

(No Model.)

3 Sheets—Sheet 1.

P. J. GATES.
FIRE ESCAPE.

No. 547,918.

Patented Oct. 15, 1895.

FIG:1.

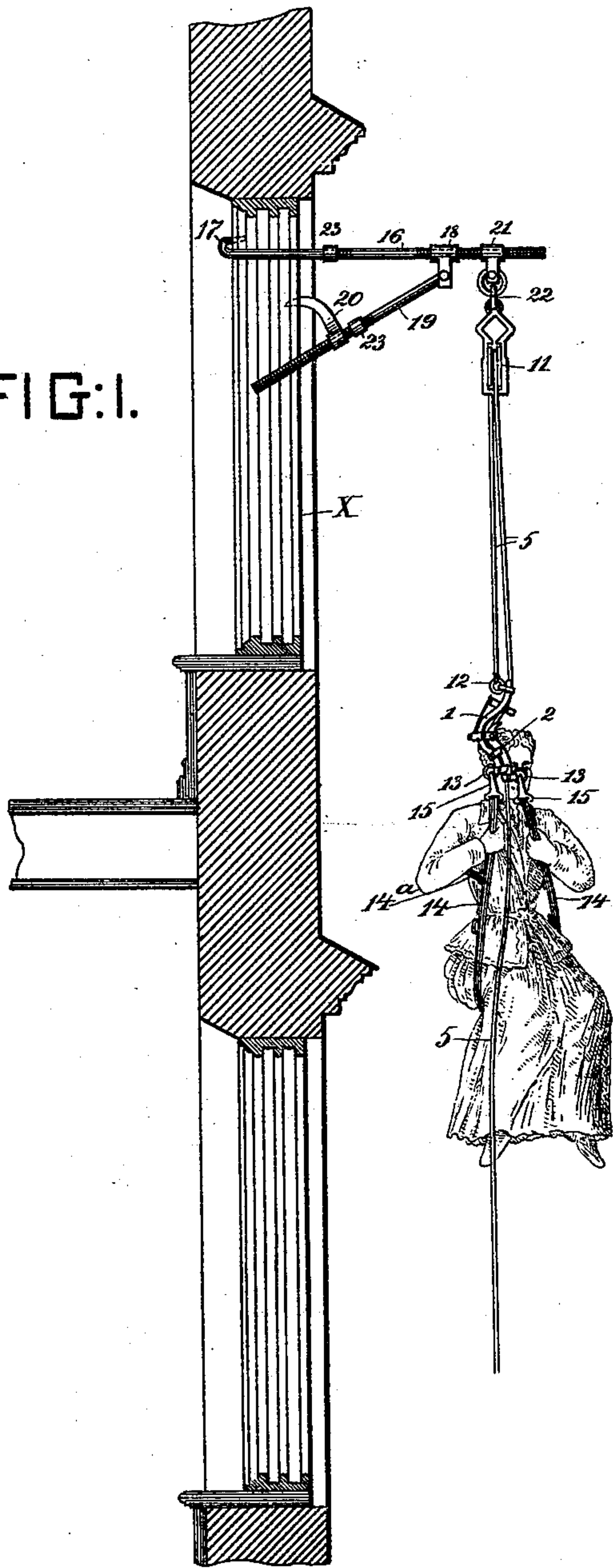
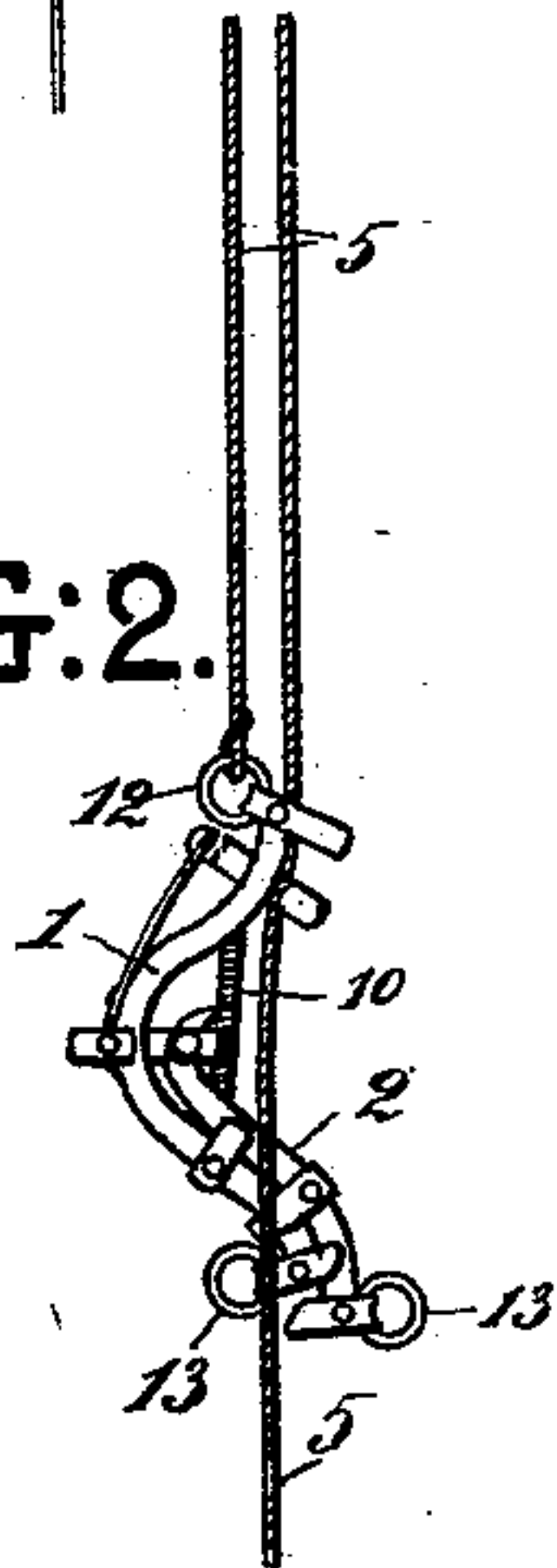


