(No Model.) 2 Sheets—Sheet 1.

S. A. ALLING.

NET HOLDER.

No. 590,083. Patented Sept. 14, 1897.

Fig. 2.

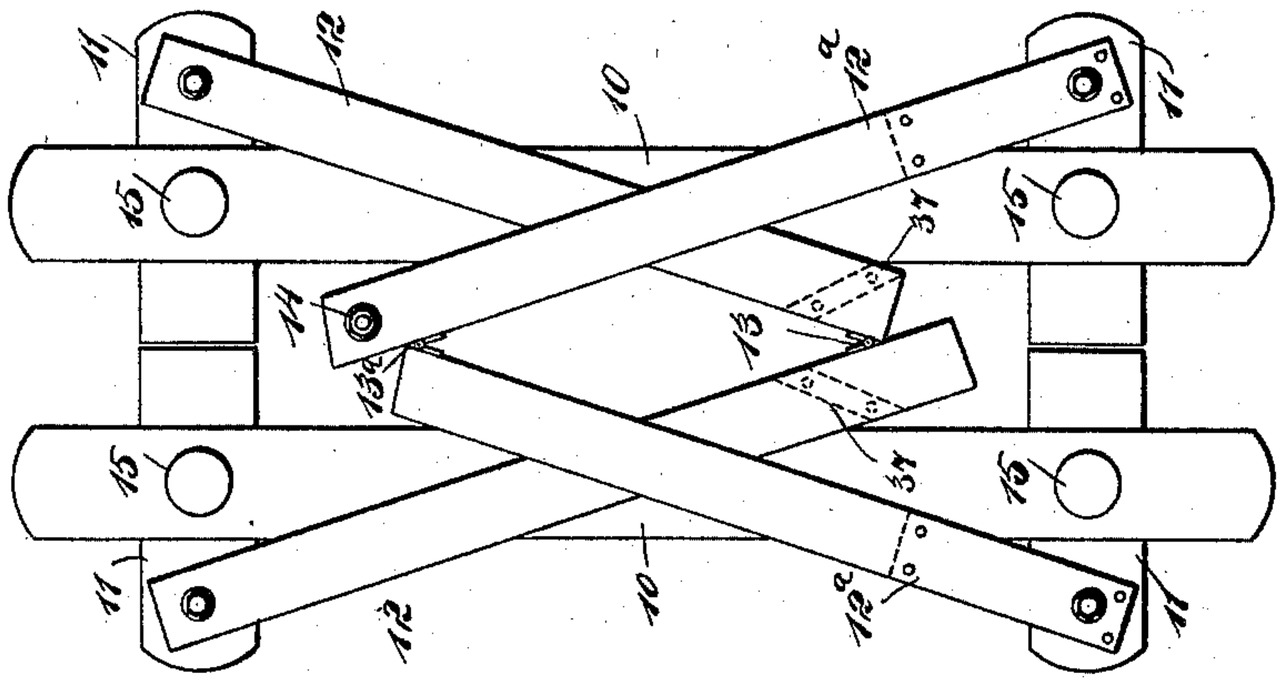
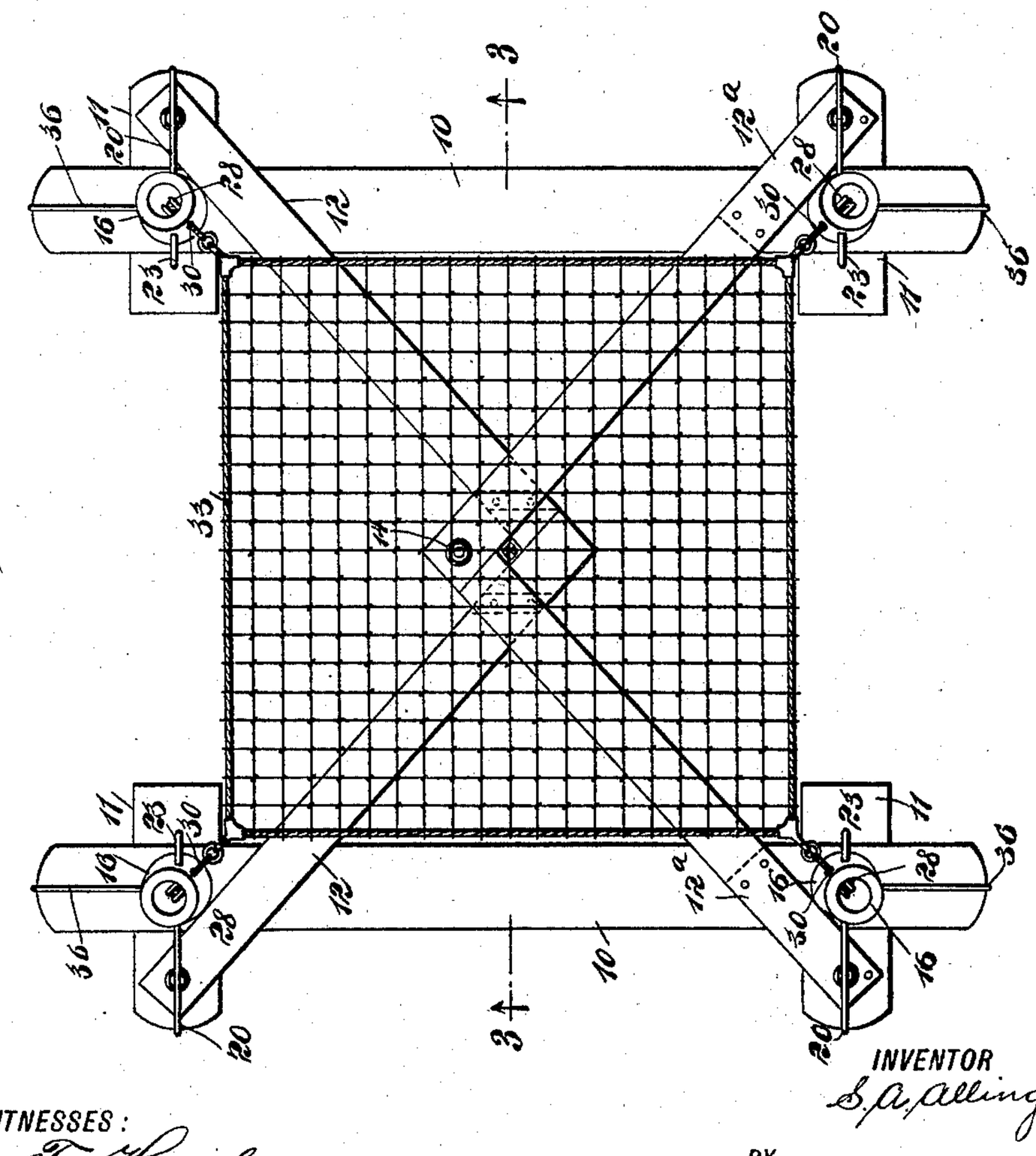


Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

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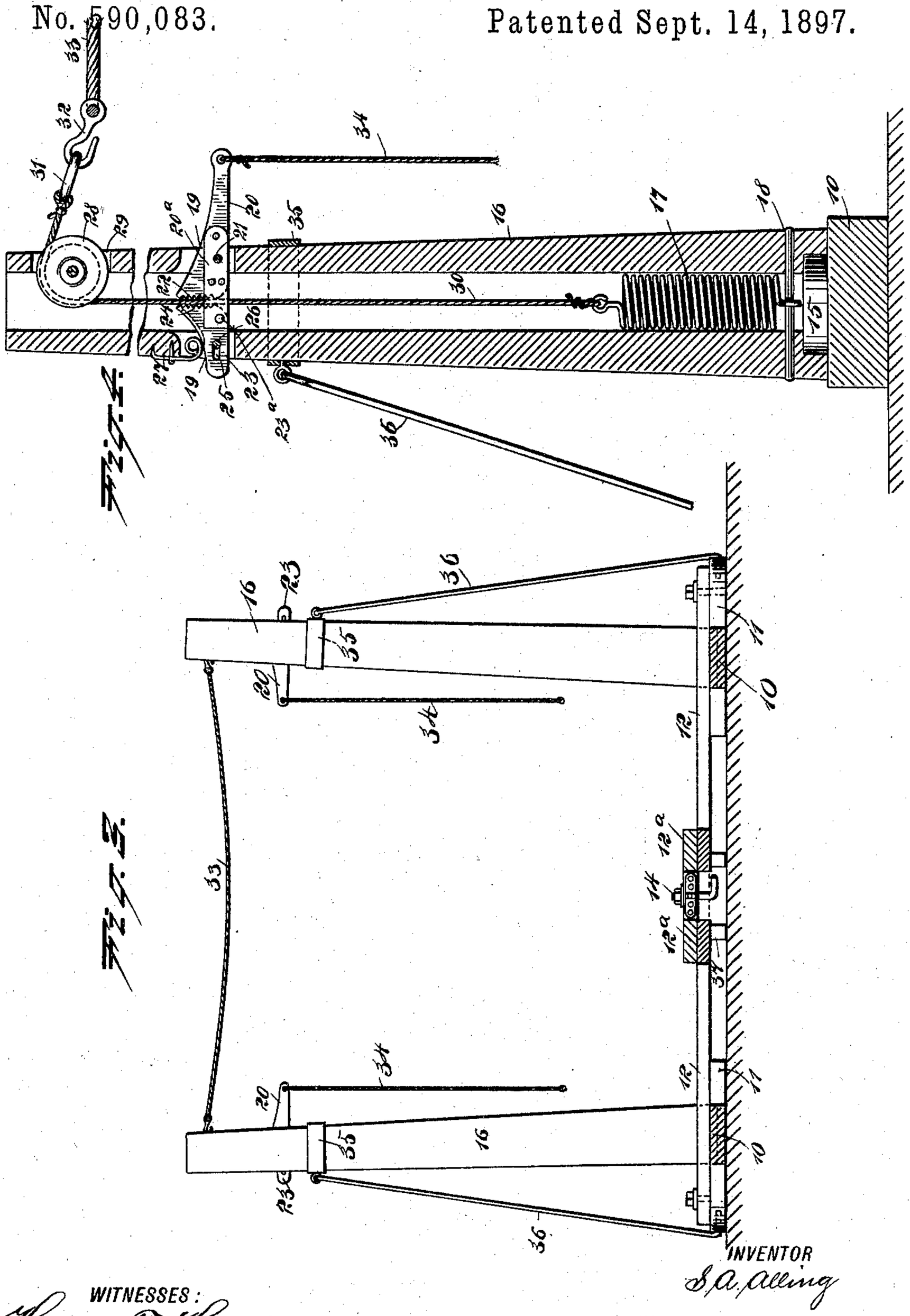

FIG. 2.

FIG. 3.

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UNITED STATES PATENT OFFICE.

SAMUEL A. ALLING, OF HOMER, MINNESOTA.

NET-HOLDER.

SPECIFICATION forming part of Letters Patent No. 590,083, dated September 14, 1897.

Application filed February 9, 1897. Serial No. 622,608. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL A. ALLING, of Homer, in the county of Winona and State of Minnesota, have invented a new and Improved Net-Holder, of which the following is a full, clear, and exact description.

The object of my invention is to provide a holder for a bed, mattress, or net adapted to be used when a building is on fire for the purpose of saving life by receiving a person jumping from an upper story.

A further object of the invention is to so construct the device that when a person falls upon a net, mattress, or bed supported by the device the receiving-surface for the person will yield under the weight received and whereby when the mattress, net, or bed has been forced downward by the weight of the person the said receiving-surface of the device will be prevented from rising, thereby effectually preventing the rebound of the person or object received.

Another object of the invention is to so construct the device that after the person so received by the device has been removed the net or bed may be restored to its upper or normal position, being operated to that end by persons standing at the base of the device.

Another object of the invention is to so construct the life-saving device that it may be folded to occupy but a minimum of space when not in use, and whereby the parts of the device may be quickly and conveniently assembled when said device is required for use.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the improved device in a position for use. Fig. 2 is a plan view of the base of the device, illustrating the same folded. Fig. 3 is a vertical section taken substantially on the line 3 3 of Fig. 1; and Fig. 4 is an enlarged vertical section through one of the posts of the device, the top portion of the post, which is shown as separated from the body, having been slightly turned.

The base of the device preferably consists of two side pieces 10, each side piece at each end being fitted into or upon a foot 11, which feet are at right angles to the side pieces with which they are connected, and the connections between the side pieces and the feet are such that the two are flush at their upper faces.

A bracing-arm 12 is pivotally attached to the outer end portion of the feet 11 at one end of the base, while corresponding bracing-arms 12^a are pivoted in like manner to the outer ends of the feet 11 at the opposite end of the base. The bracing-arms 12^a are adapted to extend over the bracing-arms 12, and to that end the bracing-arms 12^a are made thicker at their pivot-points than at other portions in their lengths. The arms 12 are brought together and are connected by a hinge 13, while the arms 12^a are brought together and are connected by a hinge 13^a, as shown best in Fig. 2.

