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L. PELLETIER & G. MONIER, JR.

EXERCISING MACHINE.

APPLICATION FILED JAN. 11, 1904.

NO MODEL.

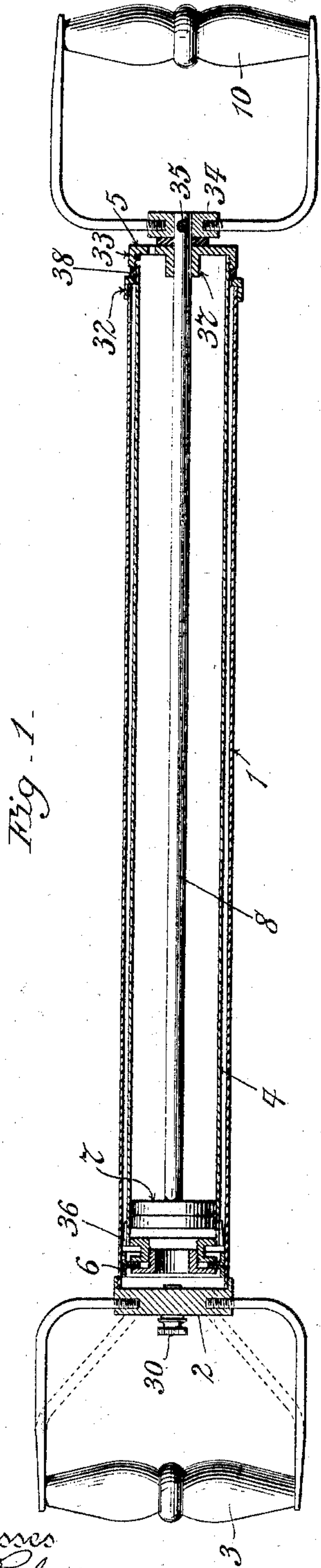


Fig. 1.

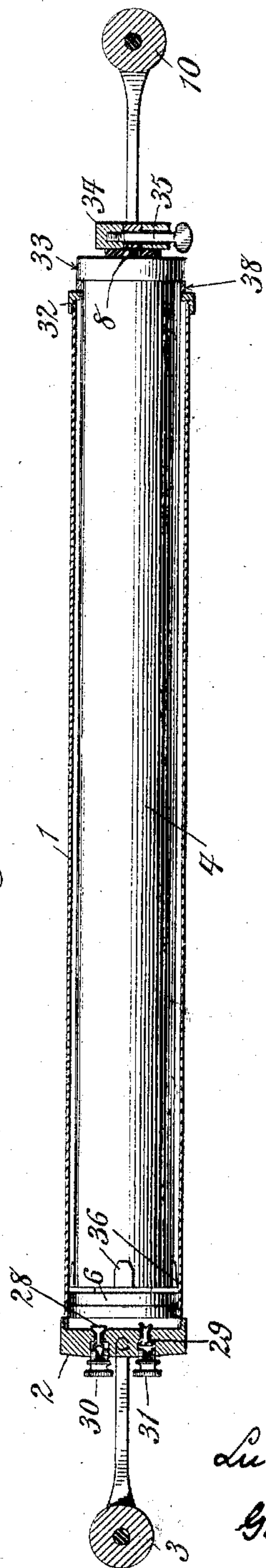


Fig. 2.

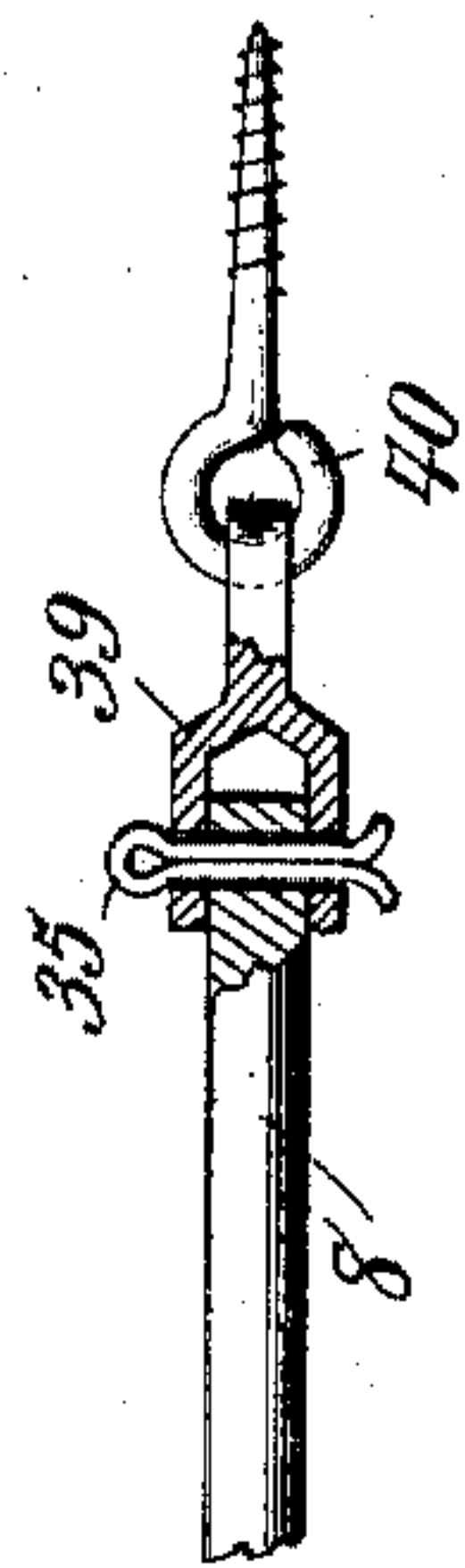


Fig. 3.

