Dec. 11, 1951 F. J. PLACEREAN 2,578,488

ROLLER ATTACHMENT FOR CHAIRS

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Fig. 1

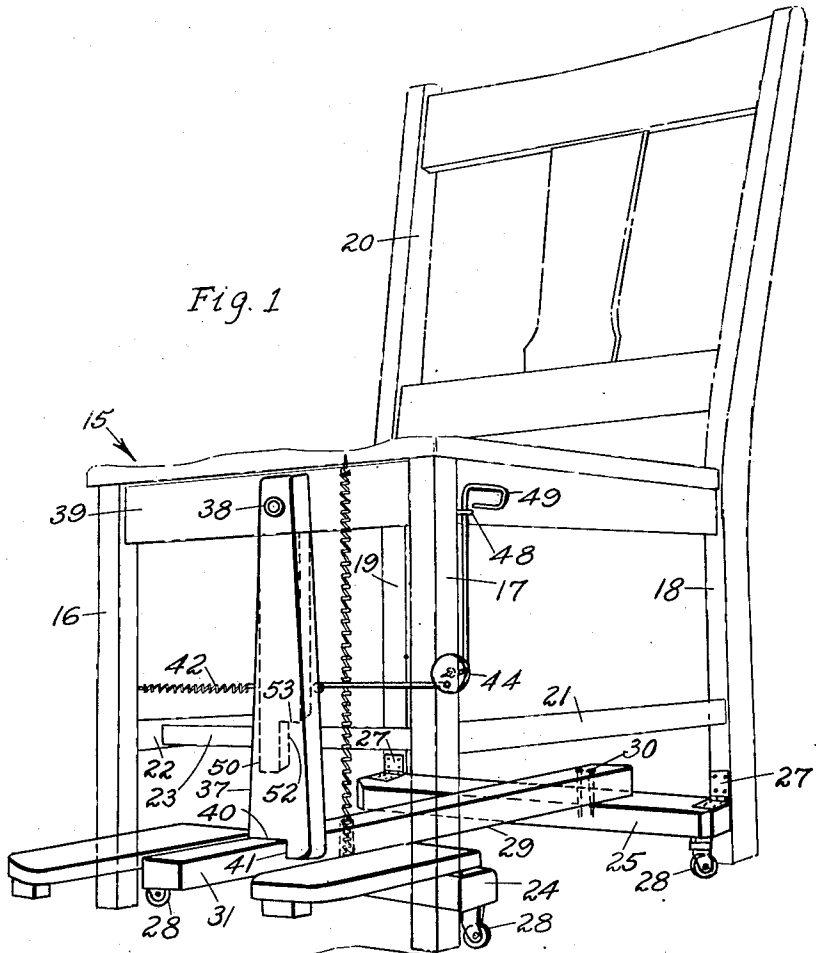
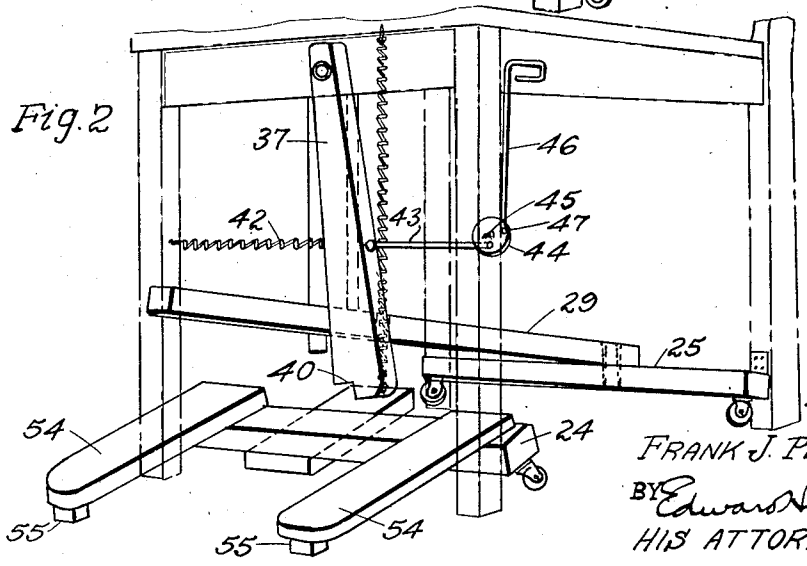


