

March 28, 1939.

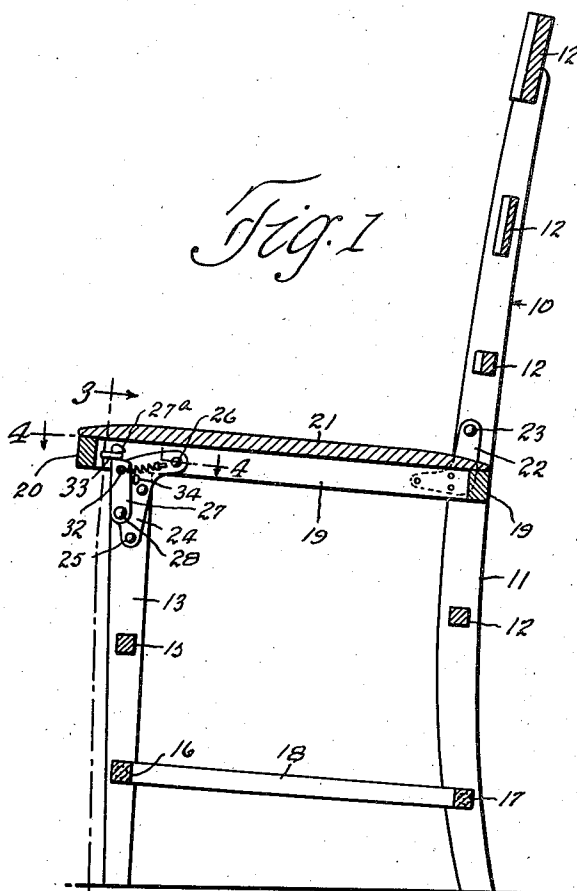
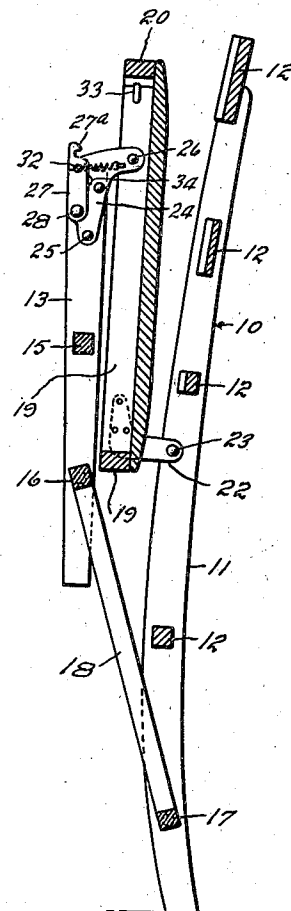
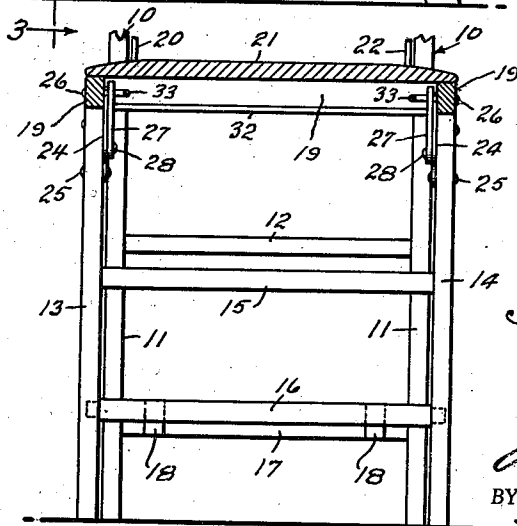
A. B. PARK

2,152,149

FOLDING CHAIR

Filed June 14, 1937

3 Sheets-Sheet 1



Alvan B. Park,
BY *Hull, Brock & Mett,*
INVENTOR.
ATTORNEYS.

March 28, 1939.

