L. CÀRO.

PENDULUM APPARATUS FOR HYGIENIC GYMNASTICS.

APPLICATION FILED NOV. 9, 1909.

1,007,526. Patented Oct. 31, 1911.

2 SHEETS—SHEET 1.

Fig. 1

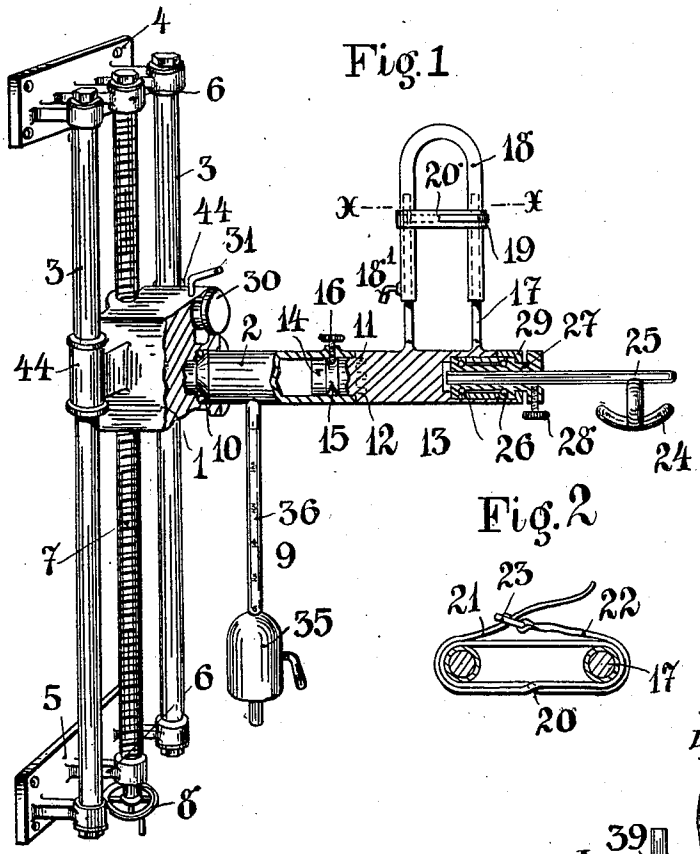


Fig. 2

Fig. 3

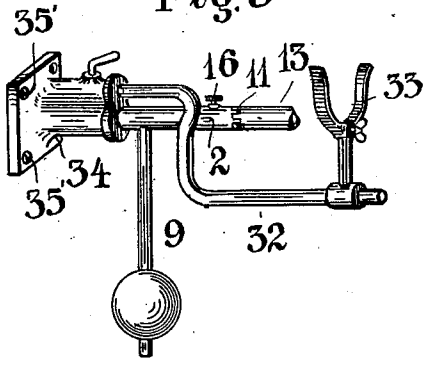
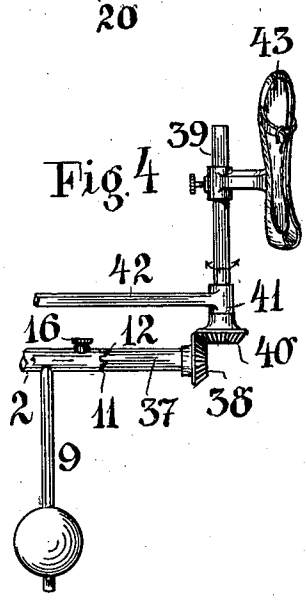


Fig. 4



Witnesses.
C. R. Hardy.
A. C. Hunt

Inventor
Leo Càro
by H. B. Willson & Co.
Attorneys.

L. CÀRO.

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Fig. 5

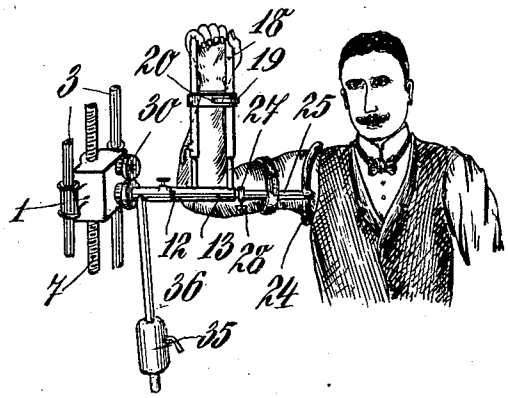
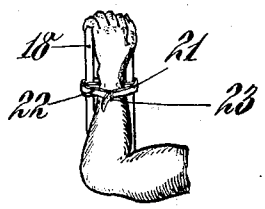


Fig. 6



Witnesses:-
C. Ellmaker
A. R. Hardy.