Fig. 2



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Fig. 3

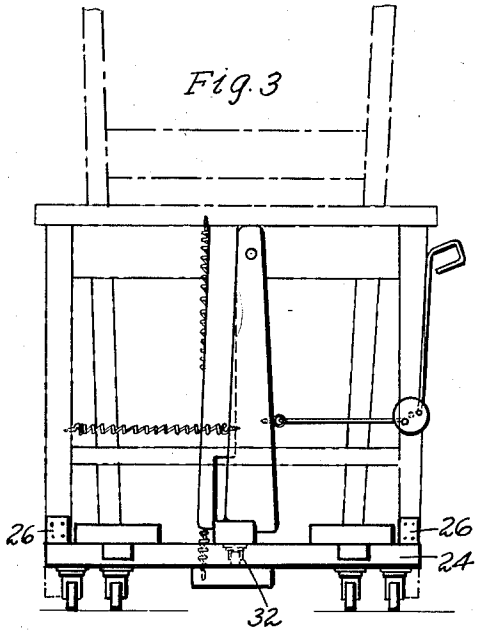


Fig. 4

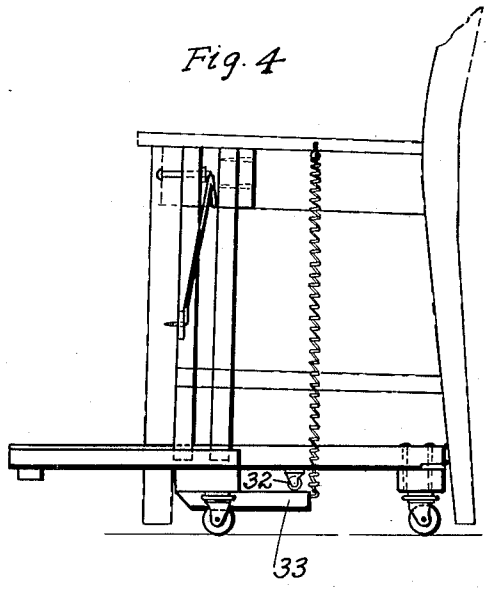


Fig. 5

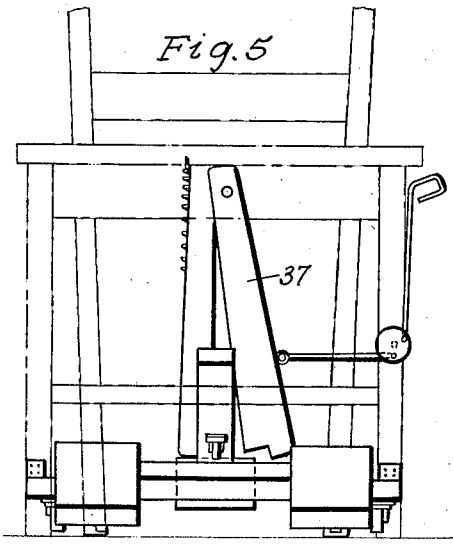
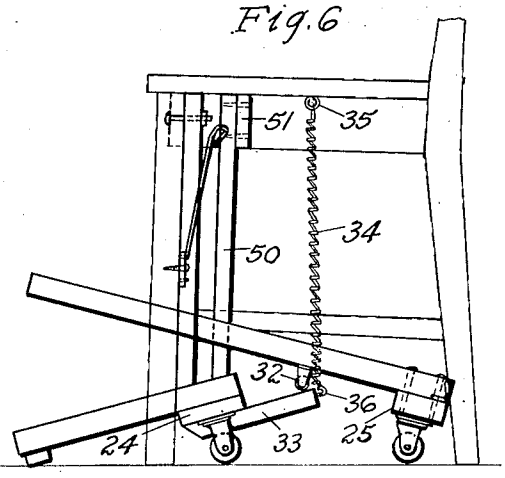


