

Feb. 14, 1939.

C. J. BOMAN

2,146,932

NESTABLE CHAIR, ARMCHAIR, AND THE LIKE

Filed Dec. 17, 1934

2 Sheets-Sheet 1

Fig. 1.

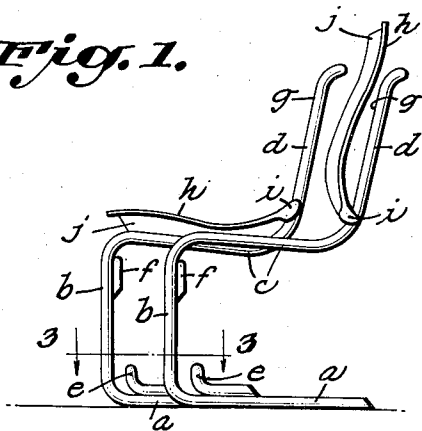


Fig. 2.

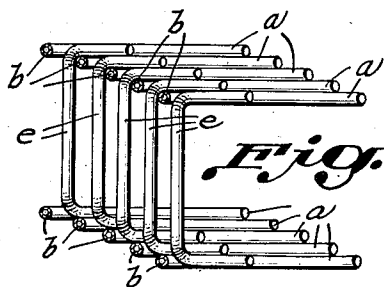
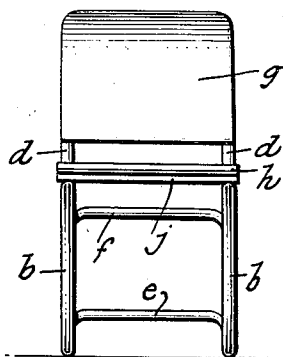


Fig. 3.

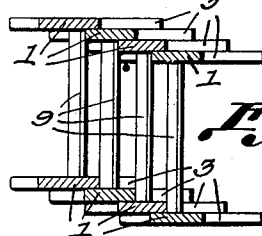


Fig. 4.

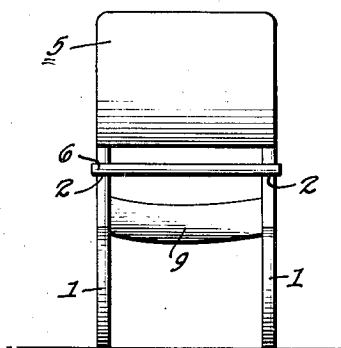
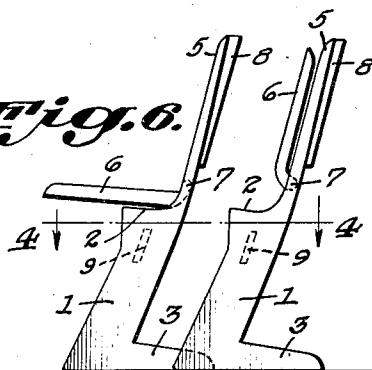


Fig. 5.

Fig. 6.



