Feb. 28, 1933. W. F. KOKEN 1,899,040

PHYSICIAN'S CHAIR

Filed Dec. 7, 1929 3 Sheets-Sheet 1

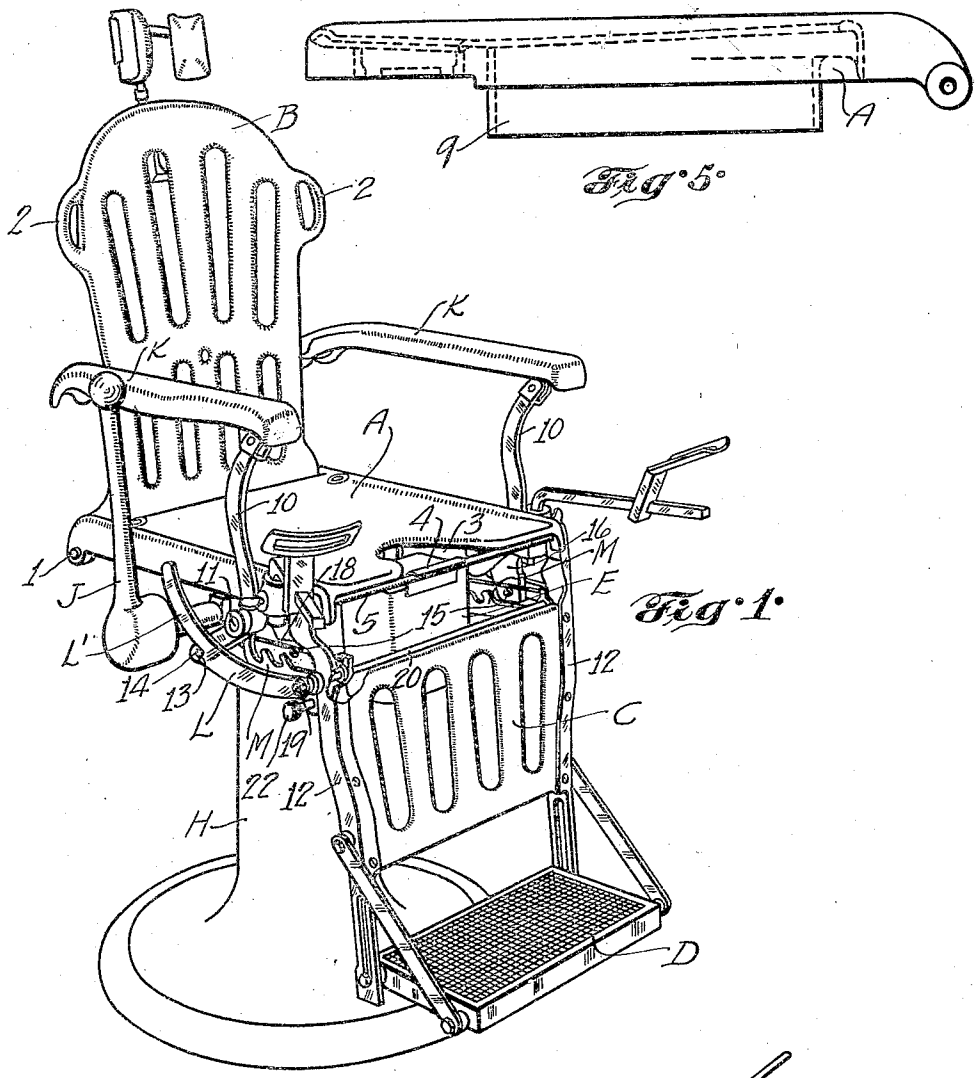


Fig. 1.

Fig. 5.

