

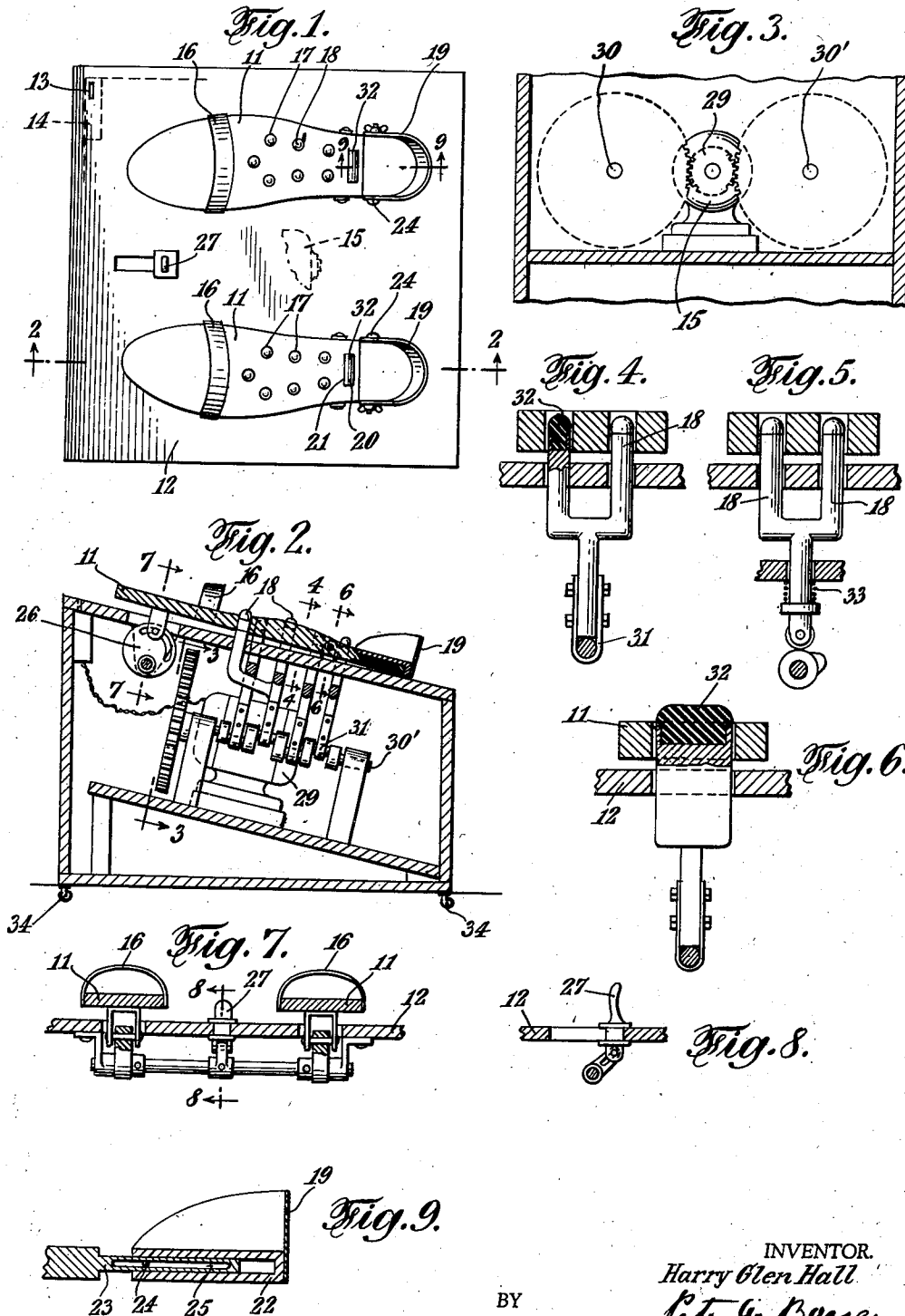
Jan. 9, 1940.

H. G. HALL

2,186,105

MECHANICAL-FOOT MANIPULATOR

Filed May 4, 1939



BY

INVENTOR.
Harry Glen Hall
R. W. Boesen
his ATTORNEY.

UNITED STATES PATENT OFFICE

2,186,105

MECHANICAL FOOT MANIPULATOR

Harry Glen Hall, New York, N. Y., assignor to Max E. Singerman and Ellis Arndt, both of New York, N. Y.

Application May 4, 1939, Serial No. 271,660

3 Claims. (Cl. 128—55)

This invention relates to new and useful improvements in a mechanical foot manipulator, and it has for its object to provide a device, which will be capable of effectively administering a healthful and scientific treatment to the sole of the foot of a person, and thereby incidentally benefit the whole body.

The device consists of a foot plate mounted on a platform, or cabinet, which in turn may be mounted on casters. The said foot plate has formed therein a plurality of openings, in which latter fingers, plungers, or pistons are made to perform a movement, preferably a substantially vertical movement, as said fingers with their upper parts or surfaces act upon the sole of the foot by beating against the latter in an interchangeable manner.

The said foot plate may be stationary, or adjustable, that is, it may be subject to be lowered or adjusted as to height, whereby a more or less intense action of the manipulating fingers may be obtained.

The said foot plate, which is provided with a heel rest, may likewise be adjusted as to length, in order to permit the use of said foot plate without regard to the size of the foot treated.

Thus by adjusting the heel, this will allow the foot to assume the proper position on the foot plate, so that the mechanical fingers would work properly under the metatarsal articulations.

Besides the fingers hereinbefore referred to, said foot plate has also mounted therein a heel and ankle manipulator.

It is to be understood that any suitable materials may be used in the construction of the various parts of the device; thus, for instance, the top part of the manipulating fingers may consist of resilient rubber, although the fingers themselves may be made of uniform and any suitable material.

