

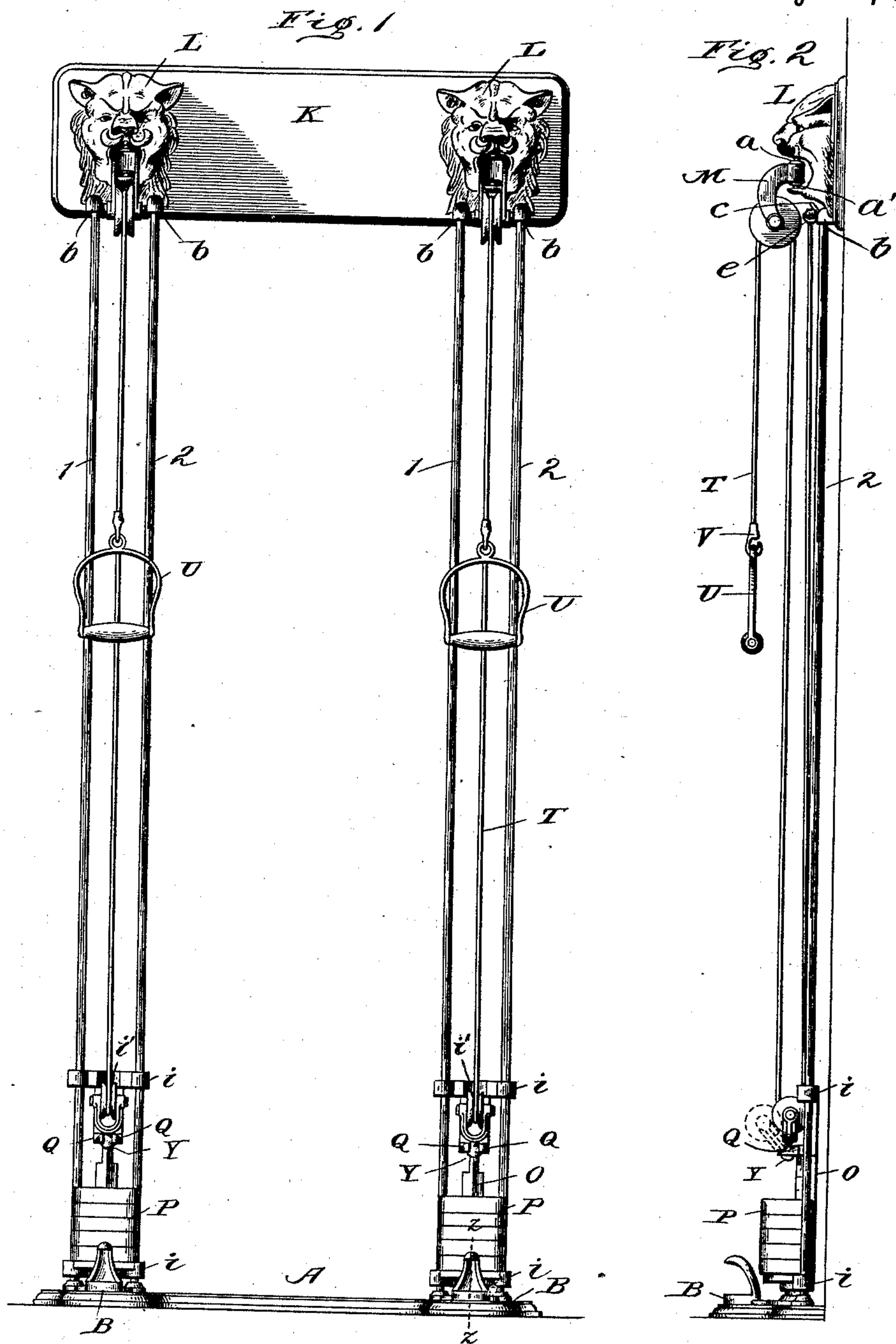
(No Model.)

2 Sheets—Sheet 1.

E. GRAUERT.
EXERCISING APPARATUS.

No. 522,891.

Patented July 10, 1894.



