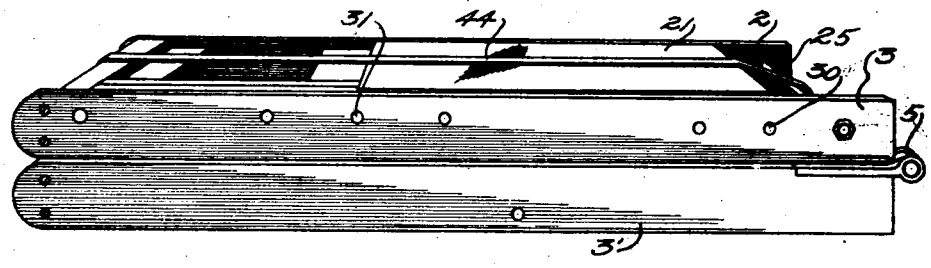


FIG_2

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3 Sheets-Sheet 2

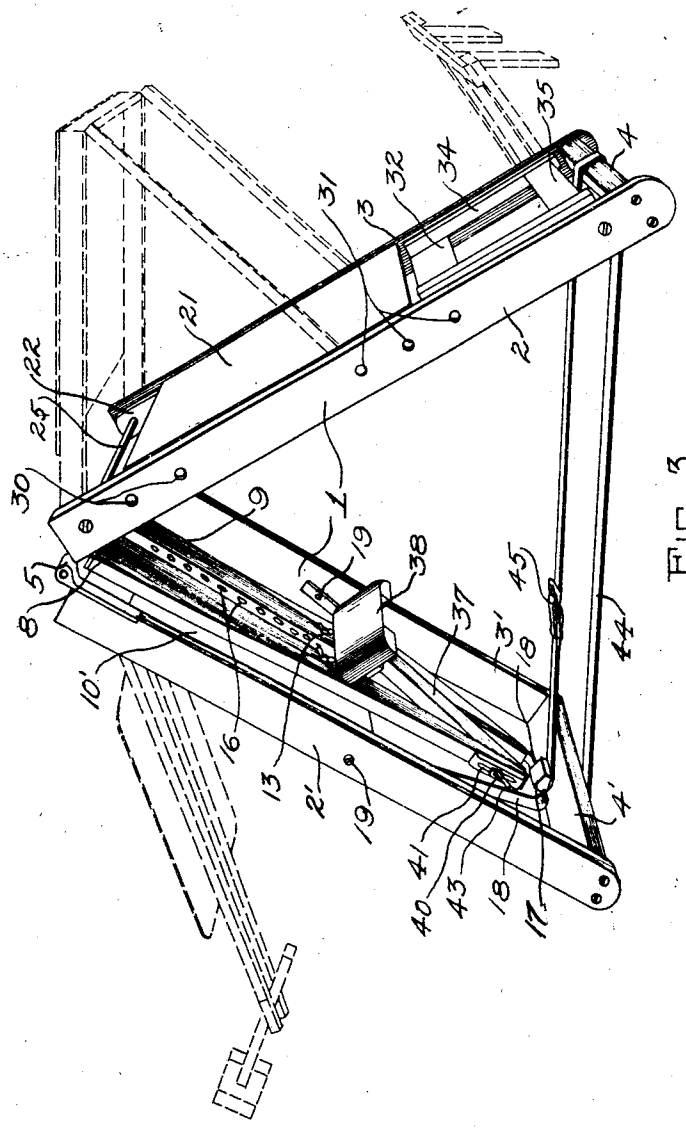


FIG. 3

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3 Sheets-Sheet 3

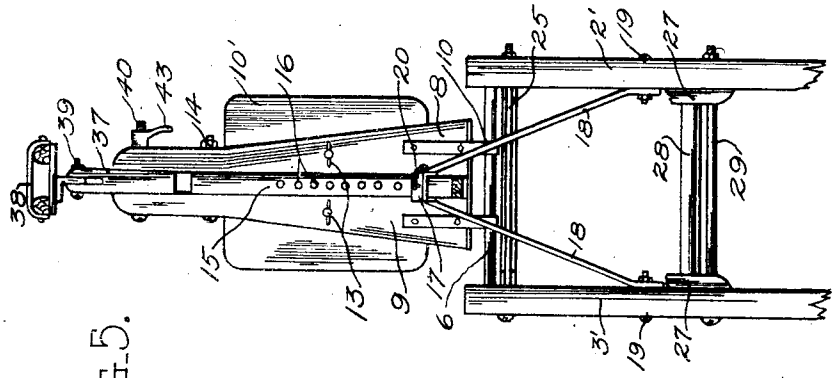


FIG. 5.

