

[54] I. V. ARM REST AND SUPPORT

3,722,508 3/1973 Roberts..... 128/133

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[22] Filed: Nov. 21, 1972

[21] Appl. No.: 308,315

[52] U.S. Cl. 128/133, 128/DIG. 6, 128/214 R,
128/89 R

[51] Int. Cl. A61m 5/00

[58] Field of Search..... 128/133, 214 R, 215, 89 R,
128/DIG. 6

[56] References Cited

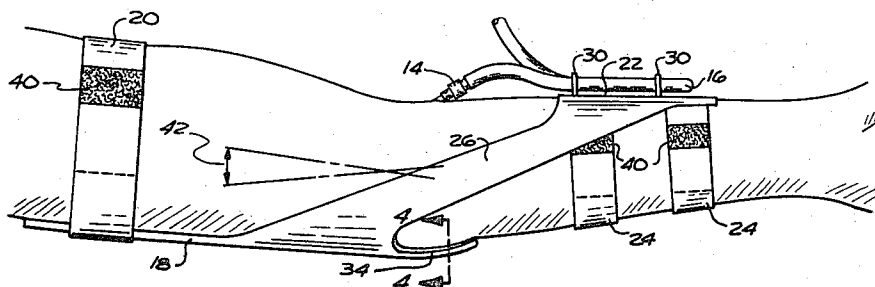
UNITED STATES PATENTS

2,744,526	5/1956	Saylor.....	128/133
3,256,880	6/1966	Caypinar.....	128/133
3,680,549	8/1972	Lehneis et al.....	128/89 R X

[57] ABSTRACT

A medical arm support that substantially immobilizes the arm to facilitate intravenous injection of fluid into the arm adjacent the elbow, but which allows a limited amount of natural flexure of the arm at the elbow for patient comfort. A spiral, slightly flexible section joins a panel overlying the forearm with a support panel underlying the upper arm to produce the desired immobility while allowing limited flexure. Upstanding posts secure and hold flexible tubing that supplies the fluid being injected to the forearm panel to prevent relative needle movement during flexing of the arm.