Witnesses

Edwin L. Bradford
Curtis Hammond

Inventor

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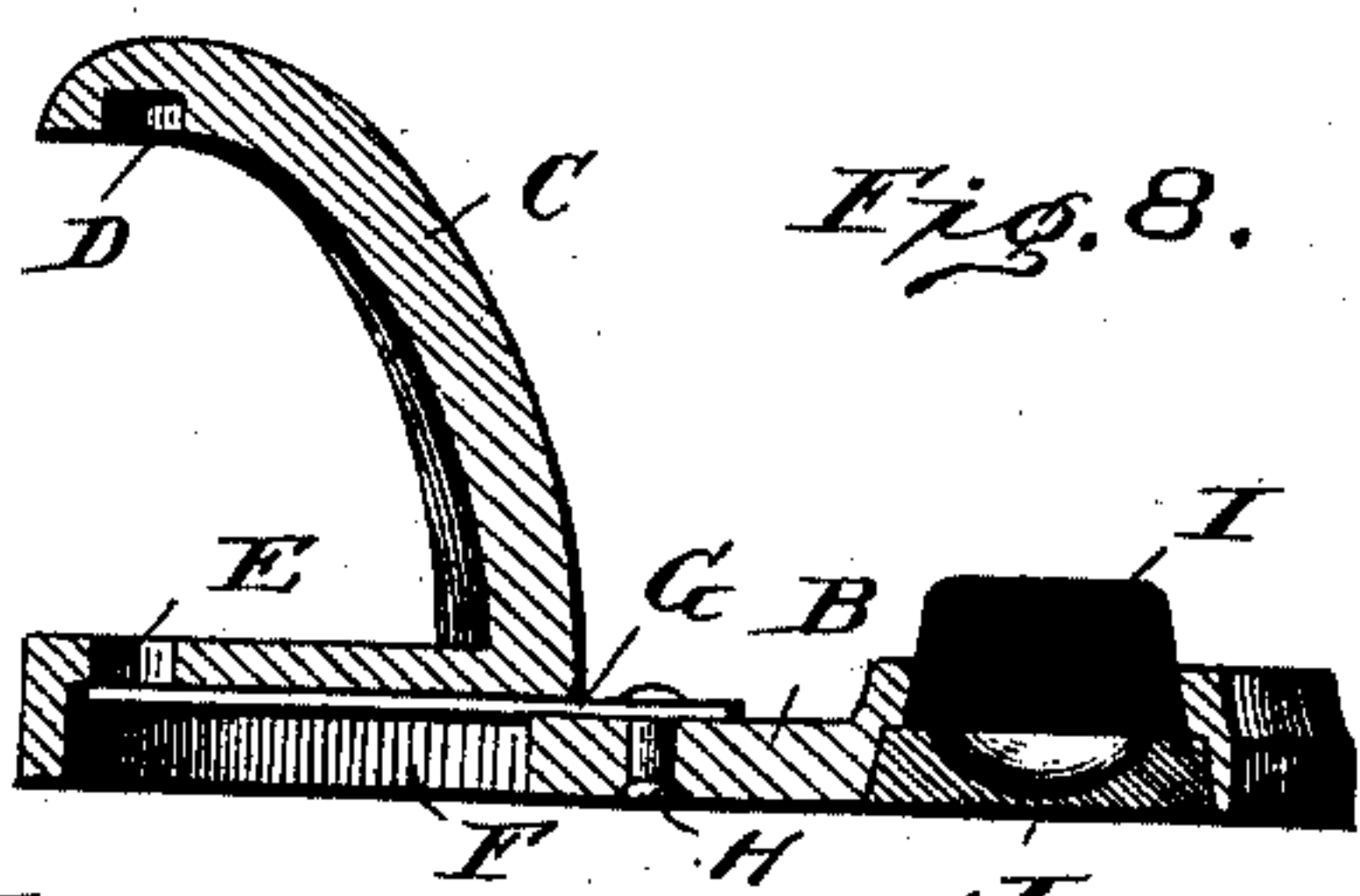
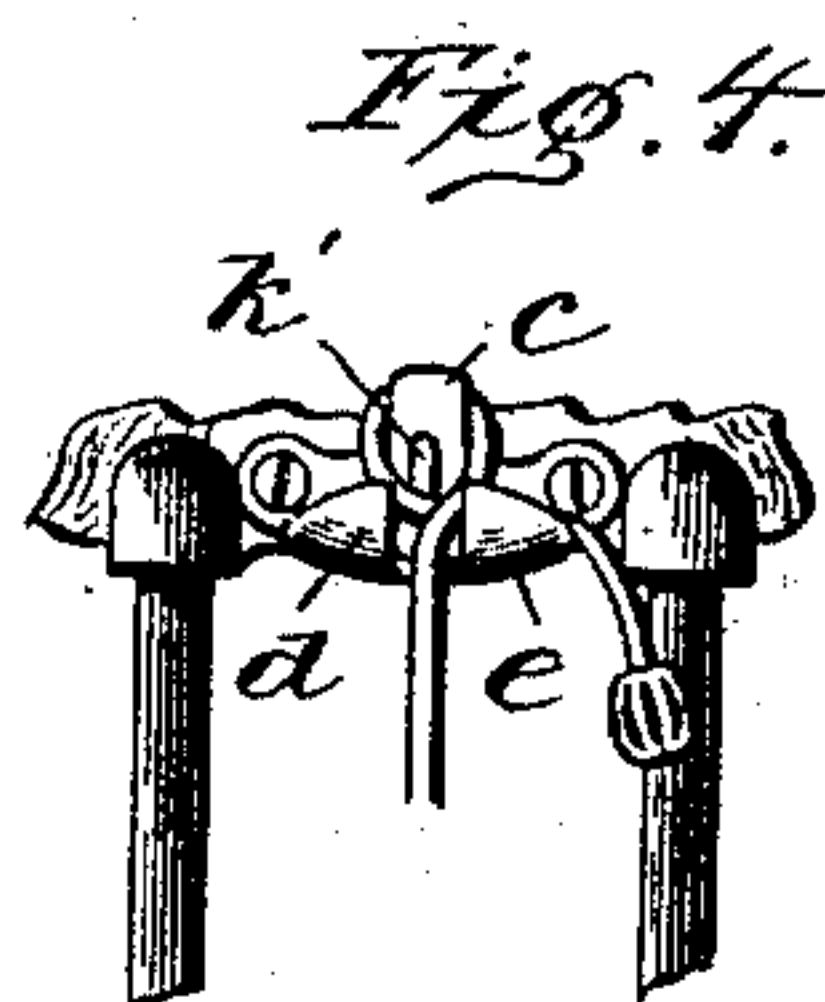