FIG:3.



FIG:2.



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FIG:6.

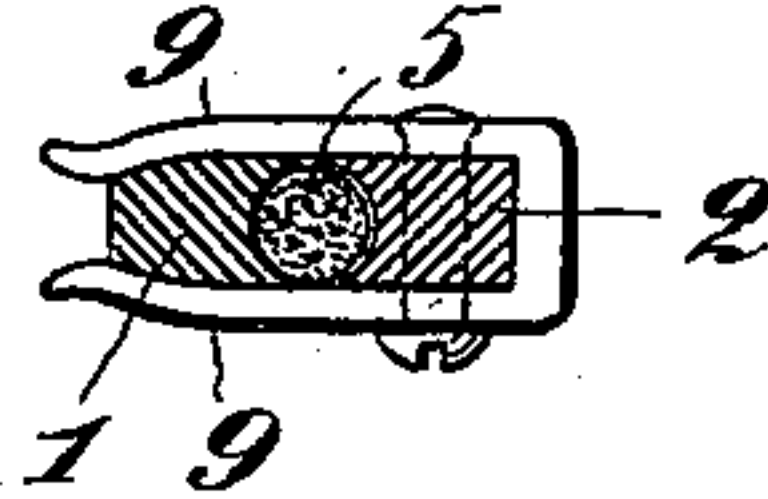


FIG:7.

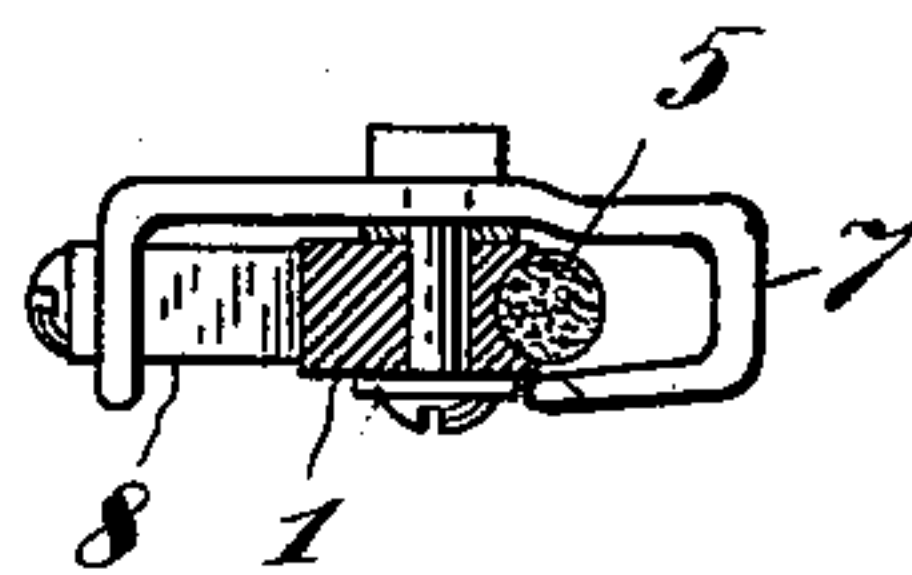


FIG:4.

