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(12) # EUROPEAN PATENT APPLICATION

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(54) **Baby walker.**

(57) A baby walker has a first pair of axially spaced wheels (46), a rear pair of wheels (44) and a handle (38) above the wheels, the handle (38) being disposed between the wheels (46) and the wheels (44) and the rear wheels (44) being separately mounted so that the rear wheels and the handle 38 between them bound forwardly and laterally a user position to the rear of the walker.

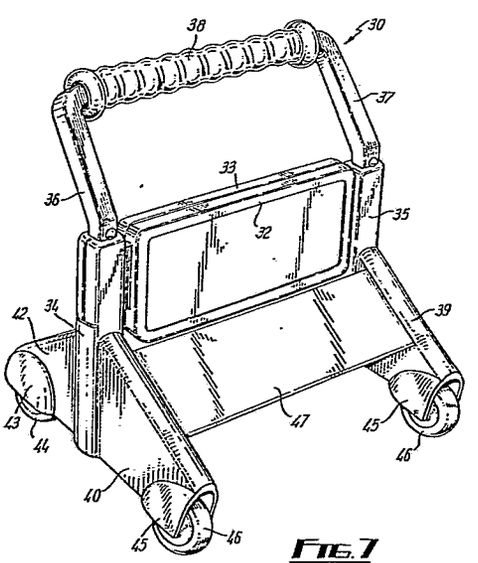

FIG.7

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Description

BABY WALKER

This invention relates to a childs walking aid which is often referred to as a baby walker. Prior art in the form of British Patent Specification 1048148 and GB 2122100A has been brought to the Applicants attention. However, Specification 1048148 describes apparatus clearly for use by invalids, and adult invalids at that. Resemblance to the field of childs walking aids is quite remote. GBA 2122100A does relate to the appropriate field, but as this device is captive and mounted to pivot about a central point, any considerations regarding tipping of the device do not possibly arise and therefore are not considered in that patent. The applicant is still of the opinion that the prior art described in Figure 1 of the accompanying drawings is probably the nearest to be considered.

This known baby walker has a wheeled body having an upright with a handle at a rear end thereof. the body often forms a brick box or some other toy. This known baby walker has the disadvantage that if a baby holding the handle leans backwards the walker will often tip backwards reducting the baby's confidence and possibly causing injury. An object of the present invention is to provide an improved baby walker.

Accordingly the invention provides a baby walker having a front pair of axially spaced wheels, a rear pair of axially spaced wheels and a handle above the wheels, characterised in that the handle is disposed intermediate the front and rear wheels and in that the rear wheels are separately mounted, the rear wheels and said handle partially bounding a user position of the walker.

The walker can be arranged to allow a baby to hold the handle from either side.

The wheels are preferably mounted on supports extending on each side of and from each of the upright. The wheels are preferably shrouded.

The upright can be in the form of a frame or a wholly or generally solid panel.

The upright can mount one or more toys or an "activity centre".

The handle can be a single bar, a pair of bars, knobs, rings or the like.

The invention will be described further, by way of example, with reference to the accompanying drawings wherein:-

Fig. 1 is a sketch showing a known baby walker in side elevation;

Fig. 2 is a front perspective view of a second preferred baby walker of the invention;

Fig. 3 is a view similar to Fig. 2 but showing an activity centre attached to a cross-piece of the walker;

Fig. 4 is a plan view sketch (on a reduced scale) showing the walker of the invention.

Fig. 5 is a top plan view of a second preferred embodiment of walker of the invention;

Fig. 6 is a schematic side elevation of the walker of Fig. 5.

Fig. 7 is a side elevation of a practical embodiment of walker according to the second embodiment; and

Fig. 8 is a front perspective view of the walker of Fig. 7.

Referring to Fig. 1, a known baby walker 10 has a wheeled body 11 having at a rear end thereof an upright 12 with a horizontal handle bar 13. The body 11 can form a brick-box. If a baby (not shown) tends to fall backwards he pulls handle 13 in the direction of arrow 14 and the whole walker 10 can tip clockwise and allow the child to fall, possibly causing injury, but more likely reducing the child's confidence in the device.

Fig. 2 shows the basic parts of a second preferred baby walker 15 of the invention which has an upright 16 consisting of stiles 17, a cross-piece 18 and a handle bar 19. The cross piece 18 can be used for mounting any desired additional item(s) such as a toy or toys or an activity centre 20 (see Fig.3). Each slide 17 has attached to it a respective support formed by a pair of triangular wings 21 extending relatively thin tube of steel coated with or overlaid by plastic material. The nature of the material and its size are chosen so that the handle has a certain degree of resilience. Thus, if a child pushes the walker hard against a obstruction, a certain degree of the shock is absorbed in the handle. This reduces the chance that the child might tip the walker forwardly thus causing injury. Integrally formed with the columns 34,35 are forwardly and rearwardly extending triangular limbs 39, 40, 41, 42. The front limbs 39-40 are longer in the horizontal direction than the rear limbs 41-42. This will be best seen in Fig.7. It will be noted that the front and rear limbs 39,41 and the column 34 can be integrally moulded from plastics material. It will be appreciated, therefore, that the presence of the column 34 is not essentially a structural item, but more of a decorative feature of the article. If desired the appearance of the columns 34 and 35 as separate items could be dispensed with and they could simply be structural parts integral with the limbs 39, 41. Of course, similar considerations appear to refer to the limbs 40,42 and the column 35. Each of the rear limbs 41,42 terminates in a respective rear shroud 43 which generally encloses and provides a rotational axis for a rear wheel 44. Each of the front limbs 39, 40 terminates in a respective front wheel shroud 45 which generally at right angles to the plane of upright 16. Each wing carries a hollow shroud 22 within which is a wheel 23.

