

B. B. BRIGGS.
FIRE ESCAPE.

APPLICATION FILED MAR. 16, 1903.

3 SHEETS—SHEET 1.

FIG. 1.

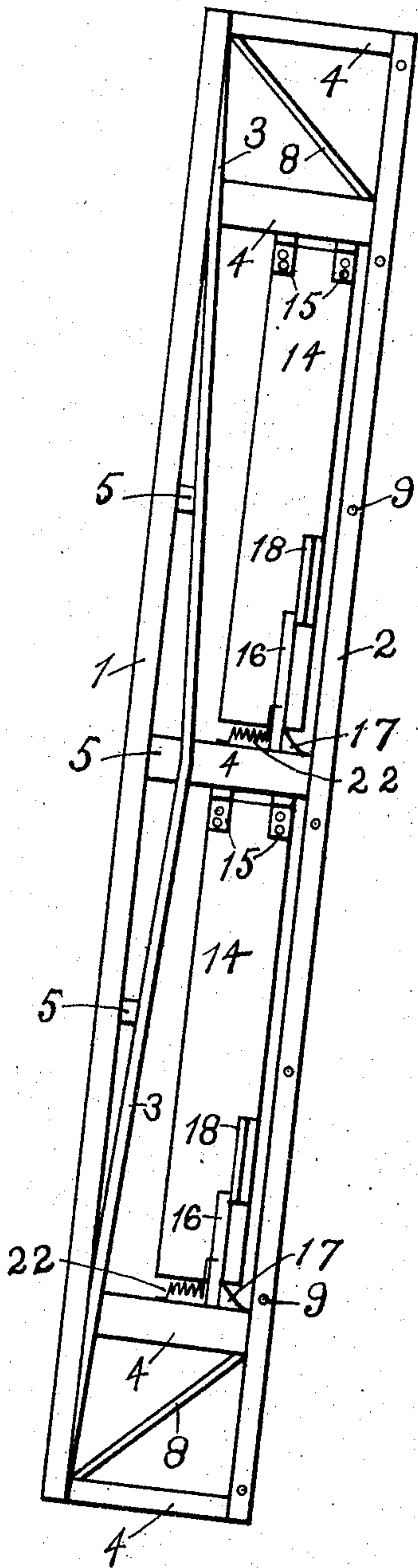


FIG. 7.

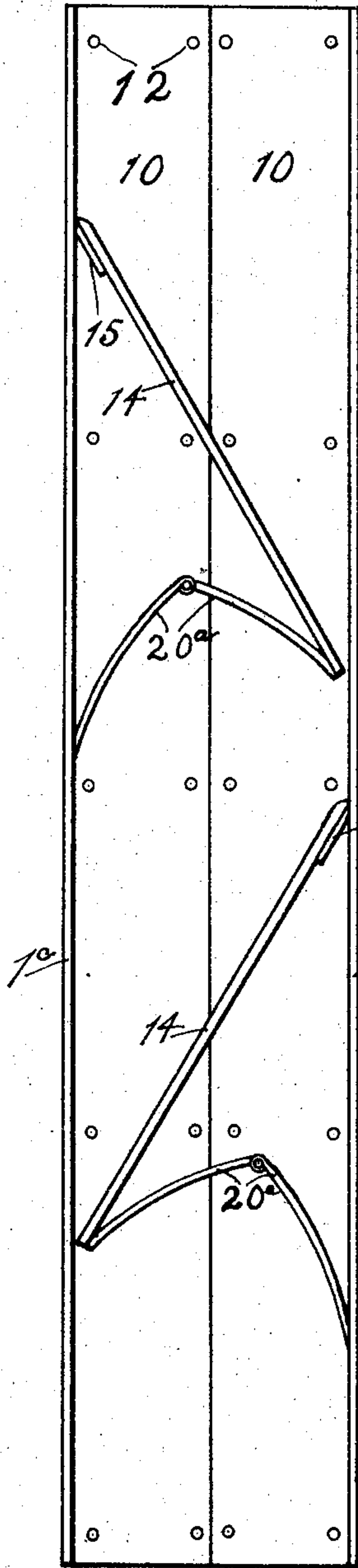
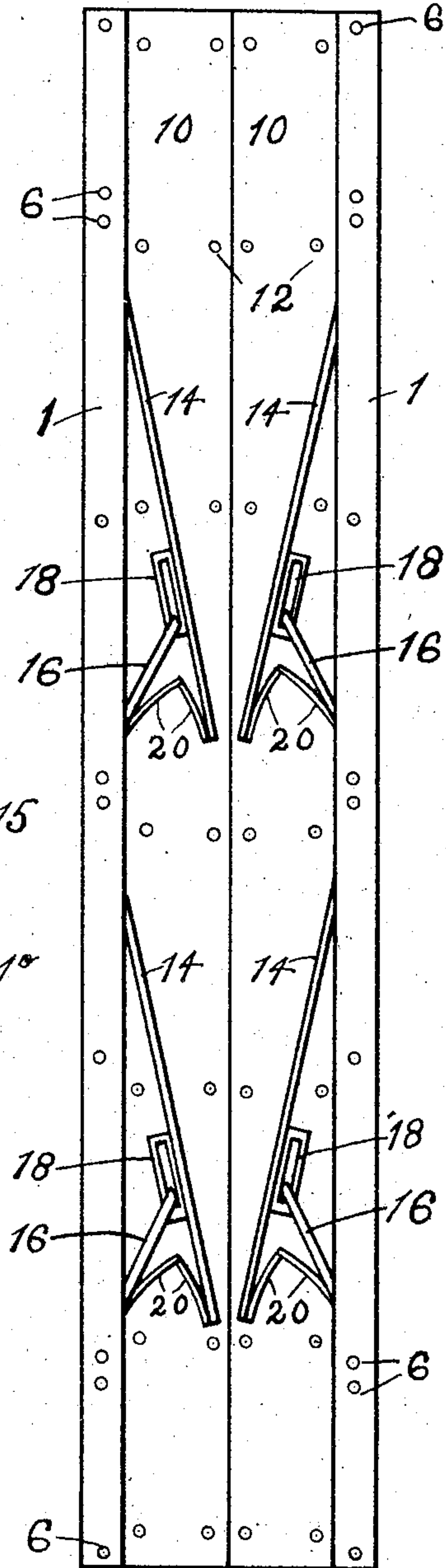