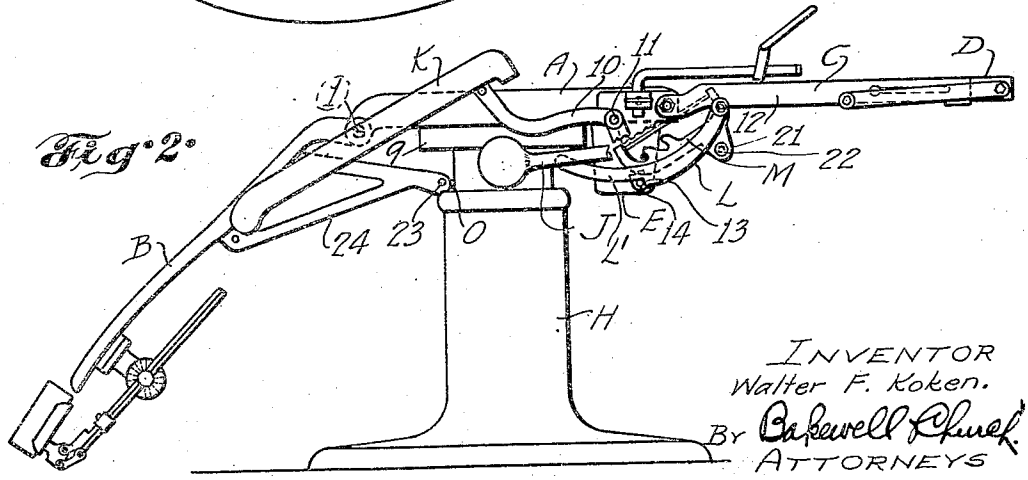


Fig. 2.

INVENTOR
Walter F. Koken.
By Bakewell & Church
ATTORNEYS

Feb. 28, 1933. W. F. KOKEN 1,899,040

PHYSICIAN'S CHAIR

Filed Dec. 7, 1929 3 Sheets-Sheet 2

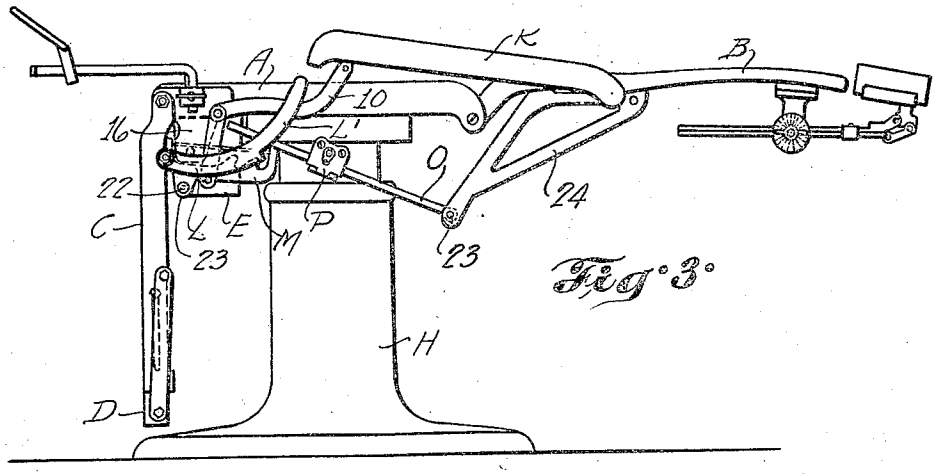


Fig. 3.