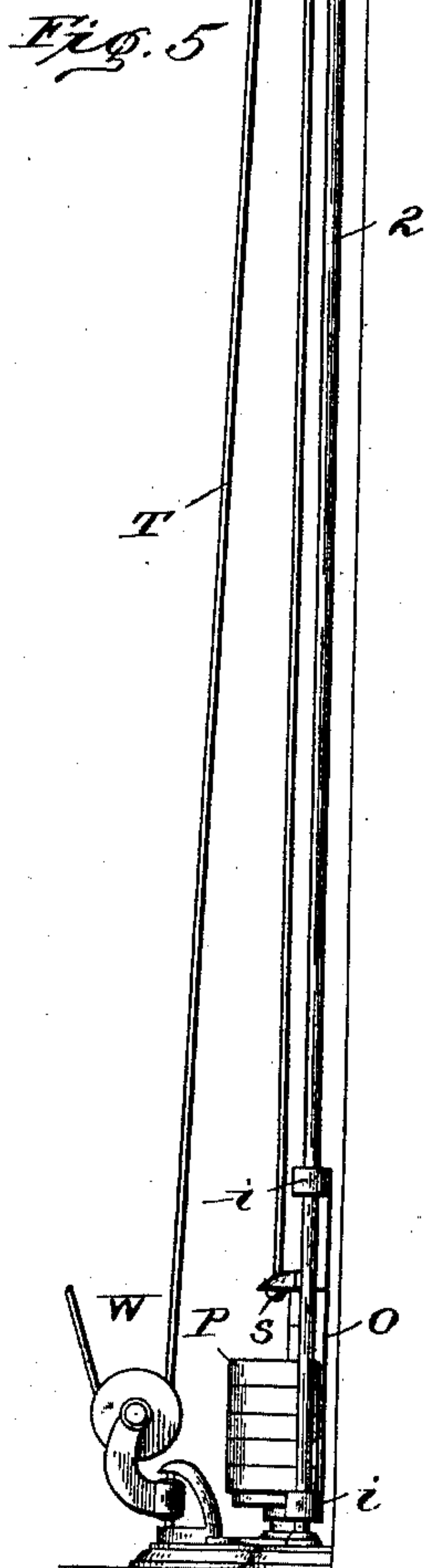
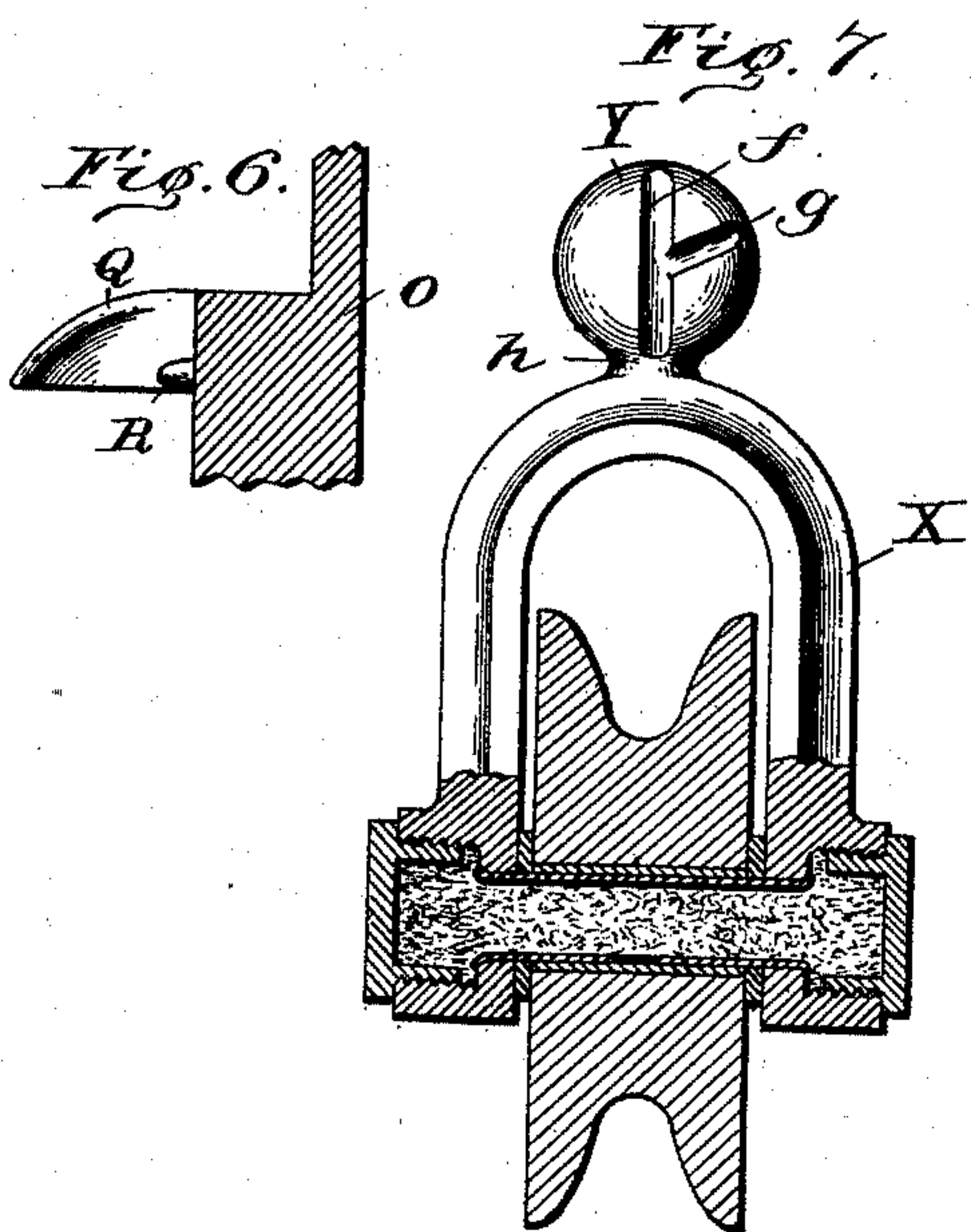
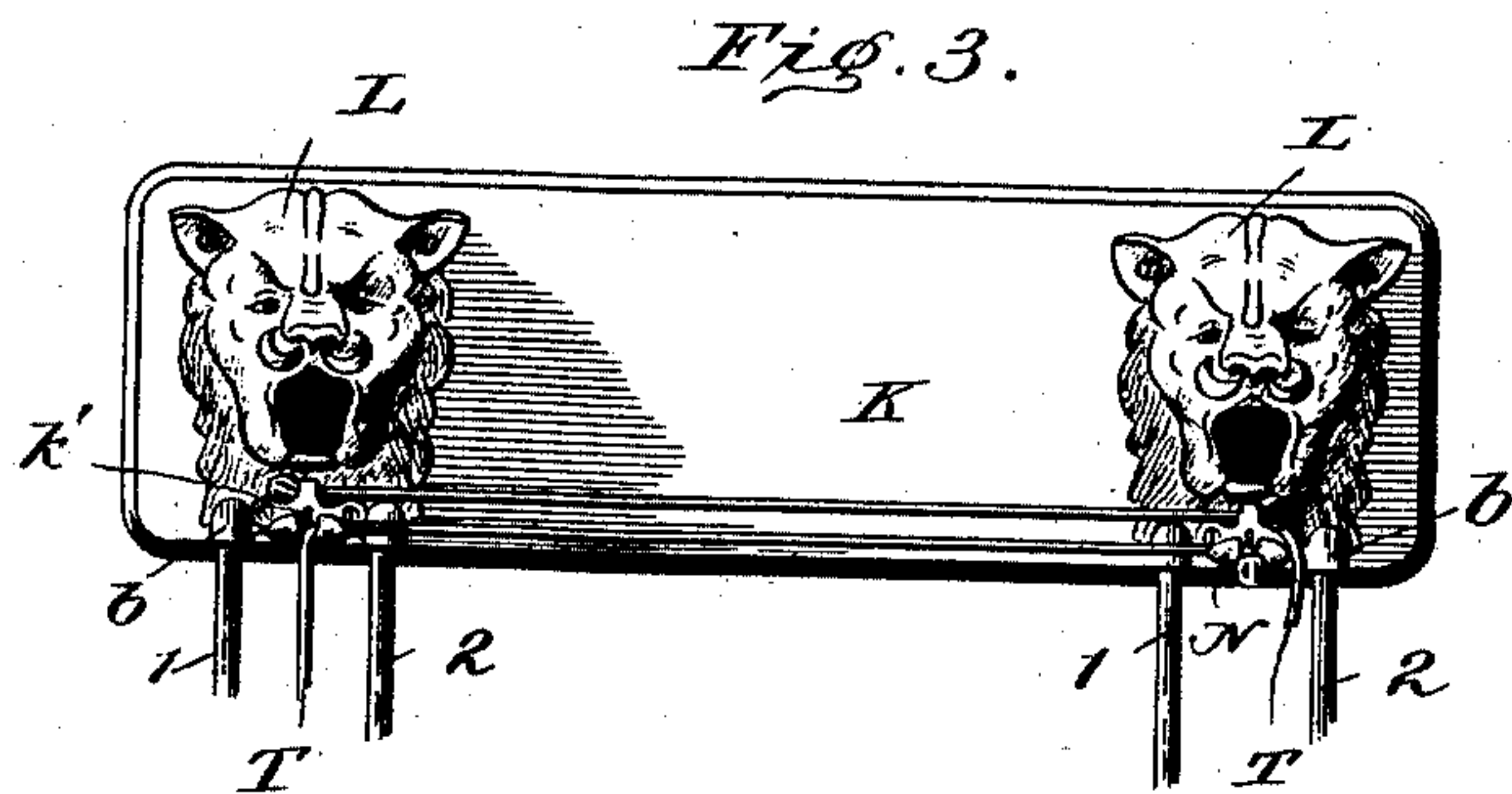
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UNITED STATES PATENT OFFICE.

