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B7B BTF1

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US 5188389 A

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(54) Abstract Title
Foldable pushchair

(57) A pushchair of the three-wheeled type is foldable into a compact form and comprises a pair of generally parallel side members (13), a pair of handle support members (18), each pivoted adjacent its lower end upon the pushchair chassis (10) and at its upper end to one of the handle side members. Each of the side members (13) is hinged within the region of the pivoting to it of one of the support members (18). Locking means (16) releasably secure the forward ends of the side members to the chassis (10) and bracing means (19) releasably provide a rigid connection between at least one of the support members (18) and the corresponding side member (13) rearwardly of its hinge.

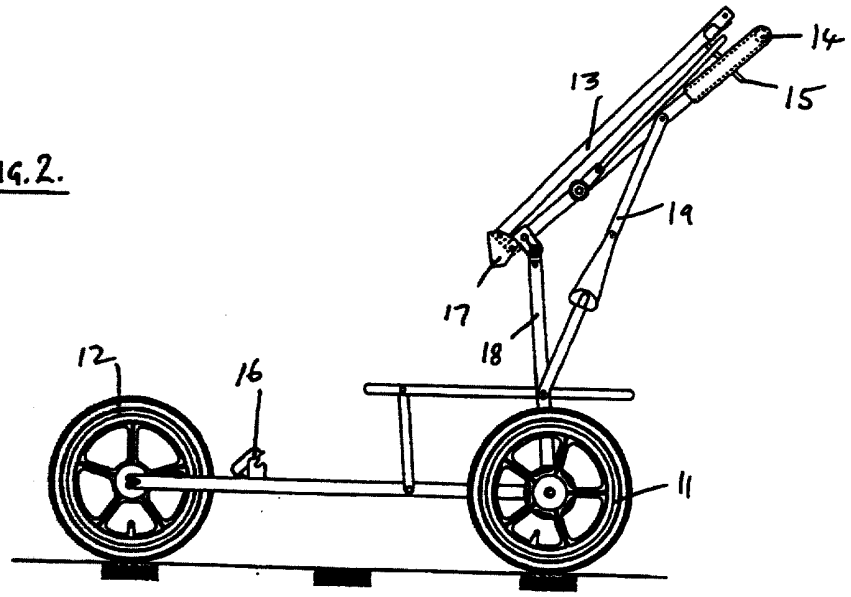

Fig.2.

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FIG. 1.