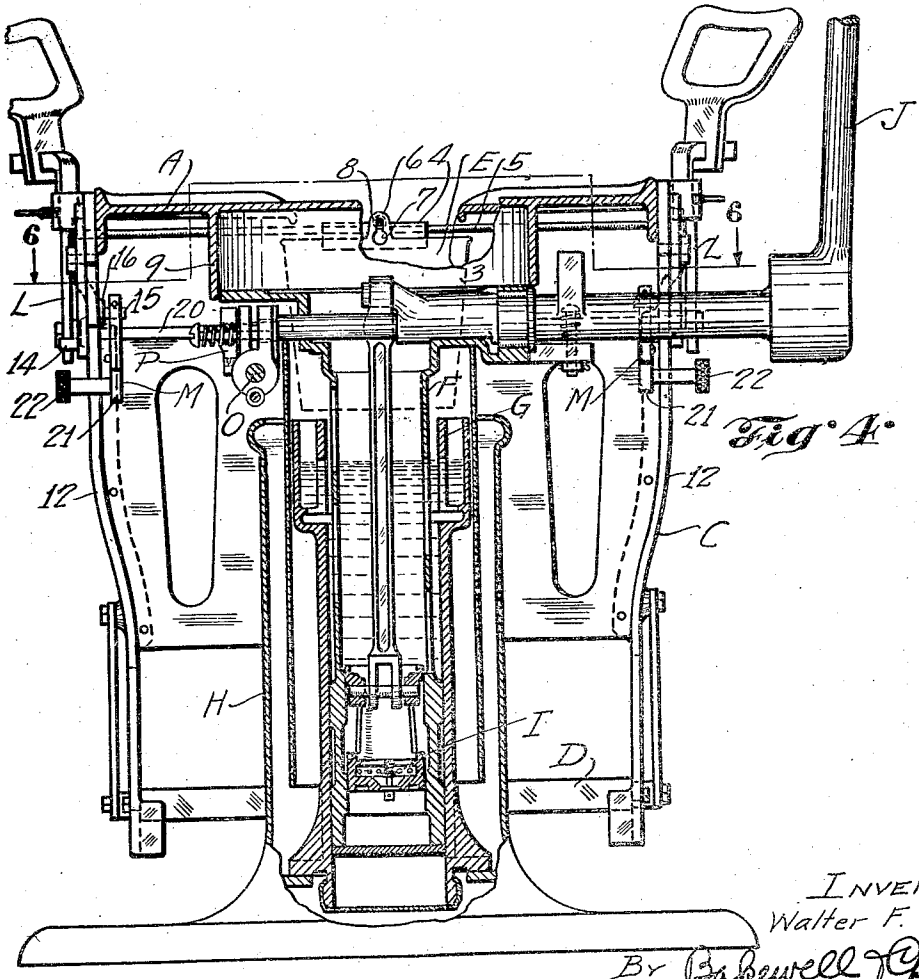


Fig. 4.

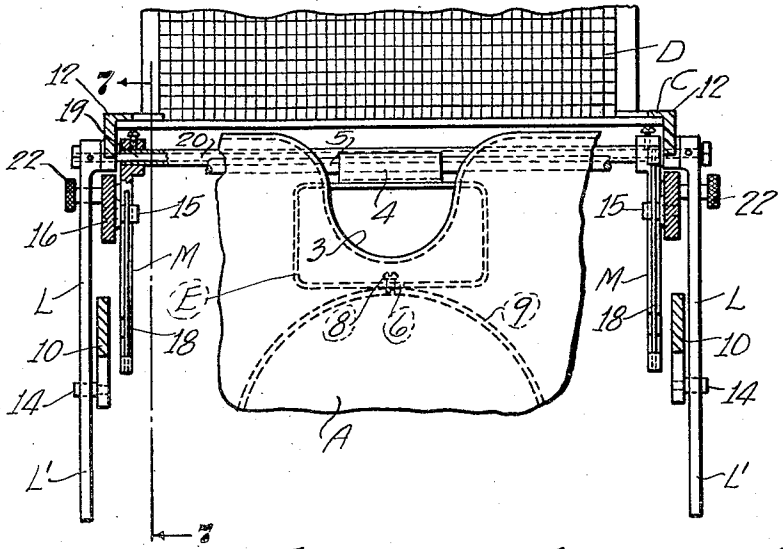
INVENTOR
Walter F. Koken.
By Bakewell & Church.
ATTORNEYS

Feb. 28, 1933. W. F. KOKEN 1,899,040

PHYSICIAN'S CHAIR

Filed Dec. 7, 1929 3 Sheets-Sheet 3

Fig. 6.