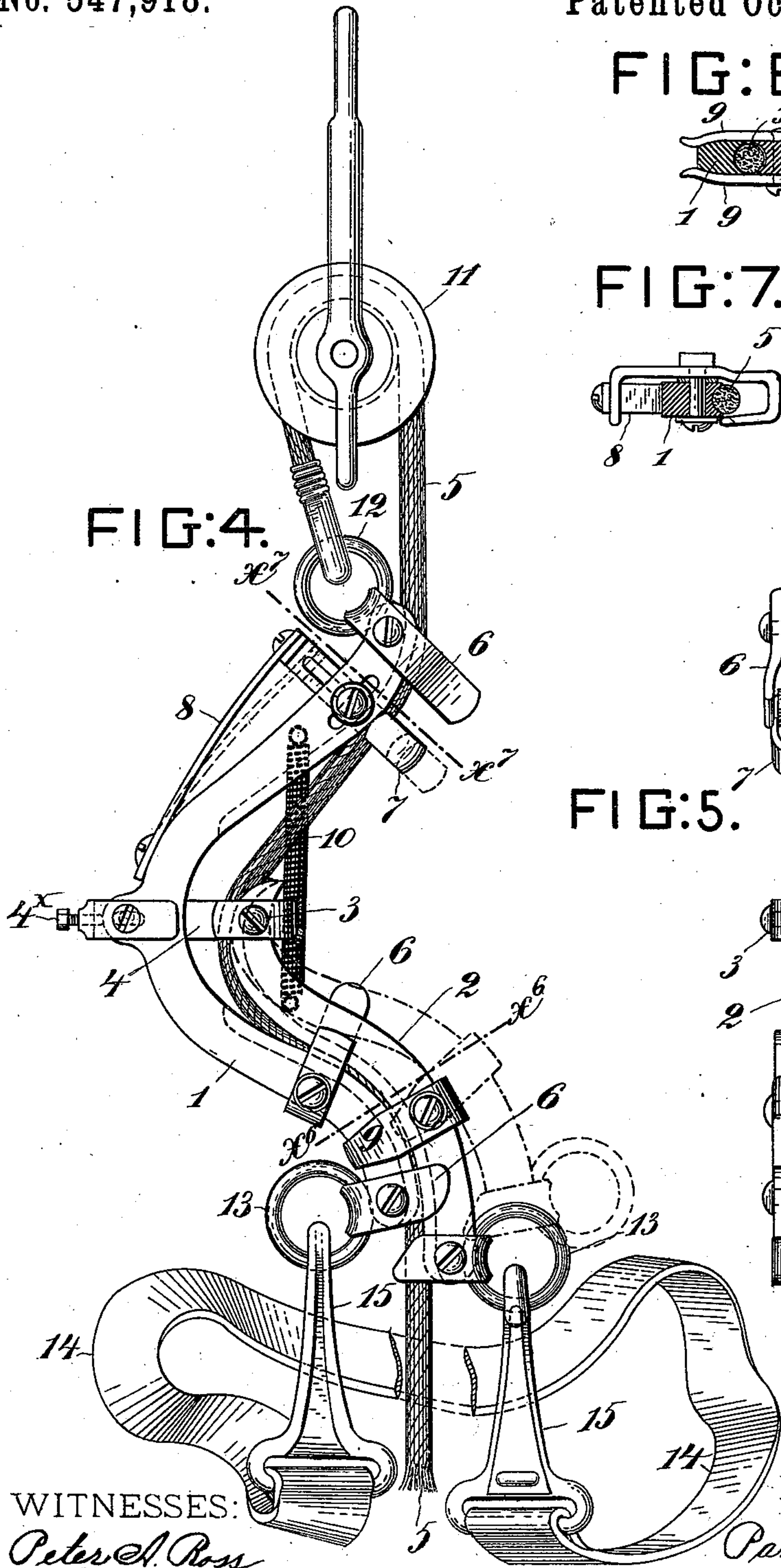
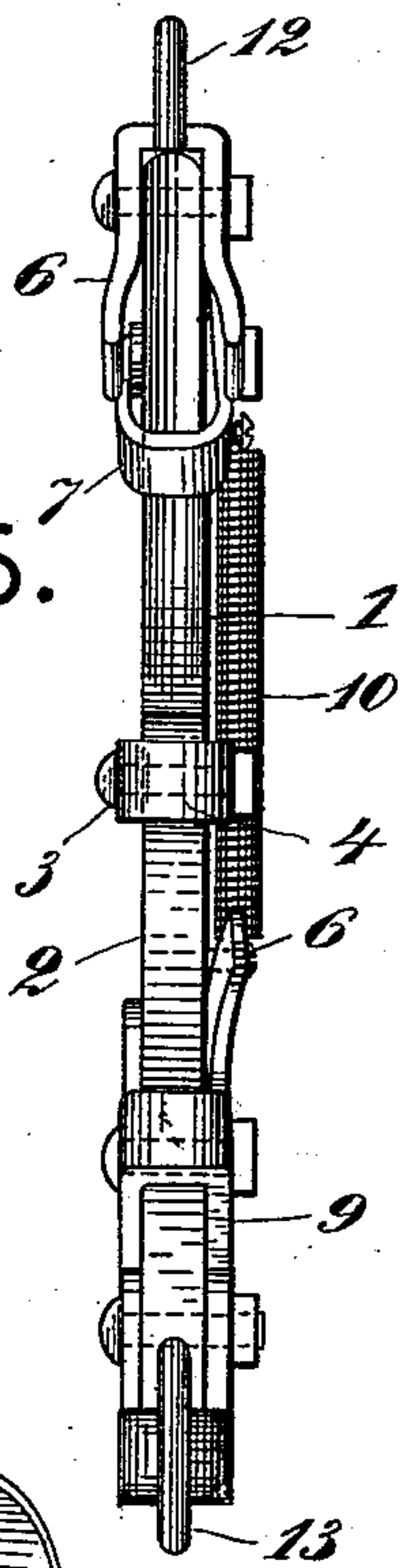