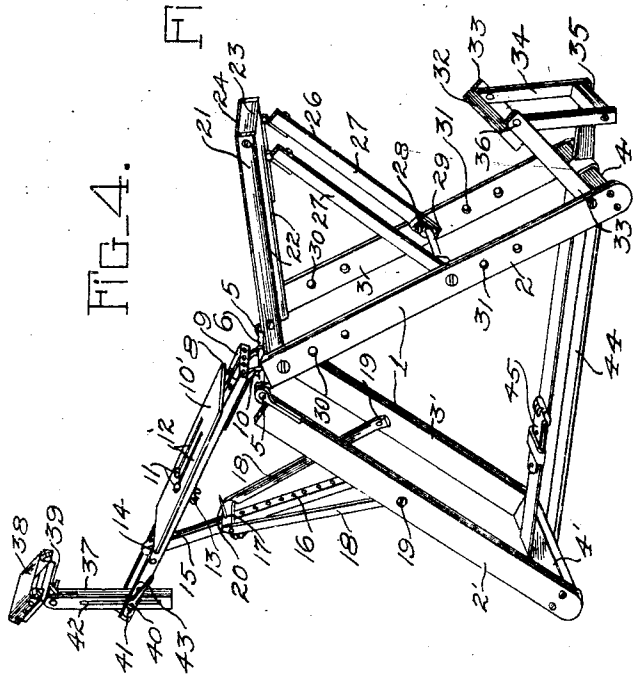


FIG. 4.

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UNITED STATES PATENT OFFICE.

JOHN P. FLETCHER, OF THE UNITED STATES ARMY, CARLISLE, PENNSYLVANIA.

COLLAPSIBLE DENTAL CHAIR.

Application filed August 13, 1927. Serial No. 212,824.

(GRANTED UNDER THE ACT OF MARCH 3, 1883, AS AMENDED APRIL 30, 1928; 370 O. G. 757.)

This invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention relates to dental chairs, more particularly it is directed to those of the collapsible type, designed to be folded into a compact portable unit whose dimensions admit of convenient transportation.

One of the objects of this invention is to design a dental chair for army field service which may be collapsed into an extremely compact structure affording maximum shipping facilities and when set up in the field contributes all the adjustment advantages of the more complex office chair.

Another object of this invention is to effect a collapsible dental chair characterized by its rugged construction, comparatively few parts and the simplicity and ease with which the seat, back and head rest may be adjusted to the requirements of the patient.

Other objects of this invention are to produce a dental chair capable of being folded for transportation and set up in the field without removing or adding a single article of equipment and to provide a structure wherein the flexible element functioning to limit the spread of the legs may be utilized as a means to maintain the components of the chair in folded relation.

With these and other objects in view this invention consists in certain novel details of construction, combination and arrangement of parts to be more particularly hereinafter set forth and claimed.

Briefly stated, this invention comprises front and rear leg sections hinged at their upper extremities, a back, adjustably connected to the hinge bar of the leg sections, a seat carried by the front leg sections, means in connection with the front leg section and seat to horizontally support the latter at predetermined elevations, back and head rests adjustably mounted on the back, a foot rest pivotally connected to the lower end of the front leg section and a flexible member interconnecting the sections to limit their spread.

Referring more particularly to the accompanying drawings in which corresponding parts are indicated by similar reference characters:

Fig. 1 is a perspective view illustrating the components of the chair in operative position;

Fig. 2 is a perspective view illustrating the arrangement of the chair when folded for transportation;

Fig. 3 is a perspective showing the chair partially folded with parts extending in dotted outline;

Fig. 4 is a perspective view illustrating more clearly the arrangement for adjustably securing the back to the rear leg section, and

Fig. 5 is a fragmentary detail illustrating more clearly the rear construction of the chair.

The type of dental chair heretofore utilized in the dental field service of the army, when arranged for transportation, presented a parcel of irregular outline in no wise conducive to the conservation of shipping space, and upon being crated or set up in the field involved the removal or addition of certain parts of equipment such as the foot and head rests and not infrequently these being detached from the main structure were lost in the shipment of the chair from place to place.