10 Claims, 4 Drawing Figures



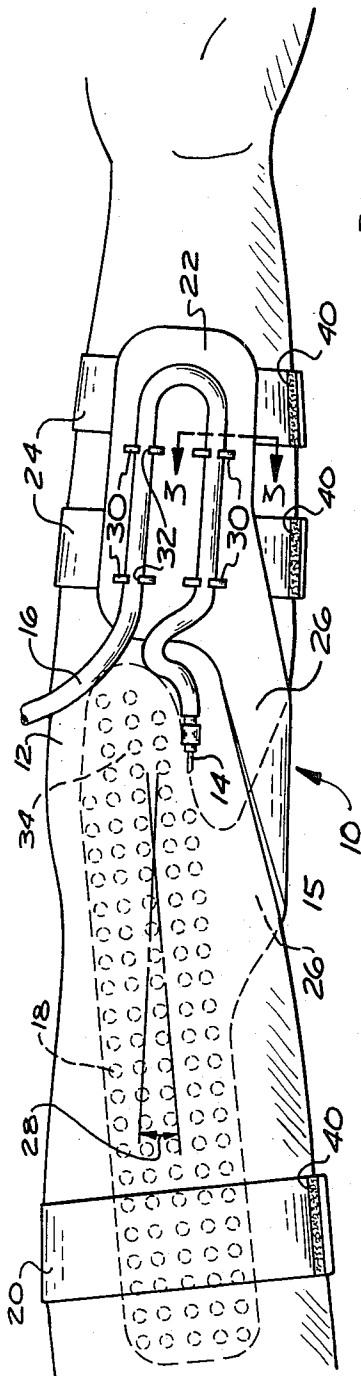


Fig. 1

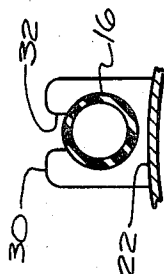


Fig. 3

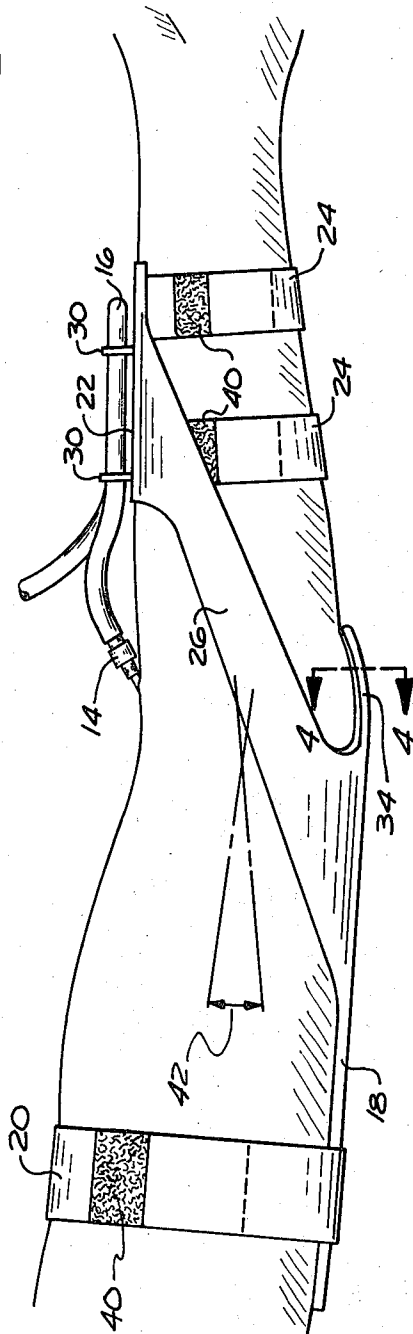


Fig. 2

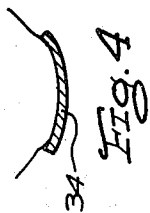


Fig. 4

I. V. ARM REST AND SUPPORT

DESCRIPTION OF THE PRIOR ART

The general method currently used for intravenous feeding is to tape the needle and its connecting tube directly to the arm of the patient to prevent it from twisting as well as pulling out of the vein. This, of course, is uncomfortable not only from a removing standpoint, but also creates a problem when left on the arm for an extensive period of time. One attempt to alleviate the above mentioned problems created with tape has been the U.S. Pat. No. 2,727,512 to Muller, which provides an adjustable buckled band for surrounding the arm and rigidly holding the I.V. flexible tubing in place. The general method used for immobilizing the elbow joint while the needle is in place in the vein has been the use of an orange crate slat or similar board wrapped with a towel and in turn taped to the upper and lower arm. This type of board taped to the patient's arm for a period of days has caused injury to the soft tissues of the arm such as the ulnar nerve and various vessels in the skin. With the present invention and its contour fitting arm support, the pressures exerted on the arm surface are minimal thereby alleviating any possibility of trauma. The ventilated surface of the present arm support, as well as the slight flexure in the overall support, both enhance patient comfort over a long period of use.

This invention relates to improved apparatus for immobilizing the elbow joint of a human being to facilitate intravenous administration of fluids such as food or blood.

It is an important object of the present invention to provide an arm support which provides maximum comfort for the patient during prolonged periods of intravenous injection by allowing a limited amount of arm flexure while still holding the arm substantially immobile to prevent injurious needle movement while in the arm.

A further object of the present invention is to provide a contained I.V. arm support that prevents injury to the soft tissues such as nerves, vessels and the skin.

Another object of the invention is to provide such limited arm movement by virtue of a slightly flexible, spiral connecting section which joins relatively rigid panels, one of which underlies the upper arm above the elbow and the other overlying the forearm below the elbow, that are secured to the arm to hold same substantially immobile.

Another object of the invention is to provide an arm support as described in the preceding objects which also has securing means carried by the forearm panel to engage and hold intravenous tubing, which supplies fluid to a needle placed in the forearm adjacent the elbow, stationary relative to the forearm so that the needle will not shift appreciably in the forearm when the arm is flexed at the elbow.