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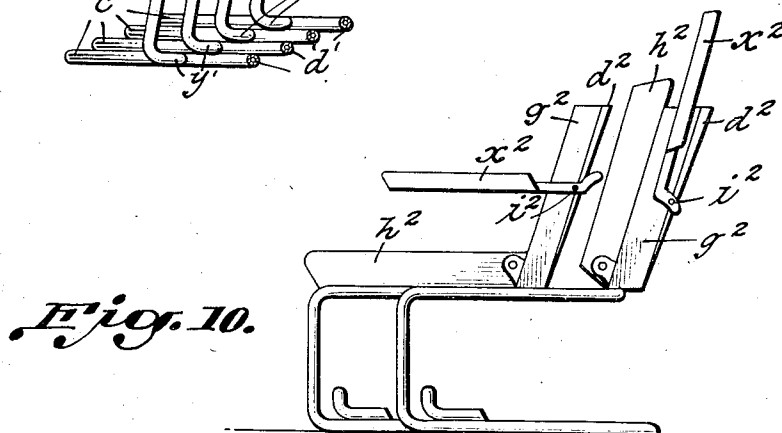
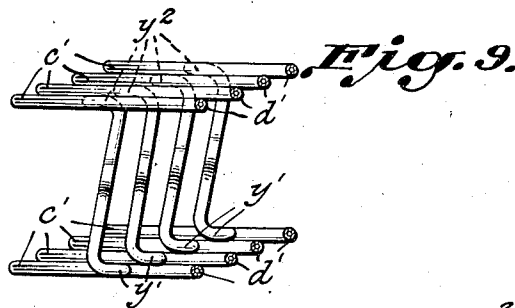
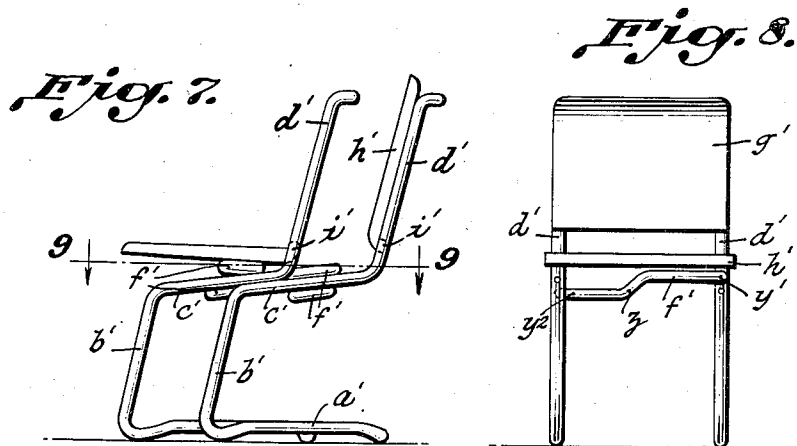
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NESTABLE CHAIR, ARMCHAIR, AND THE LIKE

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,146,932

NESTABLE CHAIR, ARMCHAIR, AND THE
LIKE

Carl Johan Boman, Abo, Finland

Application December 17, 1934, Serial No. 757,800
In Finland December 16, 1933

4 Claims. (Cl. 155—2)

(Granted under the provisions of sec. 14, act of
March 2, 1927; 357 O. G. 5)

In restaurant, cafes, sanatoria and other places where a considerable seating accommodation is necessary, it is desirable that chairs should be comfortable and easily movable, and it is a desideratum that they should, on occasion arising, be capable of being packed in the smallest possible floor space.

In establishments and institutions of the type indicated, floors are cleaned every night, and it is common practice to place the chairs upon the tables to leave the floor free. This is laborious and inconvenient, and moreover there is a considerable risk of the chairs and tables being damaged. In an attempt to cope with the difficulty, collapsible chairs of X-form have been proposed and constructed, but these do not satisfactorily answer the purpose. It has been proposed also, to provide chairs having free spaces beneath the seat, the chairs narrowing towards the rear, so that on the seats being lifted, one chair would "nest" within another, that is to say, the whole of the support of one chair, the narrower end leading, could be slid within the frame of another. Further it has been proposed to form chairs having their front supporting members spaced a lesser distance apart than their rear supporting members so that the chairs may be nested by passing both the rear supporting members of one chair outside the front supporting members of another chair. Obviously the chair frames were necessarily shaped for the purpose and the use of any shape of chair which did not permit of the "nesting" was naturally precluded.

The present invention is directed to the provision of a form of chair a plurality of which may be closely packed whilst still retaining any artistic and attractive design. To this end the invention consists in a chair having side frames and a lift-up seat, said side frames comprising front vertical supporting members and rearwardly extending horizontal members which rest on the ground, all these members being the same substantially constant distance apart from top to bottom and from front to rear, and having transverse strengthening means which leave a space free below the seat portion to permit of the frame of a similar chair being slid below the seat portion, one side frame of the rear chair coming within the corresponding side frame of the front chair and the other side frame of the rear chair passing outside of the corresponding side frame of the front chair. A series of chairs thus packed are therefore stepped laterally in relation to each other, and a very close and compact packing results.

The transverse strengthening means may be a stay, or stays connecting the side frames at the front of the chair; or a stay may be provided at the rear in such a position that it will not prevent the free passage below it of a side frame of a rear chair.

The chair frames and seats may be of metal or wood or the frames may be of metal and the seats of wood or any combination of materials may be adopted in the construction.

Where armchairs are employed, the arms of these may be hinged to lift up, as well as the seats, to obtain the compact storage desired.