Fig. 6



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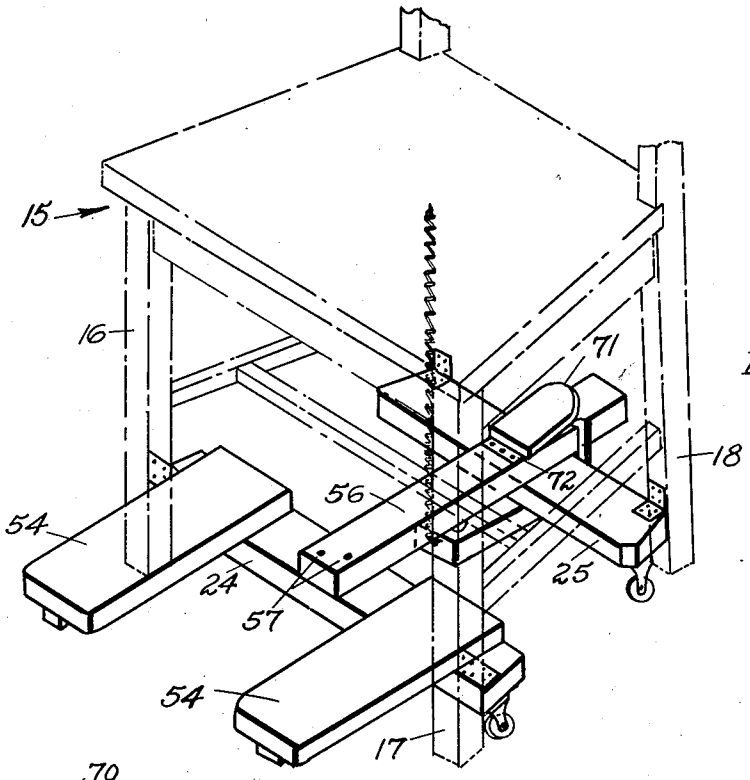


