

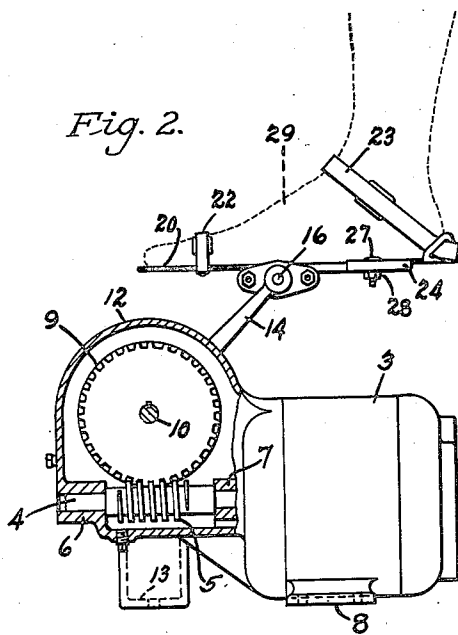
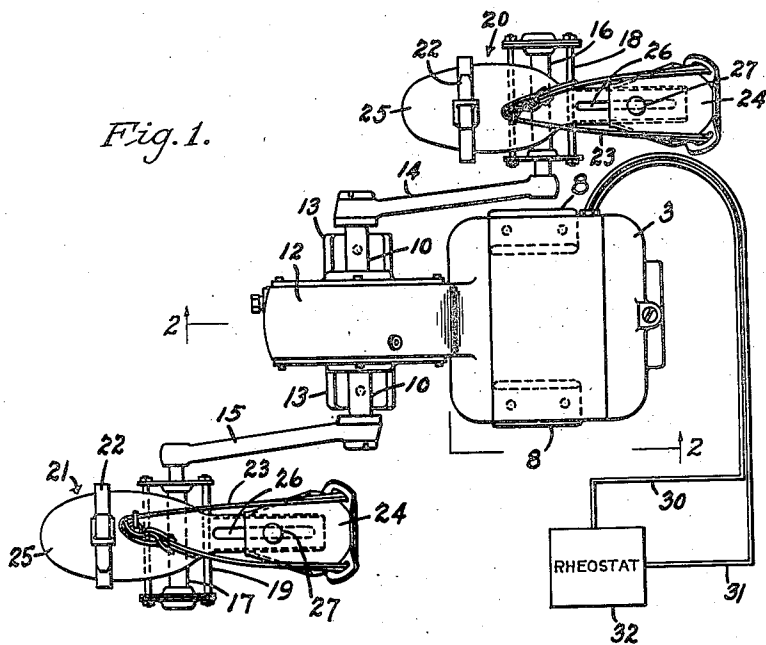
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J. J. CHALETTE

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EXERCISER

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INVENTOR.
Joseph J. Chalette
BY
Carlos G. Stratton
ATTORNEY.

UNITED STATES PATENT OFFICE

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EXERCISER

Joseph J. Chalette, Los Angeles, Calif., assignor
of one-half to May Marcus Chalette, Los
Angeles, Calif.

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3 Claims. (Cl. 128—25)

My invention relates to an exerciser for the correction of paralysis resulting from infantile paralysis.

An important object of the invention is to provide means to compel a patient suffering from paralysis resulting from infantile paralysis, to exercise his or her knees, ankles, hips and other joints of the body, including wrists, elbows and shoulders.

Another object is to provide motor driven, pivoted means to which the feet or hands of the patient are strapped.

The invention also comprises novel details of construction and novel combinations and arrangements of parts, which will more fully appear in the course of the following description.

In the drawing, like reference characters designate similar parts in the several views.

Figure 1 is a plan view of an apparatus embodying the foregoing objects.

Figure 2 is a section taken on the offset line 2—2 of Figure 1.

Referring more in detail to the drawing, the reference numeral 3 generally designates a motor. Shaft 4 of the motor carries a worm 5. Bearings 6, 7 support the shaft 4 at either side of the worm 5. Feet 8 are provided for the motor. Of course the motor may be mounted upon any suitable support: stationary or tiltable.