FIG:5.



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FIG:8.

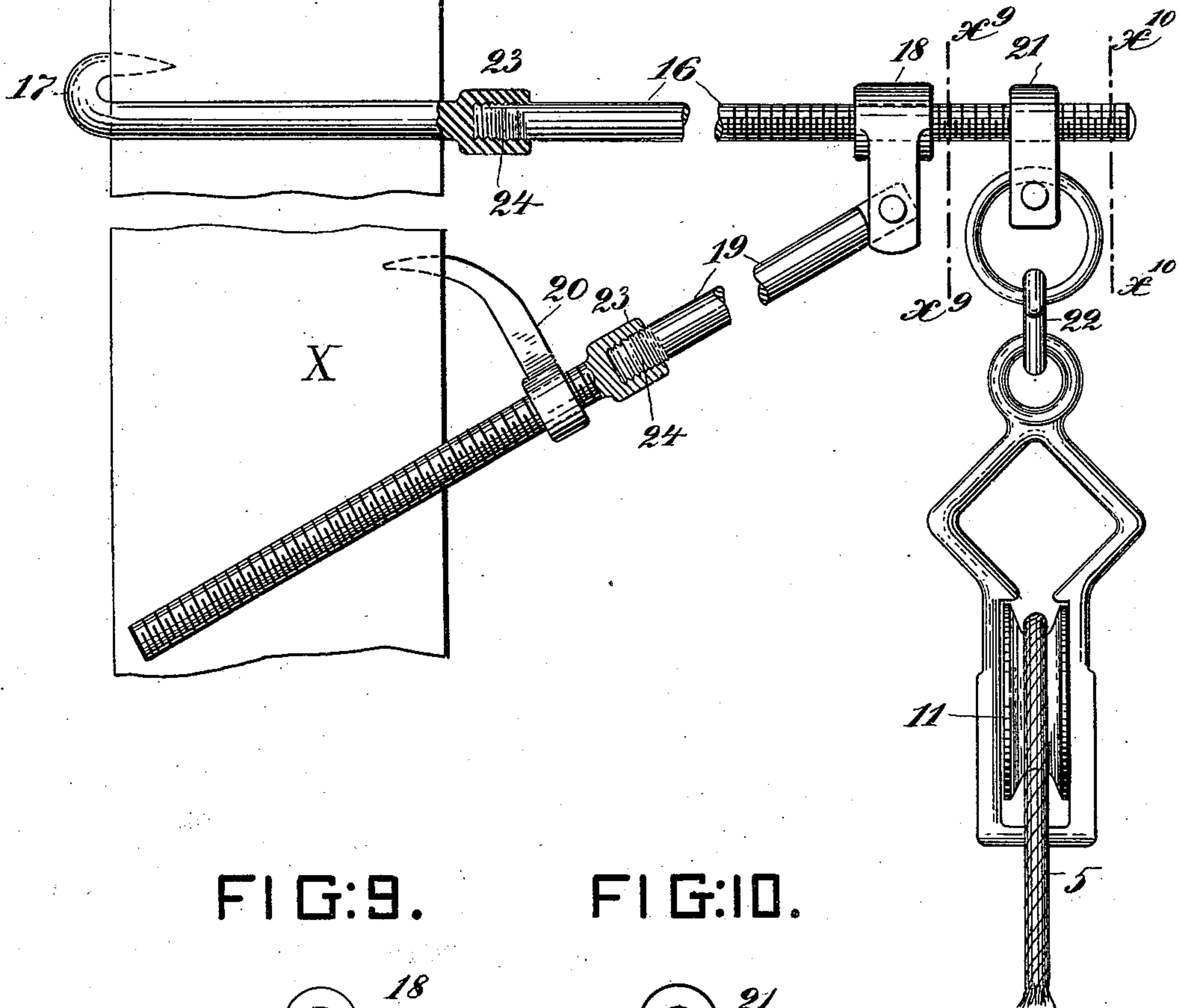