EDGAR GRAUERT, OF NEW YORK, N. Y.

EXERCISING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 522,891, dated July 10, 1894.

Application filed December 27, 1892. Serial No. 456,409. (No model.)

To all whom it may concern:

Be it known that I, EDGAR GRAUERT, a subject of the King of Prussia, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Exercising Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that class of exercising apparatus in which the resistance to be overcome consists of a vertically movable weight carrier adapted to be loaded to any extent with removable weights, said weight carrier being attached at its upper end to a cord or rope traveling around suitable pulleys and provided with a handle.

My invention has for its objects simplicity and economy of manufacture and the ready convertibility of the machine to uses in different ways; and with these ends in view my invention consists of the details of construction and arrangement of parts by which the objects sought are obtained, as will be hereinafter fully explained.

In order that those skilled in the art to which my invention appertains may fully understand the construction, advantages and mode of using the same I will proceed to describe my invention referring by letters and figures to the accompanying drawings, in which—

Figure 1 is a front elevation of a double apparatus embodying the features of my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a front view similar to Fig. 1, but showing only the top portion with the pulleys removed and exposing a different way of fastening the ends of the ropes so as to bring the handles nearer the top of the apparatus. Fig. 4 is a similar view of one side only of the apparatus, showing another way of shortening and locking the rope. Fig. 5 is a view similar to Fig. 2, but with the pulleys as shown in Fig. 2 reversed, and the end of the rope locked near the bottom instead of the top, thus providing for an upward pull upon the handle. Fig. 6 is a central vertical section through the lower pulley support on the weight carrier. Fig. 7 is a rear plan view, partially in section, of the lower pulley, the sec-

tion showing the manner of journaling the pulleys in their frames or hangers. Fig. 8 is a central vertical section taken at the line z , z , Fig. 1.

Similar letters and numerals of reference denote like parts in the several figures.

A represents a foot board or platform of any desired design having secured thereon, by screws, rod and pulley supports B, of the form most clearly shown in Fig. 8, and consisting of a casting having a forwardly projecting curved arm C, the upper end of which is provided with a vertical recess D, the casting B having a similar recess E adapted to receive the ends of the upper pulley frame or hanger, as will be hereinafter explained. The casting B, underneath the arm C, is formed hollow or with a recess F, which is bridged by a flat spring G passing through a channel between the arm and base, and secured in place by a screw or rivet H so that the spring constitutes a yielding bottom to the channel E.

I is a rubber bumper located within an oblique walled recess in the rear portion of the casting B and seated upon a metal block J having a cup-shaped depression in its top surface and placed from the under side in a pocket in the casting B in such manner that the base of the bumper I bridges the cup-shaped space, and as a result such cup-shaped space serves as an air cushion and deadens the sound of the falling saddle and its weights.

The purpose of the recesses D, E and spring G, is to permit the round ends or journals of the upper pulley frame or hanger to be seated rotatably therein, the spring G being only sufficient to sustain the weight of the pulley and its frame the latter becomes a gravity pulley in substantially the manner that it is a gravity pulley when located at the top, as will be hereinafter explained. The lower casting B is also formed with suitable recesses to receive the lower ends of the guide rods 1, 2, as clearly shown at Fig. 1.

K is a wooden support for the upper castings L, L, which may be made of any pleasing general design; they are however formed with upper and lower recesses as most clearly shown at Fig. 2 to receive the journals a , a' of the upper pulley frame M. The upper journal a of the pulley frame is longer than the lower journal a' , and the upper journal recess

in the casting L is of such length that the journal *a* of the pulley frame may be first thrust upward within its recess to such an extent that the lower journal *a'* may be located within the lower recess, and into which it falls by gravity in an obvious manner. The casting L is also formed with pockets *b, b'*, to receive the upper ends of the guide rods 1, 2, and with a compound hook N having three horns *c, d, e*, (see Fig. 4) all having a forward and upward curve as clearly indicated in Figs. 2 and 5.

The upper support K and lower foot board A are held and supported in proper relation to each other by the guide rods 1, 2, located at their top and bottom in the recesses or pockets in the casting, and the parts thus connected constitute the frame of the apparatus, and it may be secured at any place in a gymnasium or room by setting the foot board A upon the floor and attaching the support K to the wall, steam pipe or other device, by means of screws, or tying the same in place.

O is a cast iron weight carrier adapted to receive removable weights P, and formed with a bifurcated projection Q (see Figs. 1, 2, 5 and 6) and a locking teat or nose R (see Fig. 6). The bifurcated projection Q is hollowed out on the under side as clearly indicated in Fig. 6, and adapted to receive the interlocking ball S on the end of pulley rope T, the free end of the rope being provided with suitable handle U secured by a snap hook V, or otherwise.

The lower pulley W is secured within an arched frame or casting X (see Fig. 7) having the arch terminating in a ball or sphere Y, provided on its rear with a vertical groove or channel *f* and an oblique groove or channel *g*, a short neck *h* connecting the ball Y and frame X, so that the neck *h* cannot pass within the bifurcated projection Q on the weight carrier unless the pulley frame is turned at right angles to the saddle and with the ball downward (the arch of the pulley frame preventing the ball from entry in any other position).

