Jan. 15, 1963 S. R. DETWILER 3,073,299

POST OPERATIVE ARM SLING

Filed March 22, 1960 2 Sheets-Sheet 1

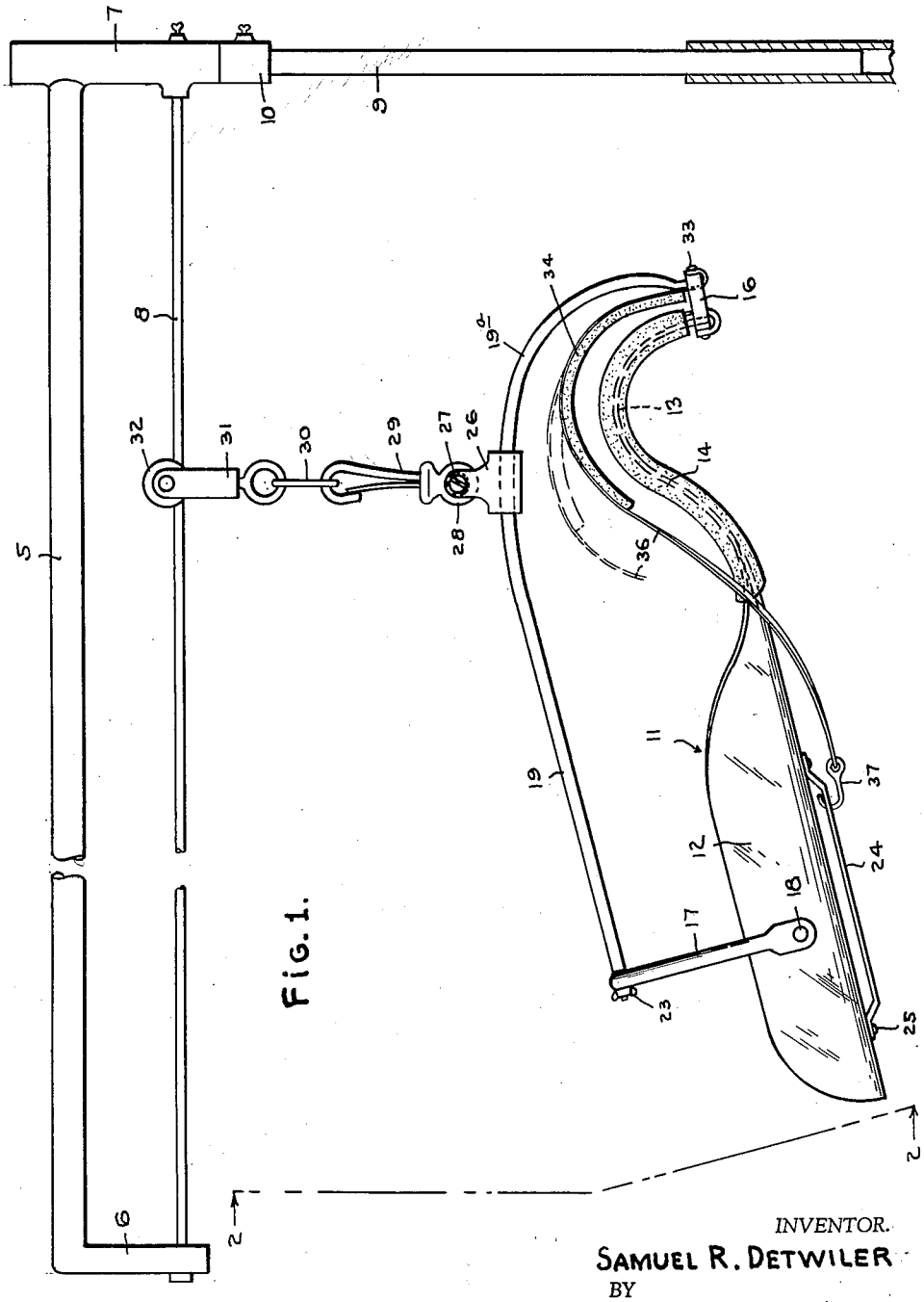


Fig. 1.

