

No. 626,812.

Patented June 13, 1899.

G. KIRSCHENHOFER.  
FIRE ESCAPE DEVICE.

(Application filed Feb 27, 1899.)

(No Model.)

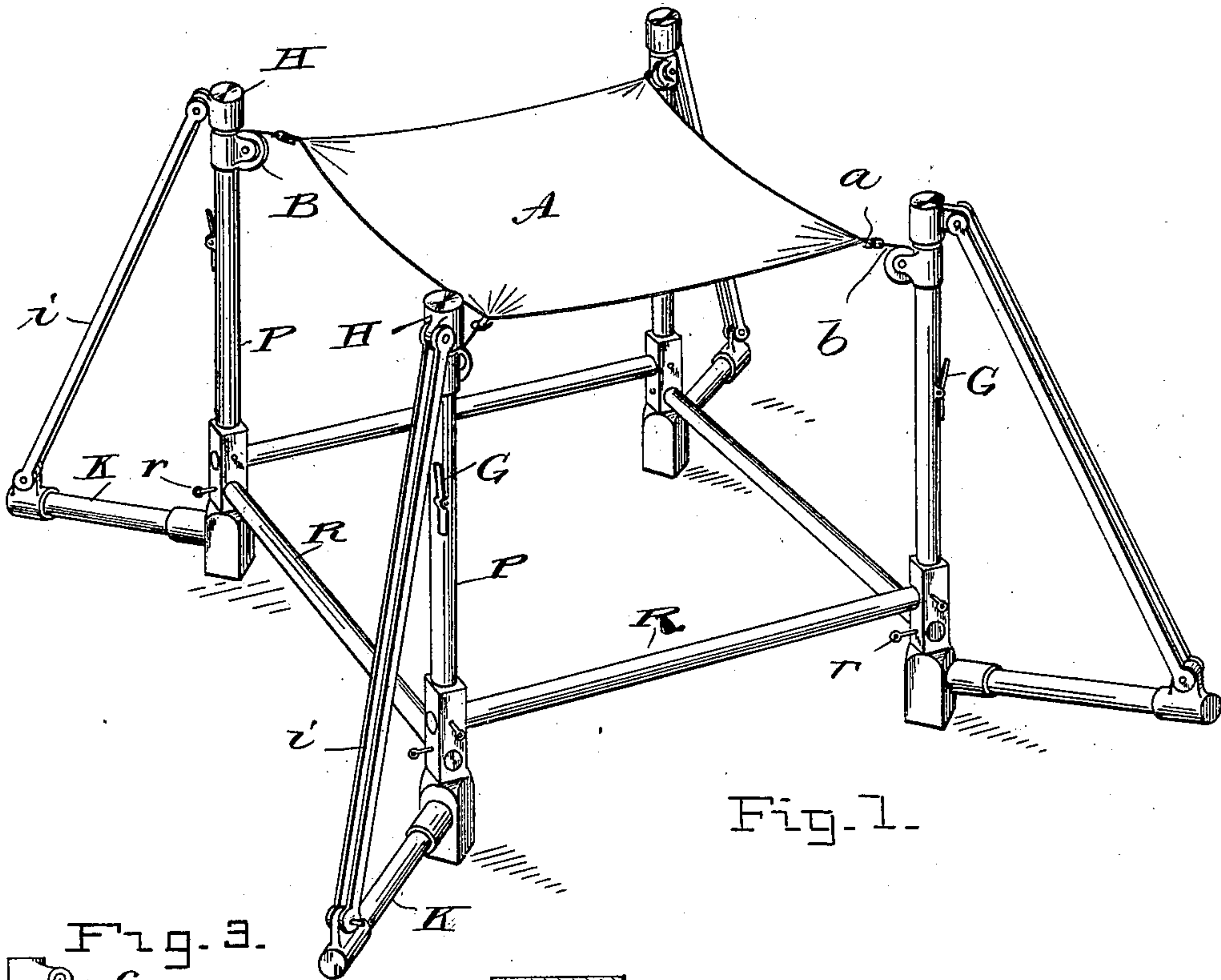


Fig. 1.