A worm gear 9 meshes with the worm 5 and is driven thereby. The worm gear is in turn keyed on a spindle 10. A housing 12 encloses the worm 5 and worm gear 9. Suitable grease or oil plugs (not numbered) are provided for the apparatus. Feet 13 support the housing 12.

Oppositely pointed crank arms 14, 15 are mounted upon ends of the spindle 10 that project from opposite sides of the sides of the housing 12. Pivotally mounted on wrists 16, 17, on the crank arms 14, 15 respectively, are pedals 18, 19. Foot-plates 20, 21 are fastened upon the pedals 18, 19 respectively. Toe straps 22 and ankle straps 23 are provided on each foot-plate.

It will be noted that heel portions 24 of the foot plates are adjustable away from (to the rear of) the axes of the wrists 16, 17. The toe portions 25 of the foot plates have slots 26 near their rear ends. Bolts 27, passing through the heel portions 24 and through the slots 26, clamp together in their adjusted positions the toe and heel portions of the foot plates, by means of nuts 28.

By sliding the heel plates 24 closer toward the axes of the wrists 16, 17, progressively less flexing of the angles is effected. This is desirable in

the early stages of the treatment of a case and in aggravated cases. As the treatments continue, the heel plates are adjusted to positions farther from the axes of the wrists 16, 17. This causes proportionately greater flexing of the ankles as the heel plates 24 are progressively moved from said axes. The toe and ankle straps are of course adjusted to fit the patient's feet in their different positions along the foot plates. A patient's foot is suggested at 29.

Insulated wires 30 and 31 include a rheostat 32 in the circuit of the motor 3, whereby the resistance in the motor circuit may be varied. By this means, the motor is caused to operate at faster or slower speeds, as desired.

It is to be understood that a patient's hands may be strapped to the plates 20, 21, as well as a patient's feet (although of course not at the same time). When desired two of the present apparatus may be used simultaneously upon one patient, to wit, one apparatus to exercise the patient's feet, legs and hips and the other to exercise the patient's hands, arms and shoulders. A reduction of speed is effected by reason of the comparatively larger size of the worm gear to the worm.

In the use of my present apparatus, a person's feet are first strapped to the foot plates, in the desired adjusted position of the heel plates. The circuit of the motor is then closed by a switch (not shown). The consequent revolution of the pedals 18, 19, effectively flexes the patient's ankles, knees and hips. Such treatment at comparatively frequent intervals are beneficial in the correction of paralysis resulting from infantile paralysis.

While I have illustrated and described what I now regard as the preferred embodiment of my invention, the construction is, of course, subject to modifications without departing from the spirit of my invention. I, therefore, do not wish to restrict myself to the particular form of construction illustrated and described, but desire to avail myself of all modifications which may fall within the scope of the appended claims.

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

1. Apparatus of the class referred to, comprising a pedal including a heel portion for the support of a patient's foot, a movable arm pivotally supporting the pedal about an axis substantially ahead of the ankle of a person's foot on the pedal, the heel portion of the pedal being unsupported and free to rotate about said axis, strap means for holding a person's heel and toes in a

manner that they may not move relative to the pedal, and means to move the arm.

2. Apparatus of the class referred to, comprising a pedal including a heel portion for the support of a patient's foot, a crank arm pivotally supporting the pedal about an axis substantially ahead of the ankle of a person's foot on the pedal, the heel portion of the pedal being unsupported and free to rotate about said axis, a heel rest on the pedal adjustable toward and away from said axis, whereby the leverage between the ankle joint of the patient and the axis of the pedal may be varied, strap means arranged to hold the heel portion of the patient's foot back against the heel rest in the adjusted positions of the heel rest and to hold the toe

portion of the patient's foot against the pedal, and means to rotate the crank arm.

3. An apparatus of the class referred to comprising a motor and gear reduction unit, a unitary casing therefor, a power shaft extending laterally from opposite sides of said casing, lever arms attached to said shaft, pedals carried by said lever arms, each pedal including a fixed plate adapted to support the ball of a patient's foot and a movable plate adapted to receive the heel of a patient's foot, whereby the leverage between the ankle joint of the patient and the axis of the pedal may be adjusted, a toe strap carried by the fixed plate, and an ankle strap carried by the movable plate.

JOSEPH J. CHALETTE.