As is best seen in Fig. 4, the baby walker 15 of the invention provides two operative positions indicated by circles 24,25. Thus, a baby can approach the walker from either side.

The disposition of each pair of wheels level with or even further from the handle 19 than the baby's feet leads to great stability even if the baby tends to fall backwards.

As the baby is nearer to the wheel than in a conventional walker the shrouds 22 can serve to

reduce the chances of the baby's fee contacting the wheels.

A second preferred embodiment of walker 30 has a central body which lies in the plane of 31 and which, in this embodiment is constituted by a transverse member (not shown) sandwiched between a pair of decorative panels 32,33. The transverse member can be comparable to member 18 in Fig. 2 and the panels 32 and 33 (here shown plain for clarity) can be comprable to the panels 20 in Fig. 3. The centre of gravity of the walker will usually lie in the plane 31. As best seen in Figs. 7 and 8 the body panels 32, 33 are connected to columns 34, 35 which mount upwardly and rearwardly extending arms 36,37 which carry a transversely extending rod-like handle 38. The handle 38 is made from either plastics material or a elevation it can be considered, essentially, as being a triangular device, the three apecies of the triangle being constituted by the axes of the front and rear wheels 46/44 and the handle 38. It will be seen from Fig. 6 that the position of the handle is intermediate the axes of the wheels 44 and 46 and is nearer to the rear wheels 44. It will also be noted that the handle 38 is on the rearward side of the centre of gravity marked CG.

When using the walker of the invention it will be appreciated that the danger of a child tipping forwardly, that is to say moving the walker leftwards (in Fig.6) into contact with an obstruction which would stop the wheel 46 and therefore cause the whole walker to pivot about the axis of wheel 46, is dependent upon the force which the childs applies to the walker and the position of the handle relative to the wheel 46. By careful testing we have discovered that the danger of the walker tipping in such conditions can be reduced considerably provided that the ratio of the height H to the wheel base W is less than or equal to 4:1 and preferably less than 3:1. In the described embodiment the respective values for H and W are 400mm and 315mm giving a ratio of 1.27:1. There is the further constraint, of course, that the spacing of the handle 38 above the ground should be convenient for use by a small child and we have ascertained that in order that the walker can be used accommodates a respective front wheel 46 in a manner comparable to the rear shrouds 43. However, it will be noticed that the front wheel shroud 45 is cut away compared to the rear shroud 43 to expose a forward facing part of the front wheel 46. This exposes a front leading portion of the wheel 46 in order that the walker, if an when pushed by a child into contact with an item resting on the floor, for example a discontinuity at a doorway or the edge of a rug or comparable floor laying article there is more tendency for the walker to "climb" over the obstruction than to stop and perhaps project the child over the walker with the possibility of injury. The rear shrouds 43 virtually totally surround the rear wheels 44, only a lowermost portion thereof being exposed and therefore open to contact by a child's feet or fingers. Between the top edges of the front limbs 39, 40 extends structure in the form of a panel 47. Panel 47 serves to give rigidity to the walker but also has the important function of making it difficult for a child to stand at the front of the walker 30, hold the handle 38 and propell the walker in a rearward direction. The panel 47 also has the advantage that if a child propells the walker towards a tall upright obstruction, such as a post or a door, the panel 47 contacts such structure before the panels 32, 33. This reduces the possibility that upon hitting such an obstacle the child's head, disposed above the handle 38, could continue to move forwardly and contact such an obstruction.

Referring to Fig. 5, it will be seen that the user position as indicated generally at 48, is bounded by the handle 38 on its forward side and laterally by the rear wheels 44. The provision of the wheel 44 rearwardly of the handle 38 and mounted independently one on each side of the walker creates structure which bounds the user position 48 laterally by means of the wheels 44 and forwardly by means of the handle 38. This construction provides a particularly safe environment for a user and greatly reduces the chances that the user can fall backwards suddenly with the possibility of injury.

It will be appreciated from the foregoing that each wheel is independently mounted within its own shroud at the end of its respective limb 39 to 42. This essentially means that each wheel is independently mounted, that is to say not interconnected to its companion (forward or rear) wheel by means of an axle or comparable structure. It is quite possible for a using child to take up a position between the two wheels (subject to the position of the panel 37).