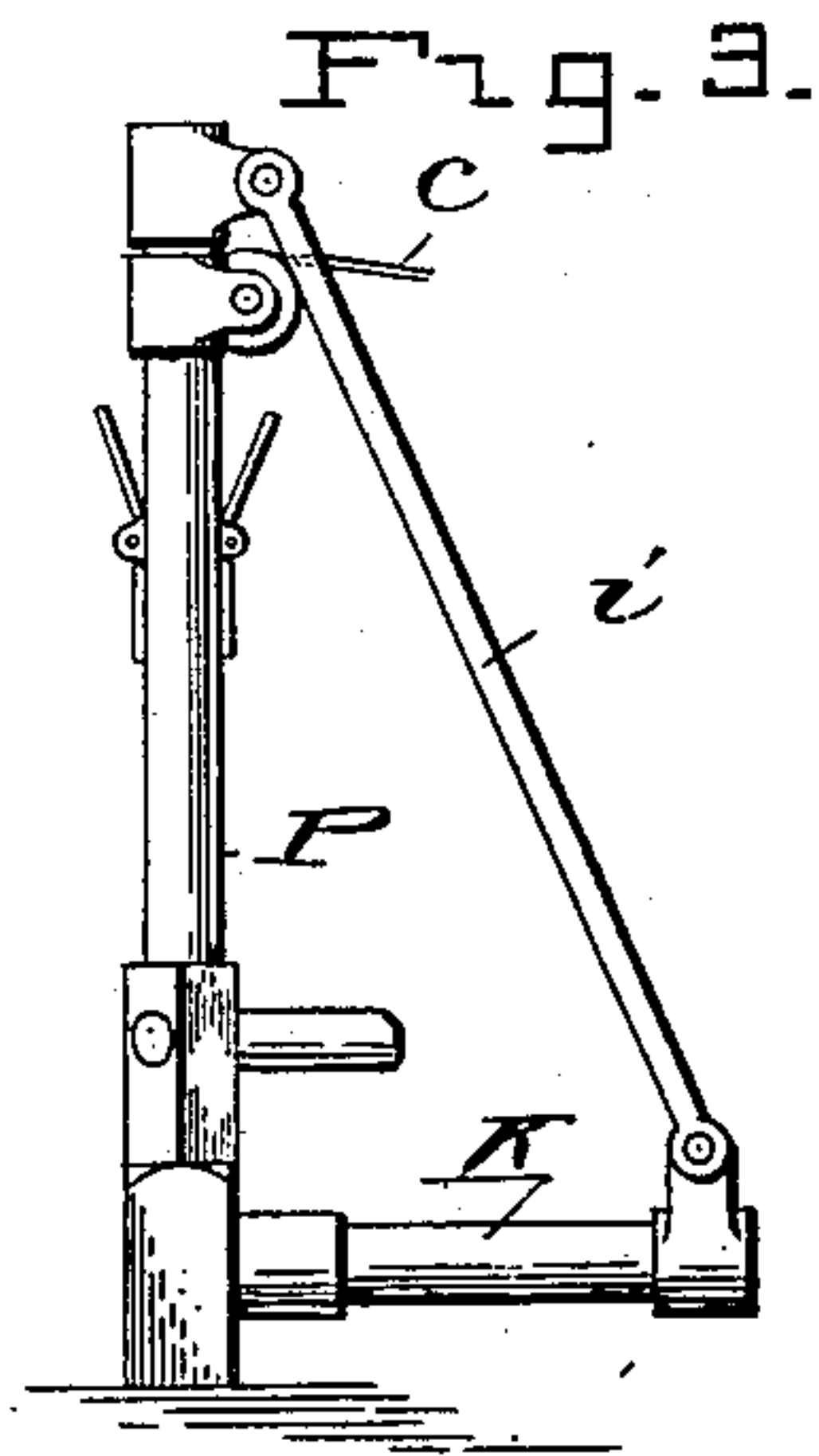


Fig. 3.