Several embodiments of the invention are illustrated by way of example in the accompanying drawings, in which

Fig. 1 shows in side elevation two tubular metal chairs in half-nested position,

Fig. 2 is a front elevation of a chair of the construction as shown in Fig. 1,

Fig. 3 shows in horizontal section five such chairs in nested position, the section being taken on line 3—3 of Fig. 1,

Fig. 4 is a similar view to Fig. 3 showing four wooden chairs in nested position, the section being taken on line 4—4 of Fig. 6,

Fig. 5 shows a wooden chair,

Fig. 6 is a side elevation showing two chairs of the construction shown in Fig. 5 in half nested position,

Fig. 7 shows in side elevation two partly nested metal chairs of modified construction,

Fig. 8 shows in front elevation a chair of the construction illustrated in Fig. 7,

Fig. 9 shows in horizontal section four such chairs in nested position, the sections of the chairs being taken on line 9—9 of Fig. 7,

Fig. 10 is a side elevation showing two partly nested chairs of a construction similar to that shown in Figs. 1 to 3 but with upholstered back and seat and with foldable arm rests.

Referring to Figs. 1 and 2 each chair is composed of two similarly bent side frames each comprising a horizontal portion *a* serving as runner and merging at its front end into an upright portion *b*, the upper end of which is bent backwards substantially parallel to the runner and forms a second horizontal portion *c* from the rear end of which a portion *d* extends upwards and is inclined slightly backwards. The two side frames are rigidly connected by a cross-piece *e* secured to the upper side of the portions *a* near the front end thereof, by a second cross-piece *f* fixed on the rear side of the upright portions *b* near the upper end thereof and by a back *g* on

the front side of the portions d . A seat h is mounted on supports j connected at their rear ends by hinges i to the portions d near the lower ends thereof. This seat, when the chair is in use, is swung downwards on the hinges i until its supports j rest upon the upper side of the portions c of the frame. When it is desired to nest the chairs their seats are swung about the hinges i until they rest against the backs g . The cross-piece e is bent upwards to increase the clearance from the floor so that one of the runners a of one chair can easily slide along the floor under the cross-piece e of a second chair behind the first, until the cross-piece e of the front chair comes into contact with the front side of one of the upright-portions b of the rear chair, and during this movement the second runner a of the front chair slides along the floor outside of the corresponding runner of the rear chair. Thus the chairs fit together very closely as shown in Fig. 3, wherein five chairs are shown in nested position.

Figs. 4 to 6 illustrate a construction of nestable wooden chair. Each chair comprises two upright flat plate shaped side pieces 1 , each side piece having at its lower end a rearwardly extending foot or runner 3 forming with the lower edge of the side piece a long bearing surface to firmly support the chair. The front side of each side piece is cut away at its upper end forming a horizontal shoulder 2 and having an upward extension 8 . The two side pieces are connected below the shoulder 2 by a cross bar 9 and on their extensions 8 by a back 5 . A seat 6 is hingedly mounted on pins 7 in the lower end of the extensions 8 just above the shoulders 2 . When the seat is swung downwards about its pins 7 its lower side bears against and is supported by the shoulders 2 . When it is desired to nest two chairs the seat of each chair is swung upwards until its upper sides bear against the chair back. The chairs are then placed one in front of the other and the rear chair moved towards the front chair so that the front edge of one side piece slides along the outer side of the corresponding foot and side piece of the front chair whereas the front of the side piece slides along the inner side of the corresponding foot and side piece of the front chair. This forward movement is arrested only by the front edge of one of the side pieces coming into contact with the rear side of the cross piece 9 of the front chair and the front side of the cross piece 9 of the rear chair coming into contact with the rear edge of the opposite side pieces of the front chair. Further chairs can be nested in a similar manner and as can be seen from Fig. 4 these chairs occupy very little space when nested.

Figs. 7 to 9 show a modified construction of a tubular iron chair.

As in the construction illustrated in Fig. 7 each of the two side frames comprises a substantially horizontal runner a' with the upright portion b' at its front end merging into a second rearwardly extending substantially horizontal portion c' terminating at its rear end in a second upwardly extending portion d' . The two frames are rigidly connected by a back g' . In this construction the runners are not connected but a cross-piece f' connects the side pieces under the seat portion.

This cross piece f' is bent in S-shape as shown in Fig. 9 and at the same time cranked intermediate its length at Z as shown in Fig. 8, one end y' of this cross piece f' being secured for example by welding to the upper side of the horizontal portion c' of one side frame, whereas its

other end y^2 is secured to the under side of the horizontal portion c' of the other side frame.

