

July 21, 1953

B. RINGMAN
COORDINATION AID FOR WALKING

2,646,282

Filed July 30, 1949

Fig. 1.

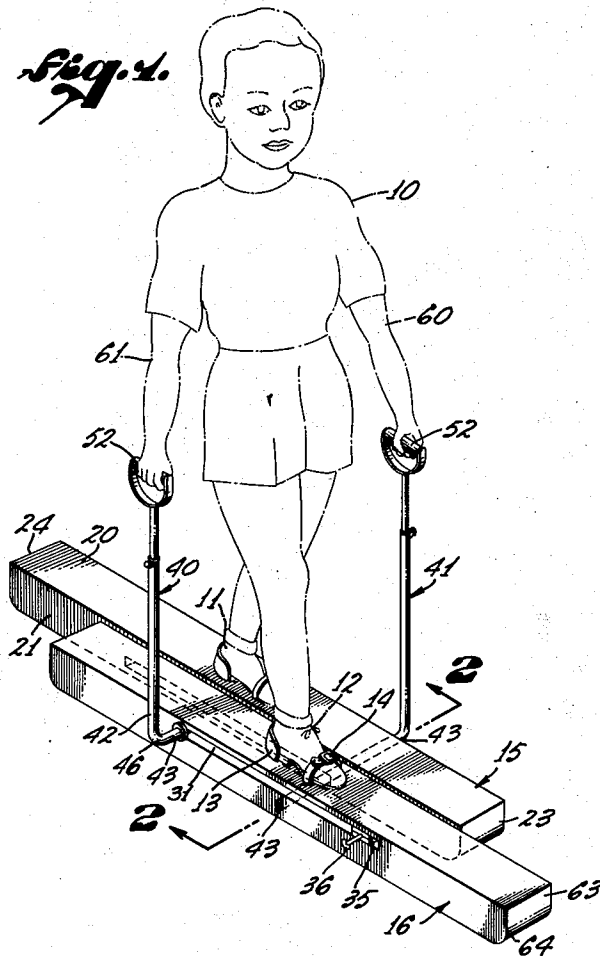


Fig. 2.

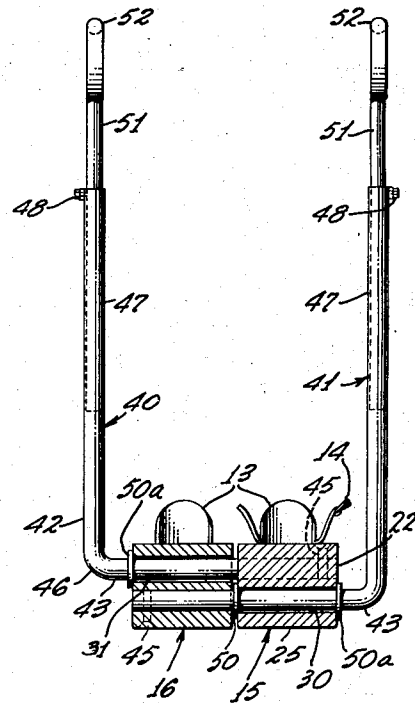


Fig. 4.

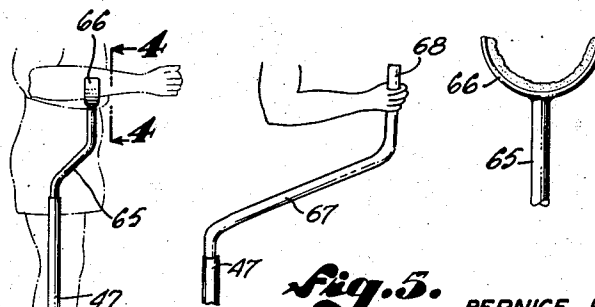


Fig. 3.

