(No Model.)

# L. F. SMALL.

## GYMNASTIC APPARATUS.

No. 403,703. Patented May 21 1889.

Fig. 1,

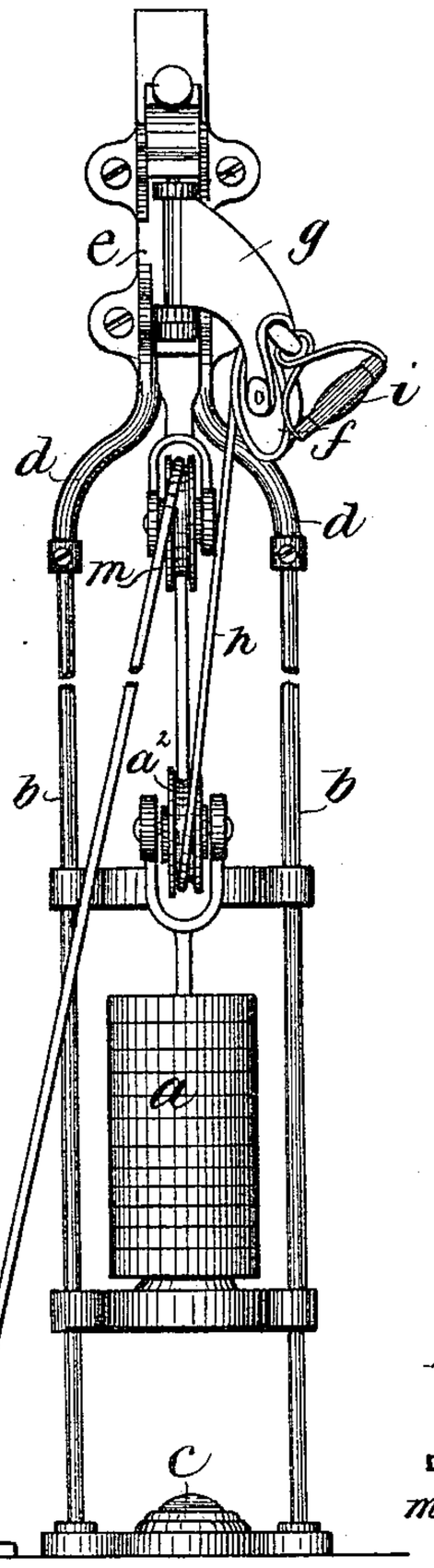



Fig. 2,

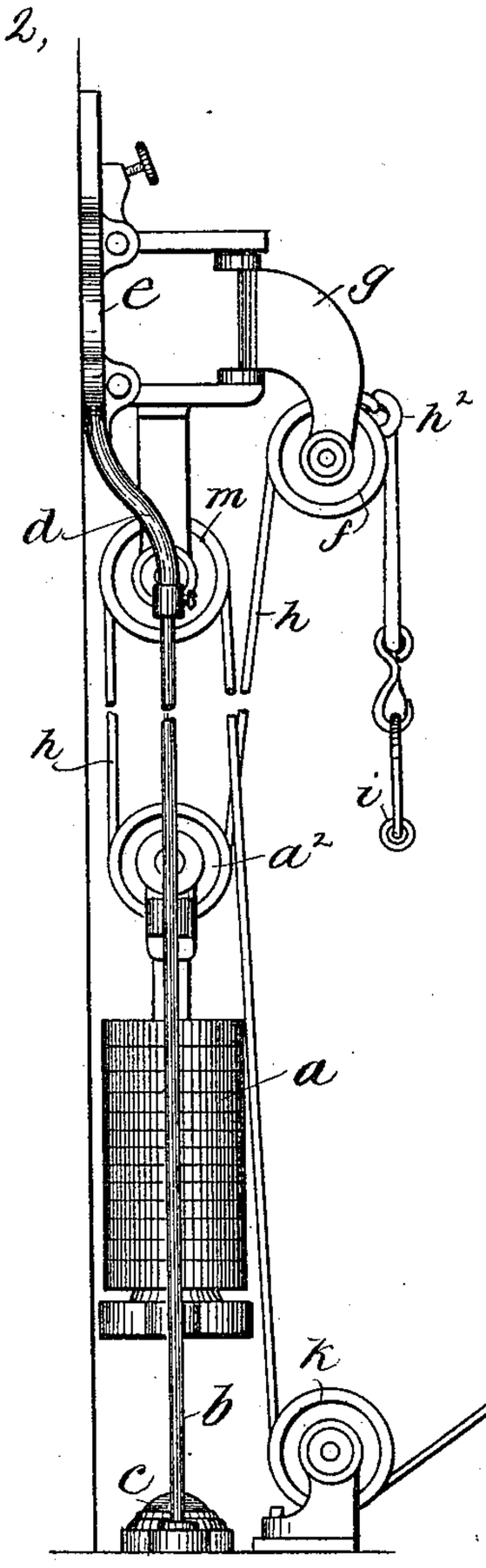
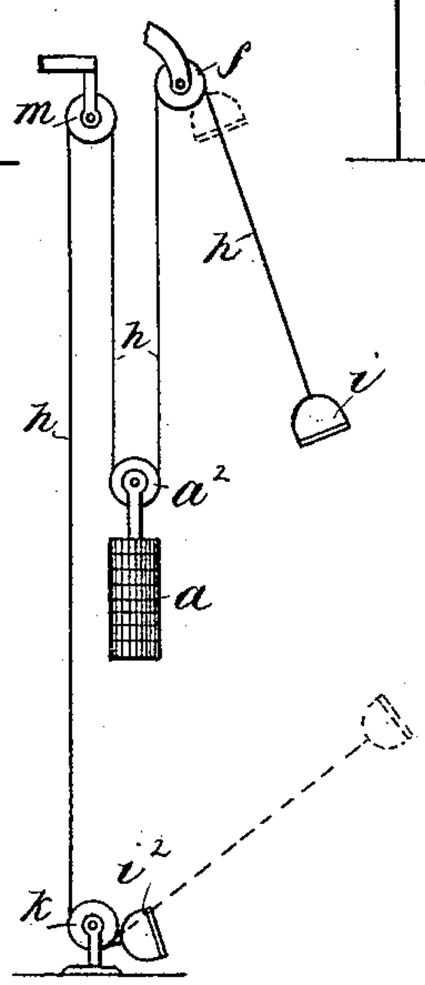



