

Nov. 1, 1966

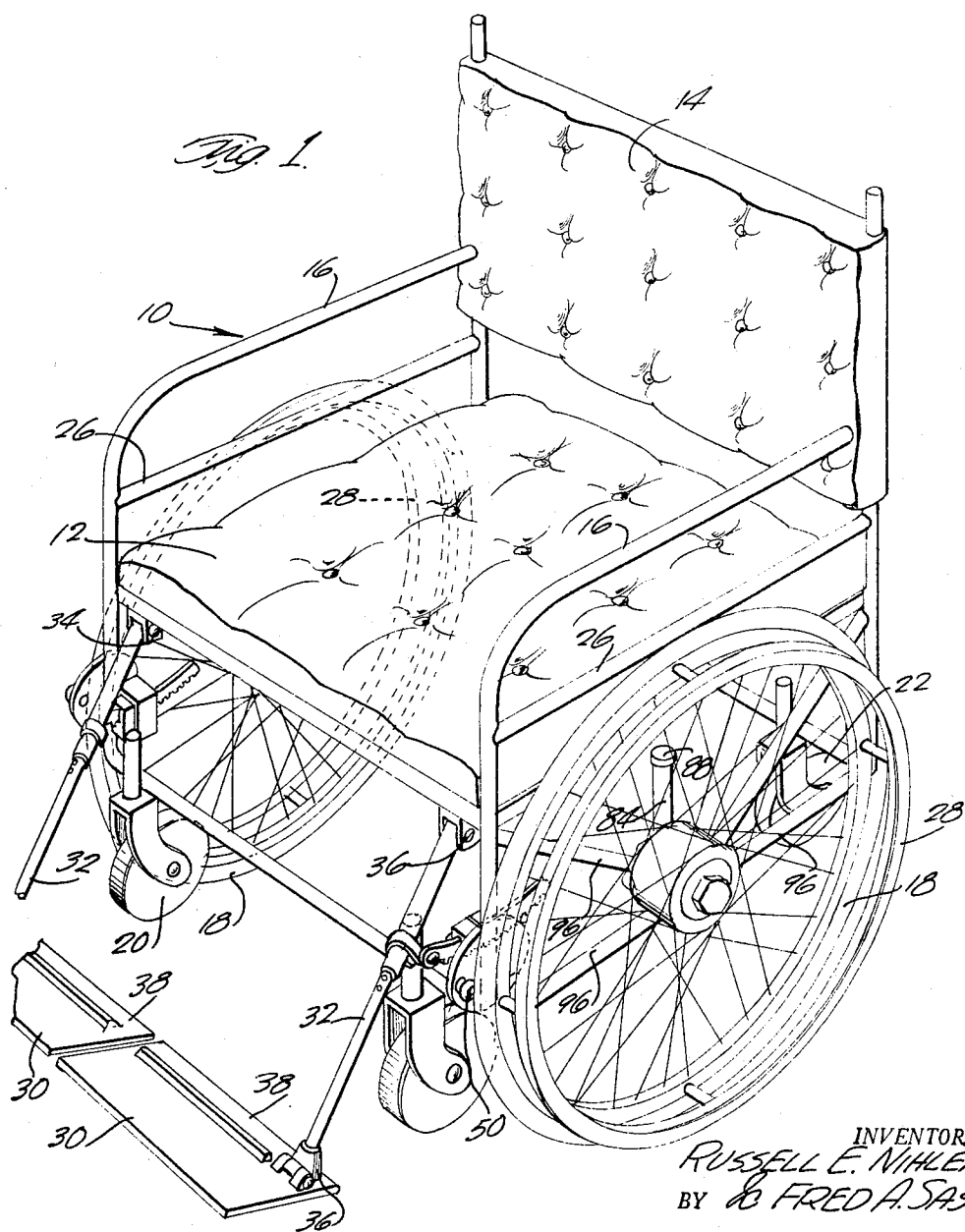
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3,282,605