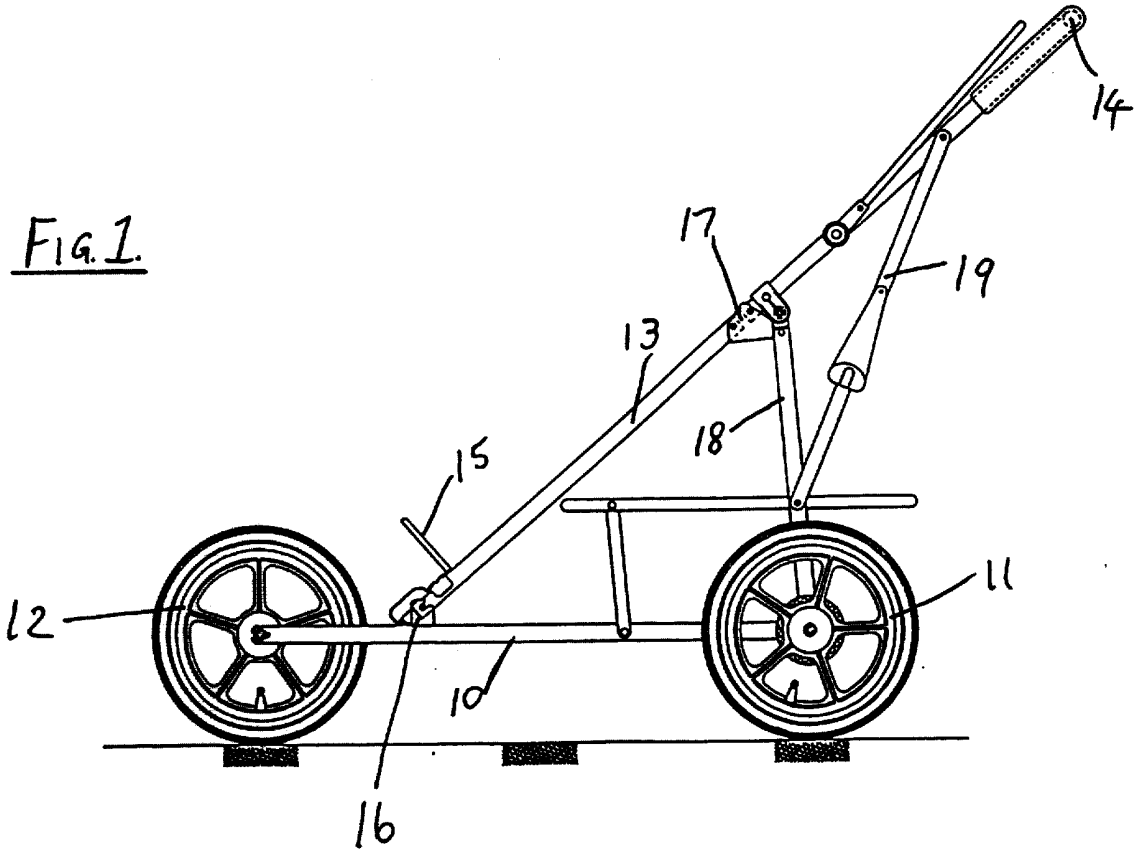


FIG. 2.

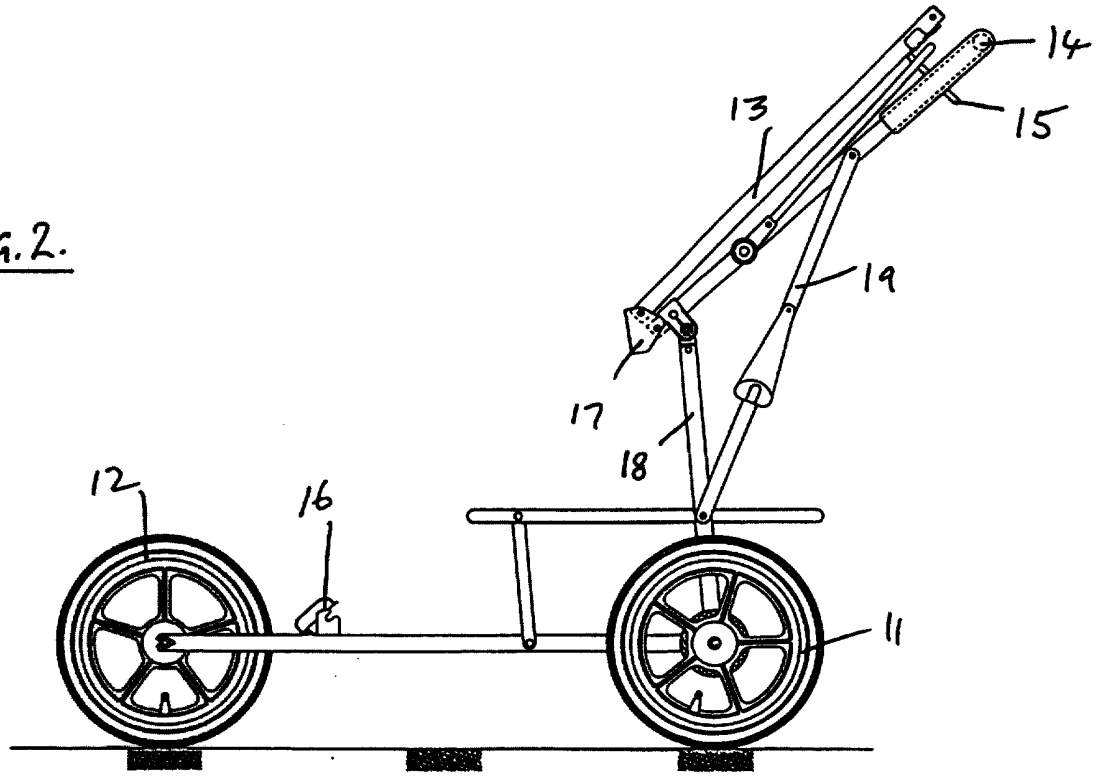


FIG. 3.