FIG. 2.



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3 SHEETS—SHEET 2.

FIG. 3.

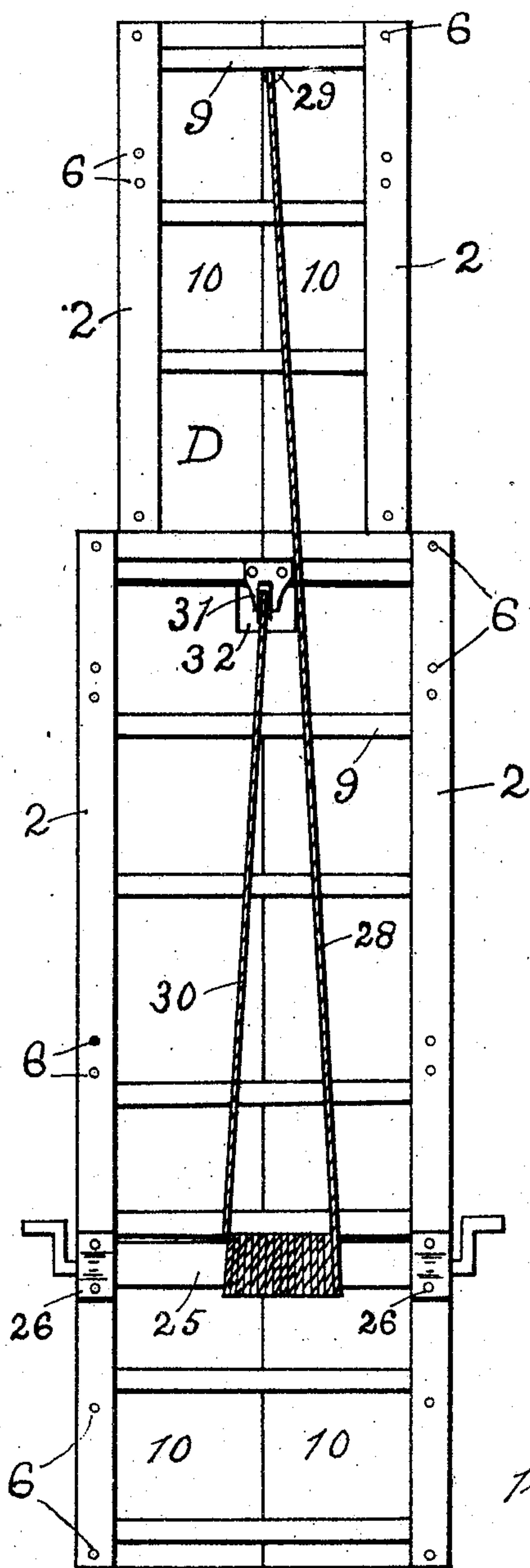
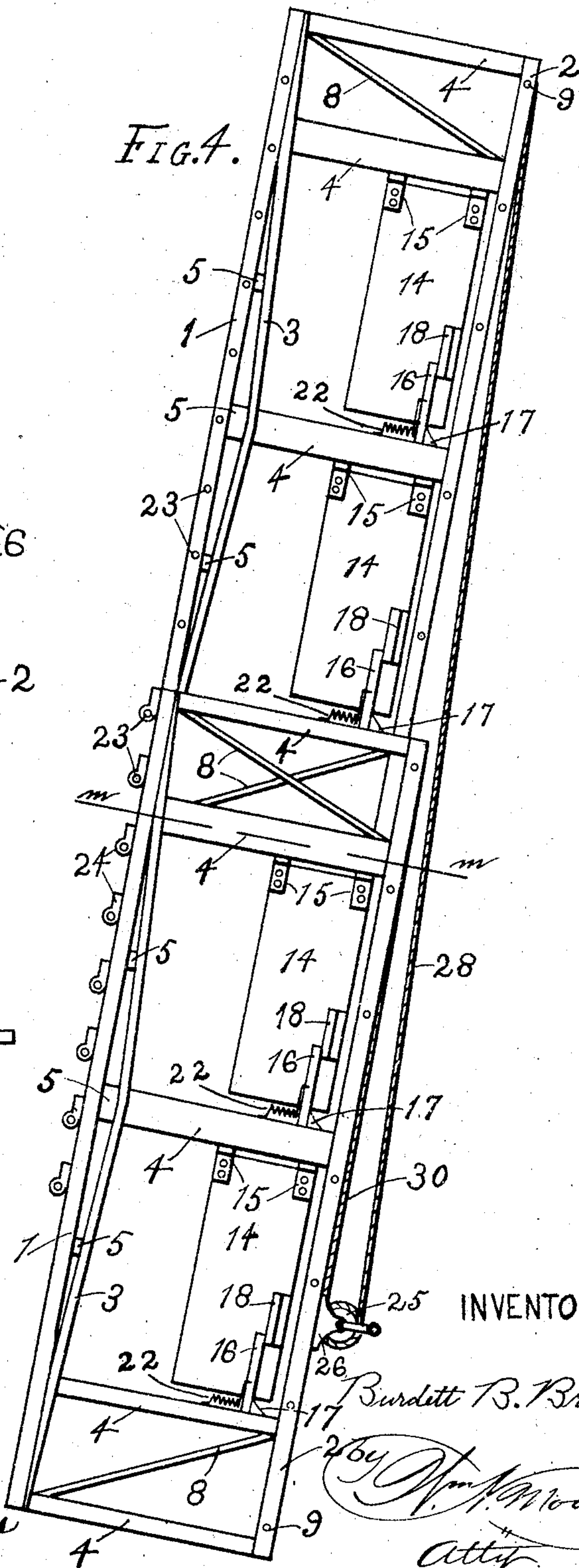


