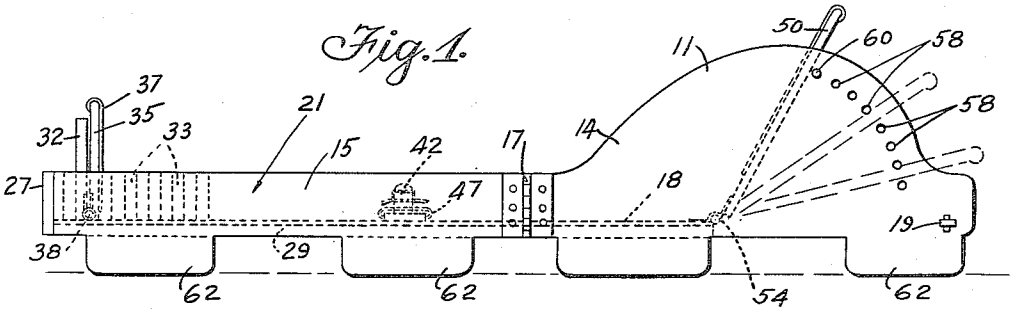
March 18, 1958 R. A. HEWELL ET AL 2,827,046

ORTHOPEDIC APPLIANCE

Filed Feb. 3, 1955

Fig. 1.



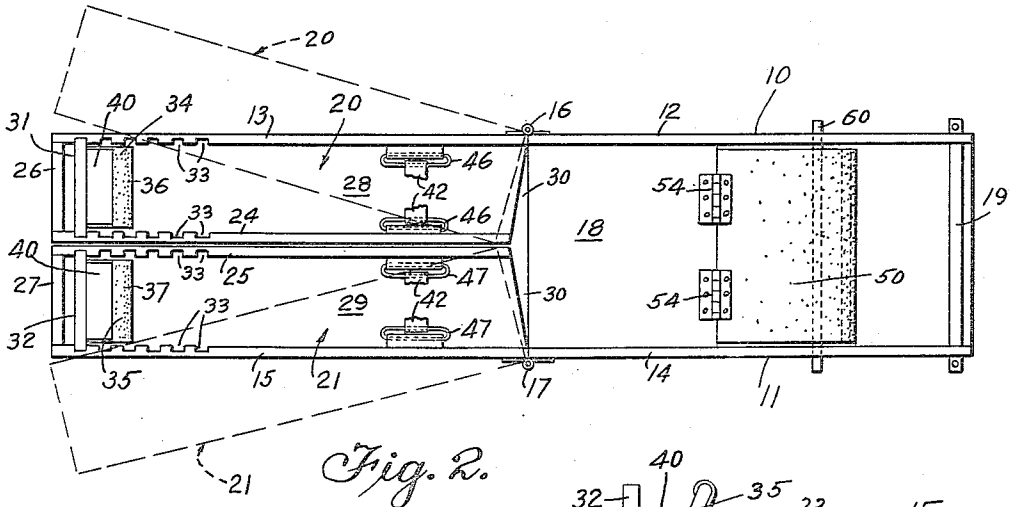


Fig. 2.

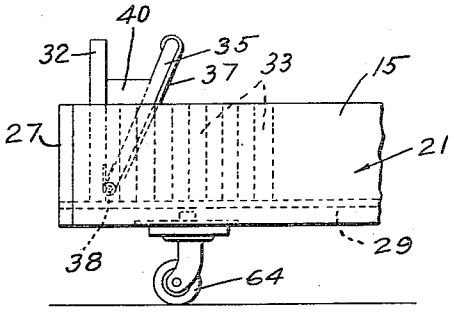


Fig. 3.

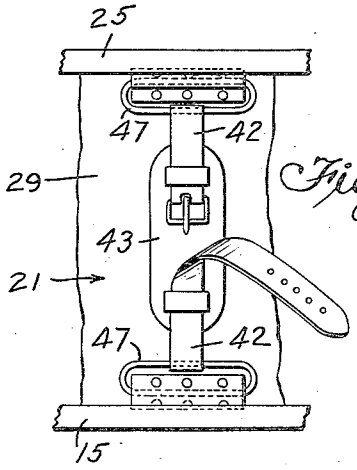


Fig. 4.

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ORTHOPEDIC APPLIANCE

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3 Claims. (Cl. 128—70)

The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

This invention relates to an appliance in the form of a body support or chair designed to maintain the patient's legs and feet in predetermined attitudes for the purpose of applying tension to certain muscles and tendons.

In the treatment of a cerebral palsy patient, for example, it is desirable that the retractor muscles of the leg, and their tendons such as the heel cords and hamstrings, be put under tension to lengthen them to such extent as to enable the patient to maintain a normal stance. In the past this has been done by means of frequent bending and stretching exercises, which are burdensome and somewhat painful to the patient, and hence tend to be slighted or altogether foregone over a period of time.