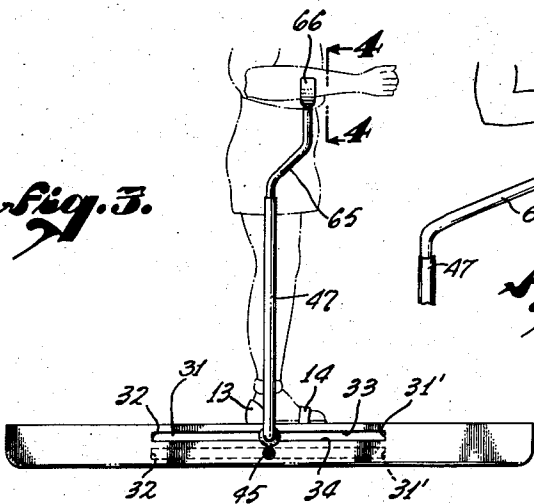


Fig. 5.

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UNITED STATES PATENT OFFICE

2,646,282

COORDINATION AID FOR WALKING

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Application July 30, 1949, Serial No. 107,774

5 Claims. (Cl. 272-70)

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This invention relates to an orthopedic device for teaching handicapped persons particularly children afflicted, as with an affliction like cerebral palsy, to walk and to coordinate arm and leg movements in a normal manner while walking. More particularly the invention relates to skis or the like upon which the individual's feet are secured and which may be slid as along a floor including arm rests or grips whose movements correspond with selected skis.

It is sought by the instant invention to provide a walking aid of the simplest possible construction consistent with the intended function of coordinating the movement of the left leg of the user with the right arm, and the right leg with the left arm.

It is, therefore, among the objects to provide a device of the desired character described of simple construction with readily replaceable parts capable of adjustment to suit individual requirements.

It is another object of the invention to provide an improved walking ski construction having a new and improved association therewith of arm movement controlling apparatus.

Another object of the invention is the provision of simplified, changeable skis.

Another further object of the invention is the provision of new and improved arm supporting and coordinating devices.

It is among the more general objects of the invention to provide a smoothly-operating, fool-proof construction by which walking aid skis may be guided over the floor in walking and the feet slid along with facility.

Another general object of the invention is the provision of a positive combined handholding device and dual ski securement.

In addition to the above recited objects it is intended by the instant invention to provide improvements over prior art structures heretofore intended to accomplish generally similar purposes and in this connection, the invention consists in the construction, arrangement and combination of the various parts of the device whereby the objects contemplated are attained, as hereinafter set forth, pointed out in the appended claims, and illustrated in the accompanying drawings.

In the drawings Figure 1 is a perspective view of a walking aid ski apparatus embodying this invention as used. Figure 2 is a vertical sectional view taken as on a line 2-2 of Figure 1.

Figure 3 is a side view of such apparatus as used, incorporating a modified arm rest.

Figure 4 is a detailed view, fragmentarily illustrated, taken as on a line 4-4 of Figure 3.

Figure 5 is a fragmentary view of a modified form of hand-hold.

Referring more particularly to the drawings which are by way of illustration but not of rigid limitation, a child 10 has his left and right feet 11 and 12 secured as by heel rests 13 and toe straps 14 to a pair of skis 15 and 16 respectively.

Each of the skis is formed with a longitudinally disposed transverse slot, the slots upon respective skis being in vertically offset relation to one another.

Thus the ski 15 which, being an essentially elongate preferably wooden block having a top 20, inner side 21, outer side 22, a front end 23, a rear end 24, and a bottom 25, is similar in all respects to its companion ski 16 and is formed with a slot, as aforesaid, 30. The slot 30 is offset vertically from and is disposed in a plane below an otherwise corresponding slot 31 formed longitudinally of the ski 16. Both of the slots 30 and 31 terminate forwardly as at 31' and rearwardly as at 32 short of the ends 23 and 24 of the respective skis. The top 33 and bottom 34 of the slots are parallel to the bottom 25 of each of the skis. The lengths of the slots between the ends 31 and 32 are such as to equal but not exceed the longest step for which the apparatus is designed and which it would be safe for the individual 10 to take.

If desired, the length of the slots 30 and 31 may be effectively adjusted as by an expansible clamp 35 fitted as with a bolt 36 which may be slid along either of the slots, respectively, as desired.

