Feb. 11, 1947. R. C. FORD 2,415,629

FOLDING PUSHCAR OR WHEELED CHAIR

Filed May 12, 1945 2 Sheets-Sheet 1

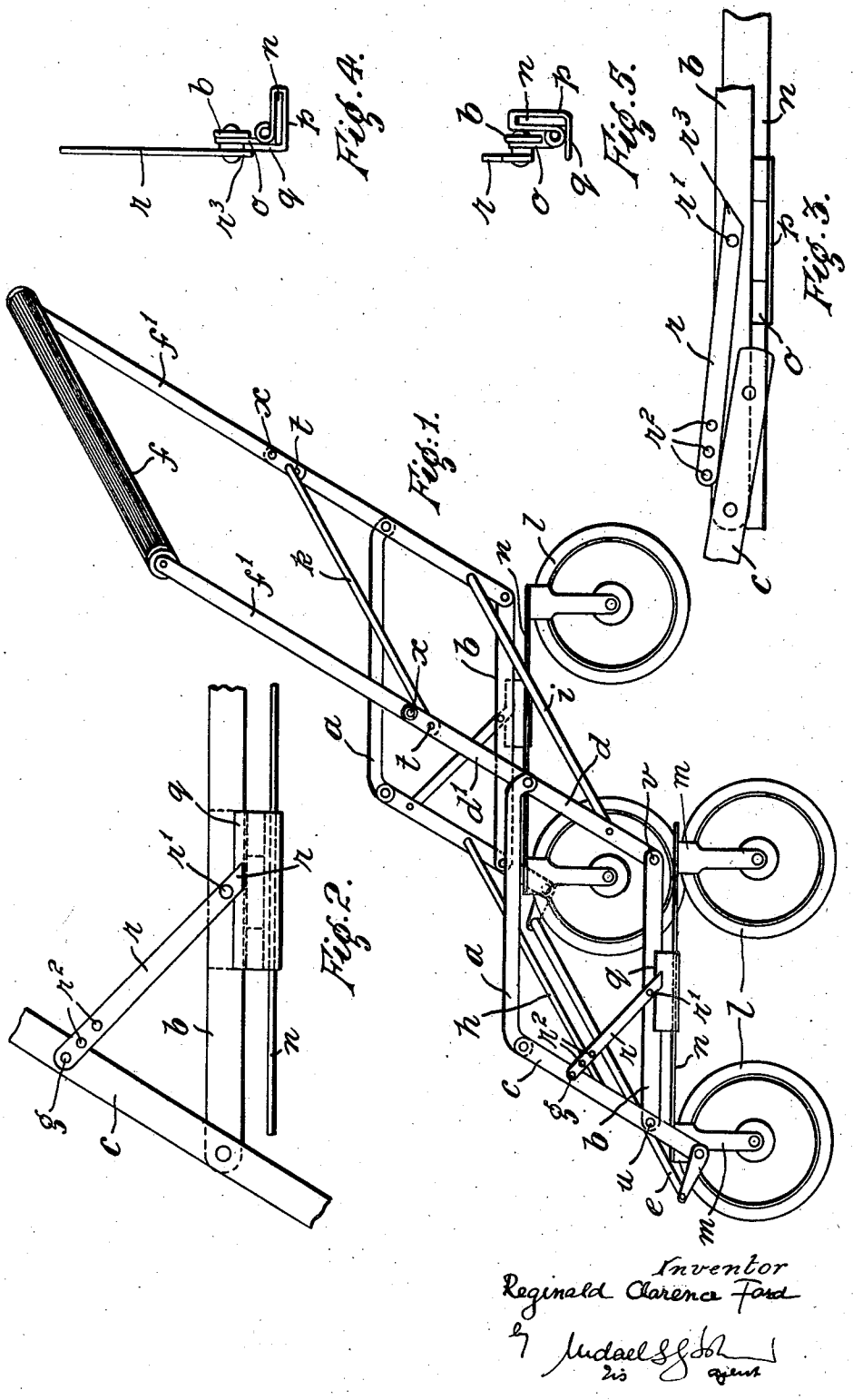

Fig. 1.

Fig. 2.

Fig. 4.

Fig. 5.

Fig. 3.

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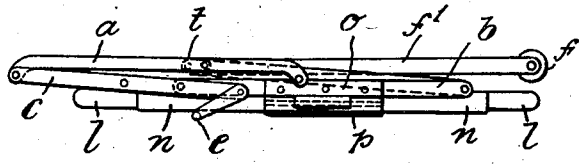

Fig. 6.