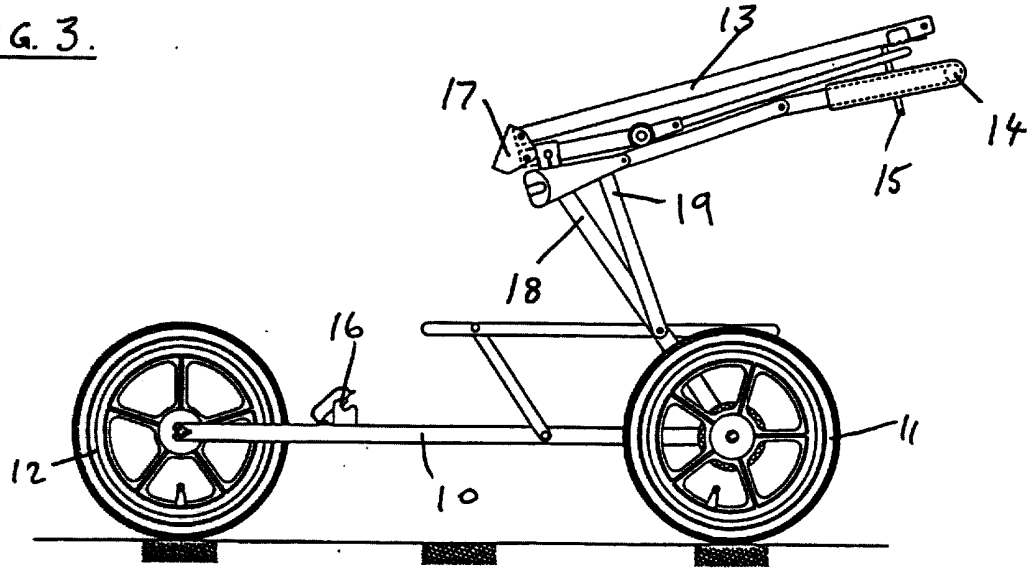
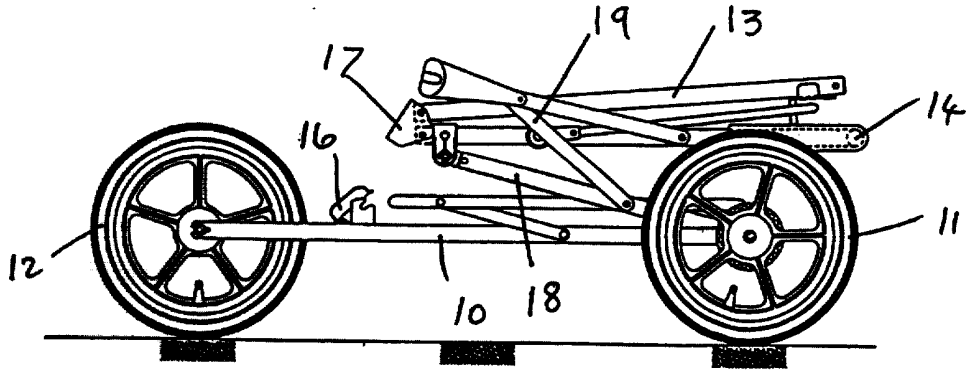


FIG. 4.



Foldable Pushchair

The present invention relates to pushchairs and in particular to pushchairs which are able to fold down into a generally flat configuration.