Inventor:-
Leo Caro
by H. B. Wilkinson & Co.
Attorneys

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

LEO CÀRO, OF HANOVER, GERMANY.

PENDULUM APPARATUS FOR HYGIENIC GYMNASTICS.

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To all whom it may concern:

Be it known that I, LEO CÀRO, physician, citizen of Germany, subject of the King of Prussia and Emperor of Germany, residing at Baumstrasse 16, Hanover, in the Kingdom of Prussia and Empire of Germany, have invented new and useful Improvements in Pendulum Apparatus for Hygienic Gymnastics, of which the following is a specification.

My invention relates to pendulum apparatus for hygienic gymnastics, and an important object is to provide a cheap and simple apparatus adapted to be fastened on a wall and capable of use as a universal apparatus for executing the most varied kinds of exercises which could be performed heretofore only with the aid of materially more expensive and more complicated apparatus standing on the floor. Owing to its attachment to the wall considerable space is saved without the stability of the apparatus being impaired in any way.

In order to permit various exercises to be performed and different parts of the body to be moved by the apparatus, the pendulum axle is provided with a coupling device which may be engaged by variously shaped supports or rests for the individual members of the body.

Furthermore, an important feature of my invention is that this coupling is so formed that it enables the user to readily regulate the motion of the rest or support for the member of the body which is to be moved, the support being preferably of variable length and adjustable. In order to suspend from the support the member of the body which is to be moved, the support is preferably formed as a frame around which a band, having a transverse slit, is wound like a loop in such manner that its ends can fasten the member of the body resting on the support. For holding the member of the body which is at rest, in my improved apparatus, I provide a support which may be movably connected with the oscillating axle, or attached, preferably detachably, beside the axle on the base carrying the same. The base carrying the pendulum axle and other parts is preferably adjustable vertically so that it is possible to adapt its height to the height of the member of the body which is to be moved.

Further features of my invention will be understood from the following specification and the claims.

Some constructional forms of my invention are represented by way of example in the accompanying drawings wherein:

Figure 1 is a perspective view partly in section showing one form of my universal wall pendulum apparatus. Fig. 2 is a detail section on an enlarged scale in the plane $x\ x$ of Fig. 1. Fig. 3 shows in perspective a part of a somewhat modified form of the device. Fig. 4 shows a part of the apparatus with a movable support for the foot of the user in connection with the coupling number. Fig. 5 is a fragmentary perspective view showing the manner of attaching an arm to the apparatus. Fig. 6 is a detail view looking at the rear of Fig. 5.

In the embodiment of the device shown in Fig. 1 the base or bracket 1 carrying the pendulum axle 2 is not attached directly to the wall but is provided with cylindrical guides 44 slidable along vertical rods 3. These rods 3 are attached to holders or brackets 4 and 5, fixed to the wall. A screw 7, carrying at its lower end a hand wheel 8, is mounted in bearings 6 on said holders or brackets between said rods 3 and has a threaded engagement in the internally screw threaded central aperture of the base 1. Obviously, by turning hand wheel 8, the base can be moved vertically.

The axle 2 carrying the pendulum 9 is preferably mounted revolubly in base 1 on balls 10. At its free end the axle 2 is provided with a circle of teeth forming the clutch member 11 with which meshes a corresponding member 12 formed on an axle 13. This axle 13 is provided with a reduced extension 14 projecting inwardly beyond the teeth 12 and fitting into the bore of the axle 2 and facilitating the coupling of the axles. The axle 13 is prevented from being removed unintentionally from the axle 2 by a clamping screw 16 which passes through the axle 2 into an annular groove 15 provided in the extension 14.