Where the arms 12^a connect, one of the arms at its inner end is provided with a bolt 14, substantially of L shape. When the sides of the base are brought outward, so as to bring the base into position for use, as shown in Fig. 1, the horizontal portion of the bolt 14 will engage with the arms 12 and by frictional contact serve to bind the two sets of arms together, so as to hold the side pieces 10 in their spread or open position.

At the point where the sides 10 are attached to the feet 11 bosses 15, preferably of a circular shape, are formed upon the said side pieces at their upper faces, as shown particularly in Fig. 2. Each of these bosses is adapted to receive a hollow post 16, one of the said posts being shown in section in Fig. 4. Each post contains at its bottom portion a spring 17, and each spring is secured at its lower end within the post by means of a pin 18 or its equivalent. Near the upper end of each post, at opposite sides, an opening 19 is formed communicating with the interior, and in one of the said openings a lever 20 is fulcrumed by means of a pin 21, the inner end of which lever is made quite wide and provided with teeth 22. In the opposite opening a gripping-arm 23 is pivoted, the said gripping-arm at its inner end being made quite wide also and provided with teeth 24, which face the teeth 22 on the lever 20. The gripping-arm 23 and

the lever 20 together constitute a clutch and have their lower opposing edges smooth and rounded or beveled off.

The gripping-arm is provided with a horizontal slot 25, through which the pivot-pin 26 of the arm is passed, and a spring 27 is attached to the post in which the gripping-arm is located, having bearing on the upper portion of the said arm in such manner as to normally hold the toothed surface of the gripping-arm opposite and substantially close to the toothed surface of the lever 20. The lever 20 and gripping-arm 23 are connected by plates 20^a, located one at each side of the arm and lever adjacent to their lower edges. The plates are securely bolted to the lever 20, but are pivoted by a pin 23^a to the gripping-arm 23, as shown in Fig. 4. When the outer end of the lever is drawn down, the inner or toothed end of the gripping-arm is compelled to rise with the corresponding end of the lever. When the lever is released, the spring will restore said lever and its gripping-arm to their normal positions. A pulley 28 is journaled in each of the posts 16, above the clutch of the post, and the said pulleys are passed out through openings 29 in the posts, the pulleys being preferably placed at an angle to the axis of the clutch, as shown in Fig. 1.

A rope or a chain 30 is attached to the spring 17, and this rope or chain is passed upward between the teeth of the clutch members, as illustrated in Fig. 4, and over the pulley 28 of the post in which the spring is located. Each rope or chain 30 of each tubular post is provided with a ring or a loop 31 at its outer end, and these loops or rings are engaged by hooks 32, clips, or their equivalents, which hooks, clips, or snaps are secured to the corners of a net 33, a mattress, or a bed of any description. Preferably, however, a net is employed, as illustrated in the drawings.

A cord or a chain 34 is attached to the lever member 20 of each clutch, the cord or chain being of sufficient length to be reached and readily grasped by a person standing on the support for the device. A ring 35 is secured upon and is passed around each of the tubular posts, and each ring is provided with any desired number of brace-bars 36, which are removably secured to the base of the device. The posts 16 are given an outward inclination, so as to remove said posts as far as possible out of the path of a person dropping or falling from a given height onto the net, mattress, or bed 33.

In operation, the device having been set up and the members of the clutches separated the spring 17 will act to bring the net, mattress, or bed at the upper portion of the posts. When a person falling or dropping from a given height lands upon the net, mattress, or bed, the mattress, net, or bed will move downward under the weight of the person until the weight of the falling body is counterbalanced by the springs 17, which will at that time be placed under tension. As the net, mattress, or bed is being carried downward the members of the clutches in the posts 16 will move upward, admitting of the free movement of the cords or chains within the posts in an upwardly direction, and by reason of the slots 25 in the gripping or clamping members 23 of the clutches these members will move outward, and so separate themselves from the lever members 20, preventing undue tension or friction upon the cords or ropes 30; but the moment that the tension of the springs 17 counteracts the weight of the falling body the members of the clutches will be drawn downward to a clamping engagement with the ropes or chains 30 by reason of the springs drawing downward upon said ropes or chains. Therefore there will be no rebound and the person falling on the net will not be apt to be thrown off therefrom, but may be removed in a convenient and safe manner. After the person received by the net has been removed therefrom, by drawing downward upon the lever members 20 of the clutches the members will be separated and the springs 17 will act to draw the ropes or chains 30 downward in the tubular posts and bring the net, mattress, or bed to the upper portion of the posts in position to receive another subject.