Foldable pushchairs of various types based upon four-wheeled chassis designs are well known and widely used. Such folding allows pushchairs of this type to adopt a generally flat form which enables them to be stored when not in use but also permits them to be conveyed by car, for example to be carried in the car boot. However more recently adopted pushchair designs, which may otherwise be favoured for practical or aesthetic reasons, do not lend themselves so readily to folding into truly compact forms.

By way of example, three-wheeled pushchairs have become increasingly popular, which latter are said to be suitable for allowing the user to practise jogging, mountain walking and other leisure activities while pushing a child in the pushchair. However the form of the chassis of such three-wheeled pushchairs, in particular the siting of a single forward wheel, has impeded folding by conventional mechanisms and given rise to pushchairs

which in folded form are less compact, and indeed may be too long to fit conveniently into the boot of a typical European family car.

It is therefore an object of the present invention to provide a foldable pushchair of the three-wheeled type, which can readily be folded from a stable erected form to a folded form which may be more compact than prior available three-wheeled pushchairs.

The foldable pushchair according to the present invention comprises a three-wheeled fixed chassis having a single forward wheel and two rearward wheels, a handle comprising a pair of generally parallel elongate side members, a pair of handle support members, each pivoted in the region of its lower end upon the chassis and each further pivoted at its upper end to one of said handle side members within a region intermediate the ends of said handle side member, each said handle side member being hinged within the region of the pivoting thereto of said handle support member, locking means to releasably secure the forward ends of said handle side members to said chassis, and bracing means to releasably provide a rigid connection between at least one of the handle support members and the corresponding handle side member rearwardly of its hinge.

By virtue of the foregoing construction of the pushchair according to the present invention, the pushchair may be folded down from its erected condition by the simple operation of

disengaging the locking means, folding back the handle, releasing the bracing means and lowering the folded handle down on to the chassis. The resulting folded pushchair may be within the overall length of the chassis or only marginally longer, depending primarily upon the chosen overall length of the handle when erected.

Of course, the foregoing components together make up only the main frame of the pushchair. Seating for the child to be carried in the pushchair, for example in the form of canvas seat and back-support panels, and such optional extras as a sun canopy, a rain cover and/or a luggage tray, are attached to the frame in conventional manner.

When the pushchair is in its erected condition, the two handle side members extend at an acute angle rearwardly from the forward point on the chassis to which they are secured by the locking means, upwardly to form the handle. The handle side members are most preferably linked together at their upper rearward ends by a transverse member forming the handle by which the pushchair is steered, but in a less-preferred form of the invention, the side members are each shaped at their upper ends to form together a pair of separate handles. At their lower, forward ends, the handle side members are preferably interconnected, for example by a short cross-member, so that they may together be secured or released by the locking means in a single locking action. It is much preferred that the locking means take the form of a sprung,

quick-release buckle, in particular one designed to ensure that the pushchair meets the highest of safety standards in use.

Each of the handle side members is hinged at a point in its length. Preferably the hinge is located within the general region of the mid-point of the length of the side member. Within the same region, preferably closely to the rearward side of the hinge, a handle support member is pivoted to the side member, the lower end of the handle support member being pivoted to the chassis.

When the pushchair is in its erected condition and the handle side members are locked at their forward ends to the chassis, the structure is secured by the bracing means which rigidly connects at least one of the handle support members to the corresponding side member. In that form of the pushchair in which the handle side members are interconnected at their upper ends, a single bracing strut may suffice for this purpose but it is much preferred that a bracing strut be provided for each handle side member. The or each bracing strut is preferably hinged within the region of the middle of its length and provided with quick-locking, quick-release means to enable it to be secured with its two parts in alignment or to be folded upon each other as desired.

The invention will now be further described with reference to the accompanying drawings, which illustrate, by way of example only,

one preferred embodiment of the pushchair according to the present invention and wherein:-

Fig. 1 is an elevation from the side of the frame of the pushchair, in a fully-erected condition;

Figs. 2 and 3 are respective views of the pushchair frame of Fig. 1, in progressively more folded condition; and

Fig. 4 is a further view of the pushchair frame of Figs. 1 to 3, in fully-folded condition.