FIG. 4.



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3 SHEETS—SHEET 3.

Fig. 8.

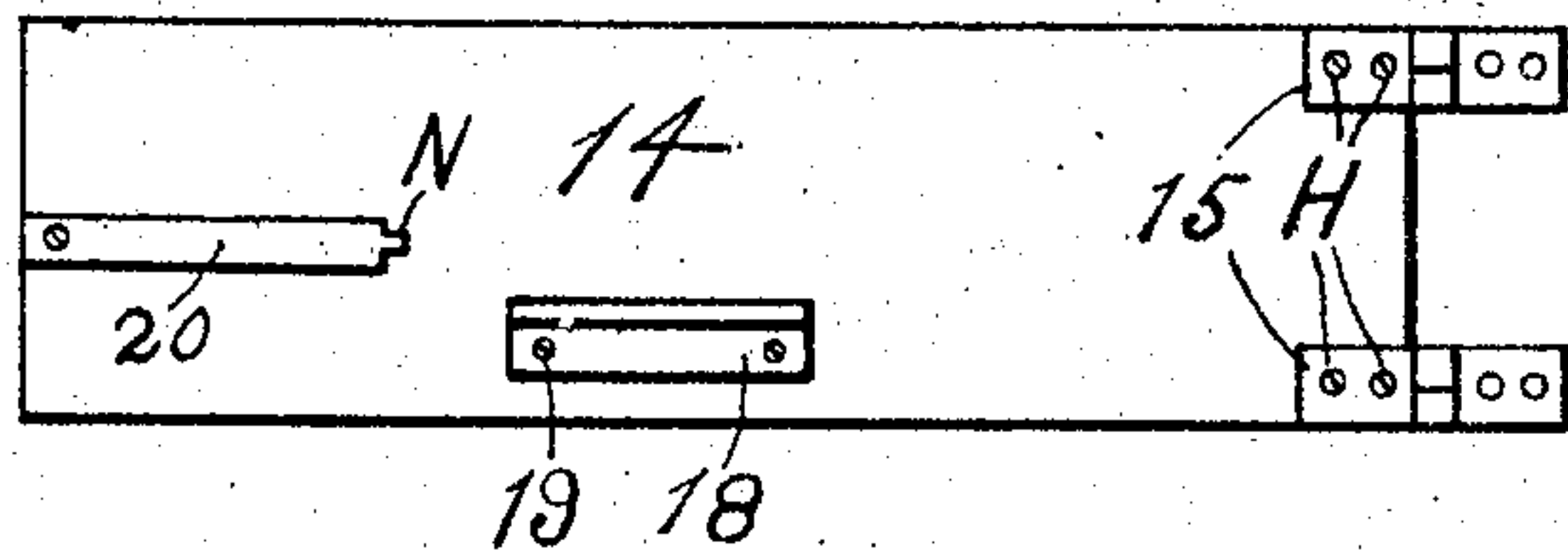


Fig. 9.

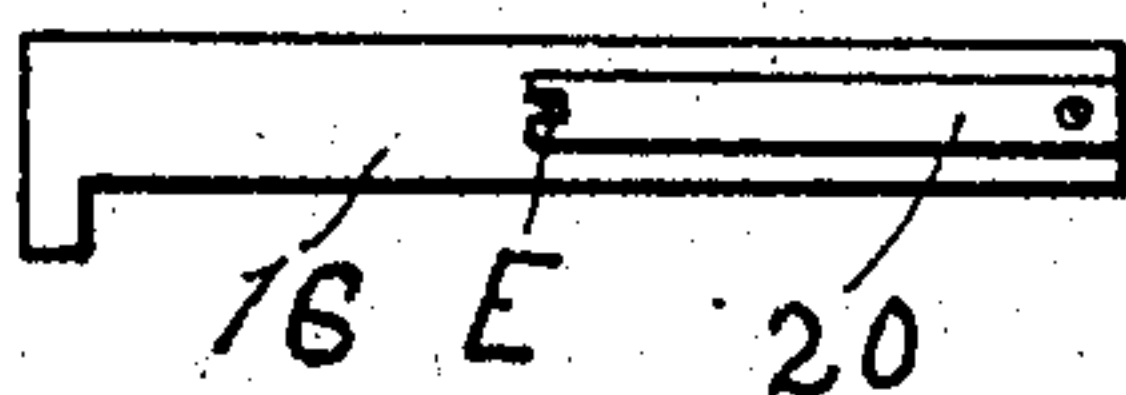


Fig. 6.