Fig. 7

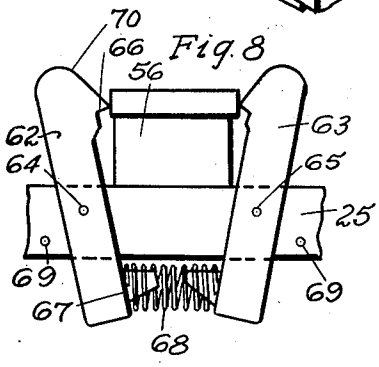


Fig. 8

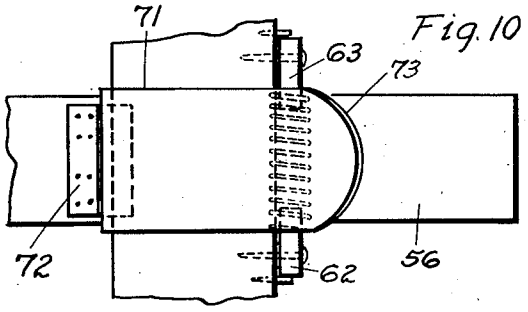


Fig. 10

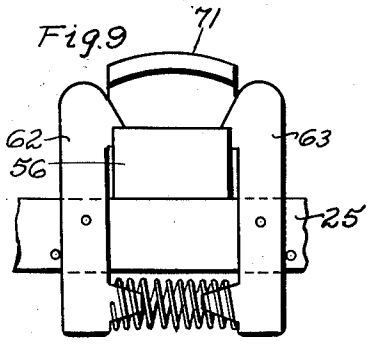


Fig. 9

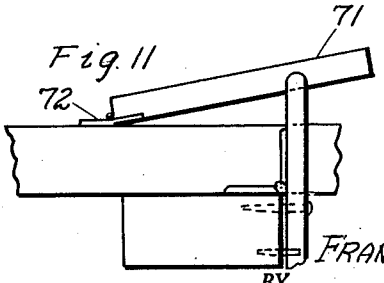


Fig. 11

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Fig. 12

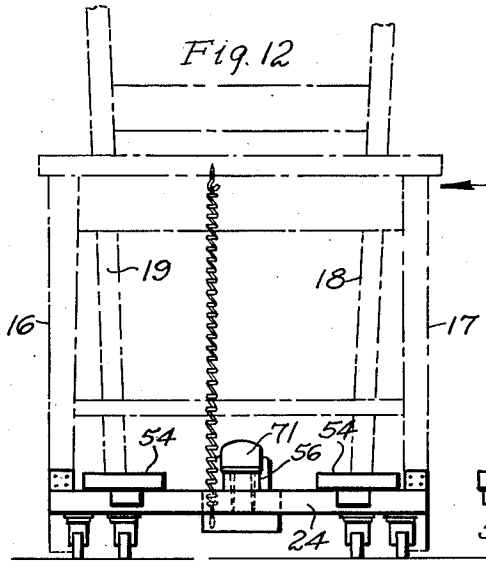
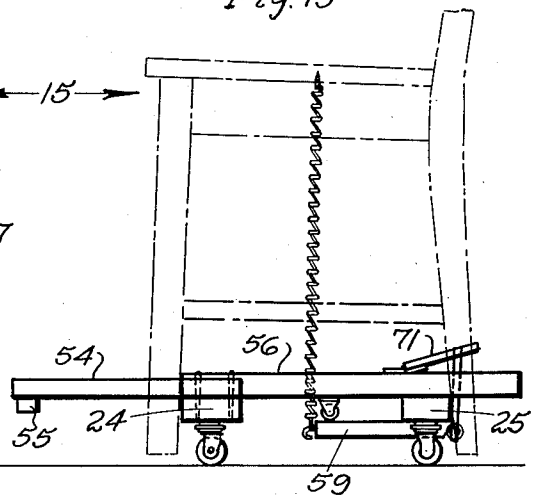


Fig. 13



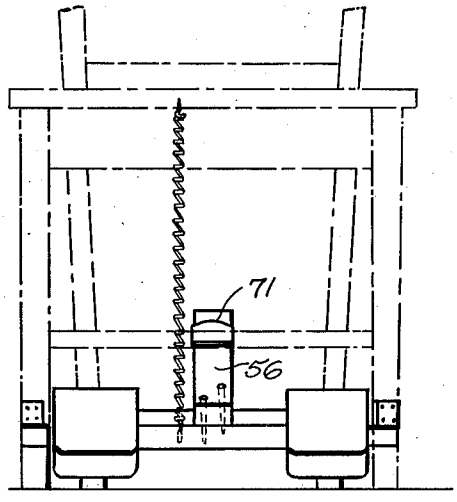


Fig. 14

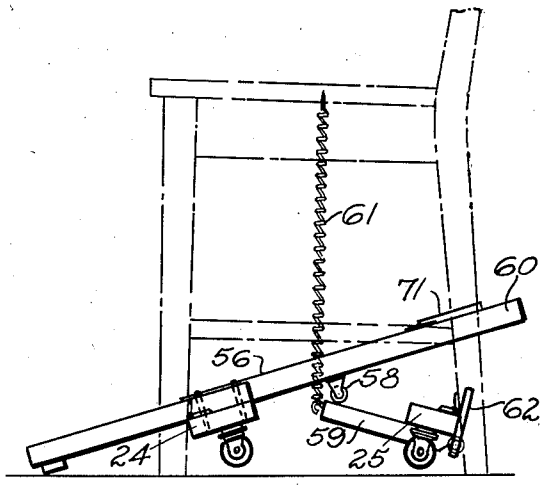


Fig. 15

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UNITED STATES PATENT OFFICE

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ROLLER ATTACHMENT FOR CHAIRS