Fig. 6 is a schematic side elevation illustrating the walker and showing that when viewed in side by children who are at the age when they are beginning to learn to walk, for example, between one and two years old (a height of 600mm is an absolute maximum and the height is preferably less than 500mm. We have found that a height of about 400mm is comensurate with being low enough for use by a very young child, for example twelve or fifteen months, but also allows the device to be retained by the child as a toy in later years and still handled without great discomfort. Here it will be appreciated, of course, that if a child learns to walk on a particular toy, the child often becomes attached to that toy and desires to keep it for perhaps another year or more even after walking has been adequately learned. In these circumstances it is important that the height of the handle 38 is not too low as to cause a croutch posture when older and still using a toy for a younger child.

We have also ascertained that the direction of the force which a child applies to the handle 38 (indicated by the arrow 49 in Fig.6) can be averaged (and here it has to be said that this angle will vary tremendously with the way in which a child uses an article but the angle shown is a reasonable indication of a typical angle of application) lies round about from 35 to 40°. It will be appreciated, of course, that if the angle α between the handle 38 and the wheel 46 could be reduced to be less than 30° then the angle of the arrow 47 would be less than the angle α and therefore there will be a very low chance of the walker tipping. However, such a very low angle is comensurate with a length of a walker approaching 1m and this would make the walker extremely

unwieldy for use by a child and quite impractical. Therefore, by experiment we have determined that an angle of 45° or less gives a degree of safety which is adequate for protection of the child (that is to say only a rather tall heavy child moving at a very high speed could tip the walker (and it is to be appreciated that such a combination of conditions will not occur very frequently and, if they do, a stronger larger child is much less likely to be hurt than a smaller child) this is comensurate with producing a walker which is relatively easy for a child to manufacture in that its wheel base is not too elongate is an attractive and enjoyable toy.

It will be appreciated that the second embodiment of walker of the invention has been constructed, arranged and designed so that a child is very generously protected against the possibility of the walker tipping forward upon contact with an obstruction and also is well protected by the rear wheels 44 from moving sideways to as to pull the walker over with the attendant danger of injury and also there is a reduced chance that the child can fall over backwards. As will be appreciated, when a child does fall backwards (and this will only happen on rare occasions with the added protection given by the positioning of the rear wheels 44 the child will normall fall to the sitting position without significant hurt. The baby walker of the invention is an attractive and useful aid to child development but adequately safe and unlikely to cause injury.

The invention is not limited to the precise details of the foregoing and variations can be made thereto. For example, the walker is shown as being symmetrical in plan, whereas it can be asymmetric. The wings can diverge if desired. The upright can be a panel or a frame or a combination of both.

The handle can be a pair of bars, a pair of knobs, rings or the like.

Claims

1. A baby walker having a front pair of axially spaced wheels, a rear pair of axially spaced wheels and a handle above the wheels, characterised in that the handle is disposed intermediate the front and rear wheels and in that the rear wheels are separately mounted, the rear wheels and said handle partially bounding a user position of the walker.

2. A baby walker as claimed in claim 1 wherein the height of the handle is from 400mm to 600mm.

3. A baby walker as claimed in claim 2, wherein the height is from 400m to 500mm.

4. A baby walker as claimed in claim 1, 2 or 3 wherein the ratio of the height of the handle above the wheel axes to the wheel base is less than 1.4.

5. A baby walker as claimed in claim 4 wherein the ratio is less than 1.3.

6. A baby walker as claimed in claimed in any of claims 1 to 5 wherein the handle is nearer to the rear wheels than to the front wheels.

7. A baby walker as claimed in any of claims 1 to 6 wherein front lower portions of said front wheels extend outwardly from shrouds to reduce the possibility of the walker tipping on shallow upstanding protrusions.

8. A baby walker as claimed in any preceding claim wherein only lower portions of the rear wheels extend outwardly of the shrouds.

9. A baby walker as claimed in any preceding claim wherein each wheel is pivoted at the end of an arm projecting from a body of the walker.

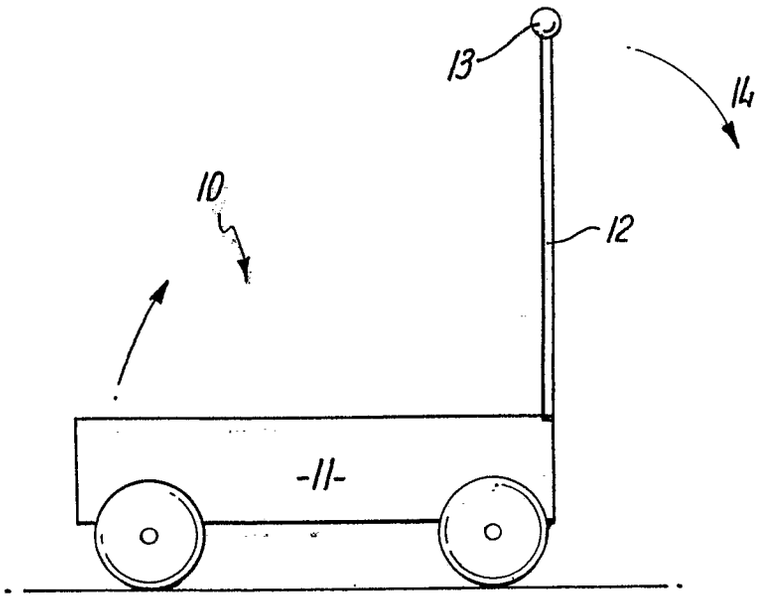
10. A baby walker as claimed in any preceding claim wherein the arms carrying the front wheels are longer than the arms carrying the rear wheels.