Another object of the invention is to provide an arm support of the type described in the foregoing objects which is configured generally complementary to the natural curvature of a human arm and elbow to snugly receive same while allowing maximum patient comfort.

These and other objects and advantages of the present invention are specifically set forth in or will become apparent from the following detailed description of a

preferred embodiment of the invention, when read in conjunction with the accompanying drawings, wherein:

FIG. 1 is a side elevational view of an arm support constructed in accordance with the principles of my invention and showing same secured to the right arm of a patient;

FIG. 2 is a top plan view of the arm support as secured to the patient's arm;

FIG. 3 is a fragmentary section taken along line 3 — 3 of FIG. 1; and

FIG. 4 is a fragmentary section taken along line 4 — 4 of FIG. 2.

Referring now more particularly to the drawings, there is illustrated an arm support rest generally denoted by the numeral 10, which is secured to the right arm 12 of a patient who is receiving intravenous injection in the arm. An intravenous needle 14 is inserted into the predominant antecubital vein through the forearm at a location adjacent the elbow joint. Food, blood or other fluid is supplied by gravity to the needle through flexible tubing 16. The fluid container is not shown in the drawing.

Arm support 10 includes an elongated upper arm panel 18 formed of rigid, plastic material or the like, which extends longitudinally along in underlying, supporting relationship to the upper portion of the arm of the patient, and is slightly curved both transversely around the upper arm as well as being slightly bowed along its longitudinal length. The configuration of panel 18 is therefore generally complementary to the mating bottom surface of the upper arm which it engages so that the patient's arm is snugly and comfortably carried therein. A conventional elastic or cloth strap 20 having a Velcro fastener 40 is utilized to secure upper arm panel 18 to the upper arm of the patient. The perforations 34 allow air to flow between the arm and panel to improve patient comfort.

An elongated forearm panel 22 also formed of relatively rigid material, fits in overlying relationship upon the top surface of the forearm. Similar to the upper arm panel 18, panel 22 is transversely curved about the arm and slightly curved in a longitudinal direction along the length of the forearm in a configuration complementary to that portion of the patient's arm. One or more straps 24 and Velcro fasteners 40 secure forearm panel 22 to the forearm of the patient.

A connecting section 26 extends generally spirally around one side of the patient's arm and is integrally joined to the upper arm panel 18 above the elbow joint and joined to the forearm panel 22 below the elbow. Spiral section 26 interconnects panels 18 and 22 in longitudinally non-parallel relationship. The elongated panels 18 and 22 are disposed to form a carrying angle 28 which conforms with the natural angle of the patient's upper and lower arm, as seen in FIG. 1. The panels 18 and 22 are also positioned to form a normal angle 42 between the upper arm and forearm at the elbow joint, as clearly depicted in FIG. 2.

The underlying support provided by panel 18 and the overlying constraint of the forearm by panel 22 combine to substantially immobilize the elbow joint of arm 12 in a supine position, as illustrated. At the same time, the configurations of panels 18 and 22 assure maximum patient comfort for prolonged periods of time. Since the arm support 10 is formed from a slightly flexible plastic material, the spiral connecting section 26 allows

the patient limited natural bending of the arm away from the supine position while arm support 10 is strapped thereto. This flexure of the arm support is created not only by the flexible material but also the spiral shape of connecting section 26. Such flexure prevents tiring of the arm muscles, facilitates circulation in the arm and inhibits tourniquet-type action by the straps 20 and 24. Accordingly, this flexure adds immeasurably to the comfort of the patient during intravenous injections. The arm remains substantially immobile however, to prevent movement of needle 14 relative to the upper arm.

A plurality of upstanding posts 30 integrally formed to and protruding from forearm panel 22 act to hold the intravenous tubing 16 securely to panel 22. Posts 30 have apertures 32 therein which frictionally engage and fasten tubing 16 to the forearm panel, as seen in FIG. 3. By securing tubing 16 to panel 22 at a position adjacent needle 14, there is no need for further needle support. Upon limited flexure of the arm at the elbow, the needle remains relatively stationary due to the slack provided in the tubing 16.