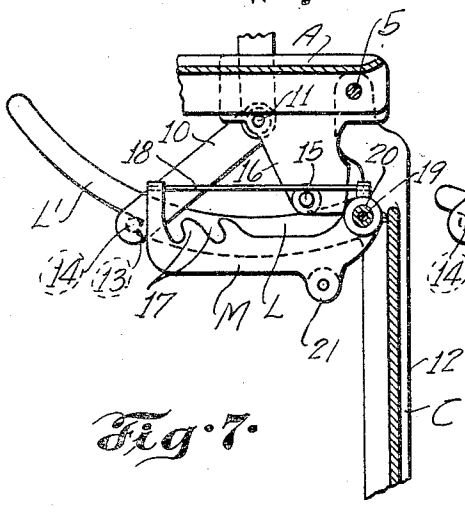


Fig. 7.

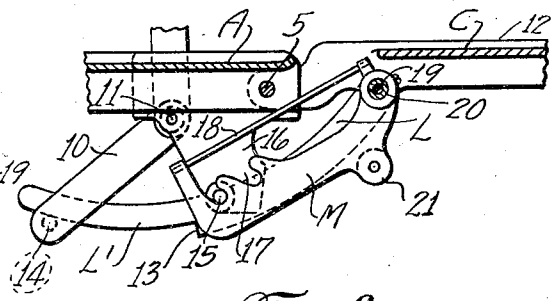


Fig. 8.

INVENTOR
Walter F. Koken
By Bakewell & Church.
ATTORNEYS

Patented Feb. 28, 1933 1,899,040

UNITED STATES PATENT OFFICE

WALTER F. KOKEN, OF WEBSTER GROVES, MISSOURI

PHYSICIAN'S CHAIR

Application filed December 7, 1929. Serial No. 412,366.

This invention relates to chairs of the type that comprise a seat which can be raised and lowered, and an adjustable back and apron combined with said seat in such a manner that they can be shifted or moved into various positions to permit the occupant of the chair to comfortably assume an upright position or reclining position, or stretch out in a horizontal position.

One object of my invention is to provide a chair of the general type mentioned, that is particularly adapted for use by physicians and surgeons, and which is constructed in such a way that it can be easily adjusted to cause the occupant's head to be located at a point considerably lower than the seat of the chair.

Another object is to provide a chair of the general type mentioned, which is of such construction that the back and apron can be moved or adjusted either in unison, or independently of each other, thereby permitting the apron to be arranged in a horizontal position when the back is adjusted in an upright position; permitting the back to be swung downwardly into a lower horizontal plane than the seat when the apron is in its raised or horizontal position; or permitting both the back and seat to be dropped or swung downwardly into a lower horizontal plane than the seat.

And still another object is to provide a physician's or surgeon's chair which is equipped with a self-draining seat that discharges into a receptacle which can be easily removed from the seat. Other objects and desirable features of my invention will be hereinafter pointed out.

Figure 1 of the drawings is a perspective view of a chair constructed in accordance with my invention.

Figure 2 is a side elevational view of said chair, showing the apron raised and the back tilted downwardly into a lower horizontal plane than the seat.

Figure 3 is a side elevational view, showing the back arranged in a horizontal position and the apron dropped downwardly into a substantially vertical position.

Figure 4 is a transverse sectional view, taken approximately through the center of the chair and looking forwardly.

Figure 5 is an enlarged side elevational view of the seat.

Figure 6 is a fragmentary top plan view of the seat and adjacent portions partly broken away, so as to more clearly illustrate the construction of the means that is used to maintain the apron in adjusted position when said apron is shifted or moved independently of the back of the chair.

Figure 7 is a side elevational view of said apron holding means, showing the apron adjusted in a vertical position; and

Figure 8 is a side elevational view of the apron holding means, showing the apron adjusted in a horizontal position.

