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ROLLABLE EXERCISING DEVICE WITH SELECTIVELY OPERABLE BRAKING MEANS

Filed May 12, 1961

Fig. 1.

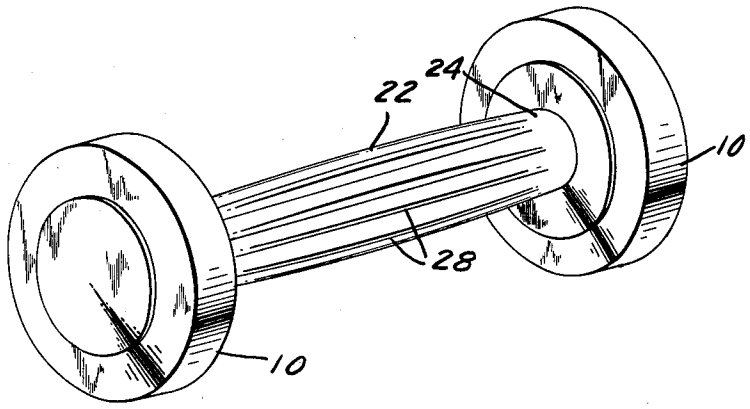


Fig. 2.

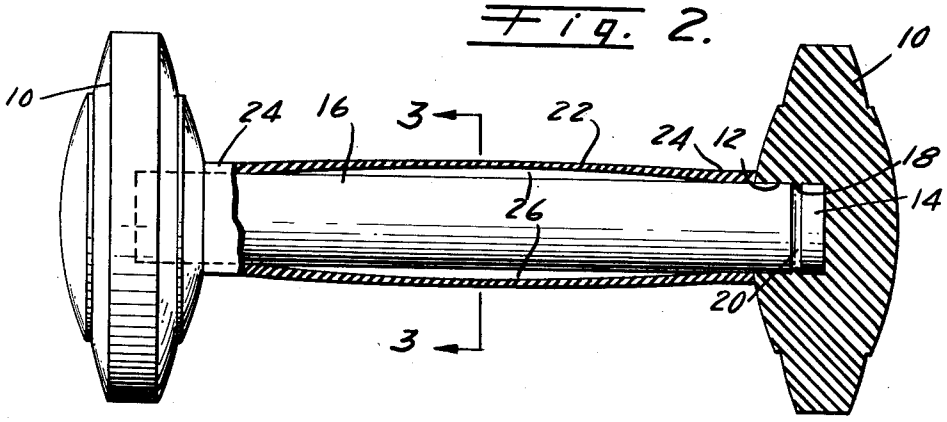


Fig. 3.

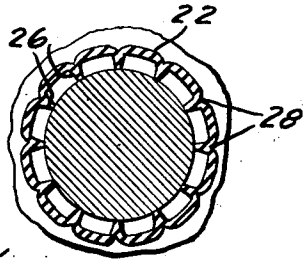
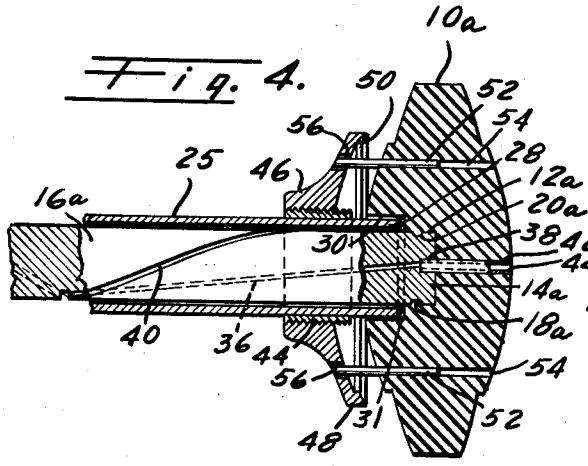


Fig. 4.



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ROLLABLE EXERCISING DEVICE WITH SELECTIVELY OPERABLE BRAKING MEANS

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This invention relates generally to exercising devices and relates more particularly to exercising devices for body building in the home, or the like.

Regular exercising is very valuable in promoting health and grace, increasing strength and in improving posture. However, most people feel they do not have the time and/or facilities to engage in regular exercises.

It is, therefore, an object of the present invention to provide an exercising device or means for body building.