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Application October 16, 1946, Serial No. 703,599

13 Claims. (Cl. 155—188)

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This invention relates to roller attachments for chairs and more particularly to the variety thereof comprising retractable casters, or the like, for supporting the chair for rolling movement, one object of the invention being to provide an improved device of the above character having a more practical and convenient construction and mode of operation.

Another object is the provision of a more simple and practical mechanism, adapted to be readily and economically manufactured and applied to the legs of a chair, so that it may be used either as a stationary chair or one adapted to be rolled from one position to another on the floor.

To these and other ends the invention resides in certain improvements and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings:

Fig. 1 is a perspective view of a chair embodying the present invention, with the casters lowered to chair supporting position, the known chair parts being shown in broken lines;

Fig. 2 is a view similar to Fig. 1, but showing the caster mechanism is a different position with the casters raised;

Fig. 3 is a front elevation of the mechanism with the casters lowered;

Fig. 4 is a side elevation of the same parts position as in Fig. 3;

Fig. 5 is a front elevation with the casters raised;

Fig. 6 is a side elevation of the parts positioned as in Fig. 5;

Fig. 7 is a perspective view of a chair showing a modified caster mechanism with the casters lowered and the known chair parts shown in broken lines;

Fig. 8 is an enlarged fragmentary rear elevation of a locking means for the caster mechanism of Fig. 7, but shown in the course of being released;

Fig 9 is a view similar to Fig. 8, but showing the parts arranged for locking the casters in lowered position;

Fig. 10 is a top plan view of the parts shown in Fig. 9;

Fig. 11 is a side elevation of the parts as shown in Figs. 9 and 10;

Fig. 12 is a front elevation of the parts as shown in Fig. 7;

Fig. 13 is a side elevation of the same;

Fig. 14 is a front elevation similar to Fig. 12, but showing the casters lowered, and

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Fig. 15 is a side elevation of the parts as shown in Fig. 14.

The embodiment of the invention herein disclosed, by way of illustration, shows its application to a known chair having a substantially rectangular seat frame indicated generally at 15 and supported on four upright legs 16 to 19, inclusive, with a back rest 20. The legs are cross braced by rails 21 and 22 connected to each other by a brace 23.

The caster mechanism of the present invention comprises, preferably, a pair of members, or caster bars, 24 and 25. Bar 24 is connected to the chair by a pair of hinges 26 the leaves of which are fixed to the top of the bar and the back of the front legs 16 and 17 just above their lower ends, as shown, so that the bar may swing upwardly about the hinge pintles. The rear bar 25 is similarly hinged to the forward sides of the rear legs, 18 and 19, by hinges 27 having their leaves fixed to the leg and to the top of the bar, so that the bar may swing upwardly away from the floor. Each of the bars 24 and 25 has depending from each end thereof a caster 28, of any known or suitable construction, adapted to be depressed against the floor to lift the chair, by downward swinging of bars 24 and 25, and to swivel into alinement with the direction in which the chair is rolled.

The means for swinging the caster bars 24 and 25 downwardly comprises, preferably, a lever 29 having its rear end fixed, as by means of nails or screws 30, on the upper side of the rear caster bar 25. Lever 29 extends forwardly above the front caster bar 24, with the front end of the lever projected somewhat in advance of the chair as at 31, in convenient position to be depressed by the foot. The under side of the lever preferably carries a roller 32, Figs. 3 and 4, positioned for engagement with the upper side of a short bar 33 fixed to the under side of the front caster bar 24.