It has heretofore been stated that the bracing-arms 12 are carried over the sides 10 of the base and that the arms 12^a are carried over the arms 12. It is therefore necessary that some support should be furnished for the inner ends of the undermost arms 12. Such a support is provided, as shown in Fig. 2, being in the nature of blocks 37 or lugs attached to the under faces of the arms 12, near their connection with each other, the said lugs being adapted to bear upon the support on which the device rests.

Hereinafter the word "net" will be used to designate the material upon which the person or falling body is to be received, and it will be understood that the term is intended to include a mattress, bed, tarpaulin, or other material that may be successfully employed to receive a person seeking safety through the medium of the life-saving device.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a life-saving device, a support, tension devices carried by said support, a net, flexible connections between the net and tension devices, and means, whereby the said connections will be free to move in one direction but will be prevented from moving in the opposite direction, substantially as described.

2. In a life-saving device, a net, a support for the net, tension devices located in the said supports, a flexible connection between the tension devices and the net, and clutches arranged for engagement with the connection between the tension devices and the net, as and for the purpose set forth.

3. In a life-saving device, a net, tubular supports, friction-rollers located in the said

supports, tension devices secured within the supports, a flexible connection between the net and the tension devices, which flexible connections are passed over said friction-rollers, and clutches located in the supports, each clutch comprising two members arranged to clear the connections between the tension devices and the net when the net is pressed downward, clamping said connections when the weight in the net is counterbalanced by said tension devices, as and for the purpose specified.

4. In a life-saving device, a net, springs connected with the net, and clutches arranged to engage the connecting medium between the springs and the net, as and for the purpose set forth.

5. In a life-saving device, supports, springs carried by the supports, a net, flexible connections secured to the springs passed over guides and secured to the net, and a clutch for each flexible connection, said clutches permitting the connections to move in one direction only, substantially as described.

6. In a life-saving device, supports provided with guides at their upper ends, springs at the lower ends of the supports, a net, a flexible connection secured to each spring passed up over the guide at the upper end of the support and secured to the net, a clutch for each flexible connection, said clutches permitting the connections to move upwardly but preventing them from moving downwardly, and means for releasing the clutches from the connections, substantially as described.

7. In a life-saving device, tubular posts provided with guide-pulleys at their upper ends, springs secured in the posts at their lower ends, a net, ropes or chains secured to the springs passed up over the guide-pulleys and secured to the corners of the net, a two-part clutch engaging the ropes or chains to permit them to move in one direction, but preventing them from moving in the opposite direction, and means for operating one of the members of the clutch to release the ropes or chains, substantially as described.

8. In a life-saving device, a tension-controlled net, a locking device for the net, consisting of a clutch, said clutch comprising a lever having a toothed inner end, a pivoted gripping-arm having its inner end also toothed, the toothed surfaces of the gripping-arm and the lever facing one another, and a connecting-plate attached to the lever and pivotally connected with the gripping-arm, as and for the purpose set forth.

9. In a life-saving device, the combination, with a series of tubular supports having springs secured therein, and a clutch contained in each support, comprising two members facing each other, the opposing surfaces being provided with teeth, of a net, a flexible connection between the net and the spring in each support, the said connection being passed through the members of the clutch devices, and guide-rollers for the connections between the springs and the net, located above the said clutch devices, as and for the purpose specified.

10. In a life-saving device, the combination, with a base, tubular posts secured on the base, springs attached at one end in each of the said supports, and clutch devices located in said supports, each clutch device consisting of two opposing pivoted members having teeth formed at their opposite faces, one of the said members being a lever and the opposite member spring controlled, of a net, and flexible connections between the net and the springs in the said tubular supports, the said connections being passed between the members of the several clutch devices, as and for the purpose set forth.

11. In a life-saving device, the combination with a folding base and tubular posts detachably connected with the base, springs attached at one end in each of said supports, and clutch devices located in said supports, each clutch device consisting of two opposing pivoted members having teeth formed at their opposite faces, one of the said members being a lever and the opposite member spring controlled, of a net, and flexible connections between the net and the springs in the said tubular supports, the said connections being passed between the members of the several clutch devices, as and for the purpose specified.

SAMUEL A. ALLING.

Witnesses:
D. E. VANCE,
W. I. LAMSON.