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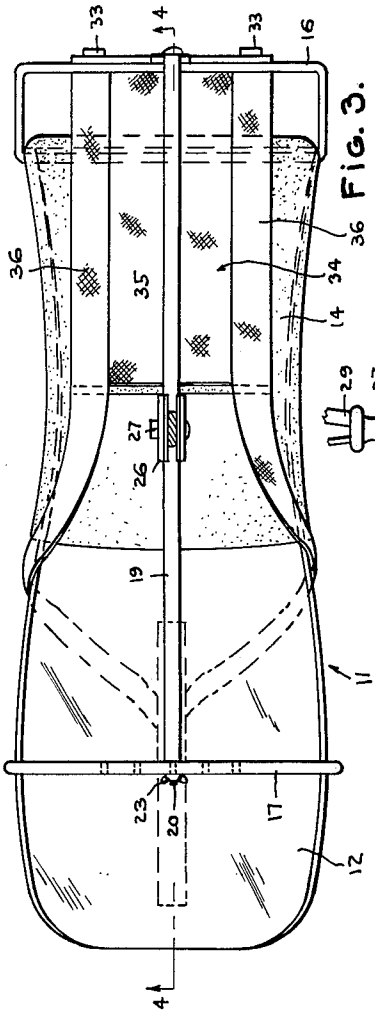


Fig. 3.

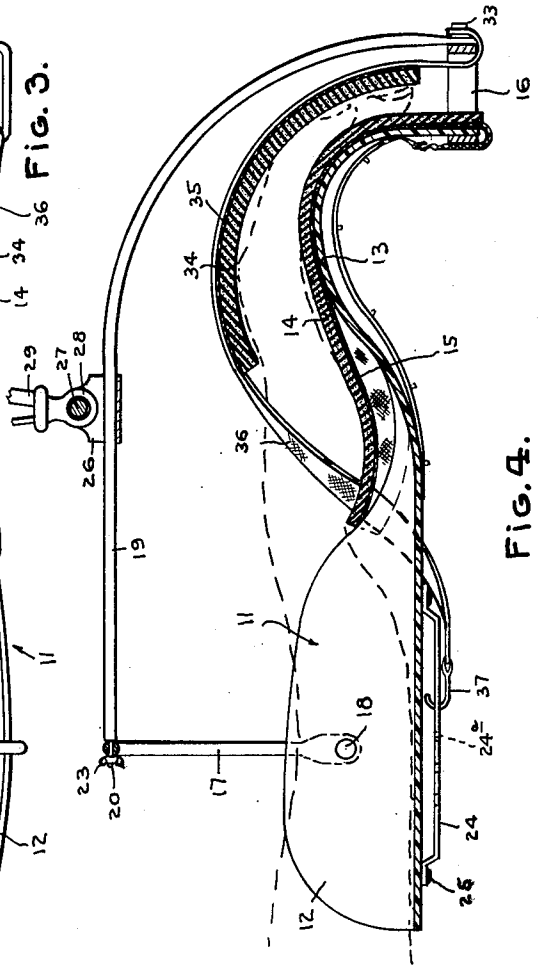


Fig. 4.

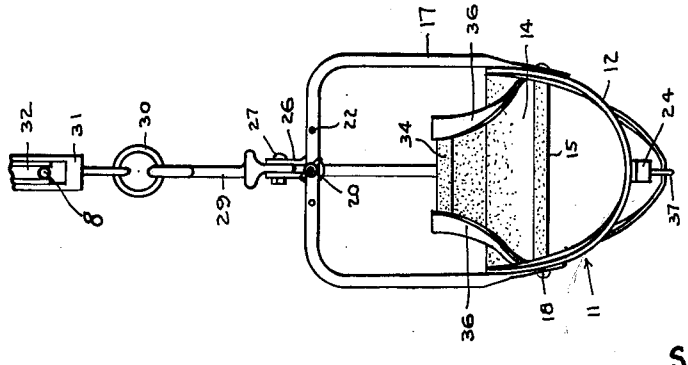


Fig. 2.

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POST OPERATIVE ARM SLING

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This invention relates primarily to a post operative arm sling to support the arm of a patient who possibly has been subjected to an operation and where it becomes necessary that the arm be supported in an elevated position and whereby the device constitutes a rest for the arm of the patient in various degrees of angularity both longitudinally and transversely.

The device is used in conjunction with an adjustable trackway, more clearly disclosed in my U.S. Patent No. 2,916,034 and with the sling of this invention having traverse engagement with a track whereby to adjust the sling to a position to accommodate the arm of a user and with means whereby the sling may be angled in a vertical direction in accordance with a particular manner in which the arm must be supported.

The invention further contemplates novel means having a frictional grip that is connected with the sling at one end for engagement by the hand of the operator and a second friction grip that overlies the back of the hand to be variably adjusted as to any desired tension against the hand and whereby the entire sling may be angled upwardly and the hand of the user being firmly frictionally held against slipping from the sling.

Novel features of construction and operation of the device will be more clearly apparent during the course of the following description, reference being had to the accompanying drawings wherein has been illustrated a preferred form of the device and wherein like characters of reference are employed to denote like parts throughout the several figures.