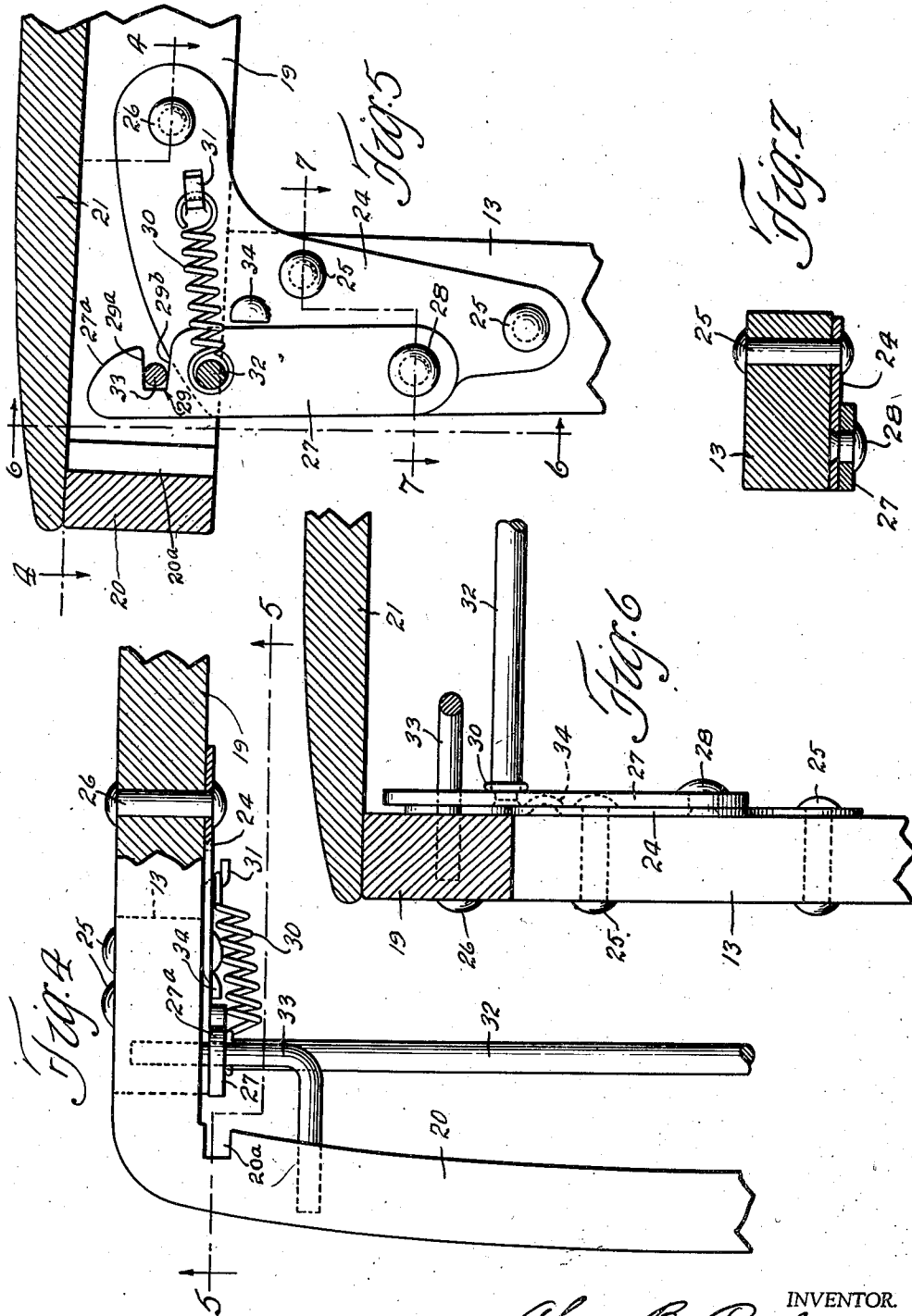
A. B. PARK

2,152,149

FOLDING CHAIR

Filed June 14, 1937

3 Sheets-Sheet 2



INVENTOR
Alan B. Park
BY Hull, Brock & West
ATTORNEYS.