RUNABOUT WHEELCHAIR

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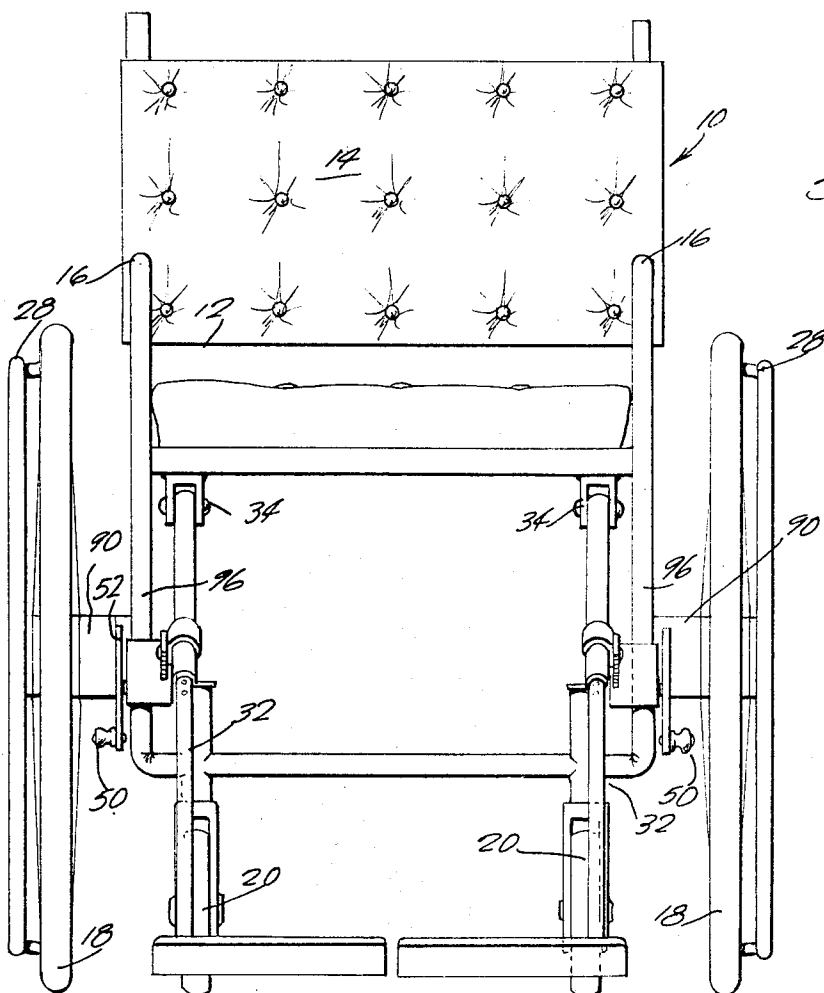


Fig. 2.

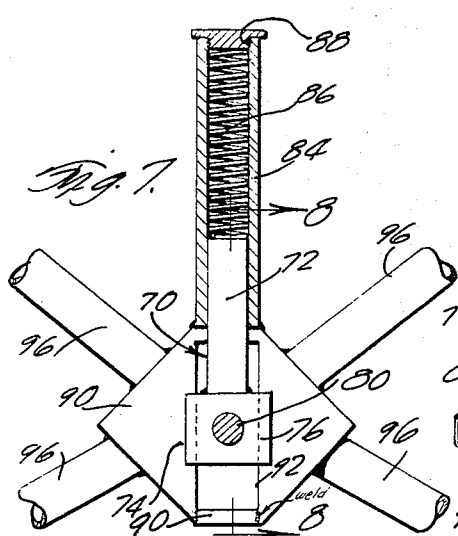


Fig. 7.

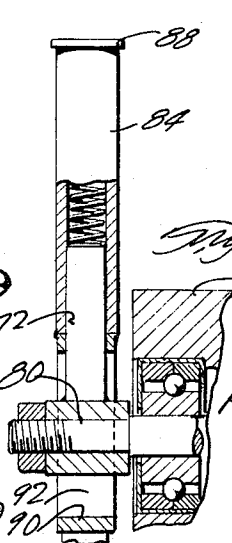


Fig. 8.

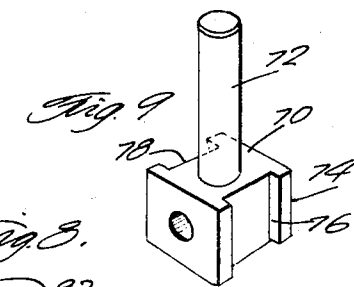


Fig. 9.