11. A baby walker as claimed in claim 10 wherein structure is provided which interconnects said front arms between the wheels and the body to discourage reversed use of the walker.

12. A baby walker as claimed in any preceding claim wherein said handle is an elongate bar extending tranversely of the walker.

13. A baby walker as claimed in any preceding claim and arranged to allow a baby to hold the handle from either side.

14. A walker as claimed in any preceding claim wherein the handle is constituted by a pair of formations, one for each hand.



Prior Art

FIG.1

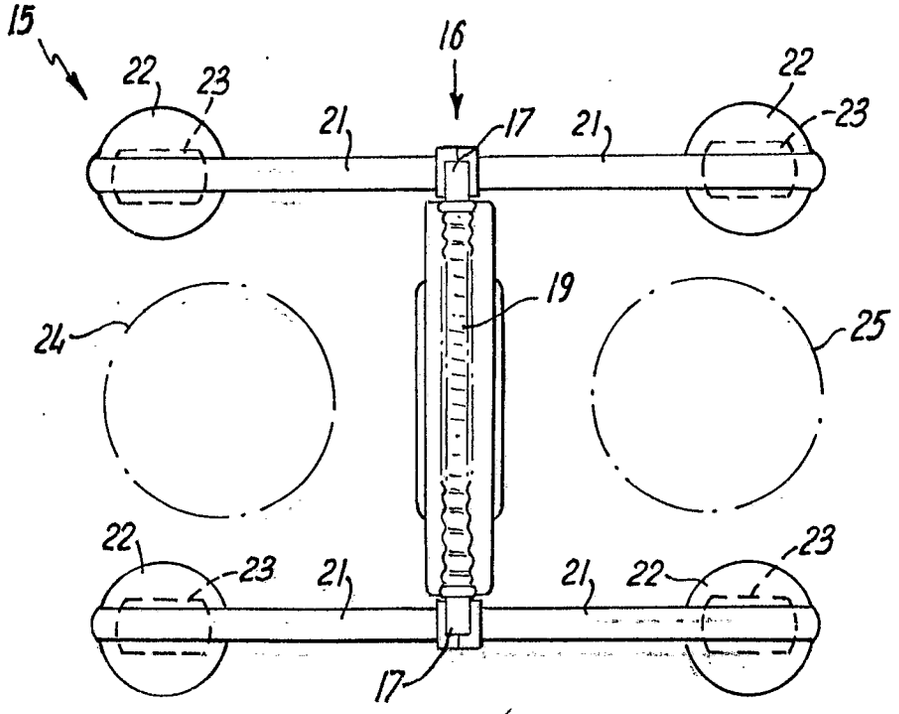


FIG.4

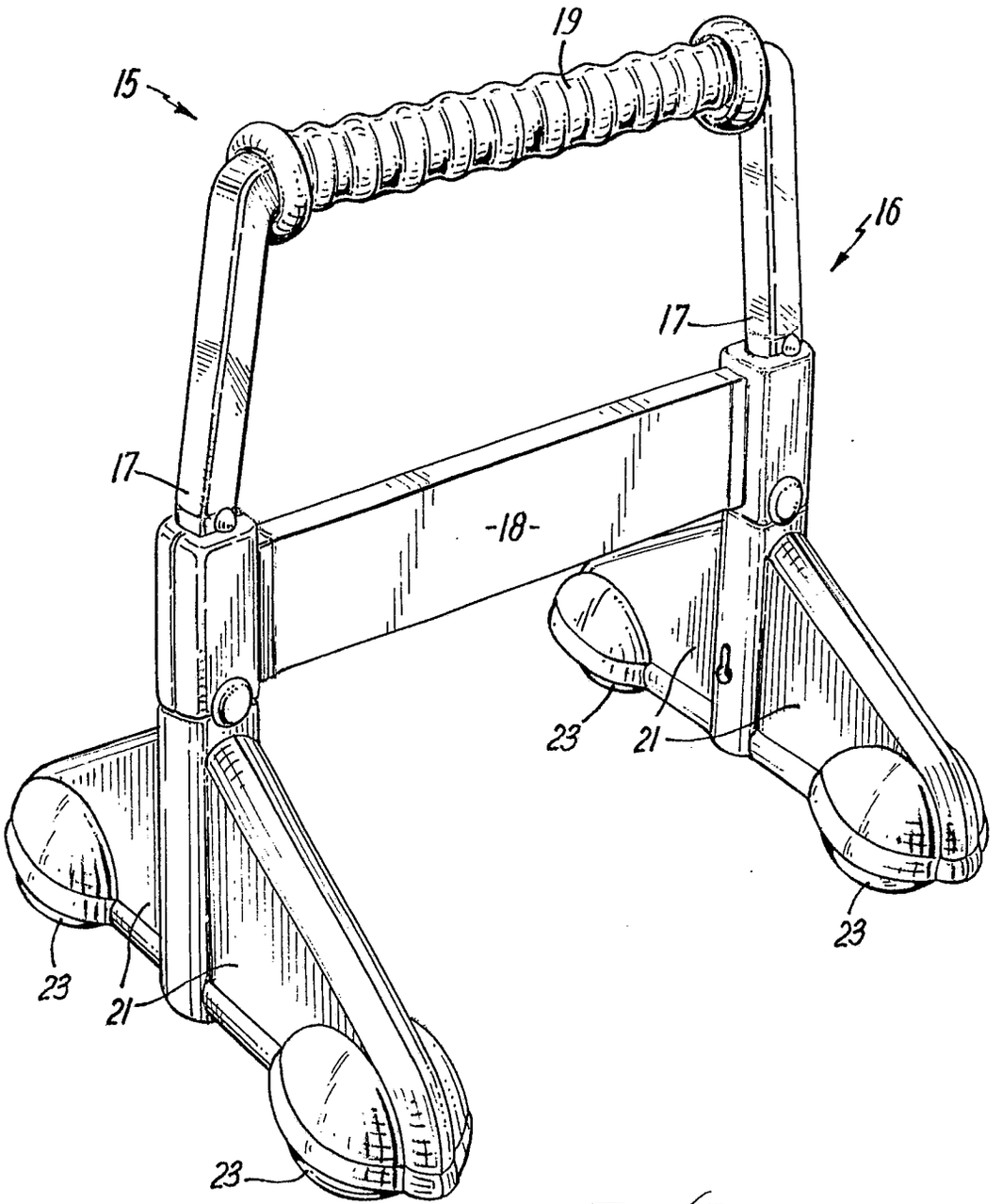


FIG. 2

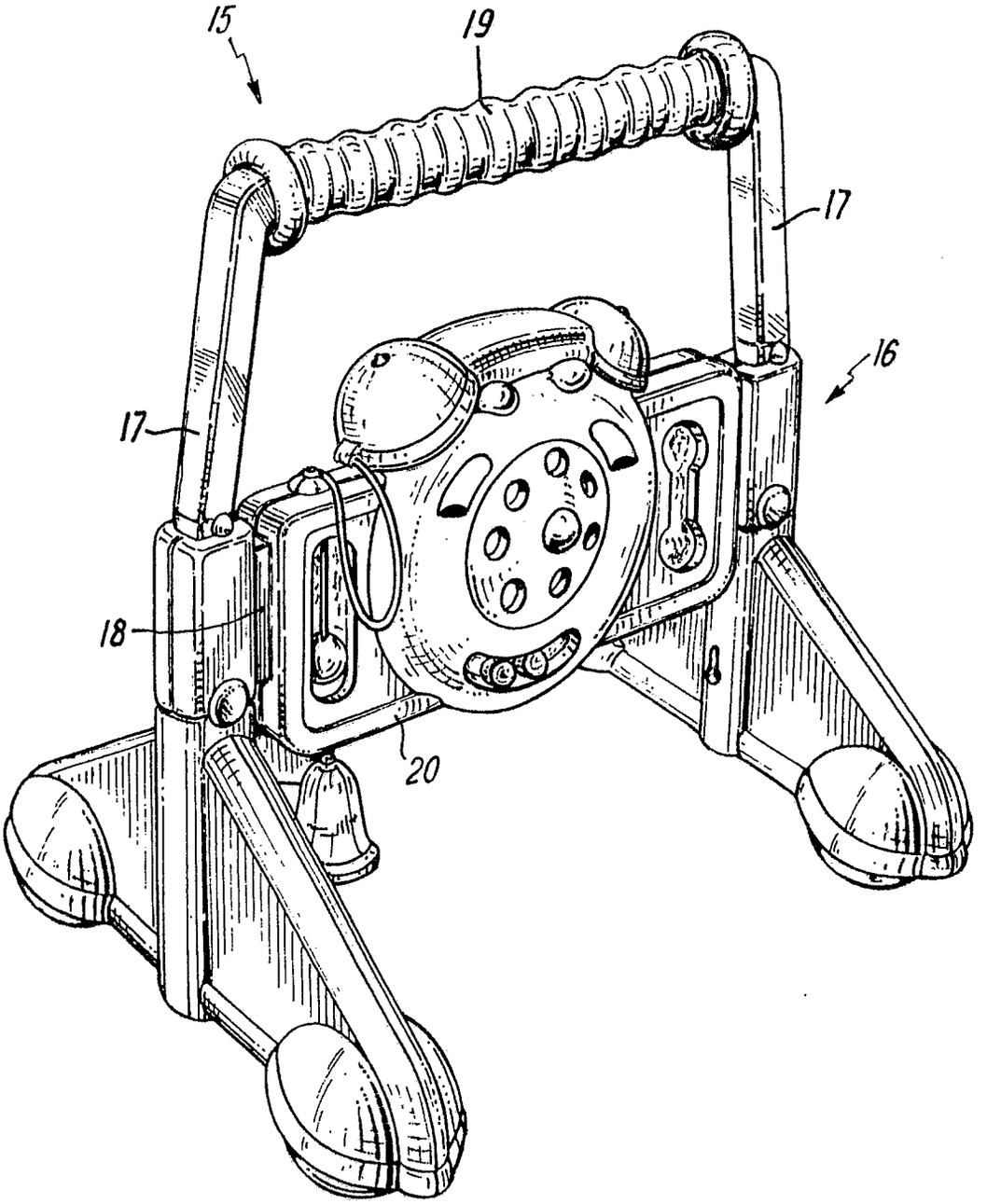
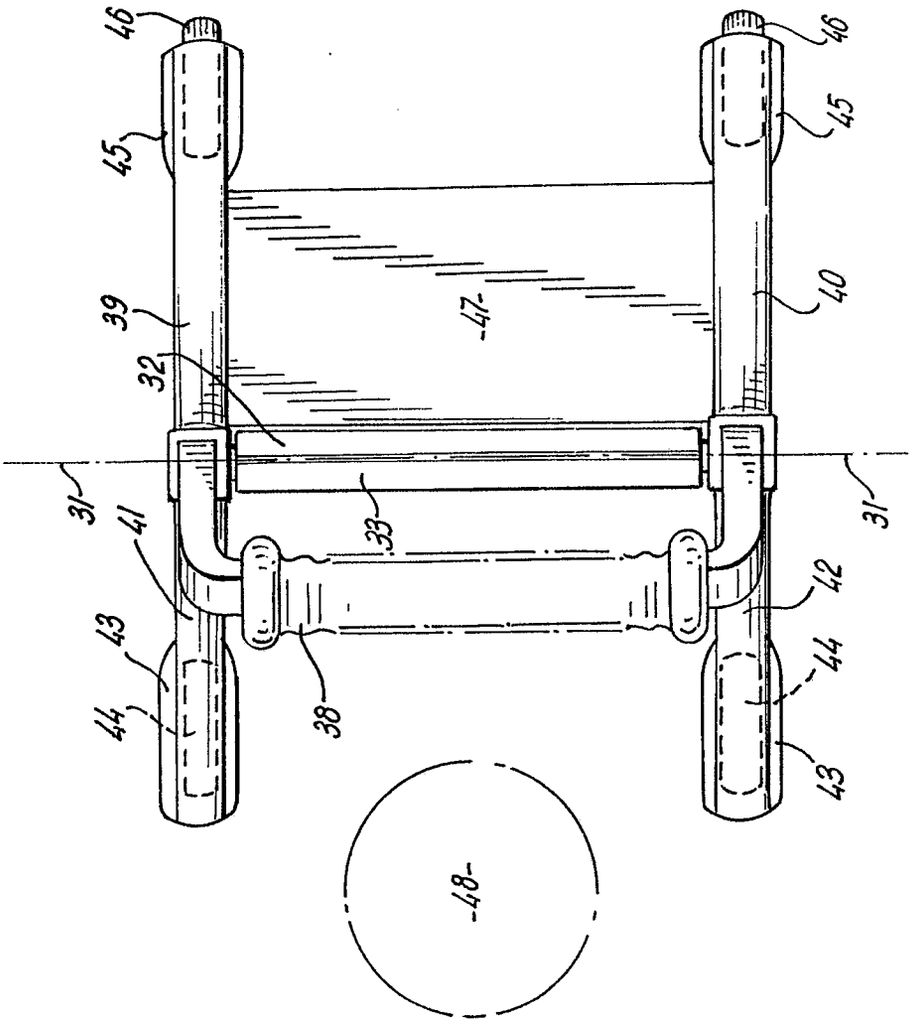
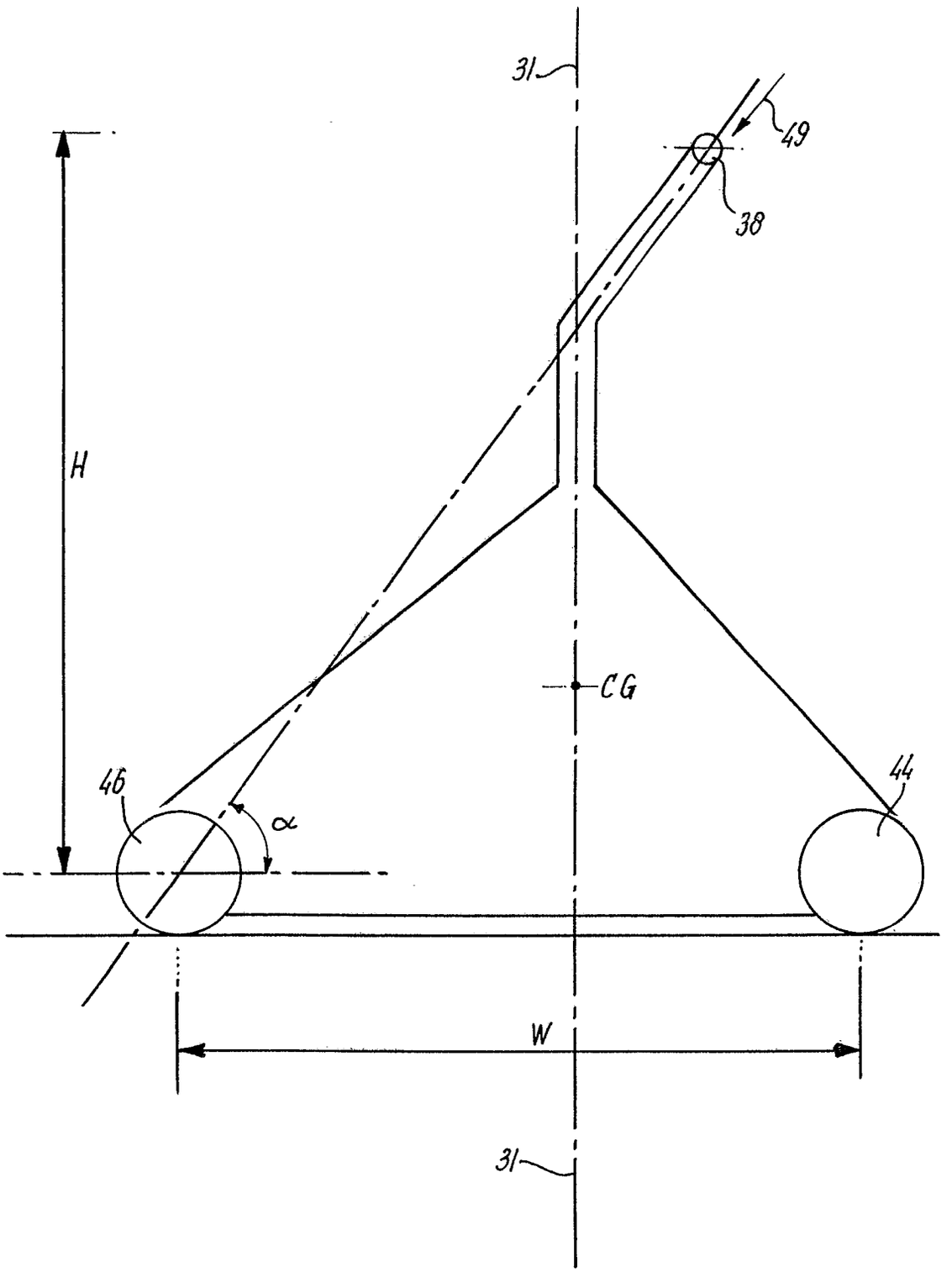