FIG:9.

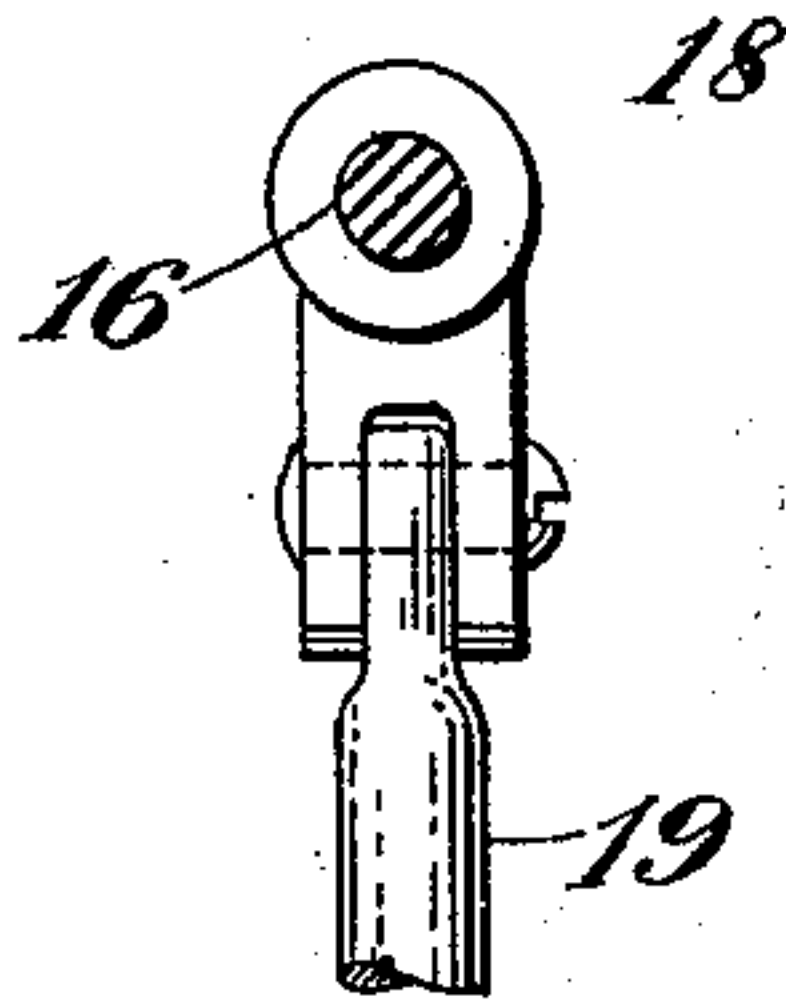
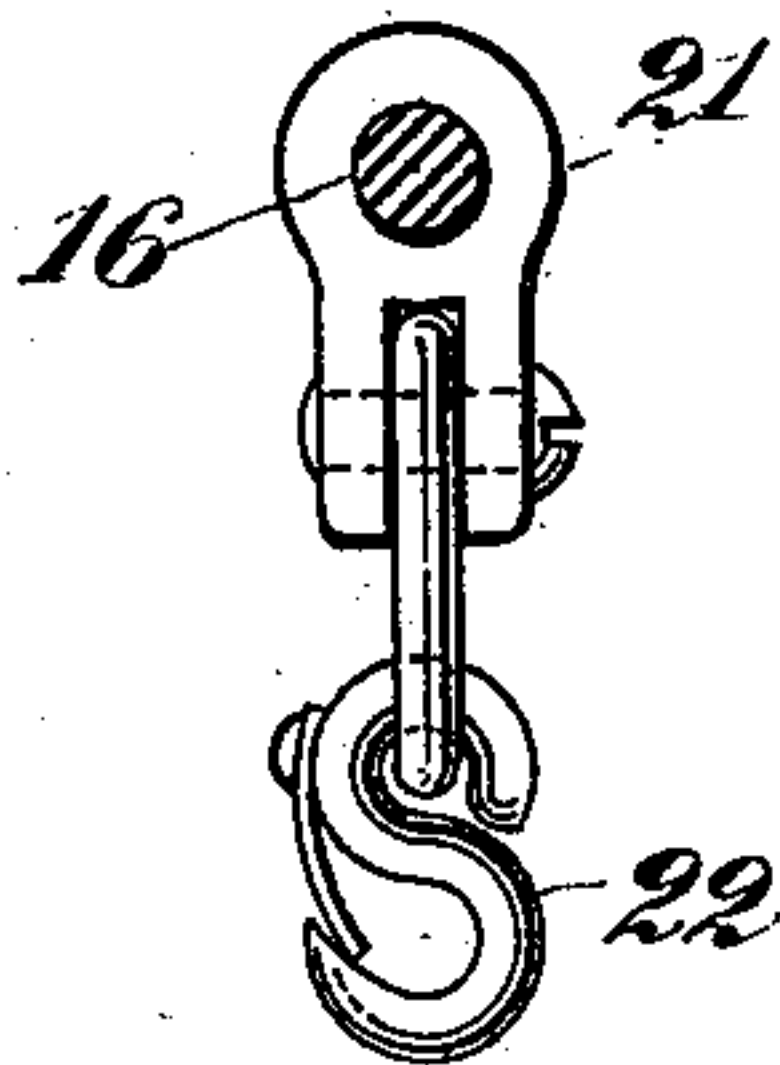


