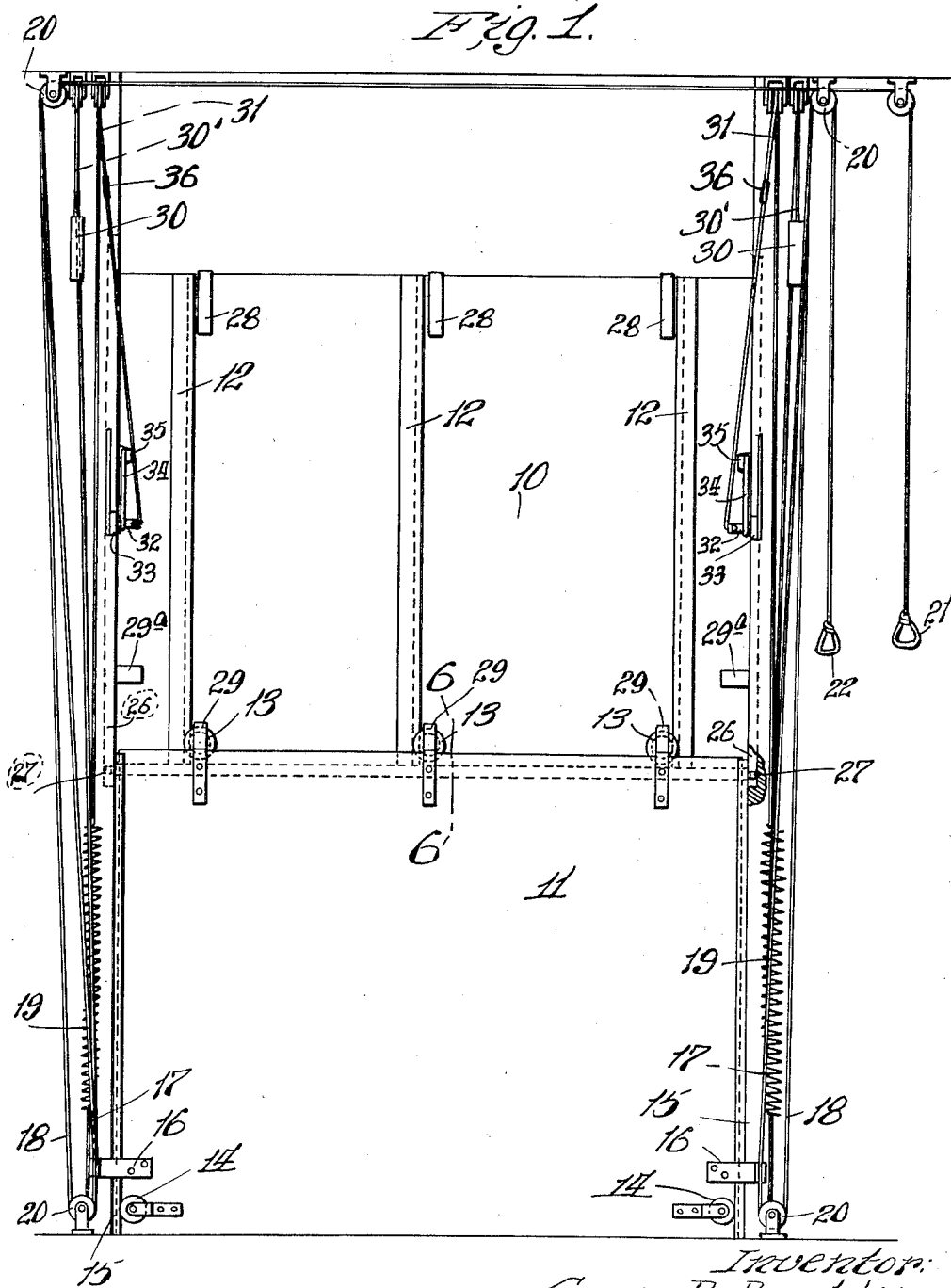


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DOOR AND WINDOW.  
APPLICATION FILED APR. 7, 1919.