The openings in the foot plate may be of any desired and convenient shape.

The said device may, if desired, be operated on the principles of an automatic slot machine, by inserting a coin in the device, operating the latter for a certain period of time.

The device may be operated by a motor, or manually; and the fingers may be actuated by a crank-shaft, a cam-shaft, coils, or by compressed air.

With the above and other objects in view, this invention consists of the novel features of combination, construction and arrangement of parts, hereinafter fully described, claimed, and illus-

trated in the accompanying drawing, forming part of this application, and in which similar characters of reference indicate corresponding parts in all views, and in which:

Figure 1 is a top plan view of my invention.

Figure 2 is a transverse sectional view, taken on the line 2—2 in Figure 1.

Figure 3 is a transverse sectional view, taken on the line 3—3 in Figure 2.

Figure 4 is a transverse sectional view, taken on the line 4—4 in Figure 2.

Figure 5 shows in side elevation a modification of my device.

Figure 6 shows a detail sectional view of the heel and ankle manipulator.

Figure 7 is a transverse sectional view, taken on the line 7—7 in Figure 2.

Figure 8 is a transverse sectional view, taken on the line 8—8 in Figure 7; while

Figure 9 is a detail sectional view, taken on the line 9—9 in Figure 1.

Referring more particularly to the drawing, Figure 1 shows my device, in which a foot plate 11 is mounted on a platform 12. Said device is in the corner thereof provided with a slot 13 through which a coin is inserted, in case it is desired to operate the device as an automatic slot machine; the specific mechanism in connection therewith would not need further illustration, as this mechanism may be any one of the conventional kinds. However, there has in relation to said form of operation been shown a time control switch 14, connected to the motor 15, and indicated herein in dotted lines.

The foot plate 11 is provided with a strap 16 adapted to retain the foot to be treated in position on the plate. Said foot plate is formed with a plurality of openings 17 therein through which the fingers 18 operate.

Said foot plate is at the rear end thereof made with a heel rest 19; and a short distance in front of the latter is arranged a heel and ankle manipulator 20 operating in the opening 21 of the foot plate.

The foot plate may be adjusted as to length by means of a sliding arrangement shown in Figure 9, wherein the rear part 22 of said foot plate, with the heel rest 19, adjustably slides upon a reduced portion 23 of the foot plate, while said rear part is restricted as to movement and held in position relative to the latter by means of a stud 24, which engages a recess 25 in said reduced portion.

The foot plate 11 may also be adjusted as to

height by means of an excentric cam arrangement indicated at 26 in Figure 2, which mechanism is operated by a slide specifically shown at 27 in Figure 8, although other forms of construction may be used for lowering or raising said foot plate.

The fingers 18, one of which has been shown specifically in Figure 4, may be of a bifurcated shape, and some of a straight shape, while other and different forms may well be adapted under the circumstances. Said fingers, which are made to operate through the openings 17 in the foot plate, may be actuated in different ways, such as by means of a crank system, as shown in Figure 2, but other forms of the conventional types may as well be utilized. In Figure 3 is shown a motor 15, which drives a gear 29 that in turn meshes with the cams 30 and 30', while the lower ends of the fingers are attached to the crank shaft, as shown at 31 in Figure 2.

The said fingers may be of uniform material, or they may have a resilient rubber portion, or a portion of any other suitable material attached to the upper end thereof, as shown at 32 in Figure 4, and Figure 6.

The heel and ankle manipulator 20 has been shown of a substantially rectangular shape, although other forms may as well be applied; it is operated in a similar manner as the said fingers.

In Figure 5 has been shown a spring 33, preferably embodied in the construction, when the fingers are operated by a cam system.

The platform may be mounted on casters, as indicated at 34.

What I claim as new, and desire to secure by Letters Patent of the United States, is:

1. A mechanical foot manipulator comprising, in combination, a foot plate, the latter being adjustable horizontally and vertically, means for adjusting said foot plate in a vertical direction, said means consisting of an excentric cam, and a slide operating the latter, the foot plate being formed with a plurality of openings therein, fingers operated by a crank shaft and adapted to be

interchangeably propelled through said openings, and means for operating said crank shaft.

2. A mechanical foot manipulator comprising, in combination, a foot plate, the latter being adjustable horizontally and vertically, means for adjusting said foot plate vertically, said means consisting of an excentric cam, and a slide operating the latter, and means for adjusting said foot plate horizontally, said latter means consisting of a slidable heel rest, the rear end of the foot plate being made with a reduced portion, having a lateral recess therein, said heel rest being adapted to slide upon the reduced portion, the said heel rest having a stud adapted to engage the recess in the latter, the foot plate being formed with a plurality of openings therein, fingers operated by a crank shaft and adapted to be interchangeably propelled through said openings, and means for operating said crank shaft.

3. A mechanical foot manipulator comprising, in combination, a foot plate, the latter being adjustable horizontally and vertically, means for adjusting said foot plate vertically, said means consisting of an excentric cam, and a slide operating the latter, and means for adjusting said foot plate horizontally, said latter means consisting of a slidable heel rest, the rear end of the foot plate being made with a reduced portion, having a lateral recess therein, said heel rest being adapted to slide upon the reduced portion, the said heel rest having a stud adapted to engage the recess in the latter, the foot plate being formed with a plurality of openings substantially at the center thereof, and with another single rectangular opening in the rear portion thereof, substantially cylindrically shaped fingers operated by a crank shaft and adapted to be interchangeably propelled through said openings in the center, and a rectangularly shaped member operated by said crank shaft and adapted to be propelled through the opening in the rear portion, and means for operating said crank shaft.

HARRY GLEN HALL.