It is therefore the aim and purpose of this invention to provide a collapsible dental chair, which when folded will present a compact unit of substantially rectangular configuration and upon being erected in the field will be complete in every detail of equipment.

In the illustrated embodiment characterizing this invention there is shown a support (1) comprising front and rear leg sections, the respective sections embodying parallel side members (2) and (3) and (2′) and (3′) interconnected at their lower ends by suitably arranged cross bars (4) and (4′) and hinged at their upper extremities as at (5) to the hinge rod (6).

A back (7) is pivotally connected to the hinge rod (6) and consists of the laterally spaced parallel leaves (8) and (9) hinged as at (10) to said hinge rod (6) and tapered from their hinged to their outer extremities.

A back rest (10) is adjustably positioned on the back intermediate its extremity by means of the bolts (11), which extend through the parallel slots (12) in the back rest and through suitable openings in the respective leaves of the back, the bolts (11) being secured in position by wing or similar adjusting nuts (13).

To permit back (7) to be supported in adjusted relation with respect to the seat hereinafter to be mentioned it is provided with a pivoted extension (15) hinged at its upper end as at (14) between the leaves (8) and (9) of the back and formed at its lower end with a series of openings (16). The free end of extension (15) passes through a guide (17) interconnecting the upper ends of braces (18) which are pivoted as at (19) to the members (2′) and (3′) of the rear leg sections. Pin (20) passing through guide (17) and one of the openings (16) in the pivoted extension (15) enables the back to be supported at the desired angle.

A seat (21) including parallels (22) cross bar (23) and cover (24) is pivotally connected to an upper pivotal rod (25) extending between the upper extremities of the side members (2) and (3) of the front leg section and through the rear ends of parallels (22) of the seat. Seat (21) is horizontally supported by a brace (26) consisting of side bars (27) and cross bar (28) extending between their lower ends. The upper extremities of said side bars (27) are hingedly connected to the forward end of parallels (22) of the seat, while the lower ends of the bars (27) are pivotally connected to a lower hinge rod (29) extending between the side members (2) and (3) of the front leg section.

In order that the seat may be adjusted to various elevations the side members (2) and (3) of the front leg section are provided with two groups of aligning and registering openings (30) and (31). With this arrangement the elevation of the seat may be changed by selecting a different opening for the passage of the upper and lower hinge rods (25) and (29) as will be apparent without further discussion.

The foot rest (32) is pivotally connected to the lower extremities of legs (2) and (3) of the front leg section through the medium of the rearwardly extending arms (33) and is supported in proper angular relation with respect to the seat by feet (34) interconnected at their lower end by cross bar (35) and hinged at their upper extremities as at (36) to the outer ends of arms (33) as clearly shown in Fig. 4 of the drawings.

To equip the back with a head rest having a substantially universal movement, a head rest support (37) is provided with a head rest (38) pivotally connected to its upper end as at (39). The support (37) is adjustably positioned between the upper extremities of the leaves (8) and (9) of the back by means of bolt (40), guide ways (41) in the leaves (8) and (9) and the guideway (42) in the support (37). A winged nut (43) threaded on the end of bolt (40) enables the extremities of the leaves (8) and (9) to be drawn together so as to clamp the support (37) therebetween in any adjusted position.

To limit the spread of the front and rear leg sections a strap (44) is passed around the cross bars (4) and (4′) of said sections, the free extremities of the strap being united by a buckle (45) or similar means.

From the foregoing structural details it will be apparent the procedure requisite to folding the chair into the compact structure shown in Fig. 2 of the drawings is as follows: The pivotal extension (15) is disengaged from the guide (16) on the upper end of the brace (17). The extension is then folded to a position intermediate leaves (8) and (9) and brace (17) downwardly between the side members (2′) and (3′) of the rear leg section, as shown in Fig. 3 of the drawings.

Head rest (38) having been adjusted relative to its support as shown in Fig. 1 of the drawings is folded to the rear of the back and clamped in this position whereupon the back with the head rest disposed as aforesaid is folded to a position intermediate the side members of the rear leg section. The seat supporting brace (26) is next disengaged from the side members of the front leg section and folded to a position underlying the seat and the latter is dropped between the side members (2) and (3) of the front leg section, as shown in Fig. 3 of the drawings.