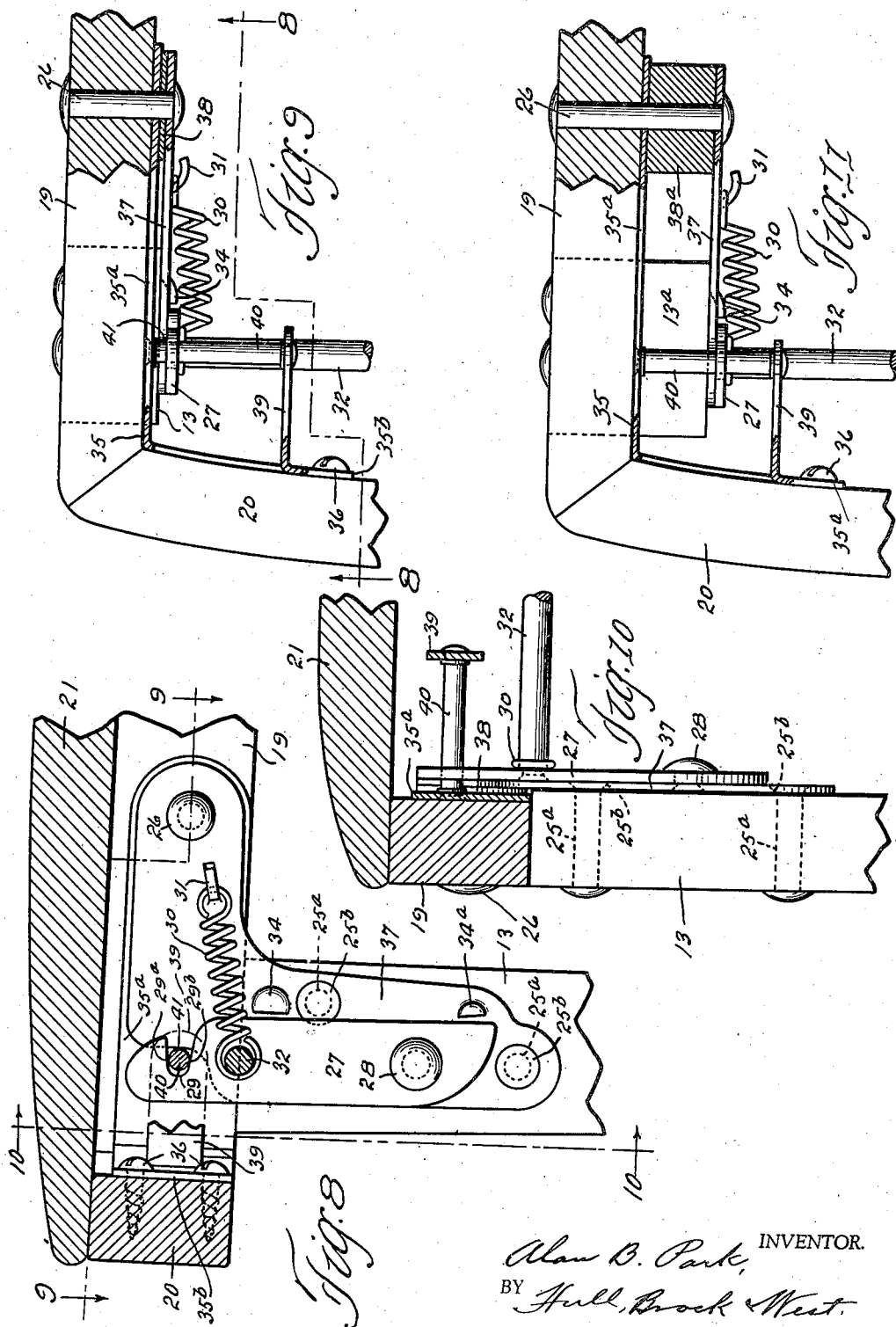
March 28, 1939.

A. B. PARK
FOLDING CHAIR

2,152,149

Filed June 14, 1937

3 Sheets-Sheet 3



Alan B. Park, INVENTOR.
BY Hull, Brock & West, ATTORNEYS.

UNITED STATES PATENT OFFICE

2,152,149

FOLDING CHAIR

Alan B. Park, Metropolis, Ill., assignor to The
Metropolis Bending Company, Metropolis, Ill.,
a corporation of Illinois

Application June 14, 1937, Serial No. 148,027

10 Claims. (Cl. 155—141)

This invention relates to folding chairs, and more particularly to chairs wherein the seat frames are pivotally connected to rear side members comprising legs and backs and wherein the front legs are pivotally connected to the fronts of the said seat frames.

It is the general purpose and object of the invention to provide chairs of this type with a novel form of latch construction which will not only hold the chair in open position while permitting convenient operation of the latch construction, but will also form a firm and rigid connection between the front legs and the seat frame when the chair is in such open position.

A further object of the invention is to secure the foregoing advantages in a construction which combines simplicity of construction with cheapness of production.

The latch construction embodied herein constitutes an improvement on that illustrated, described and claimed in the application of Clenny B. Harrell, patented July 6, 1937, No. 2,085,973.