In the drawings:

FIGURE 1 is a side elevation of a supporting trackway showing the invention connected thereto,

FIGURE 2 is a vertical section taken on line 2—2 of FIGURE 1,

FIGURE 3 is a plan view of the sling and,

FIGURE 4 is a longitudinal section taken substantially on line 4—4 of FIGURE 3.

Referring to FIGURE 1, there has been illustrated a horizontally arranged tubular arm 5, having a right angled outer end 6. The arm 5 is fixedly connected to a tubular head 7 and a parallel and spaced apart track 8 is connected with the end 6 and the head 7. The head 7 and its connected arm 5 and trackway 8 are adapted to swing in a horizontal plane upon a post 9, with the head 7 riding upon a fixed collar 10; the structure so far described being fully described in my patent above noted.

Supported from the trackway 8, to be movable along the track, is an arm supporting sling, illustrated as a whole by the numeral 11. The sling 11 embodies an arcuate cradle 12, preferably formed of suitable plastics and that is adapted to support the forearm of the user. The cradle 12 is extended forwardly and bent upwardly as indicated at 13, to form a transversely arcuate hand rest. The hand rest 13 is covered with a compressible pad 14, preferably formed of sponge rubber or similar material adapted to present a surface that is capable of exerting friction upon the hand of the user when shifted into contacting engagement therewith. The pad 14 is preferably detachable from the sling and the pad may be stitched or otherwise connected to fabric backing sheets 15 that are wrapped about the hand grip 13 and connected together by conventional hooks and eyes as a simplified means for retaining the pad 14 in overlying relation to the hand grip.

The terminal end of the hand grip 13 has riveted or otherwise connected thereto a generally rectangular metallic frame 16. The pad 14 and its backing sheets 15 at their terminal ends may be extended through the frame and turned rearwardly to be hooked into the end portions of the backing sheets, creating a novel connection for the pad that facilitates the removal and replacement by a pad that has been previously sterilized.

The arm rest 12 adjacent to the rear end of the sling is provided with a transversely extending yoke 17. The yoke 17 is preferably formed of cylindrical solid stock and its terminal ends are preferably flattened and riveted to the opposite sides of the arm rest 12, as shown at 18. The yoke upon its top portion is preferably formed straight, while the sides are formed arcuate to generally conform to the curvature of the arm rest. The frame 16 is provided with a plurality of apertures for the connection of a supporting rail 19 and whereby the rail 19 may be shifted laterally with respect to the sling so as to cause the sling to be transversely angled. The rail 19 is also adjustable with respect to the yoke 17 and the terminal end of the rail 19 is provided with a pin 20, that passes through any one of a selected group of openings 22 formed in the straight portion of the yoke 17. The pin 20 may be threaded for the reception of a wing nut or similar fastening device 23. The forward end of the rail 19 may be engaged within the selected openings of the frame 16 either by a hooking engagement or by a suitable bolt and nut connection. The arm rest 12 upon its bottom is provided with a depending and longitudinally extending apertured strip 24, that is riveted at its opposite ends to the bottom of the arm rest 12, as indicated at 25. Shiftable upon the rail 19, is a clamp device 26. The clamp device is adapted to be positioned at any desired point upon the rail 19 and fixed against movement by a set screw 27, receiving an eye 28, of a snap hook 29. The snap hook 29 may be engaged with a ring 30, carried by a carriage 31 having a roller 32 that travels along the track 8 and whereby the sling may be supported and shiftable in a horizontal plane. The use of the snap hook 29 and the adjustable clamp 26 permits the sling to be vertically angled if the condition of the patient so warrants.

Also connected to the outer side of the frame 16, as by snap devices 33, is an overlying pad 34. The pad 34 is preferably formed of sponge rubber and is adapted to engage the back of the hand and proportioned to extend to the knuckles or possibly slightly therebeyond. The pad 34 is also provided with a reinforcing fabric backing sheet 35 and the pad is provided with a pair of resilient straps 36 that are stitched to the pad upon its upper side and with the straps 36 being extended rearwardly and downwardly beneath the arm rest 12 and united together by a common connecting hook 37 that is engageable within any of the selected openings 24*a* of the strip 24. By shifting the hook device 37 along the strip 24, it will be apparent that the degree of frictional binding engagement of the pad 34 with the top of the hand may be varied within a relatively wide range of pressure. The pad 34 may likewise be removed and replaced from time to time by pads that have been cleansed or sterilized.