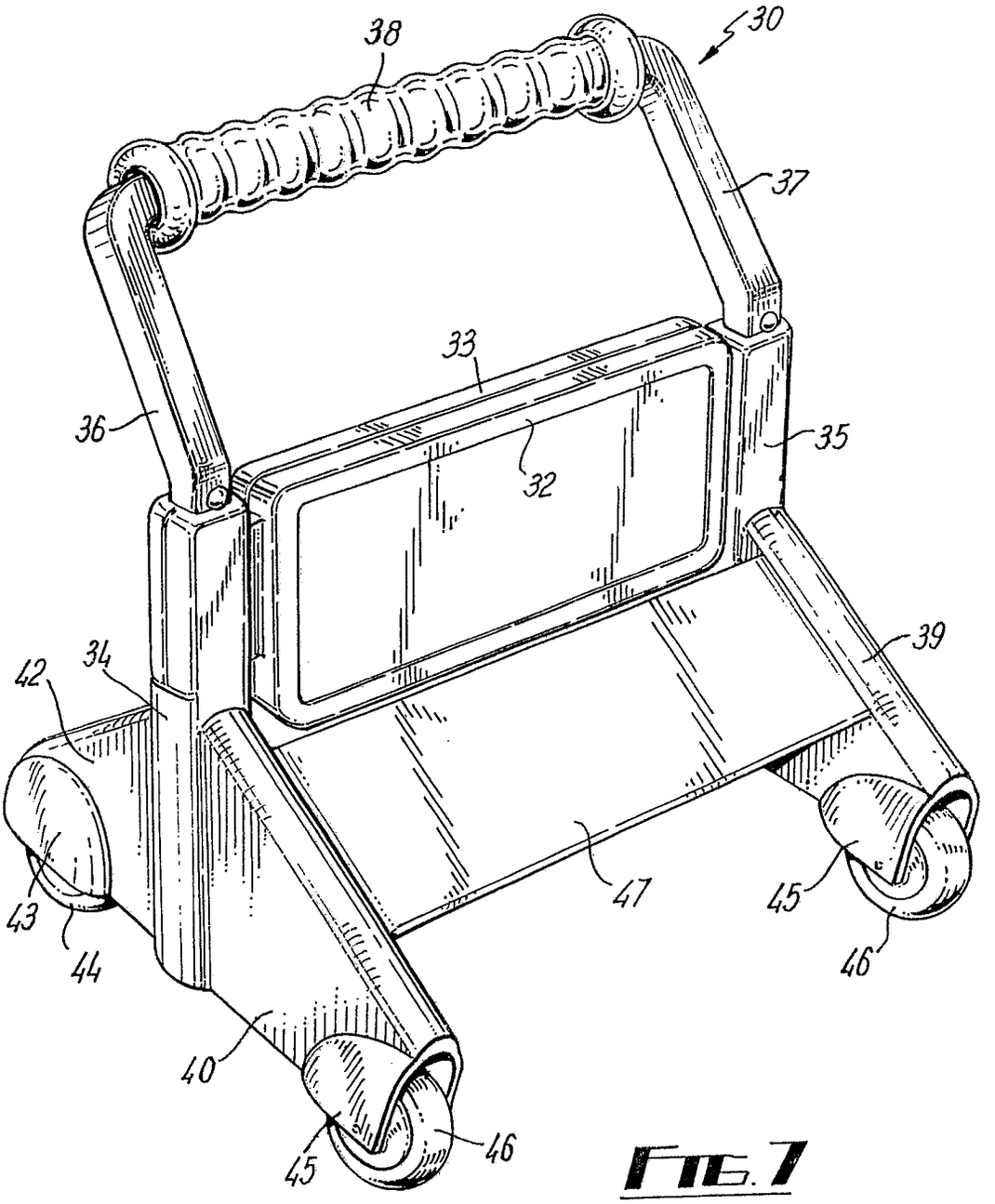
FIG.3

Fig.5





Фиг.6



ФИГ.7

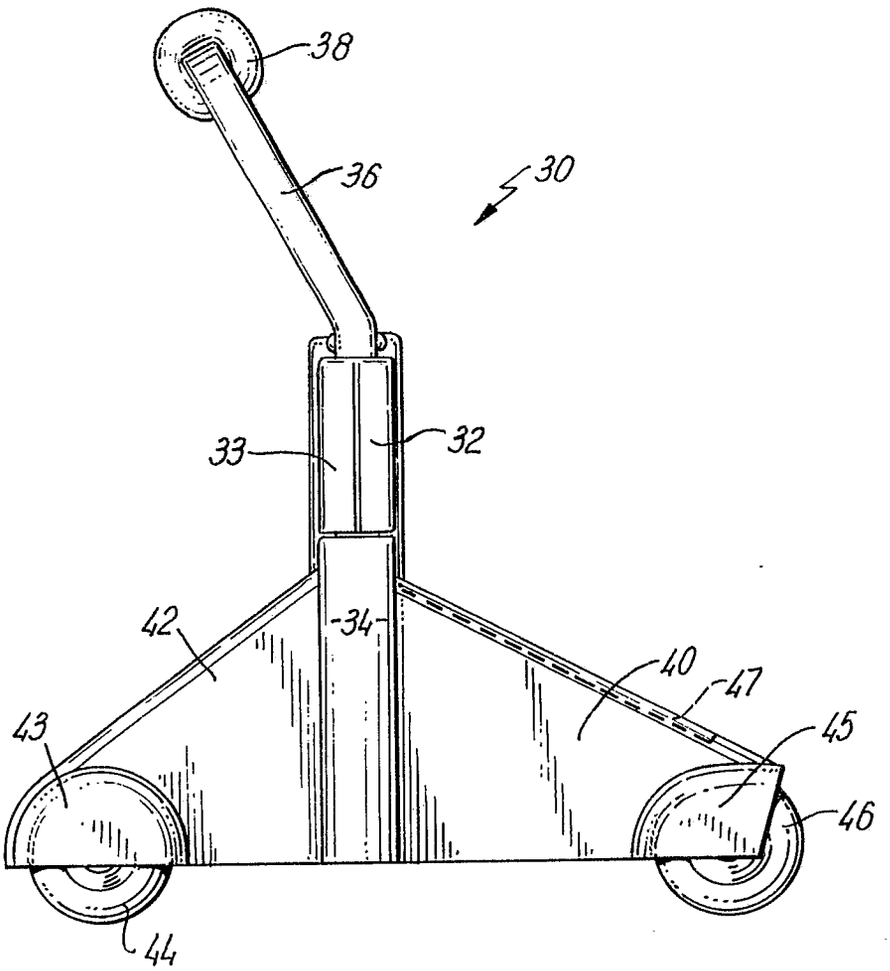


FIG.8

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 88 30 9958

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
X	DE-U-8 604 262 (GUNDERMANN) * Page 5, last paragraph - page 6, last paragraph; figures *	1	A 47 D 13/04
A		2,3,4,5,9,12,13	

X	GB-A-1 373 085 (HEGINBOTHAM et al.) * Page 2, lines 95-119; figure 1 *	1	
A		4,5,6,7,8,9,10,11,12	

X	GB-A-1 342 397 (DROVE PRECISION ENGINEERING) * Page 1, line 86 - page 2, line 14; figure 1 *	1	
A		4,5,6,7,9,10,11,14	
	---		TECHNICAL FIELDS SEARCHED (Int. Cl.4)
A	US-A-2 869 613 (PARKER) * Column 3, lines 29-31; figures 1,2,6 *	7,8	A 47 D A 61 H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	20-01-1989	VANDEVONDELE J.P.H.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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