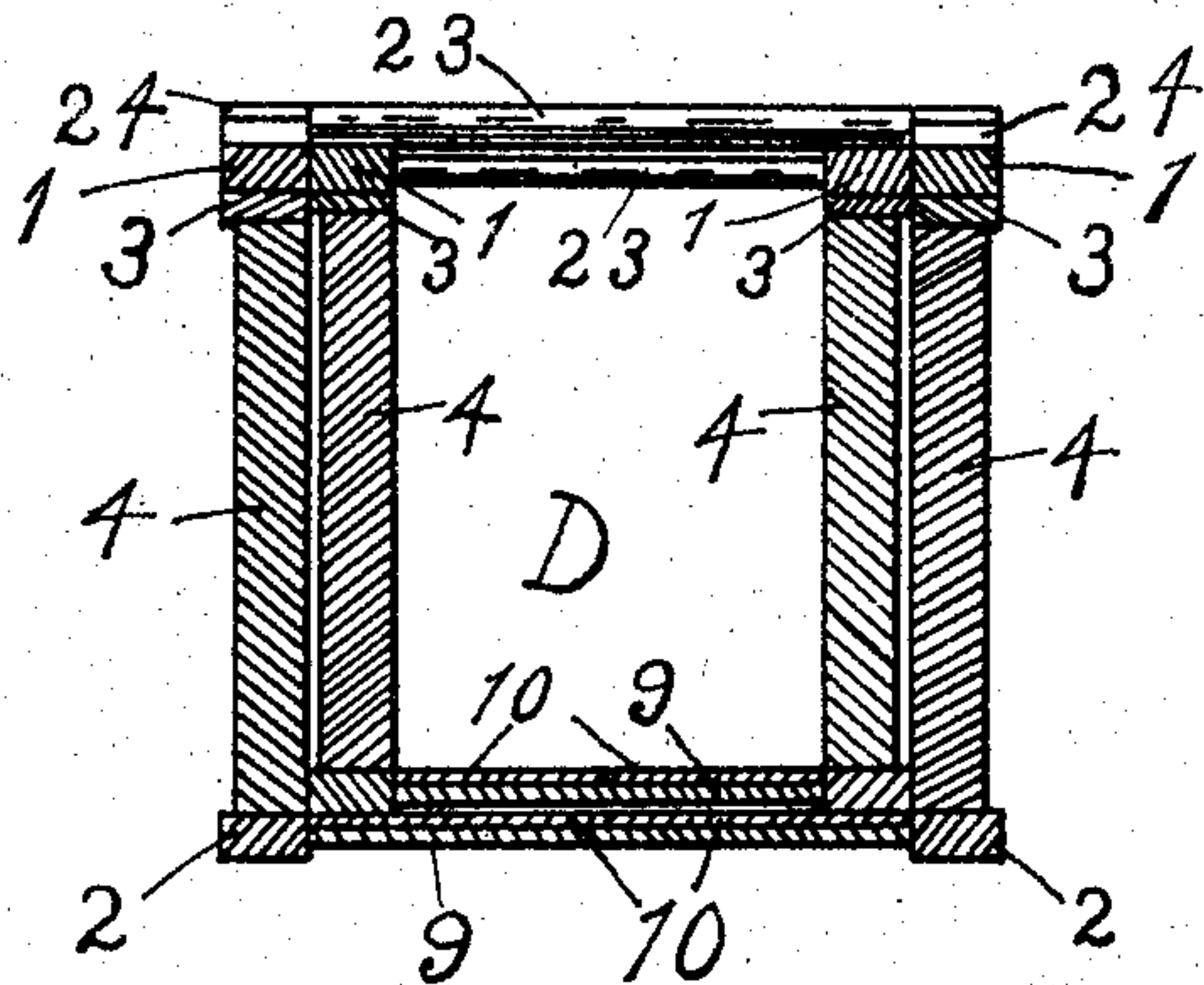
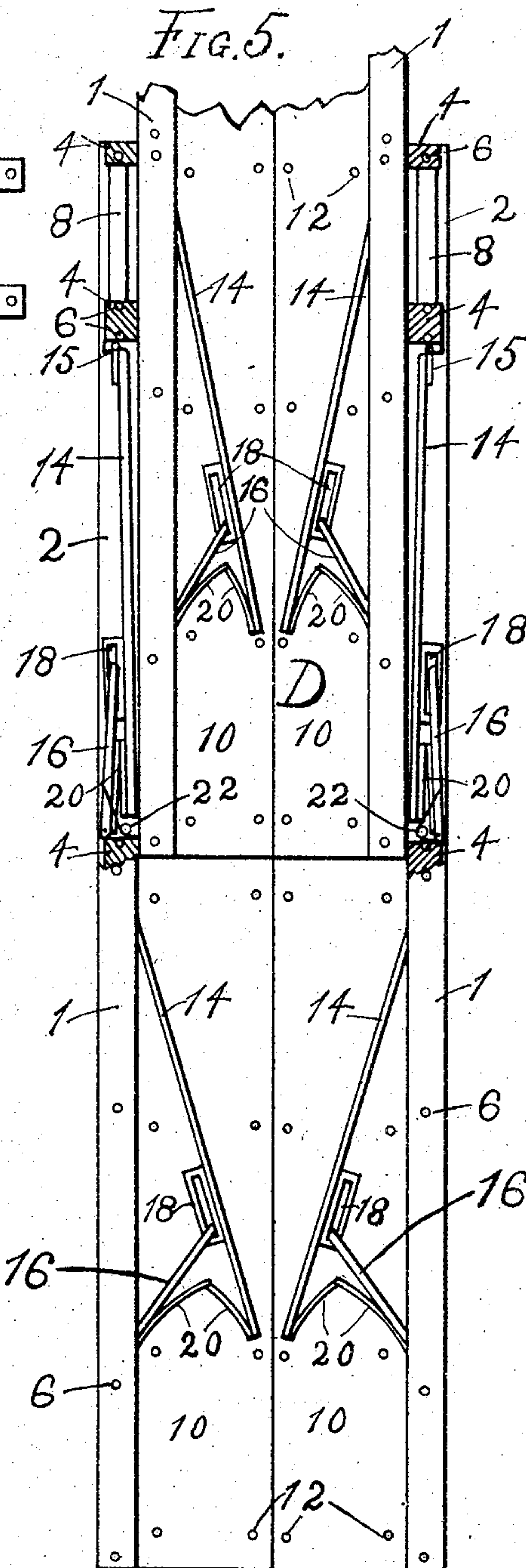


Fig. 5.



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UNITED STATES PATENT OFFICE.

BURDETT B. BRIGGS, OF CRESTON, IOWA.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 778,300, dated December 27, 1904.

Application filed March 16, 1903. Serial No. 148,073.

To all whom it may concern:

Be it known that I, BURDETT B. BRIGGS, a citizen of the United States, and a resident of Creston, Union county, State of Iowa, have invented certain new and useful Improvements in Fire-Escapes; and my preferred manner of carrying out the invention is set forth in the following full, clear, and exact description, terminating with claims particularly specifying the invention.