It is another object of the invention to provide an exercising device of this character that is very effective in developing the user's physical health, strength and grace, and in improving posture.

It is still another object of the invention to provide a device or means of this character that need be used only a few minutes a day to keep fit and build up the body.

A further object of the invention is to provide means of this character that may be used in the privacy of the home so that it is unnecessary to take off time to go to a gymnasium, or the like.

A still further object of the invention is to provide means of this character that is simple in construction and operation.

Another object of the invention is to provide means of this character that is effective for the purpose for which it is intended.

Still another object of the invention is to provide a device of this character having certain safety features which will prevent the user from strain, particularly those just beginning a program of body building.

Still another object of the invention is to provide a device of this character having such safety means which will limit the amount of movement of the device.

A further object of the invention is to provide means of this character that is relatively inexpensive to manufacture.

The characteristics and advantages of the invention are further sufficiently referred to in connection with the following detailed description of the accompanying drawings, which represent certain embodiments. After considering these examples, skilled persons will understand that many variations may be made without departing from the principles disclosed, and I contemplate the employment of any structures, arrangements, or modes of operation that are properly within the scope of the appended claims.

Referring to the drawings, which are for illustrative purposes only:

FIG. 1 is a perspective view of an exercising device embodying the present invention;

FIG. 2 is an enlarged side view, partly in section, of said device;

FIG. 3 is an enlarged sectional view taken on line 3—3 of FIG. 2; and

FIG. 4 is a longitudinal sectional view of an alternative arrangement.

Referring more particularly to FIGS. 1 to 3, there is shown an arrangement having a pair of wheels 10, which may be of any suitable material but which are shown of being of relatively hard molded rubber. Each wheel is provided with an axial, cylindrical recess 12 in one side, said recess not extending through the wheel. The recesses are adapted to snugly receive therein end portions 14 of

an axle 16 which may be of any suitable material such as, for example, wood or the like.

Each recess 12 is provided with an annular internal bead 18 which is received in an annular, external groove 20 in the end portion 14 received in the respective recess 12. This arrangement aids in securing the wheels 10 on the axle 16. In order to further secure the wheels on the axle a suitable adhesive is used for binding the walls of the recess 12 to the end portion 14. Thus the wheels will rotate with the axle. Other suitable means may, of course, be used to secure the wheels on the axles, one such alternative means being a pin, not shown.

A handle 22 is disposed on the axle, said axle being tubular and of suitable flexible material. One such material that may be used is a plastic such as vinyl.

Handle 22 has end portions 24 having an internal diameter such as to snugly engage the parts of the axle disposed therein, but it is to be understood that the axle and handle have rotation relative to each other.

Between the end portions 24 the handle bulges somewhat and the bulged portion is provided with internal, longitudinally extending ribs 26 having their free edges engaging the surface of the axle portion disposed within the bulging portion of the handle, as best shown in FIGS. 2 and 3. Externally, the bulging portion of the handle has longitudinally extending grooves 28 which are disposed over the ribs 26, as best shown in FIGS. 1 and 3.

The handle 22 is held against longitudinal movement by the wheels 10, since the ends of the handle 22 abut against the adjacent inner side portions of said wheels.

The device may be used in various ways for developing and strengthening various parts of the body. For example, in using the device for development of the shoulders, back and stomach, the user kneels and, with one of the devices in each hand, rolls the devices forward on the floor.

A person just beginning the exercises must be careful not to extend himself or herself to too great an extent so as to prevent strain of the muscles involved. Normally, in using these devices the handles are not gripped tightly, although they are gripped firmly. Initially the distance the initiate should be extended is determined and when the user has extended himself or herself the predetermined distance the handles are squeezed so as to compress the bulging portion and cause the ribs 26 to engage the axle with sufficient frictional force to act as a brake and stop further rolling movement of the device or devices. The user then reverses the movement of the devices by returning to the initial position.

With development of the muscles the user may extend himself or herself a greater amount until he or she can go to the fully extended position.

Referring to FIG. 4 there is shown an alternative arrangement wherein the distance the device is rolled is automatically controlled so as to stop when the predetermined distance has been covered.