My improved chair comprises a seat A, a swinging back B, and a swinging apron C provided with a footrest D of any preferred type or design. The back B is joined by horizontally-disposed pivots 1 to the rear end portion of the seat and the apron C is pivotally mounted at the front end of the seat in such a way that said apron can be swung through an arc of approximately 90°, from an extreme vertical position, shown in Figure 1, to an extreme horizontal position shown in Figure 2. The seat, back and apron can be formed from any suitable material, but when the chair is designed for use by physicians and surgeons, I prefer to construct each of said elements or members from a separate casting and finish said castings in porcelain enamel so as to produce a chair that is easy to clean and keep in a sanitary condition. In the form of my invention herein illustrated the back B is provided with integral handles or hand grips 2, which the operator in charge of the chair can grasp in effecting a change in the position of the parts of the chair. The seat A is preferably shaped or formed in such a way that any liquid substances which drop onto said seat will drain to a discharge opening 3 at the front end of the seat and escape through said discharge opening into a receptacle E, which is preferably removably combined with the seat. One convenient way of sustaining the receptacle E is to provide the front wall of said recep-

tacle with a hook-shaped device 4 that engages or laps over a horizontal, transversely-disposed bar 5 at the front end of the seat which is used to pivotally connect the apron to the seat, and provide the rear wall of said receptacle E with an upwardly-projecting lug 6, as shown in Figures 4 and 6, that is provided with a substantially inverted key-hole-shaped slot 7 that receives a headed pin 8 which projects forwardly from a depending flange 9 on the underside of the seat. The flange 9 co-operates with the headed pin 8 to reliably hold the hook-shaped device 4 on the receptacle in engagement with the supporting bar 5 at the front end of the seat. This method of sustaining the receptacle E is inexpensive to construct and it permits said receptacle to be easily combined with or removed from the seat. As shown in dotted lines in Figure 5, the horizontal surface of the seat A is shaped so as to form a self-draining seat whose low point is at the edge of a discharge opening 3 in the seat located above the receptacle E, thereby insuring any liquid that drops onto the seat being automatically discharged from same into the receptacle E.

The seat A is preferably sustained or supported by a means which permits the seat and the parts associated with same to be raised, lowered and also revolved. Any preferred or suitable means may be used for this purpose, and therefore, I have illustrated the chair as being equipped with a conventional hydraulically operated stem or piston F reciprocatingly mounted in a vertically-disposed socket or cylinder G carried by a pedestal H that rests on the floor of the room in which the chair is located. This type of seat supporting mechanism has long been used in barber chairs and beauty parlor chairs, and as it forms no part of my present invention, I will not specifically describe the details of construction of same. Suffice it to say that the chair is equipped with a pump plunger I that can be reciprocated by manipulating an operating handle J, so as to cause oil or the like confined in the hollow stem F to be forced downwardly into the space between the lower end of said stem and the bottom of the cylinder G, so as to raise the seat of the chair. A valve, controlled by the operating handle J, is also provided for permitting the liquid to escape from the space between the lower end of the stem and the bottom of the socket so as to permit the stem and the seat carried by same to move downwardly.