When the ball Y is passed in the manner described into and under the bifurcated projection Q, the teat or nose R (Fig. 6) passes into the oblique channel *g*, and when the ball has fully reached its seat it is turned to the right, the teat R traveling from the oblique channel *g* into the vertical channel *f* when the pulley frame has reached the position shown in Figs. 1 and 2; and the relation between the teat and channel is then such that when the rope T is slackened the lower pulley and its frame can only fall forward as indicated in dotted lines at Fig. 2, and cannot become unlocked from the hook accidentally. Another advantage of this construction and arrangement is that the upper bridge *i* of the saddle O (Fig. 1) is formed with a curved vertical groove *i'* opposite the groove of the pulley, and serves as a guide for the rope T, so

that when the pulley is raised by taking up the slack of the rope, the latter is properly guided within the groove in the face of the pulley.

The upper compound hook is provided, opposite the opening between the horns *d* and *e*, with a teat *k'* similar to the teat R on the weight carrier projection Q, except that it need not be so long; and when the ball Y of the lower pulley frame is passed over the horns *d, e*, at the top and the neck *h* is embraced thereby, the teat of the upper hook will lie within the channel *f* of the ball and prevent the pulley frame from twisting or turning axially though it may vibrate slightly outward from and toward the frame of the apparatus.

I have shown the apparatus as a duplex one, but it will be understood that it may be made as a single one and yet maintain and embody the features of my invention.

At Fig. 1 I have shown the ropes arranged so as to bring the handles in position for an ordinary sized person, in which case the ball S on the end of the ropes is placed within the compound hook on the upper casting L, as clearly shown in Fig. 2. The lower pulley W is secured to the bifurcated projection Q on the weight carrier O, the rope passing under pulley W and over the upper pulley which latter is pivotally connected to the upper casting L.

When it is desired, for large persons, to raise the handles U (by shortening the rope T) the ball on the end of the rope is removed from its seat in the compound hook and carried to the opposite side of the apparatus and located behind the horn *c*, as clearly shown at Fig. 3, or in a single machine a loop may be formed in the rope and passed over and behind the horn *c* in such manner as shown at Fig. 4, that the strain and weight upon the rope will tend to hold it in place.

The apparatus as shown at Fig. 1 is rigged for downward action, but when it is desired to so change the rigging that the handles may be used for upward or lifting action, the upper and lower pulleys are removed, and their positions reversed by connecting the "lower" pulley to the compound hook on the upper casting and locating the frame of the "upper" pulley in the recesses D E in the lower casting, in the manner hereinbefore explained, the ball on the end of the rope T being removed from the hook on the upper casting L and placed within the bifurcated casting Q on the weight carrier and from which the lower pulley has been removed.

When the apparatus has been thus rigged it will be observed that the original pivoted upper pulley has now become the lower pulley, and is capable in lower position to swivel or turn with the same freedom that it may swivel or turn when it is arranged at the top of the apparatus, and the lower pulley when placed above is secured against any swiveling motion.

Having described the construction and advantages of my improved apparatus, what I claim as new, and desire to secure by Letters Patent, is—

5 1. The combination with the casting L made of one piece and provided with suitable journal openings, the rope pulley secured within a suitable frame, the latter formed with journals or lugs adapted to enter and to be supported within the openings in the casting L, whereby the pulley frame may be readily removed and replaced, substantially as and for the purposes set forth.

15 2. The upper casting L provided with the compound hook *c, d, e*, adapted to receive and interlock with the pulley cord, substantially as and for the purposes set forth.

20 3. The casting L provided with the compound hook *c, d, e*, and formed with the nose or teat *k'*, in combination with the pulley frame X having spherical head Y adapted to interlock with said teat *k'*, substantially as described.

25 4. The weight carrier O provided with the bifurcated projection Q, constructed as described and provided with the teat or nose R, in combination with the pulley frame X pro-

vided with the spherical head adapted to engage with the nose R substantially as and for the purpose set forth.

30 5. In combination with the bifurcated projection Q and teat R, connected to the saddle O, the arched pulley frame X provided with the neck *h* and spherical head Y, the latter having the vertical and oblique grooves or channels *f, g*, substantially as and for the purpose described.

35 6. The lower casting B provided with the rubber bumper I in combination with separate bumper support J having a cup shaped depression, substantially as and for the purpose set forth.

40 7. The lower casting B formed with the arm C, vertical recesses D, E and F, and spring G, and adapted to receive and hold by gravity and pivotally, the upper pulley hanger, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

EDGAR GRAUERT.

Witnesses:

M. H. HULBERT,
DANL. L. TOWER.