In the drawings illustrating my invention, Fig. 1 is a central vertical sectional view showing in open position a chair embodying my invention; Fig. 2 a similar view showing the chair in folded position; Fig. 3 a sectional view corresponding substantially to the line 3—3 of Fig. 1; Fig. 4 is a detail in plan and section of a corner of the chair frame, showing my latching mechanism, said view corresponding substantially to the line 4—4 of Figs. 1 and 5; Fig. 5 a detail in section corresponding substantially to the line 5—5 of Fig. 4; Fig. 6 a detail in section corresponding substantially to the line 6—6 of Fig. 5; Fig. 7 a detail in section corresponding to the line 7—7 of Fig. 5; Fig. 8 a view similar to Fig. 5 showing a modification of my latching construction, the said view corresponding to the line 8—8 of Fig. 9; Fig. 9 a view, similar to Fig. 4, of said modified form of latching mechanism; Fig. 10 a view, similar to Fig. 6 and corresponding to the line 10—10 of Fig. 8; and Fig. 11 a view, similar to Figs. 4 and 9, showing a still further modified form of my invention.

In the drawings, the numeral 10 indicates generally a back frame comprising the rear legs and chair back, formed as a unit and consisting of upright elements 11 and transverse elements 12. The front legs 13 and 14 are connected by a transverse member 15, and the front and rear legs are pivoted together adjacent to the bottoms thereof by a pivoting front rung 16 and a pivoting back rung 17 connected by spaced elements 18 fixedly connected thereto.

The seat frame is composed of side elements and a back element preferably made into an integral U-shaped element 19; also a front element 20 to which the side elements are joined at their front ends. A chair seat 21 may be

secured in any suitable manner to the seat frame. Suitable angle-shaped plates 22 are fixed to opposite sides of the rear portion of the seat frame and are pivoted, as at 23, to the sides of the back frame 10.

24 denotes angular hinge brackets, each having its lower leg secured to the inner side of a front leg, as by screws or rivets 25. The rear end of the upper leg of each hinge bracket is pivotally connected to the side of the seat frame above the leg to which the said bracket is attached, 26 denoting such pivotal connection. 27 denotes a pair of detents each of which is pivotally connected at its lower end to the lower portion of each hinge bracket, as shown at 28. These detents are located adjacent to the front element 20 and each is provided adjacent to its upper edge with a slot 29 extending thereinto from the rear edge thereof, the upper wall 29^a of each slot being inclined downwardly from the rear toward the front thereof and the bottom wall 29^b of each slot being inclined upwardly from the rear end thereof, thereby to cause the slot walls to converge toward the front seat frame element.

30 denotes a spring which yieldingly connects the upper portion of each detent with the hinge bracket on which it is pivotally mounted. One end of each spring is conveniently supported from its hinge bracket by means of a lug 31 struck therefrom, while the other end of each spring extends around a rod 32 which is connected to the upper portions of both detents and extends across the front of the chair seat frame.

33 denotes angular members each having one end anchored within the front portion of a side element of the seat frame and its opposite end anchored in the front element of said frame. The members 33 may be made of heavy wire stock and constitute fixed latch members with which the upper ends of the detents 27 cooperate as well as means for reinforcing the connections between the side and front elements of the seat frame.

With the parts constructed and arranged as described, it is believed that the operation will be readily understood. When the chair is in open position, the latch members 33 are engaged by the upper and lower surfaces of the slots in the detents respectively adjacent thereto. To accommodate wear, a clearance is provided between the bottom or front end of each slot and the latch member therein. This construction ensures at all times a rigid connection between the front legs and the seat frame. When it is desired to fold the chair, the operator grasps the front seat element 20 and the rod 32, moving the rod forwardly, which disengages the detents from their fixed latch members, permitting the chair to be folded to the position shown in Fig. 2. Stops 34, preferably struck from the hinge bracket

ets 24, limit the rearward movement of the detents drawn by their respective springs, so that, when the chair is opened, the cam surface 27^a on the upper end of each detent will be engaged by its corresponding latch member 33, thereby to move the upper end of each detent forwardly until the fixed latch member registers with the notch therein, whereupon the springs 33 will move the detents to the position shown in Figs. 1 and 5. Where the detents are located in close proximity to the front element 20 of the seat frame, the said element may be provided with a notch 20^a at each end thereof to permit the detents to be moved forwardly a sufficient distance to be disengaged from the fixed latch members 33.

In Figs. 8, 9 and 10 there is shown a modification of the latching mechanism shown in the preceding views, wherein the parts corresponding to those shown in the preceding views are identified by the same numerals. In this modified construction of my latching mechanism, the rod 32 has its opposite ends connected to the detents 27 and to springs 30 in the same manner as shown in Figs. 1 to 6. However, the latch members with which the detents cooperate are constructed and supported in a different manner than is the case with the members 33.