In prior chairs of the type to which my invention relates it has been the usual custom to connect the back and the apron of the chair together in such a way that a change in the position of the back automatically effects a change in the position of the apron. My improved chair herein illustrated embodies the idea just referred to, but it also has the additional desirable characteristic of enabling the apron to be adjusted independently of the back, thereby permitting the back to be maintained in an upright position when the apron is adjusted in a horizontal position; permitting the back to be swung downwardly into a lower horizontal plane than the seat when the apron is adjusted in a horizontal position; permitting the apron to be swung downwardly into a vertical position when the back is adjusted in a horizontal position, or permitting the back and apron to be swung downwardly into a vertical position in a plane lower than the seat. While various means may be used to obtain such adjustments of the back and apron of the chair, I prefer to construct the chair in the manner herein illustrated, as such a chair is inexpensive to build; it is of rugged design and the various adjustments of the back and apron can be effected quickly and easily by the operator in charge of the chair. As shown in the drawings, the arm rests K of the chair have their rear end portions pivotally connected to the back B and their front end portions pivotally connected to substantially bell-crank-shaped levers 10 which oscillate on pivots 11 that project laterally from the seat. The apron C is provided with side pieces 12 whose upper ends are pivotally attached to the front portion of the seat A by means of the horizontally-disposed transverse rod 5, previously mentioned. In order that the apron C will move automatically with the back B, when the position of said back is changed, I have provided said apron with a pair of rearwardly projecting, segmental-shaped arms L that have shoulders or abutments 13 on same that are adapted to co-act with pins 14 on the lower ends of the bell-crank-shaped levers 10 that sustain the front ends of the arm rests K, the rearwardly-projecting apron arms L having reduced extensions L′ located above the pins 14 and projecting rearwardly from the shoulders or abutments 13 on the arms L with which the pins 14 co-operate. When the pins 14 on the levers 10 are arranged in engagement with the shoulders 13 on the apron arms L, as shown in Figure 1, the movement of the back B downwardly or away from its upright position causes the apron C to swing upwardly automatically into a horizontal position, due to the forward thrust which the pins 14 on the levers 10 exert on the apron arms L. When the back B is restored to its upright position the apron C returns automatically to its former position, due to the force of gravity, the weight of the apron C being sufficient to normally hold the shoulders 13 on the apron arms L in engagement with the pins 14 on the levers 10.

In order that the apron C and the back B may be adjusted independently of each other and without causing the position of one of

said members to change automatically when the position of the other member changes, I have provided my improved chair with a manually-adjustable holding means or securing means for the apron C which is adapted to be actuated by the operator in charge of the chair in such a way that the apron can remain at rest, even though the position of the back B is changed. In the chair herein illustrated the manually-adjustable apron holding means just referred to is composed of an independent pair of arms M that project rearwardly from the upper edge portion of the apron C and which are adapted to co-act with a stationary holding means herein illustrated as consisting of studs 15 carried by brackets 16 which project downwardly from the underside of the seat A of the chair. The arms M are pivotally connected with the apron and are provided at their upper edges with notches or teeth 17 for receiving the studs 15. Normally, the arms M occupy such a position that the racks or notched portions 17 on said arms clear the studs 15 when the apron C is swung on its axis, but if the operator in charge of the chair desires to lock the apron in a certain position in which said apron will remain at rest, even though the position of the back B of the chair is changed, the operator simply has to swing the arms M upwardly so as to cause a selected pair of the rack teeth on said arms to engage the studs 15. The weight of the arms M tends to normally hold said arms in such a position that the racks on same will travel in a path below the studs 15, and in order that said arms M will be maintained in the approximate zone of the studs 15, and thus be in readiness to engage said studs by a slight upward movement of the arms M, each of the arms M is provided at its upper side with a substantially horizontally-disposed rod or keeper 18 that extends across the stud 15 with which said arm co-operates, as shown clearly in Figures 1, 7 and 8.

It is immaterial how the arms L and M are pivotally combined with the apron C, but I prefer to rigidly connect the arms L to the ends of a horizontally-disposed rod 19 arranged transversely in the side pieces 12 of the apron C adjacent the upper end of said apron, and rigidly connect the arms M to a tube 20 that is journaled on the rod 19 between the side pieces 12 of the apron, as shown more clearly in Figure 6. The rod 19 serves as a tie bar for the two arms L at the opposite sides of the chair, and the tube 20 serves as a tie bar for the two arms M at opposite sides of the chair and permits the arms M to be adjusted independently of the arms L and without destroying the relationship between the arms L and the pins 14 on the bell-crank-shaped levers 10 that form part of the mechanism for transmitting movement from the back B to the apron C. In order to assist the operator in adjusting the arms M, each of said arms is provided adjacent its front end with a depending lug 21 from which a handle or hand piece 22 projects laterally.