In the alternative arrangement shown in FIG. 4 there is an axle 16*a* having end portions 14*a* provided with an external annular groove 20*a*. The end portions 14*a* of the axle 16*a* are received in recesses 12*a* of respective wheels 10*a*, each recess 12*a* having an annular internal bead 18*a* disposed in groove 20*a* of the end portion 14*a* received in said recess 12*a*. The end portions 14*a* are further secured in the recesses 12*a* by a suitable adhesive or by a pin or the like.

Operably disposed on the axle 16*a* is a sleeve 25 of suitable material such as metal, for example. It is to be understood, of course, that the sleeve 25 may be of other suitable material, such as plastic, for example.

Sleeve 25 has an internal diameter larger than the external diameter of the axle 16*a* and has end portions

28 rotatably disposed in a counterbore portion 30 of the recess 12*a*. It is to be noted that the external diameter of the sleeve 25 is smaller than the counterbore portion 30, so that when the user's weight is on the sleeve or handle 25 the upper portion of the internal wall of the handle 25 will rest on the upper portion of the axle 16*a* to thereby support the weight of the user. Between the ends of the sleeve 25 and the inner ends of the counterbores 30 there is a lubricant seal 31.

Lubrication is provided between the axle 16*a* and the sleeve 25. The lubrication means comprises a bore 36 leading from a recess 38 at one end of the axle 16*a* to an external groove 40 in said axle 16*a*. Groove 40 is a spirial groove, the ends of which fall short of the ends of the axle, as best shown in FIG. 4. Wheel 10 on the end of the axle 16*a*, having the recess 38, is provided with a bore 42 for reception of a tubular lubricant fitting 44*a*, the inner end of said lubricant fitting being received in the recess 38 in the adjacent end of the axle 16*a*. Lubricant forced into the fitting 44 passes into the bore 36 and thence into the spiral groove 40. The lubricant passes outwardly through the groove 40 and is restricted from further outward movement by the closer fit between the ungrooved outer end portions of the axle and the adjacent portions of the sleeve 25, although it is to be understood that some lubricant will pass on outwardly, but will be prevented from escaping by the sealing washer 31.

Automatic braking means is provided and comprises an externally threaded brake sleeve 44 secured on the handle 25 adjacent one end thereof. The brake sleeve 44 is secured by any suitable means such as a press fit, brazing, soldering, or the like. There is a brake member 46 which has an internally threaded axial bore, said brake member 46 being threadably disposed on the brake sleeve 44. Member 46 has an annular flange 48 with a free outer edge 50 which conforms to the shape of the adjacent portion of the wheel 10*a*. Means are provided for causing the brake member 46 to rotate with the wheel 10*a*, such means comprising pins 52 which are disposed in openings 54 provided therefor in the wheel 10. The pins 52 extend inwardly from the inner side of the wheel 10*a* and are slidably received in radial stops or openings 56 provided therefor in the brake member 46, said openings or slots being arranged so that the pins will not bind in said openings or slots should be sleeve or handle 25 be slightly off center relative to the axis of axle 16*a* when the device is used.

When the handle 25 is held and the device moved over a surface so that the wheel 10*a* rotates, the brake member 46 will rotate with the wheel and will be screwed toward or away from said wheel, depending on the direction of movement of the device. When the surface 50 of the brake member 46 engages the wheel 10*a*, it will prevent further relative rotation between the handle 25 and the wheel 10*a*, thereby stopping movement of the device.

When its is desired to use the device, or a pair of them, the user, with the brake member 46 against the adjacent wheel, places said device or devices the desired distance ahead of him and then rolls the device or devices toward him. The movement toward the user causes the brake member 46 to move away from the adjacent wheel. Now, when the user moves the device or devices forwardly, the brake member 46 will move toward the wheel and when the device or devices have reached the position from which they were rolled toward the operator or user, the brake member 46 will engage the adjacent wheel and automatically stop further forward movement. Thus the user is automatically prevented from strains which otherwise might cause unusual soreness or even undue stretching of muscles.

Under some circumstances it may be desirable to render the brake means inoperative. This may be effected by pushing the pins 52 outwardly so as they do not engage the brake member 46. It is to be noted that the length of the pins is such that said pins may be pushed into the wheel and not project from either end of the openings 54. When it is desired to reactivate the brake an instrument of suitable size is inserted into openings 54 and the pins pushed inwardly so they will project from the inner side of the wheel and into the openings 56 of the brake member.