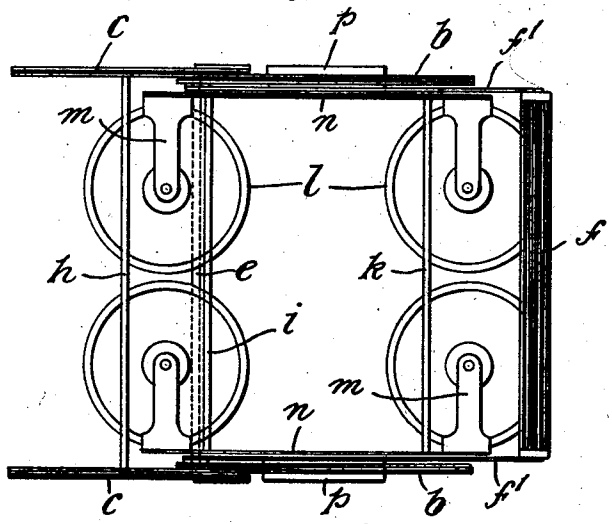

Fig. 7.

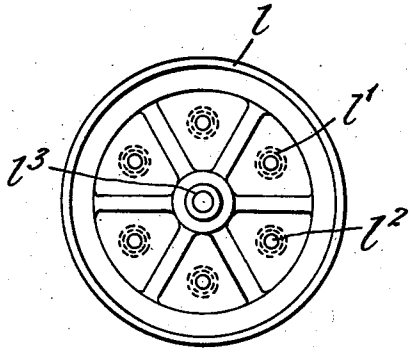

Fig. 8.

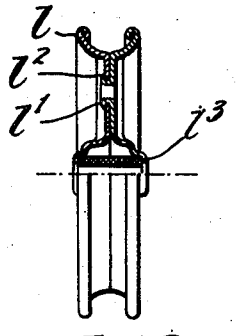

Fig. 9.

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FOLDING PUSH CAR OR WHEELED CHAIR

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Application May 12, 1945, Serial No. 593,346
In Great Britain December 13, 1944

3 Claims. (Cl. 280—39)

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This invention relates to pushcars or wheeled chairs, such as are required for children and invalids, and more particularly to the collapsible type comprising a pair of connected lazy-tongs frames and pivotally mounted wheels which when the frames are collapsed can be folded underneath the latter in a position substantially parallel therewith.

The object of the present invention is to provide a pushcar or wheeled chair of the kind herein referred to which besides being of a simpler and less expensive construction is very considerably lighter in weight and capable, moreover, of being folded in a much more compact state.

A pushcar or wheeled chair of the type herein referred to is characterized according to this invention in that the wheels at each side are both sprung and carried from the ends of a blade spring hinged about a fore and aft axis at or near the middle of its length to the bottom member of each frame.

The invention also includes the provision of means for locking and supporting the frames in their extended state and at the same time locking the hinged blade springs with the wheels in the vertical position of use.

The improved pushcar or wheeled chair is further characterized by the provision of a folding foot rest and handle which when the pushcar or chair is folded or collapsed can be moved in the one case into a position to support the wheels in a position substantially parallel therewith and in the other case into a position which considerably reduces the over-all length of the folded pushcar or chair and provides a convenient means for carrying it.

In the accompanying drawings,

Figure 1 is a general view showing the improved pushcar or wheeled chair in the extended state.

Figures 2 and 3 are detail views on a larger scale of the locking means in the locked and unlocked positions respectively.

Figures 4 and 5 are end views thereof respectively.

Figures 6 and 7 are side and plan views thereof respectively in the folded or collapsed state.

Figures 8 and 9 are side and part sectional edge views of one of the wheels.

Referring to the specific construction shown in the drawings, the improved folding pushcar or wheeled chair includes a pair of connected collapsible frames spaced apart in parallel planes, each frame being of lazy-tongs construction comprising upper and lower horizontal members *a*, *b* pivotally connected at the ends with front and

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rear members *c*, *d* respectively. The front members *c* are extended downwardly, as shown in Figure 1, to support a folding foot rest *e*, whilst the rear members *d* are formed with upward extensions d^1 which are pivoted by means of joints to the handle members f^1 of a folding handle *f*.

The two frames are spaced apart in parallel planes and connected together by means of transverse members one, *h*, at the front where the lower horizontal members *b* are pivoted to the front members *c*, another, *i*, at the back where the lower horizontal members *b* are pivoted to the rear members *d*, and a third, *k*, between the free ends of the extensions d^1 of the said rear member *d*.

Each pair of wheels is pivotally mounted about a fore and aft axis, the wheels *l* of each pair being carried by brackets or hangers *m* from the ends of a blade spring *n* extending in a fore and aft direction and having a hinged connection with the adjacent horizontal member *b* of the frame. For this purpose, as shown in detail in Figures 2 and 3 and 4 and 5 the blade spring *n* is secured at or about the middle of its length to a hinge, one plate *o* of which is secured to the frame member *b* whilst the other plate *p* is extended and bent over on itself to receive the blade spring *n* and to form a stop *q* which, when the wheels are in the vertical position of use, abuts against the back of the other hinge plate *o*, as seen in Figure 4.