Fig. 3.




Witnesses.
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# UNITED STATES PATENT OFFICE.

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## GYMNASTIC APPARATUS.

SPECIFICATION forming part of Letters Patent No. 403,703, dated May 21, 1889.

Application filed March 1, 1889. Serial No. 301,645. (No model.)

*To all whom it may concern:*

Be it known that I, LEWIS F. SMALL, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Gymnastic Apparatus, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention relates to a gymnasium apparatus of that class in which a weight is raised by the action of the arms or other part of the human body for the purpose of exercising the muscles, the said weight being raised or operated by a cord which is carried over and guided by pulleys in such manner that the handle or operating part may be moved in various directions in order to call the desired muscles into action.

In the various uses of apparatus of this kind it is desirable that the operating-cord may be operated at different levels—as, for example, over a pulley near the level of the operator's shoulder when standing, and at other times may run over a pulley near the floor, for exercising the muscles of the legs when standing, or for exercising the muscles of the arms and body while the operator is lying upon the floor, or for using the weight as a rowing-weight, and in apparatus of this kind as heretofore commonly made for embodying both such uses it has been necessary to shift the cord from the upper or shoulder pulley to the lower or floor pulley, and to make other changes in the attachment of the cord when the floor-pulley is to be used after the shoulder-pulley has been in use, and the reverse. The necessity for such changes renders a combined apparatus unfitted for use in public gymnasiums, owing to the time required to make the changes, and also owing to the danger of injuring or throwing the apparatus out of order by inexperienced persons, and it has consequently been customary in gymnasiums to use separate apparatus with floor-pulleys from that of the shoulder-pulleys, although apparatus has been used to some extent in private gymnasiums or for home use in which the same cord has been shifted from a floor to a shoulder pulley, and the reverse.

The object of the present invention is to provide a single apparatus having both floor and shoulder pulleys and co-operating cord-guides so arranged that when the weight is at its lowest position one end of the cord is at the floor-pulley and the other end is at the shoulder-pulley, and either of said ends may be employed to raise or operate the weight, so that the apparatus is at all times ready to be operated either from the floor-pulley or from the shoulder-pulley.

Figure 1 is a front elevation of a gymnasium apparatus embodying this invention; Fig. 2, a side elevation thereof, and Fig. 3 a diagram view for more clearly illustrating the operative relation of the various parts.