The invention and many of its attendant advantages will be understood from the foregoing description and it will be apparent that various changes may be made in the form, construction, and arrangement of the parts of the invention without departing from the spirit and scope thereof or sacrificing all of its material advantages, the embodiments hereinbefore described being merely for purposes of illustration.

I claim:

1. In an exercising device: an axle; a somewhat resilient wheel for each end of the axle, each wheel having a cylindrical, axial recess extending inwardly from one side, said recess being closed at the inner end thereof, said recesses having enlarged outer end portions, respective end portions of the axle being received in said recesses; means securing said axle end portions in said recesses; and a tubular sleeve on said axle, said sleeve having end portions extending into the respective enlarged portions of said recesses, the internal diameter of the sleeve being slightly greater than the external diameter of the axle and the internal diameter of the respective enlarged portions of said recesses being greater than the external diameter of said sleeve an amount greater than the difference between the external diameter of the axle and the internal diameter of the sleeve, so that said sleeve may ride on said axle without riding on the inner annular walls of said enlarged portions of said recesses.

2. In an exercising device: an axle; a wheel for each end of the axle, each wheel having a cylindrical, axial recess extending inwardly from one side, said recess being closed at its inner end and having an enlarged outer end portion, respective end portions of the axle being received in said recesses of said wheels; means securing said axle end portions in said recesses; and a tubular sleeve on said axle, said sleeve having end portions extending into the respective enlarged portions of said recesses, the internal diameter of the sleeve being greater than the external diameter of the axle and the internal diameter of the enlarged portions of said recesses being sufficiently greater than the external diameter of said sleeve so that said sleeve is supported by said axle without riding on the inner annular walls of said enlarged portions of said recesses.

3. In an exercising device: an axle; a somewhat resilient wheel for each end of the axle, each wheel having a cylindrical, axial recess extending inwardly from one side, said recess being closed at the inner end thereof, said recesses having enlarged outer end portions, respective end portions of the axle being received in said recesses; means securing said axle end portions in said recesses; a tubular sleeve on said axle, said sleeve having end portions extending into the respective enlarged portions of said recesses, the internal diameter of the sleeve being slightly greater than the external diameter of the axle and the internal diameter of the respective enlarged portions of said recesses being greater than the external diameter of said sleeve an amount greater than the difference between the external diameter of the axle and the internal diameter of the sleeve, so that said sleeve may ride on said axle without riding on the inner annular walls of said enlarged portions of said recesses; and brake means for holding the axle and sleeve against rotation relative to each other.

4. In a rollable exercising device: a cylindrical axle; a wheel secured to each end of the axle and held against rotation relative to said axle; and a tubular resilient sleeve on said axle, said sleeve having internal, longitudinally extending peripherally spaced ribs, the free inner edges of which slide on the surface of said axle when the sleeve is normally held for rolling the device, said

ribs frictionally engaging the axle and stopping rotation of the axle and sleeve relative to each other when said sleeve is squeezed.

5. In an exercising device adapted to be rolled over a supporting surface: an axle; a wheel secured to each end of the axle; a tubular handle on said axle, said handle and axle being rotatable relative to each other; and a brake comprising an externally threaded sleeve secured against rotation on said tubular handle and adjacent to but spaced from one wheel; a movable brake disc threadably mounted on said threaded sleeve; and connecting means interconnecting said brake disc and adjacent wheel whereby said wheel and brake disc rotate together, said means permitting said brake disc to move toward and away from said adjacent wheel when there is relative rotation of said wheel and the handle.

6. The invention defined by claim 5, wherein said connecting means may be actuated to a position whereat said adjacent wheel and brake disc are disconnected from each other.

7. The invention defined by claim 5, wherein said adjacent wheel has a pair of openings therein parallel to the axis of the wheel and diametrically arranged, and

the brake disc has corresponding radial slots therein, and there are pins in the openings in said wheel and in said slots whereby there is simultaneous rotation of the wheel and brake disc, said pins being movable into the openings in the wheel to positions whereat they are out of the slots, said openings, slots and pins constituting the said connecting means.

8. The invention defined by claim 3, wherein the axle has an external spiral lubricant groove and a lubricant passage from one end connected to said groove; a lubricant fixture in the wheel at said one end connected to the adjacent end of said passage so that lubricant cannot enter the recess in which said one end of the axle is received; and lubricant seals at the respective ends of the tubular sleeve.

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