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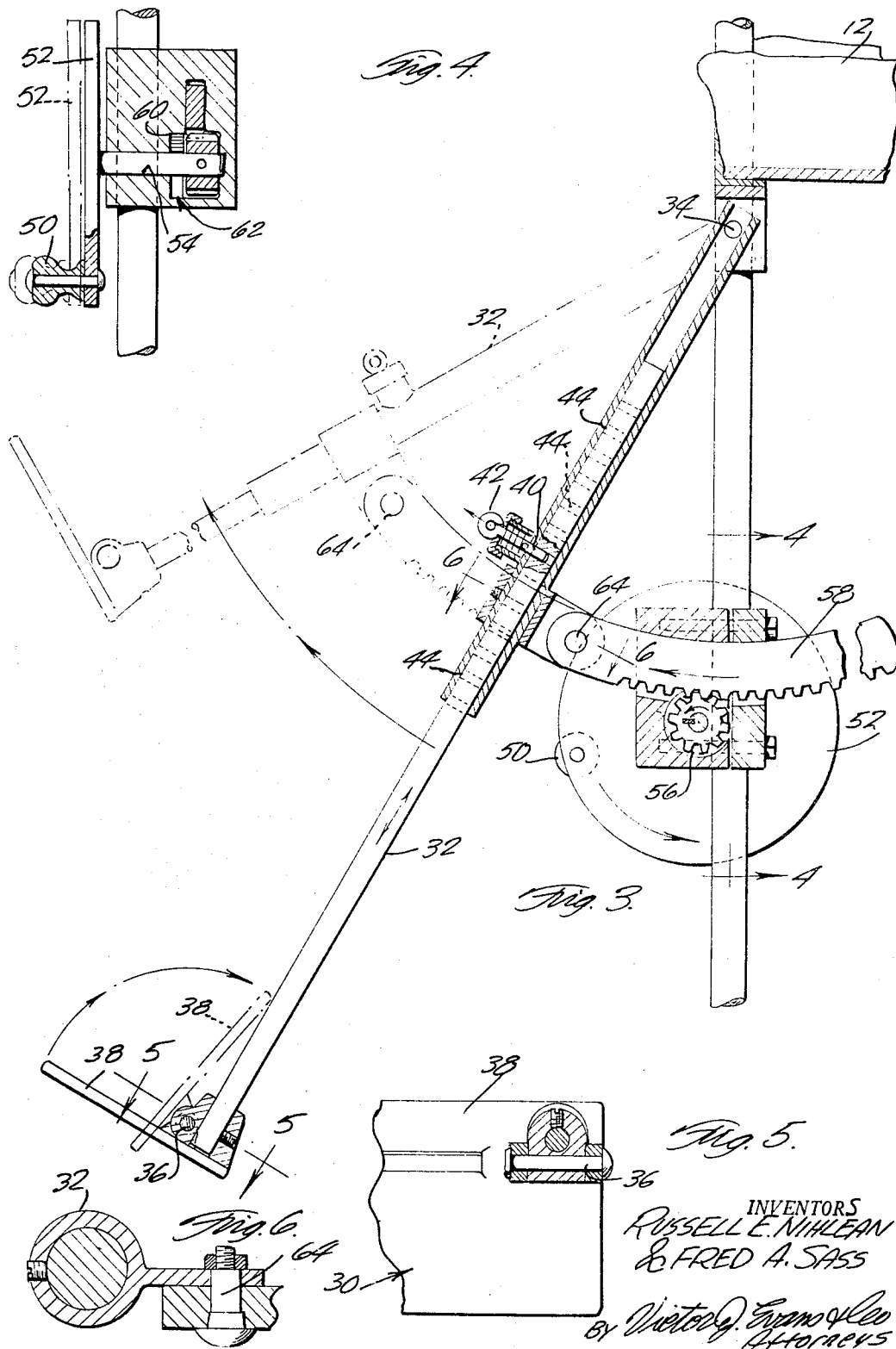
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RUNABOUT WHEELCHAIR

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5 Claims. (Cl. 280-211)

The present invention relates to an adjustable foot and leg rest for a runabout wheelchair, the wheelchair having a plurality of wheels which in the preferred embodiment are six. More particularly, the invention relates to providing a platform having a raised peripheral or border section which acts as a stop to keep the foot from sliding off of the platform. The platform of the invention as mounted on the wheelchair as an adjustable foot rest is attached to an arm by a press fit fixture on the platform, and by the hinged arrangement it can be easily lifted up against the arm. The arm consists of two parts which slide into each other, thus providing a foot rest of an adjustable nature with stops for various lengths as desired for the accommodation of the user of the wheelchair. A friction stop is provided to maintain the desired adjustment, and a clamp is placed around one of the given two parts to attach it to the arm of the elevating device described above.

