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L. YOVANOVITCH

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SPRING-LOADED GYMNASTIC HANDLE

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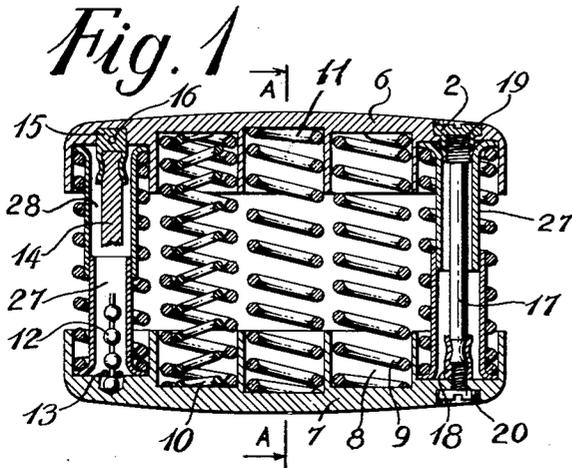


Fig. 2

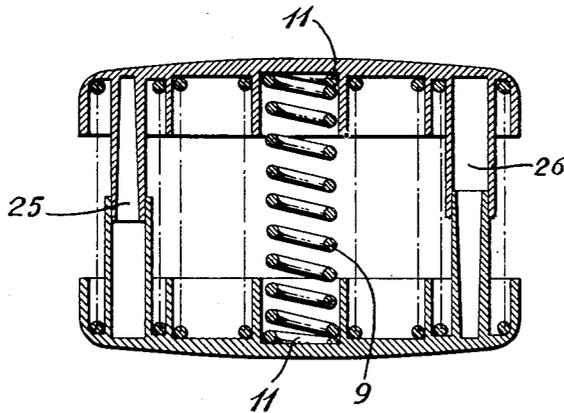
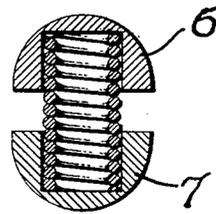


Fig. 3

Fig. 4

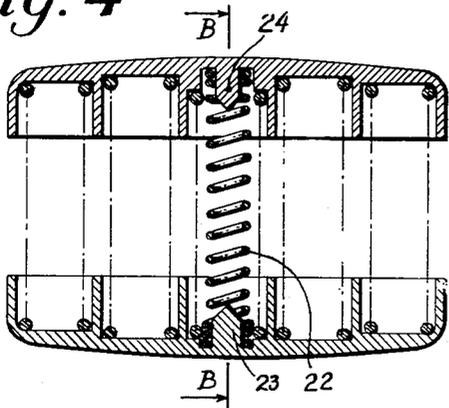
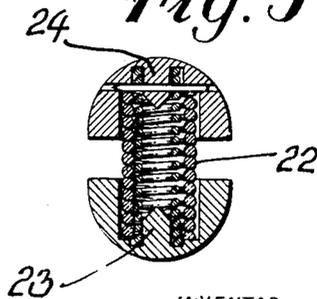


Fig. 5



INVENTOR
Lazare YOVANOVITCH
BY

[Signature]

ATTORNEYS

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SPRING-LOADED GYMNASTIC HANDLELazare Yovanovitch, 71 St. Elisabeth St., Longueuil,
Quebec, Canada

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1 Claim. (Cl. 272—68)

This invention relates to a spring loaded gymnastic handle. Presently available spring-loaded gymnastic handles that are used to develop the strength of forearms are generally bulky and heavy, and one cannot very well keep them in his side-pockets to do his exercises unnoticed, for example while taking a walk.

On the other hand, in the bending-compressed types, it is impossible to vary or to adjust the resistance of the single loop-spring, the travel of which is too long for the small finger and too short between the index and the thumb, or vice versa; while in the parallel-motion and rigid-telescoping types with prestrained springs, the two plates, in their movement of translation, do not follow the almost rotary movement which would suit the natural folding of the fingers, and this is the source of a painful compression or crushing of the skin which frequently causes internal inflammation. Moreover, the resistance of prestrained springs in these models is almost uniform during the entire closing movement of the handle; this requires a big initial effort while a progressive initial pressure would suit better, from the physiological standpoint, the work of human muscles. As regards the assembling and disassembling of the models presently on the market, it is a difficult and unpractical job which requires the use of tools, and it is very often impossible for the owner to do the work. Finally, current models are not noiseless and their protuberances sometimes harm gymnasts doing complicated arm movements.