The illustrated pushchair is based upon a chassis 10 having a pair of rear wheels 11 and a single front wheel 12. A pair of handle side members 13 extend, in the erected condition of the pushchair, upwardly and rearwardly in parallel from a point just behind the wheel 12. The side members 13 are linked together at their upper ends by a cross-member 14 forming the handle by which the pushchair is pushed and steered. At their lower ends, the side members are similarly linked together, by a short cross-bar not visible in the drawings and by a foot-rest 15. When the pushchair is in its erected condition, the latter cross-bar is retained by a sprung buckle 16.

Each of the handle side members 13 is hinged at 17 in the region of the mid-point of its length. Just to the rear of each hinge

17, a handle support member 18 is pivotally attached to the side member 13. At its lower end, the handle support member is pivoted to the chassis 10 in the region of the chassis rear axle. A bracing strut 19, which is hinged in the region of its middle bar but can be locked with its two hinged halves aligned, extends between the handle side member and the handle support member 18.

In the condition illustrated in Fig. 1, the pushchair frame is stable and secure. Seat and back members of flexible material (not shown) are slung between the side members 13. When it is desired to fold the pushchair, the frame is progressively collapsed via the sequence of positions illustrated in turn by Figs. 2 to 4, as follows.

Firstly, as illustrated in Fig. 2, the cross-bar joining the lower ends of the side members 13 is disengaged from the buckle 16 and the side members are folded upwardly and rearwardly about the hinges 17. The locking arrangement which retains the bracing struts 19 in their extended orientation is released and the assembly may now be collapsed, as shown in Fig. 3, downwardly on to the chassis into the fully folded condition illustrated in Fig. 4.

CLAIMS

1. A foldable pushchair comprising a three-wheeled fixed chassis having a single forward wheel and two rearward wheels, a handle comprising a pair of generally parallel elongate side members, a pair of handle support members, each pivoted in the region of its lower end upon the chassis and each further pivoted at its upper end to one of said handle side members within a region intermediate the ends of said handle side member, each said handle side member being hinged within the region of the pivoting thereto of said handle support member, locking means to releasably secure the forward ends of said handle side members to said chassis, and bracing means to releasably provide a rigid connection between at least one of the handle support members and the corresponding handle side member rearwardly of its hinge.

2. A foldable pushchair as claimed in Claim 1, wherein said handle side members are linked together by a transverse member at their upper rearward ends.

3. A foldable pushchair as claimed in either of the preceding claims, wherein said handle side members are interconnected at their lower forward ends.

4. A foldable pushchair as claimed in Claim 3, wherein said locking means comprises a sprung quick-release buckle.

5. A foldable pushchair as claimed in any of the preceding claims, wherein each handle side member is hinged within the region of the mid-point of its length.

6. A foldable pushchair as claimed in any of the preceding claims, wherein each handle support member is pivoted to a handle side member closely to the rearward side of the hinge of said handle side member.

7. A foldable pushchair as claimed in any of the preceding claims, wherein the bracing means comprises one or two bracing struts interconnecting one or both of the handle side members respectively and the corresponding handle support member or members.

8. A foldable pushchair as claimed in Claim 7, wherein the or each bracing strut is hinged within the region of the middle of its length.

9. A foldable pushchair as claimed in Claim 8, comprising quick-locking, quick-release means to enable the or each bracing strut to be secured with its two parts aligned or folded upon each other.

10. A foldable pushchair substantially as hereinbefore described with reference to, and as illustrated in, the accompanying drawings.

The Patent Office

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Application No: GB 9718074.9
Claims searched: 1 - 10

Examiner: Peter Macey
Date of search: 10 December 1998

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.P): B7B (BTF1)

Int Cl (Ed.6): B62B 7/06, 7/08, 7/10

Other: Online: WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	US 5188389 A (Racing Strollers) see figures 1 and 4 - 6	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlie than, the filing date of this application.