35 denotes one of a pair of angle plates each of which has one leg 35^a secured against the inner face of a side element 19 of the frame, while its other leg 35^b extends along the adjacent rear face of the front element 20, being secured thereto by screws 36. The legs 35^a of these plates 35 are secured to their respective side elements by rivets 26 which rivets also serve to secure the rear ends of the hinge brackets 37 to the side elements of the frame, a spacing washer 38 being interposed between the rear end of each hinge bracket and the leg 35^a. This spacing washer compensates for the projection of the adjacent leg 13 inwardly beyond the side element 19.

Each leg 35^b has struck therefrom a tongue 39 projecting rearwardly therefrom and forming part of a fixed angular latch member and supporting one end of the rod portion 40 of said member which is engaged by the detent adjacent thereto, the outer end of the said member being anchored, as by riveting, to the leg 35^a of the angle plate 35. Each hinge bracket 37 is connected to the front leg 13 in substantially the same manner as is the case with the hinge brackets in Figs. 1-6 inclusive, the only difference being that the inner heads of the rivets 25^a are countersunk within the said hinge brackets, as shown at 25^b. Each hinge bracket is provided with stops 34 struck therefrom and located in the same position as the like-designated stops in Figs. 1-6. In addition, each of the hinge brackets is shown as provided with a lower stop 34^a struck therefrom, serving to limit the forward movement of the detents by the rod 32 and springs 30.

It will be noted that the front of each of the hinge brackets is so shaped as to form a vertically extending wall or abutment 41 which is adapted to be engaged by the rod 40. This construction, in cooperation with the shape of the slots formed in the detents, effects a somewhat more rigid connection between each front leg 13 and the side elements of the seat frame when the chair is in its open position than is obtainable by the latching mechanism shown in the preceding views. Furthermore, the angle plates from which the

parts 39 are struck serve to reinforce the front corners of the seat frame.

In Fig. 11 there is shown a modification of the invention shown in Figs. 8, 9 and 10, which differs therefrom only in accommodating the construction to legs 13^a which are of considerably greater width than the width of the side elements with which they respectively cooperate. In order to position the hinge bracket plates 37 in proper operative relation to the other parts, I employ with each hinge bracket a spacer 38^a the width of which is equal to the projection inwardly beyond each side element of the top of the adjacent front leg 13^a.

In all forms of my invention, the portion of each latch member which is engageable by a detent is of sufficient length to enable such engagement to be accomplished, notwithstanding wide variations in the width of the upper ends of the front legs.

Having thus described my invention, what I claim is:

1. In a folding chair, the combination of a back, a seat frame pivoted to said back and including a pair of side elements and a front element connected thereto, a pair of front legs, a bracket pivotally connecting each front leg to a side element, a detent movably mounted on the inner face of each of the said brackets, fixed latch members connected each to the front portion of a side element and to the front element of the seat frame and each having a portion spaced from the said front element, said portions being adapted, when the chair is in open position, to be operatively engaged by said detents, respectively, and means for simultaneously operating said detents thereby to unlatch the same from said fixed latch members.

2. In a folding chair, the combination of a back, a seat frame pivoted to said back and including connected side and front elements, front legs, a bracket pivotally connecting each front leg to a side element, a detent movably mounted on the inner face of each of said brackets, fixed latch members connected each to the front portion of a side element and to the front element and each having a portion spaced from the said front element, said portions being adapted, when the chair is in open position, to be operatively engaged by said detents, each of said detents having a slot projecting thereinto provided with an inclined wall, the said slot being of a width to engage the upper and lower portions of the fixed latch member therewithin when the chair is in fully open position, and means for simultaneously operating said detents to unlatch the same from said fixed latch members.

3. In a folding chair, the combination of a back, a seat frame pivoted to said back and including side elements and a front element connected thereto, front legs, brackets secured to said front legs and pivotally connecting the same to said side elements, a detent pivotally mounted on the inner face of each of said brackets and each having a slot extending thereinto from the rear edge thereof, angular fixed latch members connecting the front ends of the side elements with the front element and each having a portion spaced from the said front element, said portions being adapted, when the chair is in open position, to be received within the slots of the said detents, respectively, a spring carried by each bracket and connected to the detent thereon and tending to move the upper end of the same rearwardly, an operating rod common to both

detents for moving the same simultaneously out of engagement with their respective latch members, and a stop projection carried by each bracket to limit the rearward movement of each detent by its spring, the slots in the said detents converging toward the front ends thereof and adapted to engage with the top and bottom walls thereof their respective cooperating fixed latch members when the chair seat is in its open position.