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UNITED STATES PATENT OFFICE.

LUCIEN PELLETIER AND GASTON MONIER, JR., OF PARIS, FRANCE,
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EXERCISING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 767,008, dated August 9, 1904.

Application filed January 11, 1904. Serial No. 188,524. (No model.)

To all whom it may concern:

Be it known that we, LUCIEN PELLETIER and GASTON MONIER, Jr., citizens of the Republic of France, residing in Paris, France, have invented a certain new and useful Improvement in Pneumatic Exercisers, of which the following is a specification.

The present invention has for its object the protection of an improved form of exerciser for the home, for schools, or for gymnasiums, which has the advantages of simplicity and of adjustment for different resistances and at the same time affords means for exercising of more than one set of muscles at a time by reason of the fact that it opposes resistancy to movement in both directions or, in other words, to compression as well as to extension.

While our invention may be embodied in many different constructions, we prefer the form shown as an example in the accompanying drawings, wherein—

Figure 1 is a longitudinal section of our exerciser. Fig. 2 is a similar section of the same, but taken at right angles to the plane of section of Fig. 1 and with the inner cylinder shown in plan instead of section; and Fig. 3 is a partially sectional view of one of a variety of modes of attachment adapted to the use of our device.

The embodiment of our invention shown in the drawings consists of a metallic cylinder 1, having a head 2 at one end, to which the handle 3 is attached, within which cylinder is a second cylinder 4, having a head 5 adapted to slide back and forth. The inner end of the cylinder 4 is provided with appropriate packing 6, which produces a virtually air-tight contact with the interior of the cylinder 1.

The packing 7 forms a piston on the end of a piston-rod 8, sliding air-tight within the cylinder 4. As shown in Fig. 1, the head 5 is preferably perforated, so as to admit of free escape of air when the piston 7 is moved to the right. Through the center of this head 5 the piston-rod 8 passes, and the handle 10 is attached to the outer end of a head 34, fixed to the end of the rod 8 by means of the

pin 35, which passes through both the head and the piston-rod.

The head 2 on the cylinder 1 is pierced at two points for exit and entrance of air, and in the openings so formed are placed valves 28 and 29, so seated as to close, respectively, toward the left and toward the right in Fig. 2. We prefer to make these valves of metal and with their tops or smaller ends split, so as to permit of such ends being spread apart after the valves have been put in place, so as to prevent their falling out. This is shown in Fig. 2.

Immediately above the two valves 28 and 29 there are placed two adjusting thumb-screws 30 and 31, the threaded stems of which are cut away in wedge shape, so that as the screws are turned in or out less or more opening is afforded for passage of air. This affords a preferred means for the adjustment of the resistance to movement of our exercisers.

The threaded sleeves 32 and 33 are screwed onto the right-hand ends of the cylinders 1 and 4, respectively, and these afford limit-stops for the outward movement of the parts. Cushions of rubber or other appropriate material can be interposed between parts which would otherwise create noise when coming together, and this is shown at 38 in Figs. 1 and 2. The projections 36 on the outside of the cylinder 4 serve to prevent contact between two cylinders and also to stop outward movement by contact between 32 and 36, so as to prevent jamming of the packing 6. The head 5 on the cylinder 4 is preferably provided with an interior guiding-sleeve 37, which is preferably made long enough to stop outward movement of the piston-rod 8 before the packing 7 is allowed to jam against the head 5.

It will be clear from the above description that this apparatus can be used by taking the handles 3 and 10 in the two hands and pulling outward and pushing inward alternatively. When the handles are pulled apart, a vacuum will tend to form within the cylinder 4 and also within the cylinder 1 behind the packing 6. This will cause a rush of air inward

through the valve 28, and the degree of contraction of the opening afforded by the adjusting-nut 30 will determine the resistance to extension of the device in any case. In the same manner the compression of air within the instrument on bringing the parts together again will be more or less effective in resisting the action of the muscles in proportion as the opening afforded by the valve 31 is less or greater. Thus a proper resistance can be secured for both movements of the arms, and each movement can be separately adjusted independently of the other.

Where it is desired to use this device for the exercise of one arm alone, the handle 10 can be removed from the body 34 by removing the pin 35 and attaching the rod 8 to the socket 39 by means of the pin 35. This socket is so arranged, as shown in Fig. 3, as to permit pivotal movement of the rod 8 around the pin 35, and is so mounted on the curved head of the staple 40 as to admit of circular movement at right angles to the movement around the pin 35. It is thus clear that by screwing the staple 40 into any convenient support a universal motion at the attachment can be secured and freedom of the action of the device will result.

We do not restrict ourselves in our claims to the preferred forms of device above shown and described, since a variety of means will occur to those skilled in the art whereby two or more telescoping objects can be so combined

with appropriate openings as to oppose a desired amount of resistance to extension and contraction, and it is this field which we believe should be covered by our claims.

What we claim is—

1. In a pneumatic exerciser of the class described, an exterior cylinder, an interior cylinder sliding air-tight within the exterior cylinder, a perforated head on the exterior cylinder, and a valve in each perforation in said head, each valve having one end split and separated for holding the valve in place, substantially as described.

2. In an exercising device, an exterior cylinder having a perforated head and an interior cylinder fitting air-tight within the exterior cylinder and having a perforated head and air-tight piston within the interior cylinder, a piston-rod attached to said piston and extending outside of both cylinders, a handle on the exterior cylinder and a handle on the piston-rod, substantially as described.

3. In an exercising device two telescoping parts and a handle fixed to one of them by means of a socket and removable pin, substantially as described.

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