I have found that these disadvantages may be overcome by reducing the excessive length of the apparatus to not more than the width of the hand, while making very close and deep recessed holes in the plates. Those holes serve at the same time as sliding holes for the helical springs, which allows plates to follow with the required flexibility the anatomical folding of the fingers; each plate is provided at one end and the center of the recessed hole with a male telescoping part, and at the other end with a female telescoping part, both of which telescope with the same elements of the other plate. Furthermore, it is possible to give to the handle an increased total resistance by the setting inside the main springs a number of additional springs inversely coiled, which permits to suit the same apparatus to a child's needs as well as to those of an athlete. On the other hand, by making the connecting means of the two plates with an elastic substance, or with a flexible substance allowing a slight elasticity, it is possible to eliminate the noise at the end of the extension stroke, which makes it possible to do the exercises without noise, for example in side-pockets during wintertime in order to improve the circulation of the blood and to keep hands warm. Finally, as springs are not necessarily prestrained, they offer a high resistance when totally compressed so the effort needed to compress them is progressive, which perfectly suits our organs and avoids any inflammation of internal tissues. This way, in doing the exercises, one can limit himself first to slight efforts, then increase gradually until springs are compressed to their maximum. Such a gymnastic apparatus is therefore suited to all persons whatever their age and their strength. The assembling and disassembling is quick, economical and can be done without any tool.

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In drawings which illustrate embodiments of the invention:

FIGURE 1 is a lengthwise section of a handle offering in part various solutions.

5 FIGURE 2 is a cross-section A—A (FIG. 1) of the handle when compressed,

FIGURE 3 is a lengthwise section of the handle with other varied solutions,

10 FIGURE 4 is a lengthwise section of the handle offering in part various other solutions,

FIGURE 5 is a cross-section B—B of the handle when compressed.

The gymnastic handle illustrated comprises two plates 6 and 7 of almost semi-ellipsoidal shape, comfortably suited to the palm of the hand. A series of recessed holes set very closely 8 are made on the flat side; they receive the compression helical springs 9 which connect the two plates.

15 The handle can be made resistant to compression by placing additional helical springs 10 inversely coiled and located inside the main springs 9.

To connect springs and plates so as to avoid their unexpected separation, various means can be resorted to, for example: by slightly increasing or reducing the diameter of the terminal end coils 11 of at least one of the main springs 9 and by jamming them at the bottom of the recessed holes; or by connecting to each plate at least one connecting tightener such as the beaded chain 12 attached by way of a double pin 13; or by a braid 14 set at both ends in connecting sleeves 15 and fastened by a transversal pin 16; or by a rubber part 17 set at both ends in thimbles 18, 19 fastened with screws 20, 21; or still by means of an extension spring 22 inserted by self-tightening on a teat 23 at the bottom of the hole 8 or by a transversal pin 24; or the plates could be connected by other flexible means of similar type.

So as to avoid deflection fatigue to the springs, each plate could be supplied, at the bottom of the end holes 8 with a male telescoping part 25 and with a female telescoping part 26, preferably made of a slightly flexible substance and telescoping with the corresponding parts in the other plate without serving as means of connection for the apparatus. Telescoping parts of some other shape, for example the male 27 and the female 28 parts made of tubular material, could be freely added to the plates without serving as a means of connecting them. In such case, the assembling and disassembling of main and additional springs is quickly and easily made: by separating the plates beyond their normal position, the wider terminal end coil of the connecting spring 11 comes out of the hole 8; or still by extending more the elastic connecting tighteners, the springs are set free and it is possible to choose the desired tension.

55 Even if some specific forms of the invention have been illustrated and described herewith, there are of course changes that could be made in the building of the invention as long as no deviation is made from the meaning of the invention as defined in the following claim.

60 The embodiment of the invention in which an exclusive property or privilege is claimed are defined as follows:

65 A gymnastic handle of the spring-loaded type consisting of two identical elongated and spaced apart parallel end plates placed in mirror image positions and adapted to be moved towards one another, the outer faces of which are shaped so as to conform to the palm of the hand and the inner opposed faces of which are flat and bear a number of symmetrically disposed recesses adapted to receive the end portions of a number of heli-

cal springs; said recesses opening into the plane of the two flat faces and having their longitudinal axis at substantially right angles to the plane of the said flat faces; co-operating telescoping rod and sleeve guiding elements moulded into said plates as integral parts thereof and perpendicularly centrally depended from the bottoms of at least two of the recesses of each end plate for guiding said plates in their movements towards one another; said helical springs surrounding said co-operating elements and having an outer diameter slightly larger than the diameter of said recesses so as to be frictionally held

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therein; said springs thus serving as interconnecting members between said opposed plates.

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