The weight *a* and guiding-uprights *b* therefor, supported at their lower end in a base-piece, *o*, and at their upper ends in arms *d* of a bracket, *e*, may be of usual construction, said base-piece and upper bracket being shown in the drawings nearer together than they are in actual practice, as the said bracket *e* is commonly located at a distance of four or five feet above the floor, or about at the height of the shoulder of the user. The said bracket *e* also supports a cord-guiding pulley, *f*, connected with a swiveled arm, *g*, so as to permit the cord *h* to run freely over said pulley in any direction. The said cord *h*, which is provided outside the said pulley *f* with a handle, *i*, for the operator, or with means for attaching such a handle, is extended from said pulley *h* over a pulley, $a^2$, connected with a frame of the weight *a*, and in apparatus of this kind as heretofore made the said cord after passing over the pulley $a^2$ has usually been made fast at the bracket *e*, or in some cases has been carried up to the said bracket *e*, and passed through an eye or over a hook at said bracket, and then carried down to the floor and made fast, and in all apparatus, so far as known to me, that portion of the cord beyond the pulley $a^2$ on the side leading away from the handle *i* has been made fast and incapable of running over guides in the operation of the apparatus. In such apparatus as heretofore constructed, when it is desired to use the weight with a floor-pulley such as shown at *k*, the fast or standing end of the cord, which is then fastened at the floor, is cast off or released, and again made fast at the upper bracket *e*, thus letting a length of rope run out over the pulleys *f* and $a^2$, so that the handle *i* will drop nearly to the floor, and the

end of the rope near said handle *i* when thus dropped is passed over the floor-pulley *k* and used to operate the weight *a*, and when the handle is again to be operated at the upper or shoulder pulley the reverse operations have to be gone through with. In order to obviate the necessity of such shifting of the rope, the apparatus is in accordance with the present invention provided with an intermediate guide-pulley, *m*, located above the upper end of the traverse of the weight *a*, and preferably, as shown in this instance, supported on the upper bracket, *e*, and from the said guide-pulley the cord is carried down and over the floor-pulley *k*, and provided with a second handle, $i^2$, or with a snap-hook or other suitable means for readily attaching a handle of any desired character.

The handles *i* and $i^2$ at the opposite ends of the rope form stops; or, in case it is desired to detach the said handles, the snap-hooks or other attaching devices constitute stops; or the rope is knotted or enlarged at or near its end, as shown at $h^2$, so as to constitute a stop that cannot stop the pulley *k* or *f*, so that it holds either end of the rope while the other end is being used for operating the weight.

Instead of having the stop for the rope engage with the pulley *k* or *f*, either end of the rope might be otherwise fastened so as not to run in over the corresponding pulley while the other end was being used to operate the weight, it being necessary only that the ends of the rope should be prevented from running in over the corresponding pulleys beyond a predetermined point, although either end is free to run out of the pulley and to play back and forth over the same in raising and lowering the weight.

By this construction and arrangement the apparatus is at all times ready to be used with the operator working the handle from the upper or shoulder pulley, as shown in full lines, Fig. 3, while the handle or projection from the lower or floor pulley merely operates as a stop or fastening for the other end of the cord; or the apparatus may be operated from the lower or floor pulley, as shown in dotted lines, Fig. 3, while the upper handle and shoulder pulley constitute a fastening for the upper end of the cord, either of said operations being performed as desired without requiring any change or preparation of the apparatus. The length of the cord should be such that when the weight is in its lowest position the entire length of the cord between the upper and lower pulleys *f* and *k* is taken up in passing from one to the other and over the various pulleys or guides.

It is obvious that both ends of the cord may be operated at the same time, if desired, it being necessary only that the total amount drawn out over the pulleys at both ends should be less than double the maximum traverse of the weight. In this apparatus the entire cord passes over pulleys or running guides, so that either end may be used at will, while in prior apparatus the cord extending in one direction from the weight-pulley has been made fast and only the portion leading from the other side of said pulley has been supported on running guides, so that it could be used to operate the weight.

The entire apparatus represented in Fig. 1 will usually be duplicated or arranged in pairs, so as to be operated by both hands of the user at the same time.

I claim—

1. A gymnasium apparatus comprising upper and lower pulleys and a weight combined with a cord, the ends of which are provided with stops at or near said upper and lower pulleys, and intermediate running cord guides, whereby either end of said cord may be operated while the other end is held by its stop, substantially as and for the purpose described.

2. The combination of a weight and pulley connected therewith with a cord-guiding pulley above the upper end of the path traversed by said weight, and additional pulleys at the upper and lower levels, from which the said weight is to be operated, combined with a cord extending continuously and free to run over all of said pulleys and capable of operation from either end to raise and lower said weight, substantially as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LEWIS F. SMALL.

Witnesses:
JOS. P. LIVERMORE,
M. E. HILL.