A support 17 to receive the member of the body which is to be exercised is carried by the axle 13. As will be readily understood, this support can be placed at an optional height by causing the clutch members 11 and 12 to engage in various positions and to facilitate such adjustment the individual teeth of the members may be provided with indicating letters or numbers.

In the embodiment of the invention shown in Fig. 1 the support 17 is extensible, being provided with a slidable member or yoke 18

arranged to telescope upon the portion of the support projecting from the axle. If the members be secured in adjusted position by the clamping screw 18′, they will be adapted to the length of a forearm which may then follow the movements of the axle. If the screw, however, be loose, an upper arm may rest upon the axle and the bow or yoke 18 then grasped by the hand, after which the arm may be flexed and extended while the axle is oscillating. Around this support is placed a slit bandage 19 within which the limb to be moved rests. This bandage consists of a band having a transverse slit 20 through which one of its ends is inserted to form a loop which is passed around the support 17 as clearly shown in Fig. 2. Within the rest or support thus formed is placed the limb which is to be moved and then the two free ends 21—22, of which one is provided with a buckle 23, are fastened so that the limb, *e. g.* the forearm, is suspended freely but securely as shown in Figs. 5 and 6.

For holding the part of the body which remains at rest during the exercises, for example, the shoulder, a support 24 may be attached to an axle 25 which is connected revolubly with the axle 13 in such a manner that it does not participate in the oscillations of the latter axle and its frame but remains at rest. To attain this object in the illustrated embodiment, axle 25 is inserted in a bushing 27 running on balls 26 in the free hollow end of axle 13. The unintentional withdrawal of the axle 25 from the axle 13 is prevented by a clamping screw 28 mounted in the bushing and bearing upon the axle 25 and a sleeve 29 engaging in a cavity or groove in bushing 27 and secured to the axle 13.

The part of the body which is to remain at rest may be supported by means of an arm attached to the base 1 beside the axle 2, for which purpose there is provided, on the base 1, a coupling 30 in which a supporting arm may be inserted and fastened by means of a screw or locking member 31. Such a supporting arm, 32, is illustrated in Fig. 3. Said arm carries a suitable, preferably detachable, rest 33 for the inactive part of the body which may be attached to the support by means of suitable bands or bandages similar to the bandages shown in Figs. 1 and 2.

The form of the device shown in Fig. 3 differs from the form shown in Fig. 1 not only in the shape of the pendulum weight, which may be optional, but also by having the base 34 which carries the pendulum axle and the support or the inactive member of the body, provided with holes 35′ through which fastenings may be inserted to secure it directly to the wall. In this arrangement the apparatus is not adjustable vertically but is correspondingly simple, although it will be understood, of course, that the base may be attached to a block or plate which is vertically adjustable.

For adjusting the base carrying the pendulum axle to any desired height, any preferred adjusting device may be used instead of the form shown in Fig. 1 and the bottom holder or bracket 5 may be arranged to be secured to the floor near the side wall instead of to the wall.

The pendulum weight 35 is preferably adjustable on the pendulum rod 36 whereby the amplitude of the pendulum can be regulated.

With the aid of the toothed coupling or clutch members 11 and 12, various kinds of rests or supports may be attached to the pendulum axle 2 so that the different members of the body can be moved correspondingly in the various ways by means of the apparatus.

In the form shown in Fig. 4, instead of the extension 13 having the support or rest 17, there is coupled with the axle 2, an axle 37 having secured to its outer end a bevel wheel 38, with which the bevel wheel 40 on the shaft 39 meshes. This shaft 39 is mounted in a bearing 41 on the outer end of an arm 42, fitted to the coupling member 30 of the base 1. A rest 43 for a foot is secured, preferably detachably, to the shaft 9. As will be readily understood, by means of the gears 38 and 40, a plane of oscillation displaced 90° relatively to the plane of oscillation of the pendulum is produced so that the foot on the rest 43 will oscillate around its longitudinal axis.

The support arranged in the continuation of the axle oscillated by the pendulum and rotatably connected with said axle for supporting the inactive member of the body, may have a different shape according to the part of the body to be supported thereby and need not necessarily be arranged at the end of the extension carrying the rest for the limb which is to be moved, but may be arranged around said extension and thus be located at any point of the axle which is oscillated.