It is evident from this construction that downward pressure on the forward end of the lever 29 swings the rear caster bar 25 downwardly and, by means of roller 32, simultaneously swings the forward caster bar 24 downwardly, so as to depress the casters against the floor and lift the lower ends of the chair legs, to support the chair for rolling about the floor on the casters. A coiled tension spring 34 has one upper end fixed to the under side of the chair frame, as at 35, and its lower end fixed to the bar 33, as at 36, so as to tend to raise the lever and both of the caster bars 24 and 25 to raise the casters and lower the

chair, assisted by the weight of the chair and its occupant.

The means for releasably locking the lever 29 depressed, with the casters in chair supporting position, comprises, preferably, an arm 37 having its upper end pivoted at 38 on the front cross rail 39 of the seat frame. The lower end of the arm is recessed at 40 for swinging into engagement with the upper side of the lever in the depressed position of the latter. A shoulder 41 on the arm limits the movement of the arm in lever engaging direction, under the pull of a coiled tension spring 42 having one end fixed to the arm and the other end fixed to the leg 16 of the chair. A rod 43 is loosely connected at one end to the locking arm 37 and at its other end to an oscillating disk 44 pinned at 45 to the rear side of the chair leg 17. A handle rod 46 has its lower end loosely connected with the disk at 47 and this rod slides loosely through a keeper, or staple, 48, adjacent its upper end which is bent, above the staple, to form a handle 49. An upward pull on the handle oscillates disk 44 to pull rod 43 outwardly and swing arm 37 laterally to release lever 29. A strut 50 has its upper end fixed to a cross rail 51 of the chair seat (Fig. 6) and its depending lower end is notched at 52 to receive and guide the lever 29 between it and the arm 37, as the lever moves upwardly to released position. A stop shoulder 53 on the strut 50 limits the upward movement of the lever, Fig. 5.

A pair of spaced foot rests 54 are fixed at their rear ends on the top of the front caster bar 24, with their forward ends projecting somewhat in advance of the chair, to provide convenient supports for the feet, particularly while the chair is being rolled from one location to another. These rests have blocks 55 arranged under their forward ends to strike the floor as the lever 29 reaches its upper or release position, as shown in Fig. 6, to more positively support the rests in the released position of the parts.

It is evident from the above description that with the lever 29 in its released or upper position, the chair remains stationary with its legs resting on the floor, the rests 54 forming comfortable supports for the feet of the occupant. To convert the chair to a portable condition, the attendant presses downwardly with his foot on the forward end of lever 29, until arm 37 is swung by its spring across the top of the lever, to lock it in lowered position, thereby forcing the casters downwardly so as to rest and support the chair with its legs clear of the floor. In this position also the foot rests 54 become horizontal, to better support the feet of the occupant of the chair while the chair is wheeled from one position to another. To lower the chair again in a stationary condition, the occupant, or the attendant, pulls upwardly on handle 49 assisted, if necessary, by downward pressure on the forward end of the lever, so as to swing arm 37 clear of the lever and allow it to be raised by the weight of the chair and its occupant, as well as the spring 34, the lever then being engaged against its stop shoulder 53 and the parts occupying the position shown in Figs. 2, 5, and 6.

A modified embodiment of the invention is illustrated in Figs. 7 to 15, inclusive, in which the construction and arrangement of the parts are generally the same, except that the operating lever 56 is fixed at 57 to the front caster bar 24, instead of to the rear bar 25 as in the above construction. The lever is equipped with a depending roller 58, as before, for engagement with a

short bar 59 fixed to the under side of the rear caster bar 25. But in this case the lever has its rear end 60 extended beyond the back of the chair within reach of the foot of the operator. A tensioned spring 61, fixed to the chair frame and to bar 59, tends to raise the latter and the lever to normally raise the casters as described above. Means are provided for releasably locking the lever in depressed position with the casters lowered, as hereafter described.