My invention relates to improvements in fire-escapes, more specifically to that kind in which retarding mechanism operates in conjunction with a chute; and the objects of the same are, first, to provide a construction of chute that shall be exceedingly strong without adding to the weight of the chute to an objectionable extent and to adapt the same to withstand without breaking or materially bending any and all weight to which it may be subjected when in use; second, to provide an improved and simplified means for regulating the descent of a body down the chute; third, to provide a better construction of apparatus of this general character and to provide certain improved details, all adding to the general efficiency of the apparatus.

To this end the invention consists in the details of construction hereinafter more fully described and claimed and as shown in the accompanying drawings, wherein—

Figure 1 is a side elevation of my improved fire-escape. Fig. 2 is a front elevation of the device. Fig. 3 is a detail view of the back of the chute with the extension member D partially housed. Fig. 4 is a side elevation showing my improved fire-escape in two sections, which are extended, and illustrating a windlass mounted on the lower section and a rope leading thence to the upper section. Fig. 5 shows a front view of chute with extension-section D partially housed, certain parts being cut away and in section. For the sake of clearness the rounds and drum are omitted from this view. Fig. 6 is a sectional detail on line *m m* of Fig. 4. Fig. 7 shows a modification of chute and retarding mechanism. Fig. 8 represents, on a somewhat larger scale, the wing 14 and spring removed from the chute.

Fig. 9 is a similar view of the lever and spring 20 removed from the chute.

Referring to the drawings, similar letters and numerals refer to similar parts throughout the several views.

The chute has each one of its two sides formed of two bars 1 and 2 and a truss-bar or brace 3, connected at its ends to the bar 1 and the middle portion of the truss-bar converging downwardly toward the lower bar 2, and several struts or brackets 4 5, interposed between the bars or between the truss-bars and brace and secured by bolts or rivets 6, as most clearly seen in Figs. 1, 2, 5, and to provide extra resistance against end vibration a diagonal brace 8 is interposed in the space at the ends, as is seen in Figs. 1, 4, and secured by bolts or other suitable means. The sides of a fire-escape chute or passage-way of such construction obviously involves great strength, lightness, and durability, it being seen that this construction and arrangement of parts prevents any material bending or breaking under any ordinary weight it may be called upon to sustain. The two sides are connected together by cross-bars 9, mortised into the lower bars 2 or secured to the sides in any suitable manner. A back or slide 10 is secured to the upper or front side of the cross-bars 9, as is seen in Figs. 1, 2, 3, by screws or nails 12 or other suitable means. A retarding wing or arm 14 is located at points on the inside of the two sides of the chute, or preferably in a space provided therefor between the two side bars 1 2 or between the truss-bar and the struts 4, as best seen in Fig. 4, and is adapted to be swung on a suitable hinge or pivot 15, which is attached to the side of the chute or strut 4, as best seen in Figs. 1, 5, 7.

A lever or stop 16 is pivoted to the side of the chute or strut to a suitable bracket or hinge 17 remote from the pivot 15 of the wing, and the movable end of said lever is provided with a suitable part communicating with a suitable loop or guide 18, attached to the outside of the wing, and prevents the wing from being swung past its normal position.

A spring 20 is attached to the wing and to the lever 16 or to the side of the chute or strut

4, as best seen in Figs. 2, 5, 7, and operates to swing the wing or arm across the passage-way of the chute.

A spring 22 is attached to the strut 4 and to the lever 16 as another means cooperating with the spring 20 to retain the said wing in its normal position.

It will be noticed that the springs and stop mechanism are located on the lower or movable end of the wings, thereby reducing the strain on the hinges of the wing. It is clear that a spring might be employed at the hinge 15; but this would not be so effective as those described and shown.

I prefer a spring attached to the wings and to the side of chute or to the lever 16 or a spring attached to the lever and the side of chute.

In Fig. 8 I have shown the wing 14 and hinge 15 attached to the wing with screws or rivets H.

In Fig. 9 I have shown the lever 16 with the spring 20 removed from the chute and illustrated on a somewhat larger scale, so as to more clearly show the lever 16 with the projecting part that moves in the guide or slot 18.

While I have shown the lever or stop 16 attached to the side of the chute and communicating with a loop or guide therefor secured to the wing 14 by the screws or rivets 19, it is clear that the lever might be attached to the wing and communicate with a suitable loop or guide attached to the chute. In Figs. 8, 9 I have also shown the spring 20 seen in Figs. 2, 4, 5. This spring consists of two parts and the end of one part having a suitable recess E to cooperate with the tongue N on the complementary part, as seen in Figs. 8, 9.

I do not confine myself to the use of any particular kind or shape of spring for the purpose set forth, as it is clear a variety of different springs might be used.