Any suitable means can be used for holding the back B in adjusted position, but I prefer to use for this purpose a mechanism of the kind used in conventional barber chairs and commonly referred to as a reclining bar and reclining bar clamp. In conventional barber chairs the reclining bar is attached to the apron of the chair and is arranged to slide through a clamp supported on the vertically-adjustable stem of the chair, but in my improved chair herein illustrated the reclining bar O is pivotally connected at 23 to a bracket 24 on the rear side of the back B, and is arranged to slide through a clamp P that is mounted on the vertically-adjustable stem F which carries the seat A. The clamp P is of conventional design and is of such construction and arrangement that the operator in charge of the chair, by manipulating the handle J, can cause the clamp P to either grip or release the reclining bar O. When said reclining bar is released, the back B can be moved into any desirable position, and when said reclining bar is gripped or engaged by the clamp P, the back B is securely held in adjusted position.

If the arms M on the apron C occupy the position shown in Figure 1, the apron C will swing upwardly when the back B is lowered, due to the forward thrust which the pins 14 on the bell-crank-shaped levers 10 exert on the apron arms L. When the back B is restored to its upright position, the apron C swings downwardly back to its former position, due to the force of gravity. If it is desired to move the back downwardly into a horizontal position while the apron C remains in its vertical position, as shown in Figure 3, the operator first swings the apron arms L upwardly sufficiently to arrange the shoulders 13 thereon out of the path of movement of the pins 14 on the bell-crank levers 10, whereupon the back B may be moved downwardly without causing the pins 14 to exert a forward thrust on the apron arms L. As soon as the back is restored to its upright position, the arms L automatically drop downwardly into a position to co-act with the pins 14 on the bell-crank levers 10, thereby restoring the operative relationship between the parts that constitute the means for causing the apron to move automatically with the back when the position of the back is changed.

If it is desired to adjust the apron and back in the position shown in Figure 2, the operator grasps the apron and swings it upwardly into a horizontal position and also lifts the arms M so as to cause two of the rack teeth 17 thereon to engage the studs 15.

The back B can now be moved at will into any desired position without affecting the apron C, it being possible even to swing the back B downwardly into a lower horizontal plane than the seat. Figure 8 illustrates the position of the parts when the apron C is arranged in a horizontal position, and the back of the chair is arranged in a vertical position, attention being called to the fact that at such times the shoulders 13 on the apron arms L are out of engagement with the pins 14 on the bell-crank levers 10, thus causing the apron to be maintained in adjusted position solely by the engagement of the arms M with the studs 15 on the depending brackets 16 on the seat. If it is desired to drop the apron, or arrange it in a vertical position, when the back B is adjusted into its downwardly inclined position, as shown in Figure 2, the arms M can be disengaged from the studs 15 and the apron arms L can be swung upwardly high enough to cause the shoulders 13 thereon to clear the pins 14 on the bell-crank levers 10 when the apron is permitted to swing downwardly.

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

A chair provided with a seat, a swinging back and a swinging apron pivotally combined with said seat, bell crank levers, means for coupling said levers with the back so that said levers will always rock in one direction when the back is lowered and will always rock in the opposite direction when the back is raised, laterally-projecting pins on said levers, depending brackets on the seat provided with studs, a transversely-disposed rod at the upper end of said apron provided with a pair of rearwardly-projecting, curved arms having shoulders thereon which can be moved into and out of operative relationship with said pins by manually moving said curved arms, a tube rockably mounted on said rod, and rearwardly-projecting rack arms rigidly connected to said tube and adapted to be moved manually into engagement with the studs on said brackets so as to hold the apron at rest or in a stationary position.

WALTER F. KOKEN.