FIG:10.



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UNITED STATES PATENT OFFICE.

PARKER J. GATES, OF WEST NEW BRIGHTON, NEW YORK.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 547,918, dated October 15, 1895.

Application filed February 5, 1895. Serial No. 537,350. (No model.)

To all whom it may concern:

Be it known that I, PARKER J. GATES, a citizen of the United States, and a resident of Prohibition Park, West New Brighton, in the
5 county of Richmond and State of New York, have invented certain new and useful Improvements in Fire-Escapes, of which the following is a specification.

My invention relates to the class of devices commonly called "fire-escapes," and
10 comprises as instrumentalities a bracket to be attached in some way to the house near a window, a rope, and a clamp on the rope provided with a sling or receptacle. In using my
15 device, whether to escape fire or other danger, the occupant of a room high above the ground may fix the adjustable bracket to the upright frame or casing of a window, hook on the clamp and rope, take his place in the recep-
20 tacle or sling, and descend to the ground.

The object of the invention is in part to improve the clamp and in part to improve the bracket.

Other features of the device will be here-
25 inafter described, and the novel features of the invention carefully defined in the claims.

In the accompanying drawings I have illustrated an embodiment of the invention.

Figure 1 is a general view illustrating the
30 application of my invention and one way in which the fire-escape may be used. Fig. 2 is a general view, on a small scale, of clamp and rope, showing the clamp open, so that it may be drawn up by a person below for the use of
35 a person at a window. Fig. 3 is a view showing a convenient arrangement of the sling for holding a child and showing how the clamp may be operated from the ground. Fig. 4 is a side view of the clamp on a large scale, and
40 Fig. 5 is a front or edge view of the same. Figs. 6 and 7 are cross-sections in the planes indicated by lines x^6 and x^7 in Fig. 4. Fig. 8 is an enlarged side elevation of the bracket, and Figs. 9 and 10 cross-sections at the re-
45 spective points indicated by lines x^9 and x^{10} in Fig. 8.