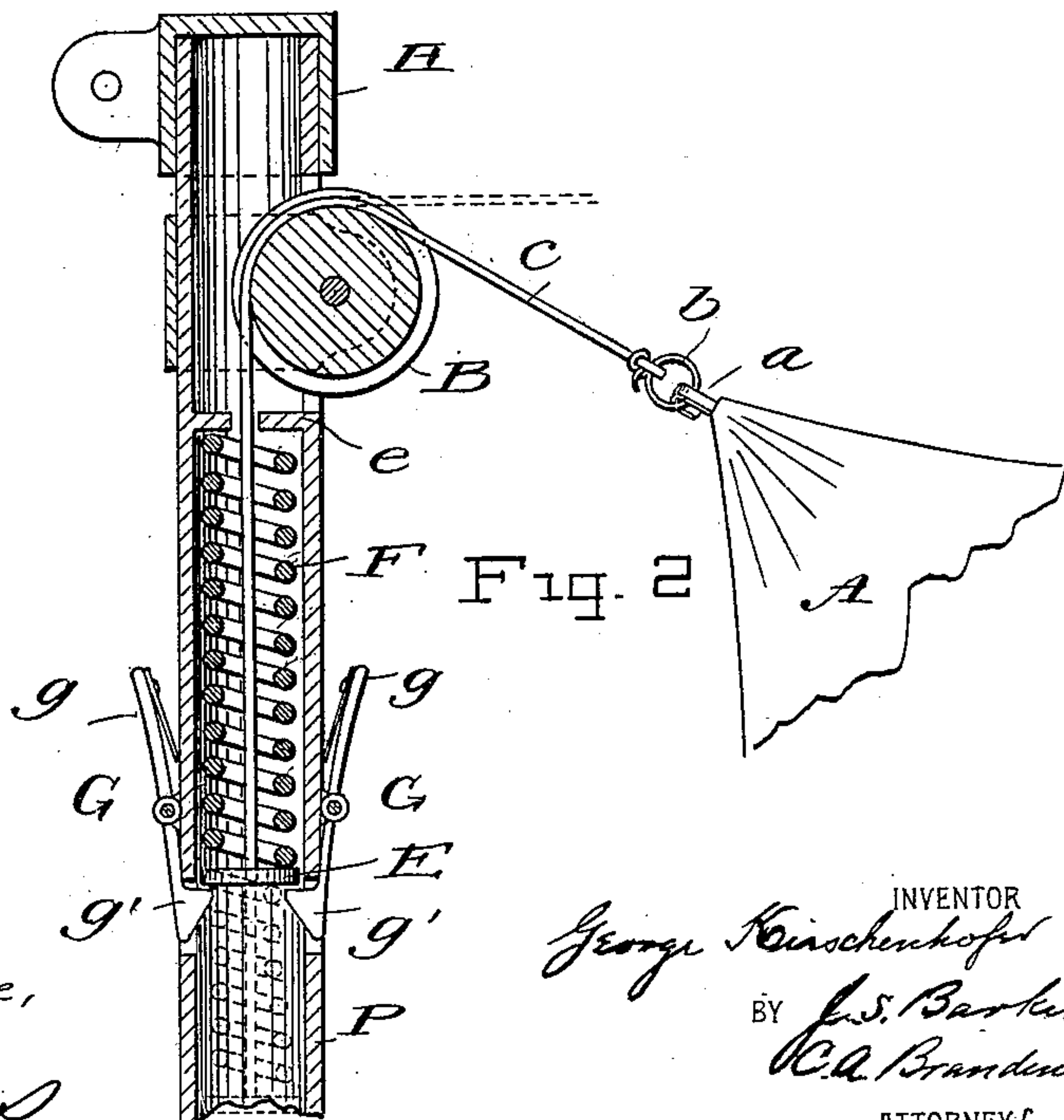


Fig. 2.