1,358,356.

Patented Nov. 9, 1920.  
2 SHEETS—SHEET 1.

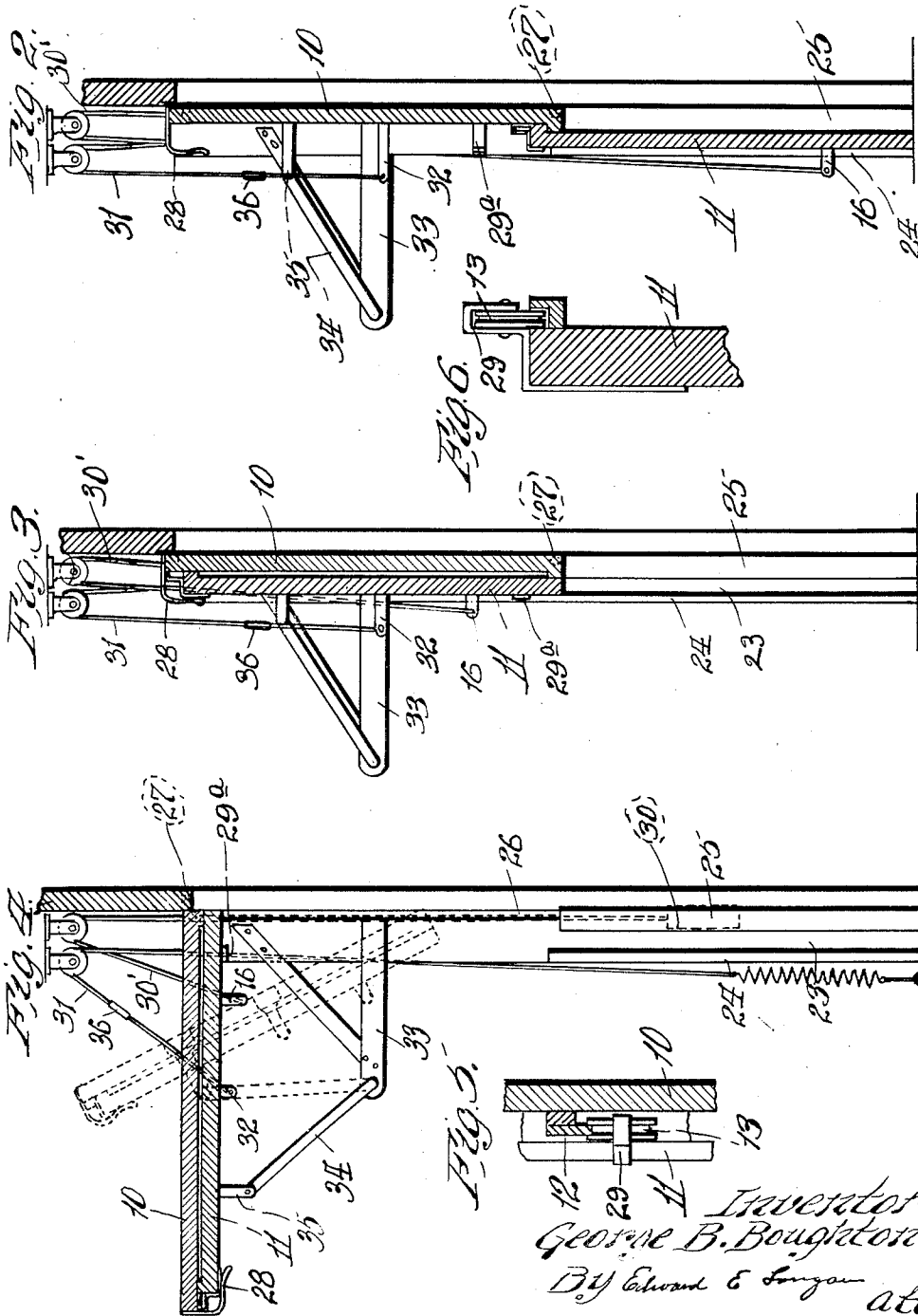


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# UNITED STATES PATENT OFFICE.