Referring primarily to Figs. 4, 5, 6, and 7, I will describe the clamp and bracket, which form the main features of the invention. Fig.
50 4 represents the bracket, in side elevation, clamped on the rope, and Fig. 5 represents it in edge elevation. 1 is the main or long jaw

of the rope-clamp and 2 is the shorter clamp, hinged to the main jaw at 3 through the medium of an open clip 4, secured to the jaw at
55 about the middle of the latter. The main jaw has a peculiar curved form, being bent into an open or obtuse U form with reverse curves at its ends. It is fluted on its inner or clamping
60 face to receive the rope 5, (see Fig. 6,) these flutes being limited to the reversely-curved end portions, the limits of the flutes being indicated by the dotted lines representing them in
Fig. 4. The shorter jaw is fluted throughout its entire length on its clamping-face and it has a
65 bent form corresponding somewhat closely to the form of the lower extremity or portion of the main jaw 1, but approaching most closely thereto at the free lower end of the shorter jaw 2. On the main jaw are fixed three rope-
70 guides 6 and a spring-keeper 7 for the rope. This keeper (seen in plan in Fig. 7) is mounted in slotted guides on the main jaw and is backed by a spring 8, which keeps it drawn
75 up, normally, closely to said jaw, so as to keep the rope from escaping laterally from the keeper. On the shorter jaw 2 are mounted
80 two spring-fingers 9, (see Fig. 6,) which clasp on the main jaw when the jaws are closed, as seen in full lines in Fig. 4, and hold the clamp closed. To place the rope 5 in the clamp it
85 is not necessary to thread it through. It may be placed sidewise or laterally by pressing the jaws open, the spring-fingers 9 yielding to a little force, and when the shorter jaw is
90 free it is drawn away from the other jaw by a coil-spring 10, which connects the jaws, as clearly shown in Figs. 4 and 5. This open position of the jaw 2 is represented in dotted lines in Fig. 4. While this jaw is thus open,
95 it will only be necessary to press on the keeper-spring 8 in order to move the keeper 7 to the position seen in dotted lines in Fig. 4 and thus open a free way for the insertion or placing of the rope in the clamp. The jaw 2 is
100 then closed and the keeper 7 allowed to close, when the parts will be in the position seen in full lines in Fig. 4. The rope 5 passes over a sheave or pulley 11 and is attached to a ring or bail 12, secured in some manner to the upper end of the jaw 1 of the clamp. As here shown, the rope is attached to a ring secured to the upper rope-guide 6 on the jaw. Two rings 13 are attached to the respective lower

ends of the jaws 1 and 2 and to these is attached the receptacle or holder to support the weight of the person using the device. As shown in Fig. 4, this holder is a sling 14, in the nature of a simple leather strap provided at its respective ends with snap-hooks 15 to hook into the rings 13. This form of sling is shown in Fig. 1, where the person escaping is represented as sitting in the sling and grasping the doubled rope below the clamp with his hands. In this figure 14^a represents a strap to support the back.

Fig. 2 represents the mode of hauling up the clamp for the use of another person after one has descended. The clamp is thrown open and the rope removed from the jaws but not from the keeper 7. This leaves the rope free from the friction of the clamp, so that the latter may be drawn up readily.

In Fig. 3, which represents an infant being lowered in the sling, the latter has a strap 14^b to be buckled about the infant's body. The sling may have rings or the like at intervals, so that the back strap 14^a can be placed at different heights to support the back of the person in the sling. In descending, the person using the device can arrest his descent or impede it at will by leaning over to the side where the sling is attached to the short jaw 2 of the clamp, or by drawing on the strap of the sling coupled to the said jaw. On the other hand, he can accelerate his speed—or, what is the same thing, lessen the grip of the clamp on the rope—by throwing his weight more on the long jaw 1 of the clamp than on the short jaw thereof. It will be noted that in Fig. 3 there is a rope 5^x, attached to the ring 13 at the lower end of the jaw 1 of the clamp. This rope permits any one standing on the ground to regulate the speed of descent of the child at will. The weight of the child borne evenly on the jaws of the clamp will not suffice to cause its descent; but a slight pull on the rope 5^x will relax the clamp and allow the infant to descend slowly or rapidly, as desired.

I will now describe the particular form of bracket I prefer to use with the clamp already described. This bracket is illustrated in Figs. 1, 8, 9, and 10. I prefer to form this bracket of steel in order to secure strength combined with lightness. 16 is a rod forming the bracket-arm. This arm has a hook 17 on one end and is screw-threaded at its outer end for a considerable distance to receive an adjustable nut-shackle 18, to which is coupled the outer end of a rod 19, which forms the bracket-brace. This brace is screw-threaded at its free end for a considerable distance to receive an adjustable nut-spike 20. On the outer end of the arm 16 is screwed a shackle-nut 21, from which the pulley 11 is suspended through the medium of a snap-link 22, Figs. 8 and 10. As the bracket-arm 16 and brace 19 will necessarily be rather long, and as it is desirable that the entire fire-escape be of such a port-