Therefore, it is an object of the present invention to provide a runabout wheelchair having a plurality of sets of wheels including a spring wheel suspension to provide a softer ride for the user thereof, so that the large center propelling wheels of the wheelchair arrangement may move upwardly and downwardly by means of a spring action or effect so that at all times the occupant of the chair has a solid and frictional contact of the main driving or large propelling wheels which are always in contact with the ground.

A further object of the present invention is to provide a leg rest suspension apparatus that collapses upon itself and may be operated by the occupant with facility.

A further object and advantage of the present invention is that the wheelchair construction may be made of polished aluminum tubing in the manner shown and described, and the seat thereof may be provided with a foam rubber material covered with Nangahide, and in which the back rest is covered with a similar construction. In this manner, the chair is designed to provide a greater degree of mobility due to its lightweight construction and adaptability to comfort for the user such as paraplegics, and it is also compact enough so that it will enable the user to get about freely.

A further advantage of the invention is that it contemplates apparatus for a wheelchair in which hand driving wheels are used, together with smaller pairs of forward and rear wheels which provide constant engagement of the hand driving wheels with the floor or driving surface at all times.

The above and other objects and advantages of the invention will become apparent upon full consideration of the following detailed description and accompanying drawings in which:

FIGURE 1 is a perspective view of the adjustable wheelchair according to a preferred embodiment of the invention, having the adjustable foot and leg rest, together with a plurality of forward and rear follower wheels;

FIGURE 2 is a front elevation view of the wheelchair shown in FIGURE 1;

FIGURE 3 is a partially broken away view showing positions of the foot and leg rest in accordance with the invention;

FIGURE 4 is a sectional view taken along lines 4-4 of FIGURE 3;

FIGURE 5 is a sectional view taken along lines 5-5 of FIGURE 3;

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FIGURE 6 is a generally cross-sectional view taken along lines 6-6 of FIGURE 3;

FIGURE 7 is a cross-sectional view showing the suspension arrangement for the main or drive hand wheels;

FIGURE 8 is a cross-sectional view taken along lines 8-8 of FIGURE 7; and

FIGURE 9 is a perspective view of a plunger or wheel supporting element shown in FIGURES 7 and 8, as well as in other figures of the invention.

Referring now to the drawings, there is shown a wheelchair 10 having a seat 12, a back 14, side rails 16, 16, main or hand driving wheels 18, 18, forward inboard pair of follower wheels 20, and rear follower wheels 22.

The back rest 14 is constructed of a firm, permanent section of plywood padded with a thickness of foam rubber and covered with a leatherette material, while the seat 12 is constructed of a non-removable padded foam rubber of thicker construction and similarly covered with a leatherette material.

The drive wheels 18, 18 are much larger in diameter than the wheels 20, 22, and there is a strip of metal 26, 26 that is provided to serve to keep clothing away from the drive wheels. The drive wheels may be 20 inches in diameter, and are provided with handrails 28, as shown.

On the forward section of the wheelchair 10, there is provided a leg rest arrangement 30, 30 so that each leg or foot may be separately adjusted in a rest or relaxed position while the wheelchair is being used. Each of the leg rests 30, 30 includes a telescoping leg member 32, 32 that is pivotally connected at one end to the seat portion of the wheelchair 10 by pins 34, 34, and at the other end there is a restricted hinged connection 36 for supporting the foot plates 38, 38, respectively. The leg members 32 may be conveniently adjusted in length to the length of the user's legs. An adjusting pin 40 is raised or removed by upward movement on a handle 42 so that the pin 40 is removed from apertures 44, 44, 44, as desired, until the correct or desired length of the leg member 32 is obtained, and then the pin 40 is allowed to return into the slot 44 by releasing the handle 42. Thus the length of the leg member is conveniently provided, and also the restricted foot plate 38 may be conveniently adjusted into either of its positions, as shown in FIGURE 3, by movement about the connection 36, as shown in FIGURE 5.