Having thus described my invention, what I claim as new and desire to protect by U. S. Letters Patent is:

1. In an apparatus for hygienic gymnastic exercises, a pendulum, a shaft of oscillation for said pendulum, means for attaching said shaft to the wall of a room, the free end of said shaft being provided with coupling teeth, a second shaft correspondingly toothed at one end to be coupled with said first mentioned shaft, and means connected with said second shaft for bearing that member of the body which is to be moved.

2. In an apparatus for hygienic gymnastic exercises, a pendulum, a shaft of oscillation for said pendulum, a base, means for oscilla-

tively connecting said shaft with said base, means for attaching said base to the wall of a room, and means to be rigidly connected with said oscillated shaft for executing various kinds of exercises.

3. In an apparatus for hygienic gymnastics, a pendulum, an axle of oscillation for said pendulum, a base bearing said axle of oscillation, said base being adjustably mounted on vertical guiding pieces, means for securing said guiding pieces to a wall, and means to be rigidly connected with said axle of oscillation for executing various kinds of exercises.

4. In an apparatus for hygienic gymnastics, a pendulum, a shaft of oscillation for said pendulum, means for oscillatively attaching said shaft to a wall, a second shaft to be coupled with said first mentioned shaft, a support on said second shaft for the member of the body which is to be moved, said support being formed by a frame having an adjustable bow mounted thereon.

5. In an apparatus for hygienic gymnastics, a pendulum, a shaft of oscillation for said pendulum, means for attaching said shaft to a wall, a second shaft to be coupled with said first-mentioned shaft, a support on said second shaft for the member of the body which is to be moved, said support being formed by a frame, and a band having a transverse slit placed like a loop around said frame.

6. In an apparatus for hygienic gymnastics, a pendulum, a shaft of oscillation for said pendulum, means for attaching said shaft to a wall, a second shaft to be coupled with said first-mentioned shaft, a support on said second shaft for the member of the body which is to be moved, said support being formed by a frame, a hand having a transverse slit placed like a loop around said frame for forming a rest, and means on the free ends of said band for fixing said member of the body on said rest.

7. In an apparatus for hygienic gymnastic exercises, a pendulum, a shaft of oscillation for said pendulum, a base, means for connecting said shaft with said base, means for attaching said base to a wall, a second shaft to be coupled with said first-mentioned shaft, means connected with said second shaft for bearing that member of the body which is to be moved, and an arm bearing a support for the member of the body which is to remain at rest.

8. In an apparatus for hygienic gymnastics, a pendulum, a shaft of oscillation for said pendulum, a base, means for connecting said shaft with said base, means for attaching said base to a wall, a second shaft to be coupled with said first-mentioned shaft, means connected with said second shaft for bearing the member of the body which is to be moved, an arm movably connected with said second shaft, and a support on said arm for the member of the body remaining at rest.

9. In an apparatus for hygienic gymnastic exercises, a pendulum, a shaft of oscillation for said pendulum, a base, means for connecting said base with shaft, means for attaching said base to a wall, a coupling member on said base beside said shaft, and means to be connected wth said shaft and said coupling member for executing the different exercises.

10. In an apparatus for hygienic gymnastic exercises, a pendulum, a shaft of oscillation for said pendulum, a base, means for connecting said shaft with said base, means for attaching said base to a wall, a second shaft to be coupled with said first-mentioned shaft, means connected with said second shaft for bearing that member of the body which is to be moved, and a coupling device on the base beside said oscillative shaft and bearing a support for that member of the body which is to remain at rest.

11. In an apparatus for hygienic gymnastics, a pendulum, an axle of oscillation for said pendulum, a base, said axle being oscillatively connected with said base, means for attaching said base to a wall of a room, a coupling on said base beside said axle, a supporting arm secured in said coupling and means connected with said oscillating axle for bearing that member of the body which is to be moved.

12. In an apparatus for hygienic gymnastics, the combination of a pendulum, an axle of oscillation for said pendulum, means for attaching said axle to the wall of a room, shafts adapted to be secured to said axle, oscillating means arranged on said shafts for supporting that member of the body which is to be moved, and means for supporting that member of the body which is to remain at rest.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

LEO CÀRO.

Witnesses:
R. PAUL THOMPSON,
ROBERT J. THOMPSON.