4. In a folding chair, the combination of a back, a seat frame pivoted to said back and including a pair of side elements and a front element connected thereto, a pair of front leg elements, a bracket pivotally connecting each front leg element to a side element, a detent movably mounted on each of the said brackets, angular fixed latch members connecting the front of each side element with the front element of the seat frame and each having a portion spaced from the said front element, said portions being adapted, when the chair is in open position, to be operatively engaged by said detents, respectively, and means for simultaneously operating said detents thereby to unlatch the same from said fixed latch members.

5. In a folding chair, the combination of a back, a seat frame pivoted to said back and including connected side and front elements, front legs, a bracket pivotally connecting each front leg to a side element, a detent movably mounted on each of said brackets, a fixed latch member connecting the front of each side element with the front element, each of said members having a portion spaced from the said front element, said portions being adapted, when the chair is in open position, to be operatively engaged by said detents, each of said detents having a slot projecting thereinto and having a cam surface on its upper wall and being of a width to engage the upper and lower portions of the fixed latch member therewithin when the chair is in fully open position, and means for simultaneously operating said detents to unlatch the same from said fixed latch members.

6. In a folding chair, the combination of a back, a seat frame pivoted to said back and including side elements and a front element connected thereto, front legs, brackets secured to said front legs and pivotally connecting the same to said side elements, a detent pivotally mounted on each of said brackets and each having a slot extending thereinto from an edge thereof, angular fixed latch members connecting the front ends of the side elements with the front element and each having a portion spaced from the said front element, said portions being adapted, when the chair is in open position, to be received within the slots of the said detents, respectively, a spring carried by each bracket and connected to the detent thereon and tending to move the upper end of the same in a direction to engage the cooperating latch member, an operating rod common to both detents for moving the same simultaneously out of engagement with their respective latch members, and a stop projection carried by each bracket to limit the movement of each detent by the spring, each detent being provided with an inclined surface extending from the slot therein and adapted to be engaged by its cooperating fixed latch member as the chair seat approaches its open position.

7. In a folding chair, the combination of a

back, a seat frame pivoted to said back and including a pair of side elements and a front element connected thereto, a pair of front legs, a bracket pivotally connecting each front leg to a side element, a detent movably mounted on the inner face of each of the said brackets, an angle plate extending along the inner face of the front portion of each side element and along the rear face of the portion of the front element adjacent thereto and secured to said elements, fixed latch members each connected to the legs of each of the said angle plates, each of said members having a portion spaced from the said front element, said portions being adapted, when the chair is in open position, to be operatively engaged by said detents, respectively, and means for simultaneously operating said detents thereby to unlatch the same from said fixed latch members.

8. In the combination recited in claim 7, each fixed latch member comprising an element having one end supported by the leg of the angle plate which is secured to a side element and its opposite end supported by an element projecting from the other leg of said plate.

9. In a folding chair, the combination of a back, a seat frame pivoted to said back and including connected side and front elements, front legs, a bracket pivotally connecting each front leg to a side element, a detent movably mounted on the inner face of each of said brackets, fixed latch members connected each to the front portion of a side element and to the front element, each of said members having a portion spaced from the said front element, said portions being adapted, when the chair is in open position, to be operatively engaged by said detents, each of said detents having a slot projecting thereinto and being of a width to engage the upper and lower portions of the fixed latch member therewithin when the chair is in fully open position, and each of said brackets having a wall adapted to engage the latch member adjacent thereto when the latter is within the slot of the detent with which it cooperates, and means for simultaneously operating said detents to unlatch the same from said fixed latch members.

10. In a folding chair, the combination of a back, a seat frame pivoted to said back and including a pair of side elements and a front element connected thereto, a pair of front legs, a bracket secured to the inner face of the upper portion of each front leg and each having a rearwardly extending portion pivotally secured to the front portion of a side element, a detent movably mounted on the inner face of the portion of each of said brackets which is secured to the front leg, fixed latch members connected each to the front portion of a side element and spaced from the front element of the seat frame and adapted, when the chair is in open position, to be operatively engaged by said detents respectively, each of said detents having a slot projecting forwardly thereinto from the rear edge thereof and being of a width to engage the upper and lower portions of the cooperating fixed latch member therewithin when the chair is in fully open position, a rod extending across the front of the said frame, adjacent to the front element thereof and connecting the said detents, and a spring located on the inner side of each bracket and operatively connected to the detent which is movably mounted on said bracket.

ALAN B. PARK.