The foot rest with its supporting feet is now folded to a position between the side members (2) and (3) and its feet collapsed as shown in Fig. 3 of the drawings. The front and rear leg sections having been brought together the folded unit is securely bound with the strap (42) as clearly shown in Fig. 2 of the drawings.

Folding the components of the chair as just defined manifestly provides an extremely compact structure the dimensions of which will effect a material conservation in shipping space.

In conclusion it is manifest this invention provides a simple and inexpensive dental chair which by virtue of its rugged nature will readily withstand the severe usage of army service and afford to the dentist in the field all the advantages of the more elaborate office equipment.

Although in the foregoing certain elements have been described as best adapted to perform the functions allotted to them, nevertheless it is to be understood that various minor changes may be resorted to with-

ous minor changes may be resorted to within the scope of the appended claims without departing from or sacrificing any of the principles of this invention.

Having described my invention what I claim as new and wish to secure by Letters Patent is:

1. A collapsible dental chair comprising in combination front and rear leg sections, a hinge rod pivotally connecting the upper extremities of said sections, a back hinged to said rod and including laterally spaced leaves, a back rest adjustably carried by said leaves, a head rest adjustably supported intermediate the upper ends of said leaves, an extension pivoted to the back below the head rest and between said leaves, a brace in engagement with the rear leg section, means to effect a detachable connection between said brace and said pivoted extension, a seat pivoted to the upper portion of the front leg section, a supporting brace hingedly connected to the seat and detachably engaged with said front leg section.

2. A collapsible dental chair comprising in combination front and rear leg sections, a hinge rod pivotally connecting the upper extremities of said sections, a back hinged to said rod and comprising laterally spaced leaves, an extension pivoted to the back intermediate its leaves, a brace pivoted to the rear leg section, a guide member carried by the upper end of the brace and receiving said extension, means in connection with the guide and extension to secure the latter at predetermined points in its length, a back rest secured to said back, a head rest adjustably positioned between the upper ends of said leaves, and a seat collapsibly supported by the front leg section.

3. A collapsible dental chair comprising in combination front and rear leg sections, a hinge rod pivotally connecting the upper extremities of said sections, a back pivoted to the rod and comprising laterally spaced leaves, an extension connected to the back and pivoted at its upper end between said leaves, a brace pivotally connected to the said rear leg section, a guide member carried by the upper end of said brace and receiving the free end of said extension, coacting means between the guide member and extension to secure the latter at predetermined points along its length, a head rest including a support, means to adjustably clamp said support between the upper end of said leaves, a back rest carried by the leaves of said back and adjustable longitudinally thereof, a seat hinged to the upper end of the front leg section, a supporting brace hingedly connected to the forward part of the seat and detachably engaging the front leg section at predetermined points thereof, and a foot rest pivotally connected to the lower end of the front leg section.

4. A collapsible dental chair comprising in combination front and rear leg sections including parallel side members, cross bars arranged intermediate the lower ends of said members, a flexible member interconnecting the cross bars of the respective sections, and limiting the spread thereof, a hinge rod pivotally connected to the upper end of said side members, a seat carried by said front leg section and foldable intermediate its side members, means in connection with the seat and front leg section to horizontally support the former at predetermined elevations, a back hingedly connected to said hinge rod and adjustable relative to said seat, a head rest mounted on the upper end of said back, and movable relative thereto, a back rest adjustably mounted on said back and a foot rest connected to the lower end of the front leg section and foldable intermediate its side members.

5. A collapsible dental chair comprising in combination front and rear leg sections each including parallel side members, cross bars interconnecting the lower end of the respective members, a flexible element embracing said cross bars and limiting the spread of said sections, a hinge rod pivotally connecting the upper ends of said side members, a seat carried by the front leg section and foldable intermediate its members, means in connection with the front leg section and seat to horizontally support the latter at predetermined elevations, a back pivoted to said hinge rod and including laterally spaced leaves foldable between the side members of the rear leg sections, an extension pivoted to and foldable between said leaves, a brace hingedly connected to the rear leg section and adapted to be detachably engaged with said extension, said brace when disengaged from said extension being foldable intermediate the side members of the rear section, a head rest adjustably mounted on the upper end of the back intermediate said leaves, said head rest when the back is in folded position being disposed in overlying relation with the rear surface of said back, a back rest adjustably positioned on said back and a foot rest pivoted to the front leg section and foldable intermediate the side members thereof.

JOHN P. FLETCHER.