The wings 14 may be made of any suitable material, size, and shape and are preferably arranged in pairs, as shown in Figs. 2, 5, and secured at their upper ends to the sides of the chute and their lower ends projecting downward and inclined to the center of the passage-way and operating to close the passage-way, as best seen in Figs. 1, 2. The wings may be arranged so as to have their lower ends come close together or an intervening space left between them, as shown in Fig. 2.

In Fig. 7 I have shown the wings or arms located alternately and each arm extending across the passage-way, the stop or lever 16 and spring 22 being omitted from this view and the spring 20^a having a coil portion to increase its elasticity, which is too well known to need any further description here. When this chute stands at a considerable incline, a person can pass down the chute, or an insensible person can be slid down through the passage-way of the chute, by or between the retarding-wings without the aid of ropes and

little or no attention other than perhaps the aid of an assistant or operator at the top to assist them into the passage-way and at the lower end to remove them.

It should be noted that as the arms or wings are swung outward from each other and open the passage-way the springs increase in tension and become more effective, and as the wings swing inwardly and close the passage-way the spring decreases in tension and becomes less effective, thereby permitting a large or small person to pass down the passage-way at about the same velocity.

In Figs. 3, 4, 5, 6 I have shown how my improved fire-escape may be made in telescoping sections, each of which possesses the details of construction above set forth, and each section may have rounds connecting the two sides or top bar 1, as shown in Figs. 3, 6. The telescoping or extensible section D is arranged to slide or move between the two sides and the back of the lower section and below the rounds 23, as shown in Figs. 3, 4, 5, 6. The rounds 23 are preferably attached to the lower section by suitable brackets 24, secured to the side bars 1 and the rounds of the extensible section in the usual way, as best seen in Figs. 4, 6. As will be seen in Fig. 4, the rounds 23 of the lower section are left off a suitable distance to provide an exit for the body, and any suitable means may be employed for reaching the rounds, such as a short ladder or steps secured to the side of the chute. It will be observed that securing the cross-bars 9 between the sides, as shown in Fig. 6, when the extensible section is extended or nested the bars 9 clear the back of the lower section. Again, it will be seen that by securing the retarding-wings in the aperture between the side bars the size of the passage-way is increased and when the extensible section is being housed the retarding-wings of the lower section are pressed between the bars by the bar 2 of the extensible section, as best seen in Fig. 6.

In Fig. 7 I have shown the sides of the chute 1^c made of thin flat material and the retarding mechanism secured to the inside of same.

In Figs. 3, 4 I have shown a windlass 25, secured to the lower section by suitable brackets 26. A rope 28 is attached at one end to a suitable fastening 29 on the outer end of extension-section and wound or unwound on said drum, while the other end, 30, passes upward and over a pulley 31, attached to the upper end of the lower section, said rope passing through an opening 32 in the back of lower section, thence downward, and attached to the lower end of extensible section.

Heretofore it has been proposed to construct a fire-escape in which stationary zig-zag partitions were secured and extending to the middle of the chute, the body simply sliding and falling from one partition to the

other; but in such instances a person would be badly shaken up. By such an arrangement the passage-way would have to be very large. Again, flexible chutes with ropes or elastic bands encircling them have been devised; but in such instances they have proven to mutilate the face and body of a person. It will be observed, however, that in the part of my improvement relating to the retarding wings they grip or clutch the body and are most effective on the largest and strongest parts of the body and as the head of a person comes in contact with said wings the retarding mechanism will press very lightly and permit a person to pass through the passage-way without being cut, bruised, badly shaken up, or rendered insensible. It will be seen that the retarding-wings are so arranged as to swing free of the back 10 and the side bars, so as not to catch clothing and various other things that might get lodged in the passage-way if the wings come in contact or were located too close to the back or bars.

While I have shown my improved fire-escape portable, it may be constructed stationary in or on buildings and run to any number of stories in height and provided with any suitable entrance to the passage-way.

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

1. A fire-escape chute comprising two sides, each composed of a plurality of bars, struts interposed between said bars, transverse connections between the said sides, a back in the rear of said sides, and retarding mechanism fulcrumed in the aperture between said side bars and struts.

2. The combination, in a fire-escape chute comprising two sides, each composed of a plurality of bars, means securing said bars normally apart, transverse connections between said sides supporting a slide between said sides, and retarding mechanism pivoted between said side bars.

3. In a fire-escape chute, spring-pressed retarding-wings hinged at one end to the side of said chute, and the free ends of the wings extending downward and across toward the opposite side from the hinge side, and the free ends of the wings adapted to be swung back to the hinge side, substantially as set forth.

4. The combination in a fire-escape, comprising a chute consisting of two sides with a back, of retarding-wings hinged at one end to suitable points on said sides, a loop secured on the outside of the wing, a spring-actuated lever attached to the chute, at a point remote from said loop, said lever having a suitable projection at the end thereof, which is movable in the said loop, all for the purpose set forth.