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# UNITED STATES PATENT OFFICE.

GEORGE KIRSCHENHOFER, OF BALTIMORE, MARYLAND.

## FIRE-ESCAPE DEVICE.

SPECIFICATION forming part of Letters Patent No. 626,812, dated June 13, 1899.

Application filed February 27, 1899. Serial No. 707,021. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE KIRSCHENHOFER, a citizen of the United States, residing at Baltimore, in the State of Maryland, have  
5 invented certain new and useful Improvements in Fire-Escape Devices, of which the following is a specification.

My invention relates to blanket or net fire-escapes—that is to say, a device adapted to  
10 support a blanket, net, or similar article in an extended position, so as to be ready to receive the body of a person falling or jumping from an elevated structure; and it consists in improvements in the supporting-frame and  
15 the means for sustaining the blanket or net in an extended position, as will be hereinafter set forth.

In the accompanying drawings, Figure 1 is a perspective view of the preferred form in  
20 which I propose to embody my invention, the blanket or canvas being represented as stretched and in position to receive a body. Fig. 2 is a sectional elevation, enlarged, taken through the upper end of one of the posts or  
25 standards. Fig. 3 is a detail view of one of the corner-posts of the frame, showing the brace therefor differently arranged from the showing in Fig. 1.

In the drawings, A represents the life net  
30 or spread, which may consist of netting, of canvas, a blanket, or of other suitable material. As shown, it is provided at its corners with hooks *a*, securely fastened to the net or spread and adapted to engage with rings *b*,  
35 secured to the ends of the ropes, chains, or cables *c*, by which the spread is connected with the supporting and sustaining devices. The life net or spread A is supported between the four posts or standards P of a rectangular frame, these posts or standards being preferably hollow, as represented in Fig. 2, and  
40 serving to inclose the mechanism by which the spread is given a yielding or spring support. The several posts or standards P are connected together to form a rigid frame by the tie-rods R, which enter sockets or apertures provided for their reception in the lower  
45 parts of the standards, where they are secured by the pins *r*. These parts are so made that the frame can be easily taken apart, it being only necessary to withdraw the pins *r* and  
50 remove the tie-rods, when the parts may be

compactly arranged for storage or transportation.

The life net or spread A is connected with 55 the standards near their upper ends, the supporting-cords *c* passing from the spread over sheaves or pulleys B and into the hollow standards or posts P. F represents a relatively stiff coiled spring mounted within the 60 standard or post P and bearing at one end against an abutment or support *e* and at its other end against a plate or washer E, carried by the cord *c*. By reference to Fig. 2 it will be seen that the spring F is situated in the 65 upper part of the post and operates as an expansion-spring to resist the upward movement of the plate E, it being loosely arranged between the cross-plate *e*, which serves as an abutment therefor, and the disk E, and that 70 the action of the spring is to force downward the plate E and the cord attached thereto, and thus put the net or spread A under tension. The cross-plate or partition *e* is centrally perforated for the passage of the cord *c*, which 75 also passes axially through the spring F and is connected with the disk or plate E, which is situated below the spring. As indicated in Fig. 1, the springs arranged within the several 80 posts or standards jointly acting upon the net or spread A cause it to assume a substantially horizontal extended position, and the size of the spread or net should be such that it covers nearly the entire space inclosed between the standards or posts P. When the device 85 is set up and in position to receive the body of the person who may fall or jump therein, the springs F are expanded, as represented in dotted lines, Fig. 2. The effect of the weight of a person landing upon the net or 90 spread A is to sag the latter and suddenly compress the springs F, and unless provision is made to prevent the sudden and violent expansion of the springs after such compression the reaction and expansion of the springs 95 will cause the body to rebound to a dangerous extent. In order to prevent, as far as possible, this rebound of the body after landing on the net or spread, and thus reduce to a minimum the dangers incident to the use of 100 a life-saving device of the character of mine, I provide means which will prevent the sudden expansion of the springs after they have been compressed and will hold them under