The looped securement of tubing 16 to the four posts 30 reduces the danger against accidental movement of the needle. Movement of the major part of the tubing located away from the patient's arm and normally hanging freely and unsupported, will not cause needle movement due to the rigid securement of the end portion of the tubing to panel 22.

Preferably, arm support 10 also includes an elbow support panel 34 integrally formed on the upper arm panel 18 at the same end thereof to which spiral connecting section 26 is joined. Panel 34 extends forwardly from panel 18 in underlying, supporting relationship to the elbow joint. The elbow panel is contoured complementary to the elbow joint when arm 12 is in a supine position, being curved both transversely around and longitudinally of the elbow. Panel 34 adds further to the comfort of the patient by providing natural support therefor so that the arm rests within the entire apparatus 10 with the muscles in a relaxed state. The elbow panel 34 also assists in immobilizing the arm by resisting movement tending to further stretch out the arm longitudinally.

While the arm support may be constructed of any suitable material, it is preferably manufactured as an integral unit of plastic material by molding techniques. The overall structure provides the necessary unit rigidity while utilizing a minimum amount of material and introducing the desired, controlled flexibility in spiral section 26. Soft padding may also be affixed to the internal surfaces of panels 18, 22 and 34, and section 26 for comfort.

It is to be noted that the arm support 10 illustrated and described in the foregoing is configured for use with the patient's right arm. A mirror image of the structure illustrated would be utilized for the patient's left arm.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A surgical arm support for substantially immobilizing the arm of a patient during intravenous injection into the forearm adjacent the elbow of fluid supplied through flexible tubing, comprising:

an upper arm panel comprising a first generally flat elongate member having terminal ends and

adapted to be disposed above the elbow, said member conforming to the arm and configured to underly and support the upper arm and adapted to be secured thereto;

a forearm panel comprising a second, generally flat elongate member having terminal ends adapted to be disposed below the elbow, said member conforming to the arm and configured to overlie and constrain the forearm and adapted to be secured thereto; and

a spiral connecting section configured to extend at least partially around the arm, said spiral section being generally flat and connected to the upper arm member between said ends and extending longitudinally and helically away from said upper arm member to said forearm member wherein said panels are both spaced apart longitudinally as well as in opposed relationship to one another so as to be attached to the arm, said spiral connecting section rigidly joining said upper arm panel to said forearm panel whereby said arm support substantially immobilizes the elbow joint of the arm in a supine position thereof, said spiral section being capable of limited flexure to allow limited, natural bending of the arm at the elbow away from the supine position.

2. An arm support as set forth in claim 1, wherein there is provided upstanding support means on said forearm panel adapted to engage the tubing supplying the fluid being injected and securely fasten the tubing to said forearm panel whereby said limited bending of the arm does not interfere with the intravenous injection of the fluid into the forearm.

3. An arm support as set forth in claim 2, wherein said support means comprises a plurality of upstanding posts integrally formed upon said forearm panel and having apertures therein for receiving and securely engaging the tubing supplying the fluid being injected.

4. An arm support as set forth in claim 1, wherein said upper arm panel and forearm panel extend longitudinally along the arm and are transversely curved in configurations generally complementary to the transverse curvature of the arm to comfortably and snugly receive the arm.

5. An arm support as set forth in claim 4, wherein said upper arm panel is disposed to extend longitudinally at an angle relative to said forearm panel generally complementary to the angle formed between the upper arm and the forearm when the arm is in a supine position.

6. An arm support as set forth in claim 5, wherein said angle between said upper arm panel and said forearm panel is approximately ten degrees.

7. An arm support as set forth in claim 4, wherein said upper arm panel and said forearm panel are longitudinally curved in configurations generally complementary to the longitudinally curvature of the arm.

8. An arm support as set forth in claim 1, wherein there is provided an elbow rest panel joined to one end of said upper arm panel and extending forwardly therefrom to underly and support the elbow of the arm.

9. An arm support as set forth in claim 8, said elbow panel being transversely and longitudinally curved to snugly and comfortably receive the elbow joint of the arm.

10. An arm support as set forth in claim 8, said spiral section being integrally joined to said upper arm panel adjacent said one end thereof and integrally joined to said forearm panel.

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