This modified locking means comprises, preferably, a pair of spaced dogs 62 and 63, Figs. 8 to 11, inclusive, pivoted at 64 and 65, respectively, to the rear side of the rear caster bar 25. The inner side of the upper end of each dog is formed with a shoulder, or hook, as 66, adapted to engage above the upper side of the lever 56 when the latter is pressed down into horizontal position on the upper side of the caster bar 25. The lower end of each dog has an inwardly projecting lug, as 67, and a coiled compression spring 68 is mounted on these opposing lugs so as to separate the lower ends of the dogs and urge their upper hook-shaped ends into engagement with the upper side of the lever 56 to lock the latter in depressed position. Stop pins, as 69, limit the inward movement of the upper hook ends of the dogs which are formed with inclined cam faces, as 70, and it will be seen that, as lever 56 is depressed, its lower corners engage these cam faces and spread the dogs apart until their upper hook ends snap back over the top of the lever and lock it in lowered position.

Means are provided for tripping this modified locking device, comprising, preferably, a treadle 71 hinged at 72 on the top side of the lever. The end 73 of this treadle extends rearwardly beyond the dogs 62 and 63 and it is slightly wider than the lever 56. When the lever is depressed between and spreads the dogs 62 and 63, the latter raise the treadle 71 as shown in Figs. 9 to 11, inclusive, so as not to interfere with the locking of the lever. To release the latter, treadle 71 is pressed by the foot down against the lever, thereby spreading the dogs apart as shown in Fig. 8. On release of the treadle, lever 56 rises under the weight of the chair and its occupant and the spring 61, without interference by the dogs in the spread position to which they are forced by the depression of the treadle and the sides of the lever. This modified embodiment has the same foot rests 54 and is otherwise operated as described above in connection with the preferred embodiment.

It is evident that the invention provides a simple and practical mechanism adapted to be readily attached to the legs of ordinary chairs and to be conveniently operated by depressing a single lever, as 29 or 56, for converting the chair to one supported on casters for rolling easily about a room, being particularly suitable for use by invalids. At the same time, the mechanism embodying the invention comprises but few parts of relatively simple construction adapted to be readily manufactured and applied to a chair at a relatively low cost.

It will thus be seen that the invention accomplishes its objects and while it has been herein disclosed by reference to the details of preferred embodiments, it is to be understood that such disclosure is intended in an illustrative, rather than a limiting sense, as it is contemplated that various modifications in the construction and arrangement of the parts will readily occur to those skilled in the art, within

the spirit of the invention and the scope of the appended claims.

I claim:

1. A chair having a seat frame and legs fixed to said frame, two rigid members each hinged to and connecting the legs of opposite pairs thereof, respectively, roller means depending from said members, and foot operated lever means connected with one of said members, means for releasably connecting said lever means to the opposite one of said members to effect swinging movement thereof for lowering said roller means below said legs to support said chair for rolling movement.

2. A chair having a seat frame and legs fixed to said frame, two members each hinged to and connecting the legs of opposite pairs thereof, respectively, roller means depending from said members, and a lever fixed to one of said members and movably and releasably engaging the other thereof to effect simultaneous swinging movement of said members for lowering said roller means below said legs to support said chair for rolling movement.

3. A chair having a seat frame and legs fixed to said frame, two members each hinged to and connecting the legs of opposite pairs thereof, respectively, roller means depending from said members, a bearing means connected to one of said members and a lever fixed to the other of said members and having roller means positioned for engagement with said bearing means to effect swinging movement of said members for lowering said roller means below said legs to support said chair for rolling movement.

4. A chair having a seat frame and legs fixed to said frame, two rigid bars each hinged to and connecting the legs of opposite pairs thereof casters depending from the opposite ends of each of said bars, and foot operated lever means connected with one of said bars, means for releasably connecting said lever to the opposite one of said bars to effect swinging movement thereof for lowering said roller means below said legs to support said chair for rolling movement.