Arm supporting members 40 and 41 are secured, respectively, to the skis 15 and 16. Such supports may take the form of tubular members 42 having lower ends 43 extending freely through one of the slots 30 and 31 and firmly anchored as by means of set screws 45 and optionally additionally expandable screws or similar fittings.

The supports 40 and 41 may each be bent as at 46 defining an arm 47 preferably directed vertically upwardly. Such tubular arms may be provided with set screws threadably disposed in lugs 48 for retaining a telescoping hand-hold member 51 in a desired position of upward extension within the tubular arms 47. The hand holds may take the form of handles, as illustrated in Figure 1, which may be positioned at normal hand height, as in the illustration (Figure 1), or they may take the form of arm rests 66, positioned forwardly as by offset portion 65, as illustrated, for example, in Figure 3. They may further take the form of

a hand bar offset forwardly as at 67 and project-

ing upwardly as at 63 as shown in Figure 5. Manifestly, the arm supports, hand grips, and the like are interchangeable and may be varied to suit individual requirements.

Likewise, the foot may be held, if desired, in any practical position of relative longitudinal adjustment on the skis by utilizing an ankle-encircling strap secured at the heel thereof utilizing an angle-encircling strap secured at the heel thereof upon longitudinal movable glides guided by flanges, rails, or other suitable means. Such glides may then be adjustably positioned at any station along the skis (a) to position the user rearwardly or forwardly on the skis at any desired position relative to selected arm supports and (b) to adjust for variant foot sizes.

In order to retain the skis 15 and 16 in a desired spaced relation and to prevent their rubbing one against the other, if such is sought to be avoided, washers 50 may be employed upon the arms 43. Similar washers or flanges 50a may be employed between the upright portions 42 of the supports and the side edges 22 of the skis thereadjacent. These serve to retain the skis in a proper position of alignment but are not essential.

Turning ability of skis 15 and 16 is facilitated by relative spreading of the skis, particularly angularly. Therefore, freeing of the suggested washers 50 and 50a, especially those 50a, enables the user to turn more readily. Increased lateral length of the end portions 43 of the supports is therefore desirable.

In the use of the instant apparatus an individual 10 unable to coordinate the movement of arms or legs or unable to walk is strapped to the skis as heretofore indicated, the straps and heel supports 13 and 14 being secured as by screws or other appropriate manner to respective skis. A walking movement is attempted by sliding the skis along the floor in a shuffling or gliding manner while holding the handgrips 52 for support.

If the right foot 12 is moved forward initially the support 40 slides in the slot 31 of the ski 16 until it engages the rearmost end 32 of such slot or to a point somewhat short of such end 32. The arm support 41 being secured at its end 43 to the ski 16 moves forwardly with ski 16, the end 43 of the support 41 being secured to move within the slot 30 of the ski 15. Thereby the left arm 50 of the individual 10 is moved forwardly with the right foot 12 and vice versa to simulate normal walking. The ski 15 is meanwhile stationary as is the left foot 11 and the right arm 61.

The left foot 11 is next moved forwardly in a similar fashion carrying the left ski 15 and the arm support 40 for the right arm 61 forwardly in like manner.

The skis should not overlap in walking due to the slidable movement thereof and due also to their height.

In order to relieve any downward pressure imposed upon the arm supports which might impair the easy movement of the skis, such supports may be fitted with castors or the like (not shown) as at 43 or 46 designed to roll along the floor. Likewise, the portions 43 may be fitted as with roller bearings or the like (not shown) to ease movement of the supports within the slots 30 and 31.

An anti-friction device, as grooves, metal slides, or runners, may be employed on the bottom of the skis to further facilitate their movement over the floor.

Repeated practice with the device has been

found exceedingly valuable from a therapeutic standpoint and its simplicity of construction and economy of parts and manufacture, as well as the interchangeability and adjustability thereof, render the same available to individuals otherwise unable to afford therapeutic devices of this character.