compression until intentionally released. The preferred means for accomplishing this consists of spring-catches G, the hooked heads or ends  $g'$  of which enter the standard or post P and are so disposed that while they offer no substantial opposition to the upward movement of the disk E they prevent, after the disk has once passed them, the return or downward movement of the disk and so operate to retain the spring F under compression. The ends  $g$  of these spring-catches are arranged on the outside of the posts in position to be grasped for the purpose of disengaging the catches from the plates or washers E and allowing the spring to expand and stretch the net or spread.

In order to stiffen and strengthen the supporting-frame, I prefer to provide each post or standard with an outward-extending diagonally-arranged brace bar or rod K, such rod being connected with the post or standard near its lower end.  $ii$  are connecting eye-bars extending between the outer ends of the brace-rods K and the upper ends of the posts or standards, the latter being provided with cap-pieces H to facilitate the connection with the bars  $i$ . When a person is about to jump into the net or spread, a fireman or other person will usually stand at each post of the frame to render assistance in case of need, and by placing his foot upon the bar or rod K near its outer end will be able to add much to the stability of the device as a whole by reason of the bracing attachments described. These braces, however, might be entirely omitted or the rods K might extend inward instead of outward. In the latter case the sheaves B should be disposed so as to occupy the position indicated in Fig. 3.

When my life-saving device is to be used, the frame is set up, as indicated in Fig. 1, and the spring-catches G are manipulated so as to release the springs and allow them to expand and stretch the net or spread when the device is in condition for use. The fall of the body upon the net or spread A causes the compression of the springs F, by which the shock of the fall is broken, and carries the plates or washers E past the heads of the spring-catches G. The latter prevent the return of the said plates or washers and hold the springs under compression, thus preventing them from expanding and causing by their expansion a violent rebound of the body. The life-net can be again quickly put in condition for use by pressing together the arms or ends  $g$  of the spring-catches, when the springs will expand and stretch the net or spread.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a supporting-frame, a life net or spread, expansion-springs mounted in the frame for holding the spread in an extended position, flexible connections between the life-net and the springs and spring-catches for holding the springs under compression and preventing their reaction when compressed by the fall of a body upon the net or spread, substantially as set forth.

2. The combination of a supporting-frame having the hollow standards or posts, P, a life net or spread mounted between such posts, expansion-springs arranged within the upper part of the posts, flexible connections between the springs and the net or spread, and the spring-catches, arranged below the springs to hold the springs under compression, substantially as set forth.

3. The combination of a supporting-frame, a life net or spread, loosely-mounted springs F bearing against abutments or supports in the frame, movable disks or plates against which the springs also bear, flexible connections between the said disks or plates and the life net or spread, and catches arranged to engage with the said disks and hold them when the springs are put under compression by reason of a weight upon the net, substantially as set forth.

4. The combination of a supporting-frame having hollow posts P, a life net or spread mounted between the posts, loose expansion-springs F arranged in the upper parts of the posts and having their upper ends bearing against cross-supports  $e$ , movable disks or plates E arranged below the springs within the posts and against which the springs bear, cords connected with the life-net and passing through the springs to the said disks or plates to which they are connected, and catches below the springs arranged to engage with and hold the plates or disks when moved to compress the springs, substantially as set forth.

5. In a life-saving device, the combination of the posts or standards, P, the removable tie-bars, R, between the standards, the diagonally-arranged brace-bars, K, the bars,  $i$ , between the outer ends of the brace-bars and the upper ends of the standards, the life net or spread, A, supported between the upper portions of the standards or posts, and means for yieldingly sustaining the net or spread in an extended position, substantially as set forth.

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Witnesses:

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