The leg member 32 may be lowered or raised about the pin 34 by adjustable displacement and rotation of a hand crank 50 connected to a turn plate 52, shown selectively in dotted line and full line, respectively, in FIGURE 4. The turn plate 52 is pivotally mounted about a shaft 54 so that the plate may be rotated to turn a pinion 56, and thus drive a rack 58 along its length as desired for raising and lowering the leg member 32. When a desired position is found for the leg member 32 with respect to the rack 58 in terms of the turn plate 52, then the shaft 54 is pulled outwardly by the handle 50 so that the pinion 56 is locked into meshing teeth 60 of a lock arrangement 62, so that the leg member 32 is thus selectively held in position by the rack 58. Such an arrangement is disposed on each side of the wheelchair 10, as shown in FIGURES 1 and 2.

The rack 58 is shown pivotally connected by pin 64 to the leg member 32, as more particularly shown in FIGURE 6.

In FIGURES 7, 8 and 9, there is illustrated the suspension arrangement for the wheelchair and it includes a slotted block and cylinder arrangement 70, including the cylinder 72, secured or welded to the slotted block 74 having slots 76, 78. Through the block there is an aperture for receiving the shaft 80 of wheel means 82 for the driving wheel 18.

The cylinder 72 engages a hollow cylinder 84 which is securely fitted upon the cylinder 72 to provide a

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plunger arrangement and for receiving in the hollow portion thereof a coil spring 86. The hollow cylinder 84 is terminated at its upper end by a plug 88 securely or threadedly fixed thereto. From the mounting for engaging the slots 76, 78, there is a mounting or slotted block 90, shown in FIGURES 7 and 8, for engaging the slots 76, 78 so that the arrangement 70 is allowed to slide along the elongated slot 92 of the block 90, and the block 74 is in a given relation along said slot. The block 90 is secured to the frame of the wheelchair by rods 96, 96, 96, 96.

The wheelchair rolls easily on rough or irregular surfaces by means of the cylinder 84 being provided with the spring 86 and engaging, in turn, the cylinder 72 so that the spring 86 is found to substantially absorb much of the shock and vibration transmitted from the rotation of the wheels 18, 18 to the cylinders 72, 72.

By means of these improved mechanical arrangements, there is provided an improved mobile support for the leg and foot members of a user of the wheelchair, and by providing the wheelchair with stainless steel tubing and the other novel constructions of the wheelchair arrangement, the features and objects of the invention are thereby seen to be achieved.

Additional embodiments of the invention in this specification will occur to others and therefore it is intended that the scope of the invention be limited only by the appended claims and not by the embodiment described hereinabove. Accordingly, reference should be made to the following claims in determining the full scope of the invention.

What is claimed is:

1. A runabout wheelchair comprising a wheelchair frame mounted on a pair of front wheels, a pair of rear wheels, and a pair of driving wheels intermediately mounted between the set of other pair of wheels, a pair of leg supports having a platform, said leg supports being pivotally mounted from the wheelchair frame for adjustment in a swinging fore and aft direction, telescopic leg members included in the leg supports for adjusting the length thereof and stabilizing the length thereof by a slot adjustment means, and a rack and pinion lock mechanism for adjusting the forward and aft position of the leg members separately with respect to each other, said platform being mounted on the end of each tele-

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scopic leg member by a limited hinged connection for individually adjusting the position thereof.

2. The invention according to claim 1 wherein said drive wheels are spring mounted by a cylinder and slotted block arrangement mounted with reference to the frame of said wheelchair, the shaft of the driving wheels passing through, respectively, an axial bore through the slotted block.

3. The invention according to claim 2 wherein said block arrangement includes a hollow cylinder for receiving a spring and the cylinder portion of said slotted block arrangement.

4. The invention according to claim 1 wherein a hand-rail is provided on the peripheral portion of said driving wheels.

5. A runabout wheelchair comprising a wheelchair frame mounted upon a pair of front and rear wheels, and a pair of driving wheels interposed between the pair of forward and rear wheels, and a cylinder and slotted block arrangement mounted on the lower portion of the wheelchair frame for providing a shock absorbing effect as well as maintaining complete driving contact of said driving wheels with respect to a supporting surface therefore, a pair of leg support members pivotally mounted from the forward portion of said wheelchair frame for receiving legs of a user of the wheelchair, and being adjusted by means of telescopic leg members included in said leg supports, and a rack and pinion lock mechanism for driving the telescopic leg members in a forward and aft swinging direction selectively as desired, as well as maintaining them by using the lock mechanism after they have been adjustably positioned.

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