able nature that it can be conveniently carried by a traveler, I prefer to make these parts of the bracket in sections with a screw-coupling, as clearly shown in Fig. 8. I prefer, in order to impart as much strength as possible to the joint, to provide one section with a strong internally-screw-threaded socket 23 and cut on the end of the other section a slightly-tapered screw 24, the thread of which runs out without producing a shoulder. Figs. 1 and 8 clearly illustrate the manner of securing the bracket to the upright casing X of a window. The hook 17 on the arm is made to engage firmly with the inside face of the casing, so that the weight of the person descending will tend to sink the hook the tighter into the wood of the casing. The spike 20 is made to engage the outer face of the casing, and the weight of the person descending will also sink it in the firmer. The rods 16 and 19 should lie close to the casing. The nut-spike 20 may, of course, be turned about the rod 19, so as to place the point of the spike as desired. Usually the rope used with the clamp will be especially adapted in size to fit it properly; but if the clamp be designed for use with ropes of slightly-different diameters the shackle 4 will be made adjustable on the jaw 1 by means of a slot in said jaw (indicated in dotted lines in Fig. 4) and a set-screw 4^x. This construction enables the pivot-point 3 of the jaw 2 to be set closer to or farther from the jaw 1 at will. The jaws of the clamp and other elements of the device will of course be made stiff enough and strong enough to avoid any risk of breaking or yielding under the greatest weight the device will be subjected to.

It will be observed that one of the distinguishing features of my fire-escape is the attachment of the rope fixedly to the clamp while the other branch of the rope plays through the jaws of the clamp. This permits the clamp to be drawn up for use again after one person has descended with it, and it also enables the person descending to grasp both branches of the rope above the clamp and at once arrest his too-rapid descent should any difficulty arise requiring this. One advantage, also, of this arrangement of the doubled rope is that if there should be heat or flame from windows passed in the descent the constantly-moving rope is not so apt to be burned or weakened during the short time occupied in descending. The attachment of the sling or receptacle independently to the two jaws of the clamp, as shown, is also a distinguishing feature in my device, as it allows the person in the sling or holder to regulate with great nicety the friction put by the jaw 2 of the clamp on the rope by simply leaning to one side or the other, and this pressure of the jaw 2 regulates the speed of the descent.

Having thus described my invention, I claim—

1. In a fire-escape, the combination with a pulley and a rope over the same, of a clamp

comprising a long, curved main jaw, pendent from one branch of the rope, a shorter jaw hinged to the main jaw and adapted to fit or apply itself substantially thereto when the clamp is closed on the rope, keepers on the jaws for holding the rope in place in the clamp, a spring adapted to hold the shorter jaw supported when it is thrown open and a holder attached independently to the lower ends of the respective jaws.

2. In a fire-escape, the combination with a pulley and a rope over the pulley, of a clamp comprising a long, curved, main jaw 1, to the upper end of which one end of the rope is secured, a short, curved jaw 2, pivotally connected to the main jaw at about the middle of the latter, said jaws being fluted on their clamping faces to fit the rope, guides to keep the rope in place in the clamp, and a spring-keeper 7, on the main jaw, substantially as set forth.

3. A clamp for a fire-escape, comprising the curved main jaw 1, a shorter, curved jaw 2, hinged to the main jaw, spring-fingers 9, on one of said jaws to hold the jaws against opening when closed, a spring 10, adapted to hold the jaws open when separated, a spring rope-keeper 7, on the main jaw, rings on the lower ends of the jaws for the attachment of a sling or holder and a ring on the upper end

of the main jaw for securing a rope thereto, substantially as set forth.

4. A bracket for a fire-escape, comprising a metal arm 16, provided with a hook 17, at its inner end and screw-threaded at its outer end, a nut-shackle 18, a metal brace 19, pivotally coupled to the shackle 18 at one end and screw-threaded at the other end, a nut-spike 20 on this latter end of the brace, and a shackle 21, on the outer end of the bracket-arm to support the pulley and rope of the apparatus, substantially as set forth.

5. A bracket for a fire-escape, comprising a sectional arm 16, provided with a hook 17, and a sectional brace 19, provided with an adjustable nut-spike 20, substantially as set forth.

6. A bracket for a fire-escape, comprising an arm with a hook on its inner end and a brace pivoted to a shackle mounted adjustably on the arm and provided with a spike mounted on it adjustably, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

PARKER J. GATES.

Witnesses:

HENRY CONNETT,
PETER A. ROSS.