The means employed for locking the wheels in the vertical position and at the same time supporting the connected frames in the extended state, as shown in Figure 1, consists of locking bars *r* pivoted one to each side to the frame member *b* at r^1 and having a series of holes r^2 at one end for engagement with a peg *g* on the front member *c*. The other end r^3 of each locking bar is extended beyond the pivot r^1 to engage either behind the stop *q* on the hinge plate *p*, as seen in full lines in Figures 1, 2 and 4. The inclination of the frames in the vertical plane can be readily adjusted by engaging one or the other of the series of holes r^2 in the locking bar with the peg *g* on the member *c*.

The seat and back rest consist of a length of fabric, such as canvas, which is attached to and suspended hammockwise between the front and rear transverse members *h*, *k*. One end of the fabric is permanently secured to the transverse member *i* in which case the length of fabric, after passing around the front transverse member *h* and being turned back to form the seat and backrest, is detachably secured by its other end to

the rear transverse member k by means of hooks or clips. In this case means, such as sliding sleeves or screws x, Figure 1, may be employed to lock the pivoted joints t connecting the upward extensions d^1 and the handle member f^1, when the handle is extended in position of use.

When it is desired to fold the improved pushcar or wheeled chair the locking bars r are disconnected from the pegs on the members c and turned into a position in which their other ends are clear of the stop plates of the hinges, see Figures 3 and 5. The blade spring at each side can now be turned about the axis of the hinge to bring the wheels into the folded position beneath the frame.

The pushcar can then be folded forward about the pivots u, v into the collapsed state shown in Figures 6 and 7, and the foot-rest e folded back underneath to support the wheels. The handle f is in effect double-jointed at v and t so that when the push-car or chair is folded the handle f can be turned backward about the pivots t thereby very materially reducing the over-all length of the folded push-car or chair. Where, in the alternative arrangement above described the hammock seat and back rest is detachable at one end, it can be pulled forward around and underneath the folded pushcar and attached to one of the transverse members thereby enclosing the pushcar.

In order to provide sufficient side support for the seat and to keep the over-all length of the pushcar when folded as short as possible, the upper member a of each side frame, which may be of a different section to the others to form an arm rest, is bent downwardly at each end, as seen in Figure 1, for pivotal connection with the front and rear members a, d.

As shown in Figures 8 and 9 the wheels l may each be made of a pair of pressings secured together by riveting tubular projections l^1 integral with the one in holes l^2 in the other, the bosses of said pressings enclosing a self-lubricating bearing l^3.

I claim:

1. A wheeled pushcar or chair of the character described comprising a collapsible structure adapted to support a seat and back-rest, and having downward extensions at the front, a foot-rest carried by said extensions and adapted when said structure is collapsed to fold rearwardly underneath the same, a blade spring arranged longitudinally of and at each side of said structure, said springs being hinged thereto about fore and aft parallel axes, a wheel mounted at each end of each of said springs, said wheels being adapted to fold underneath said structure about said axes, and means for locking said structure in its extended state and at the same time locking said blade springs with the wheels in position of use.

2. A wheeled pushcar or chair of the character described comprising a pair of vertically collapsible frames connected together parallel with and at a distance from each other and adapted to support a seat and a back rest between them,

each of said frames comprising parallel upper and lower members and parallel front and rear members, said front members being extended downwardly and said rear members extended upwardly, a foot-rest carried by the extended ends of said front members and adapted when the frames are collapsed to fold underneath them in a rearward direction, a handle pivotally connected with the extended ends of said rear frame members and adapted when the frames are collapsed in a forward direction to fold in a rearward direction substantially parallel and co-extensive therewith, resilient means hinged to the said lower members about a fore and aft axis, said means extending parallel therewith and adapted to carry a wheel at each end, and means pivoted in said lower members and adapted to lock said frames in their extended positions and at the same time to lock said resilient means with the wheels in position of use.

3. A wheeled pushcar or chair of the character described comprising a pair of vertically collapsible frames connected together parallel with and at a distance from each other and adapted to support a seat and a back-rest between them, each of said frames comprising parallel upper and lower members and parallel front and rear members, said front members being extended downwardly and said rear members extended upwardly, a foot-rest carried by the extended ends of said front members and adapted when the frames are collapsed to fold underneath them in a rearward direction, a handle pivotally connected with the extended ends of said rear frame members and adapted when the frames are collapsed in a forward direction to fold in a rearward direction substantially parallel and co-extensive therewith, a blade spring hinged to the lower member of each frame about a fore and aft axis and extending parallel therewith, a wheel carried by each end of each spring, and a strut pivoted in each of said lower members, one end of said strut being adapted to engage the front member of each frame to lock the latter in the extended state and the other end of said strut being adapted to lock the blade spring with the wheels in position of use.

REGINALD CLARENCE FORD.

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