The seat h' is pivotally mounted in pins i' at the lower end of the uprights d' and when in lowered position for use it is supported by the portion cross piece f' between its end y' and the crank z .

Chairs constructed in this manner can be nested in exactly the same manner as those constructed as heretofore described. In this instance, however, the nesting movement is arrested by the front side of the portion of the cross-piece b' between y' and z coming into contact with the lower end of the upright d' of the corresponding side frame of the front chair.

This construction presents the advantage that it is possible to stand between the side frames when the seat is raised, which is very important in places of entertainment to allow other people to pass.

Practically the only difference between the construction shown in Fig. 10 and that shown in Figs. 1 to 3 is that the cross-piece f is omitted and the seat h^2 and back g^2 are upholstered, and an arm rest x^2 is pivotally mounted on pins i^2 of the upright d^2 of each side frame.

Having now particularly described and ascertained the nature of this invention and in what manner the same is to be performed, I hereby declare that what I claim is:

1. A chair having a pair of side frames and a lift-up seat pivotally mounted on the side frames, each side frame including a front vertical supporting member, a rearwardly extending substantially horizontal portion at the lower end of the vertical supporting member for ground engagement, the upper end of the vertical member having a substantially horizontal portion overlying the lower horizontal member providing a support for the lift-up seat and a back portion rising from the seat supporting portion above the rear ends of the lower horizontal portion, said side frames being substantially the same distance apart throughout and transverse strengthening means connecting the side frames and so positioned relative to the seat supporting portion whereby identical chairs may be nested with the side frames of a rear chair positioned respectively inside and outside of the corresponding side frames of a front chair, said transverse strengthening means including a stay connecting horizontal portions of the side frames at points spaced from the ends of the side frames and having an upwardly offset portion adjacent one of the side frames to provide a clearance for a side frame of the chair to be nested therewith.

2. A chair having a pair of side frames and a lift-up seat pivotally mounted on the side frames, each side frame including a front vertical supporting member, a rearwardly extending substantially horizontal portion at the lower end of the vertical supporting member for ground engagement, the upper end of the vertical member having a substantially horizontal portion overlying the lower horizontal member providing a support for the lift-up seat and a back portion rising from the seat supporting portion above the rear ends of the lower horizontal portion, said side frames being substantially the same distance apart throughout and transverse strengthening means connecting the side frames and including a stay connecting corresponding ends of a pair of horizontal portions of the side frames, said stay having at least one end thereof connected to said horizontal portion in a plane above the latter

whereby identical chairs may be nested with the side frames of a rear chair positioned respectively inside and outside of the corresponding side frames of a front chair.

5 3. A chair having a pair of side frames and a lift-up seat pivotally mounted on the side frames, each side frame including a front vertical supporting member, a rearwardly extending substantially horizontal portion at the lower end of the vertical supporting member for ground engagement, the upper end of the vertical member having a substantially horizontal portion overlying the lower horizontal member providing a support for the lift-up seat and a back portion rising from the seat supporting portion above the rear ends of the lower horizontal portion, said side frames being substantially the same distance apart throughout and transverse strengthening means connecting the side frames and including a stay connecting the forward ends of a pair of horizontal portions of the side frames, said stay having at least one end thereof connected to said horizontal portion in a plane above the latter whereby identical chairs may be nested with the side frames of a rear chair positioned respec-

tively inside and outside of the corresponding side frames of a front chair.

4. A chair having a pair of side frames and a lift-up seat pivotally mounted on the side frames, each side frame including a front vertical supporting member, a rearwardly extending substantially horizontal portion at the lower end of the vertical supporting member for ground engagement, the upper end of the vertical member having a substantially horizontal portion overlying the lower horizontal member providing a support for the lift-up seat and a back portion rising from the seat supporting portion above the rear ends of the lower horizontal portion, said side frames being substantially the same distance apart throughout and transverse strengthening means connecting the side frames and including a stay connecting the upper substantially horizontal portions of the side frames, said stay having at least one end thereof connected to said horizontal portion in a plane above the latter whereby identical chairs may be nested with the side frames of a rear chair positioned respectively inside and outside of the corresponding side frames of a front chair.

CARL JOHAN BOMAN.