The invention features the provision of a therapeutic and instructive walking aid ski which, if the ends 23 and 24 thereof are curved at their top edges 63, as they are at their bottom edges 64, are not only reversible but when inverted may serve as right or left skis indiscriminately, assuming that the arm and foot supports are removably associated with the skis proper. The invention further features the provision of a simplified ski construction preferably composed of wood, plastic, or the like, for the skis, and of pipe or other rod or metal supports for the arm rests and associated structure. These parts are naturally connected and interrelated to achieve desired coordination in a natural manner as near as possible in view of the necessity of the gliding gait assumed by individuals requiring the instant apparatus. The instant device teaches balance, transfer of weight in a walking pattern, and rhythmical movement of arms and legs during walking.

Although the invention has been herein shown and described in what is conceived to be the most practical and preferred embodiment, it is recognized that departures may be made therefrom within the scope of the invention, which is not to be limited to the details disclosed herein but is to be accorded the full scope of the claims so as to embrace any and all equivalent structures.

The invention having been herein described, what I claim as new and desire to secure by Letters Patent is:

1. In a walking aid comprising a pair of ski-like members adapted for support on a floor for longitudinal movement thereover and having an upper surface for supporting the foot of an individual, the improvement comprising each of said ski members being formed with a longitudinal slot between the ends thereof, extending from side to side below the upper surface, and left and right arm supports for said ski members, the left arm support being firmly secured to the right ski member and extending through the slot of the left ski member and having a portion extending upwardly on the outer side of said left ski member to a sufficient height to serve as a left arm support, the right arm support being firmly secured to the left ski member and passing through the slot of the right ski member to the outer side thereof, and having a portion extending upwardly to a sufficient height to serve as a right arm support, said arm supports being in vertical offset relationship within said openings and being adapted for reciprocating by-passing movement relative to one another, said left arm support being adapted to move the right ski forward under the additional forward moving influence of the right foot, and the right arm support being adapted to move the left foot forward under the corresponding influence of the left foot.

2. In a walking aid comprising a pair of ski-like members adapted for support on a floor for longitudinal movement thereover and having an upper surface for supporting the foot of an individual, the improvement comprising each of said ski members being formed with a longitudinal slot between the ends thereof, extending

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from side to side below the upper surface, and left and right arm supports for said ski members, the left arm support being firmly secured to the right ski member and extending through the slot of the left ski member and having a portion extending upwardly on the outer side of said left ski member to a sufficient height to serve as a left arm support, the right arm support being firmly secured to the left ski member and passing through the slot of the right ski member to the outer side thereof, and having a portion extending upwardly to a sufficient height to serve as a right arm support, said arm supports being in vertical offset relationship within said openings and being adapted for reciprocating by-passing movement relative to one another, said left arm support being adapted to move the right ski forward under the additional forward moving influence of the right foot, and the right arm support being adapted to move the left foot forward under the corresponding influence of the left foot, adjustable stop means for each of said ski members respectively at the forward and rearward ends of said openings for selectively limiting the length of the reciprocating movement of said ski members relative to one another.

3. In a walking aid comprising a pair of movable foot support means, each having a front end, a back end, and inner and outer side edges including foot securement means thereon, means on said foot support means for guiding forward and backward reciprocal movement of said respective foot support means relative to one another, said guiding means including hand-hold means extending upwardly relative to said respective foot support means, the improvement comprising each of said foot support means having a longitudinally extending horizontal slot

means therethrough from side to side thereof, said slot means being relatively vertically spaced, said guiding means including said hand-hold means extending from corresponding of said foot support means through said respective slot means to a position alongside and outwardly of the outer side edge of the other of said foot support means and alongside the outside of the foot securement means on said other foot support means.

4. In a walking aid as defined in claim 3, said guiding means extending outwardly on each side of the walking aid to positions spaced laterally from the outer respective side edges of said foot support means to permit lateral outward movement of said respective foot support means and also to permit angular turning movement of said foot support means relative to one another.

5. In a walking aid as defined in claim 4, said hand-hold means terminating upwardly at approximately the hip level of an intended user of the aid, said terminations being spaced laterally outwardly from respective vertical planes intersecting corresponding side edges of the foot support means.

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