In the use of the device, the condition of the patient is determined and it is also determined whether or not the arm shall be angled upwardly or whether it may be turned to the right or the left. With the snap hook 29 in engagement with the ring 30 of the carriage 31, the entire device is vertically adjusted through the medium of the telescopic standard 9 whereby the sling may be disposed in a predetermined elevation. If the sling is to be inclined longitudinally, the clamp 26 is released and shifted along the rail 19 to the point where the entire arm rest may be suspended at any degree of angularity, de-

pending upon where the clamp is positioned upon the arcuate portion 19*a* of the rail 19. With the rail being adjustable with respect to the sling laterally, the sling may be readily adapted for either a right or left hand of the patient. The hook 37 is then released and the straps 36 shifted upwardly to elevate the pad 34. With the pad 34 elevated, the arm of the patient is disposed within the arm rest 12, with the fingers of the hand engaging the arcuate portion 14, being the normal gripping position for the hand of the user. The straps 36 are then drawn rearwardly pulling the pad 34 into closely overlying relation to the fingers and possibly the knuckles of the patient. When sufficient tension has been placed upon the pad 34 that is calculated to prevent the hand of the user from slipping from the device, the hook 37 is engaged into one of the selected openings 24*a* of the strip 24. The patient can then become fully relaxed and be assured that the hand and arm will not slip from the sling. The device is adjustable longitudinally and laterally and the construction is such that it can be accommodated to any particular requirements for a post operative patient or for a person who is experiencing edema and requires that the arm be elevated to cause the fluid to be absorbed by the body tissues. This is accomplished positively due to the natural adherence of sponge rubber to the palm of the back of the hand as a result of normal skin moisture. The effective gripping action of the sponge rubber pads relieves the normal tension of a person whose arm is supported and permits the patient to completely relax and sleep. The device is highly effective as an arm support for patients who have been subjected to breast surgery. The device is comfortable to the user and relieves all normal tension upon the arm since it is at complete rest within the sling and frictionally held in a cushioned manner that prevents slippage.

It is to be understood that the invention is not limited to the precise construction shown, but that changes are contemplated as readily fall within the spirit of the invention as shall be determined by the scope of the subjoined claims.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A post operative arm sling of the character described including a horizontally-arranged vertically-adjustable trackway, a carriage adapted to traverse the trackway, the sling embodying an elongated support having a rear arcuate cradle and a forward arched hand grip portion, a compressible pad overlying the arched portion and detachably connected therewith, the pad extending rearwardly from the arched portion and terminating adjacent to the cradle, a compressible friction pad connected to the forward end of the arched portion and extending rearwardly to overlie the major portion of the first-named pad, resilient straps secured to the rear end of the second-named pad by which said pad may be tensioned to engage against the upper side of a hand engaging the arched portion, the terminal end of the arched portion being provided with a generally rectangular frame member, the frame member being fixedly connected to the arched portion and extending forwardly of the arched portion, the second-named pad being connected to the extended side of the frame member, a supporting rail for the sling connected at one end to the cradle and at its forward end being longitudinally curved and directed downwardly and connected to the frame member, the said rail being elevated above the sling, a yoke device connected upon opposite sides of the cradle and with the yoke device having an upper horizontal flight, the horizontal flight being apertured for receiving the rear end of the rail whereby the sling is adjustable upon its axis, means supported on the rail being in the form of a slide movable along the rail to angularly adjust the sling with respect to the angularity of the patient's arm, a snap hook, the said slide being pivotally connected to the snap hook and with the snap hook having detachable connection with supporting linkage from the carriage, the said resilient straps passing rearwardly beneath the cradle, a hook, said resilient straps being jointly connected to said last-mentioned hook, and an apertured bracket fixed on the bottom of the cradle for the adjustable reception of said hook.

2. A post operative arm sling comprising, a trackway, a sling, said sling embodying an elongated cradle having an arcuate rear portion for the support of an arm and a forward arched hand grip, a flexible pad extended over the hand grip and having an end attached at the forward end of the same, straps attached at the rear end of the pad, the straps having a connection member at their end, a coupling bracket on the bottom of the arcuate rear portion of the cradle for selective engagement by the connection member to thereby tension the pad over the top of a hand resting on the hand grip, a rail elevated over the top of the cradle, said rail having a forward end portion curved downwardly and connected at the end of the arched hand grip, and means for suspending the cradle from the trackway, said suspension means terminating in an element slidable along the rail and movable on the curved front portion thereof to determine the angularity of support of the cradle.

3. A post operative arm sling as provided for in claim 2, wherein the connection member consists of a hook and the coupling bracket includes a plate having a plurality of holes for selective engagement by the hook, the front of the arched hand grip being provided with a forwardly-extending frame, the forward end of the pad being attached to said frame, and the forward end of the rail being also attached to said frame, said suspension means further comprising a snap hook attached to the element slidable along the rail and means dependent from the trackway to which the snap hook is detachably secured.

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