5. The combination in a fire-escape chute, retarding-wings attached at one end to the side of said chute, a loop provided on the wings a lever attached to said chute and the free end

thereof movable in said loop, and means to swing said wings normally together, for the purpose set forth.

6. The combination with a fire-escape chute, retarding mechanism pivoted to the side of said chute, a stop provided on said retarding mechanism, a lever attached to the side of the chute and communicating with said stop, and means to swing said retarding mechanism toward the center of the chute, for the purpose set forth.

7. A fire-escape chute comprising a plurality of sections, the upper section movable on the section next below, each comprising two sides composed of two parallel bars, several struts interposed between said bars, means securing said bars and struts together, transverse connections between the sides of said chute supporting the back of the chute, retarding mechanism fulcrumed between the side bars of said sides and extending into the chute and means for extending said sections.

8. A fire-escape comprising two sections, one section having a side composed of a plurality of bars, struts interposed between said bars, means securing said bars and struts together, transverse connections between the sides of each section, a slide in rear of said sides, retarding mechanism provided on said sections, and the mechanism of the lower section adapted to be housed between the side bars of said section, when the inner section is nested, and means to extend said sections.

9. The combination with a fire-escape chute comprising two sections, one movable upon the other, retarding mechanism secured on the lower section and projecting into the passage-way of said chute, and adapted to be housed between the two contiguous sections when the inner section is nested, and means to extend said sections.

10. A fire-escape consisting of a plurality of sections, comprising two sides, each consisting of two parallel bars, and several brackets interposed between the said bars, means securing the said bars and brackets together, transverse rounds that connect the said sides together in pairs, a slide in the rear of said sides, and retarding mechanism secured between the said side bars, and means for extending the said sections.

11. The combination, in a fire-escape comprising two sides, each consisting of two bars, a truss-bar connected at its ends, to the upper bar, said truss converging toward the lower bar, several interposed struts, and transverse connections connecting the said sides together in pairs, of spring-pressed mechanism for retarding the body, located in the aperture between the side bars and struts, for the purpose set forth.

12. In a fire-escape, the combination with a chute, a retarding-wing jointed thereto, a spring-pressed lever attached to said wing, and having movable contact with the chute,

and operating to swing said wing into the passage-way of said chute, for the purpose set forth.

13. In a fire-escape, the combination with a passage-way for conducting a person downward, spring-pressed retarding-wings pivoted on opposite sides of said passage-way, the wings of one side located opposite the wings of the opposite side, said wings extending downward and substantially together, and each free to be swung outward from the other.

14. In a fire-escape, the combination with a chute, of a sweep-wing adapted to be swung into the passage-way of the chute, a lever pivotally connected with the side of chute, and communicating with a guide therefor, secured to said wing, a diverging spring having its open ends attached to said lever and to said wing, for the purpose set forth.

15. In a fire-escape, the combination with a chute, of a sweep-wing adapted to be swung into the passage-way of the chute, a lever pivoted to the side of the chute, and communicating with a guide therefor secured to the said wing, an upwardly-diverging spring having lower end union with said wing and lever, for the purpose set forth.

16. The combination, of the wing 14, provided with a loop 18, a lever 16, pivoted to the bracket 17, and communicating with the loop 18, for the purpose set forth.

17. The combination, with the wing 14, provided with a loop 18, the lever 16, pivoted to the bracket 17, and communicating with the loop 18, and spring 22, attached to the lever, for the purpose set forth.

18. In a fire-escape chute retarding-arms fulcrumed thereon, a lever fulcrumed to one of said members, and having sliding contact with the other member, and a flexible coil-spring attached to said lever, for the purpose set forth.

19. The combination, in a fire-escape chute having two sides, each composed of a plurality of bars, means on said sides for retarding a body and extending into the passage-way of said chute, and adapted to be pressed between said side bars, substantially as described.

20. In a fire-escape chute, retarding-wings secured on opposite sides of said chute, the wings of one side located opposite the wings of the opposite side, said wings extending into the chute and normally together, each wing provided with a spring-yielding lever, operating to retain said wings in their normal position, for the purpose set forth.

21. In a fire-escape chute, retarding-wings pivoted on opposite sides of said chute, said wings extending downward and normally together, and each wing provided with a suitable stop to prevent said wings swinging inwardly past their normal position, substantially as described.

In testimony whereof I have hereunto subscribed my name to this specification, at Creston, in the county of Union and State of Iowa, this 7th day of March, 1903, in the presence of two subscribing witnesses.

BURDETT B. BRIGGS.

Witnesses:

FRANCIS A. FARIDAY,
ROBERT I. PINKERTON.