5. A chair having a seat frame and legs fixed to said frame, two rigid bars each hinged to and connecting the legs of opposite pairs thereof, respectively, casters depending from said bars, a bearing means fastened to one of said bars, and a lever fixed to the other of said bars and having means in bearing engagement with said bearing means to effect simultaneous swinging movement of said bars for lowering the said casters below said legs to support said chair for rolling movement.

6. A chair having a seat frame and legs fixed to said frame, two rigid members each hinged to and connecting the legs of opposite pairs thereof, respectively, roller means depending from said members, lever means connected with one of said members, means for releasably connecting said lever to the opposite one of said members to effect swinging movement thereof for lowering said roller means below said legs to support said chair for rolling movement, means for locking said lever means with said roller means in lowered position, and manipulative means for tripping said locking means to release said roller means and support said chair on said legs.

7. A chair having a seat frame and legs fixed to said frame, two rigid bars each hinged to and connecting the legs of opposite pairs thereof, respectively, casters depending from said bars, a lever fixed to one of said bars and releasably engaging the other thereof to effect simultaneous swinging movement of said bars for lowering said casters below said legs to support said chair for rolling movement, means for locking said lever with said casters in lowered position, and manipulative means for tripping said locking means to release said casters and support said chair on said legs.

8. A chair having a seat frame and legs fixed to said frame, two rigid bars each hinged to and connecting the legs of opposite pairs thereof, respectively, casters depending from said bars, a lever fixed to one of said bars and releasably engaging the other thereof to effect simultaneous swinging movement of said bars in one direction for lowering said casters below said legs to support said chair for rolling movement, spring means for moving said lever in the opposite direction, and means for releasably locking said lever with said casters in lowered position.

9. A chair having a seat frame and legs fixed to said frame, two bars each hinged to and connecting the legs of each of the front and rear pairs of said legs, respectively, casters depending from said bars, and a lever fixed to the rear one of said bars and releasably engaging the front bar to effect swinging movement of said bars for lowering said casters below said legs to support said chair for rolling movement.

10. A chair having a substantially rectangular seat frame and legs fixed to the corners of said frame, bars hinged to the front and rear pairs of said legs, respectively, casters depending from said bars, a lever fixed to the rear one of said bars and projecting forwardly of the front bar in releasable engagement therewith to effect simultaneous swinging movement of said bars for lowering said casters below said legs to support said chair for rolling movement, foot rest means projecting forwardly from said front bar, spring means for moving said lever and said front bar in the opposite direction for raising said casters, and means for releasably locking said lever with said casters in lowered position.

11. A chair having a substantially rectangular seat frame and legs fixed to the corners of said frame, bars hinged to the front and rear pairs of said legs, respectively, casters depending from said bars, a lever fixed to the front one of said bars and projecting rearwardly of the rear bar in releasable engagement therewith to effect swinging movement of said bars for lowering said casters below said legs to support said chair for rolling movement, and means for releasably locking said bar with said rollers in lowered position.

12. A chair having a substantially rectangular seat frame and legs fixed to the corners of said frame, bars hinged to the front and rear pairs of said legs, respectively, casters depending from said bars, a lever fixed to the front one of said bars and extending rearwardly of the rear bar in releasable engagement therewith to effect swinging movement of said bars for lowering said roller below said legs to support said chair for rolling movement, foot rest means on said front bar, spring means for raising said lever and said rear bar for raising said casters, and means for releasably locking said lever to said rear bar with said casters in lowered position.

13. A chair having a substantially rectangular seat frame and legs fixed to the corners of said frame, a bar hinged to and connecting the legs of each of the front and rear pairs thereof, casters depending from the opposite ends of said

bars, a lever fixed to one of said bars and projecting across the other bar in releasable engagement therewith to effect simultaneous swinging movement of said bars for lowering said casters below said legs to support said chair for rolling movement, foot rest means projecting forwardly from said front bar, spring means for moving said lever and said other bar in the opposite direction for raising said casters, and means for releasably locking said lever with said casters in lowered position.

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