The present invention provides a frame to receive the patient's body in sitting or reclining position, including horizontal leg stalls and foot rests which maintain the patient's legs and feet in the desired attitude while exerting gentle but constant pressure to put the appropriate muscles and tendons under tension. The patient is meanwhile free to read or converse, or watch television, so that the treatment, instead of being wearisome, is undergone without protest.

An object of the present invention is to provide an appliance of the nature indicated which will be effective in operation and relatively comfortable in application.

A further object of the invention is to provide an appliance wherein the patient is permitted a maximum amount of freedom of movement, so that he may shift his position for comfort and thus not become fatigued by an hour or more in the contrivance.

Other objects and many of the attendant advantages of this invention will be readily appreciated as the same becomes better understood by reference to the following description.

Fig. 1 is a view in side elevation, with parts broken away, of a device embodying the invention;

Fig. 2 is a plan view of the same, showing in broken lines the leg stalls in spread position;

Fig. 3 is a fragmentary view showing an alternative construction; and

Fig. 4 is a fragmentary plan view of a knee-restraining device.

The apparatus shown in the drawing is a frame comprising horizontally extending side members each formed of two elements **12, 13** and **14, 15**, hinged together at **16, 17**. At the rear, elements **12** and **14** are formed with enlarged portions **10, 11**, and are fixedly joined by means of a floor member **18** and an end member **19**.

The elements **13** and **15** form the outer walls of two leg stalls **20, 21**, the inner walls being designated **24, 25** and being joined to the outer walls by end members **26, 27**, and by floor members **28, 29**, which are formed

with recesses **30** to avoid pinching when the leg stalls are brought together. By virtue of this system of articulation, the leg stalls may be spread from the parallel relation shown in Fig. 1 to the divergent relation shown in broken lines in Fig. 2, or to other divergent positions as may be required by the condition of the patient.

The feet of the patient rest against adjustable foot rests which are formed by plates **31, 32**, which fit selectively into slots **33** on the inner surfaces of the members **13, 15, 24, 25**. At their lower ends the plates **31, 32** are connected by hinges **38** to plates **34, 35** covered by resilient pads **36, 37**, in such manner that they are normally vertical, as indicated in Fig. 1. However, when it is desired to cause the patient's feet to incline rearwardly, as will often be the case with a cerebral palsy patient, wedges **40** of suitable angle may be inserted between the plates as shown in Fig. 3.

In order to yieldingly press the legs downwardly adjacent the knees and thus put tension on the retractor muscles of the legs, an adjustable strap **42** carrying a pad **43** extends transversely of each of the leg stalls and is secured at its ends by fasteners **46, 47**.

An adjustable backrest is provided and comprises a plane member **50**, hinged at **54** to the floor member **18**. The backrest is supported in its inclined position by means of a transverse stop member **60** which may be selectively moved into bores **58** in members **10, 11**, thus maintaining the backrest in its adjusted position.

The entire apparatus may be supported in spaced relation to the floor or ground by means of cleats **62**, which may be formed integral with members **10, 11, 13, 15**. Alternatively, the leg stalls may be supported by casters **64** as shown in Fig. 3, to enable the patient to spread them or bring them to parallel relation without assistance.

It should be noted that the design of the apparatus is such that it can be built at minimum expense, only the skill of the carpenter or joiner being required. Although it could be constructed of metal or other material, there are certain advantages, in lightness and comfort, in making it of lumber, as shown.

In the operation of the device, the patient is seated within the frame with his legs extended within the leg stalls and his feet resting against the foot rests. The backrest, the strap **42** and the foot rests are adjusted to the desired angles and tension, after which the patient is free to pursue any ordinary sedentary occupation without excessive discomfort while the appliance gently applies the desired forces to his legs and feet.

Obviously many modifications and variations of the present invention are possible in the light of the above teachings. It is therefore to be understood that within the scope of the appended claims the invention may be practiced otherwise than as specifically described.

What is claimed is:

1. A therapeutic device comprising a seat including a floor member for supporting a patient and an inclined backrest hingedly related to said floor member, a pair of horizontal leg stalls hinged to said seat member for horizontal movement relative thereto, a footrest in each of said leg stalls, and means associated with said leg stalls for exerting downward pressure on the patient's legs when the same are in said leg stalls.

2. A therapeutic device comprising a seat with backrest, a pair of horizontal leg stalls hingedly related to said seat for independent movement in a horizontal plane, a footrest in each of said leg stalls, and means carried by said leg stalls for exerting downward pressure on patient's legs when the same are in said leg stalls.

3. The invention defined in claim 2, wherein each of said footrests comprises a plate selectively insertible with any of a plurality of vertical grooves in the leg stall, a second plate hinged at its lower edge to the lower edge

of the first named plate, and a wedge insertible between said plates to cause the second plate to incline rearwardly.

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