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## DOOR AND WINDOW.

1,358,356.

Specification of Letters Patent.

Patented Nov. 9, 1920.

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*To all whom it may concern:*

Be it known that I, GEORGE B. BOUGHTON, a citizen of the United States, and resident of St. Louis and State of Missouri, have invented certain new and useful Improvements in Doors and Windows, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to improvements in doors and windows and has for its primary object a telescopic lower section. A further object is to construct a door or a window, the lower section of which is first raised and then the entire device tilted so that when the door or window is opened the same will lie parallel to the ceiling. A further object is to counter-balance the weights of the different sections so that no unusual exertion is required to open or close the doors or windows. A further object is to provide a door or window with a flexible link so that the same may be automatically closed in case of fire.

In the drawings:

Figure 1 is an inside view of my complete device.

Fig. 2 is a sectional view showing the same in closed position.

Fig. 3 is a sectional view showing the lower portion raised.

Fig. 4 is a view showing the door or window completely opened with its half opened position shown by dotted lines.

Fig. 5 is a sectional view taken through the center of the guide roller and its track.

Fig. 6 is a sectional view taken on the line 6-6 of Fig. 1.

In the construction of my device, I provide a door or window composed of sections 10 and 11, the section 10 being provided with guide rails 12, the construction of which is clearly shown in Fig. 5, so as to allow the sheave wheels to ride thereon, thus guiding the top portion of the section 11.

Near the lower portion of the section 11 is provided a wheel 14 which rides against the side of the frame 15. The function of the wheel 14 is to prevent any tilting of the section 11 and thereby binding the same. Near the bottom of the section 11 are attached brackets 16 to which cables 17 are attached, said cables being continuous or, in other words, have a portion intermediate

their ends secured to the brackets 16. The portion 18 of the cables is adapted to lower the section 11 and the portion 19 to raise the same.

The sheave wheel 20 is secured to the floor or the ceiling around which the portion 18 of the cables 17 passes. The ends of each portion 18 of the cables 17 are joined together and provided with a hand grip 21 and the ends of each portion 19 of said cable are provided with a hand grip 22, the hand grip 22 being for raising and opening the door or window and the hand grip 21 being for closing the same.

That portion of the door frame in which the section 11 is seated is provided with a groove 23, this groove being formed by strips 24 and 25 being nailed to the frame. The frame is further provided with a groove 26 which is cut therein so as to act as a guide for the roller 27 which is secured on each side of the section 10. On the upper edge of the section 10, I secure a plurality of spring members 28 which lap or grip the housing 29 of the rollers 13, these spring members serving to hold the door in its raised position.

Adjacent each side of the member 10 and near its bottom, I provide holding members 29<sup>a</sup> which members retain or hold the lower portion of the section 11 when the door or window is fully opened.

The section 11 is practically counter-balanced by counter-weights 30 which are attached to a cable 30', said counter-weights carrying the greater part of the weight of the lower section but at the same time not being quite equal to it so that a certain amount of pull will have to be exerted to overcome the weight of the section 11, but at the same time holding this section, when the spring members 28 have gripped this section.

The upper member 10 is provided with a cable 31 to the lower end of which is attached a coil spring or other means by which to counter-act the weight of this section. When a coil spring is used the end opposite that to which the cable 31 is secured is attached either to the floor or wall of a building adjacent the door frame.

The opposite end of the cable 31 is connected to a bracket 32 which is attached to the upper member 10. Attached to each side of the frame 15 is an arm 33 to which one end of a link 34 is pivotally attached,

the opposite end being pivotally attached to a bracket 35 which is mounted on the portion 10 of the door. The object of the arm 33 and the bracket 35 and the pivotal link 34 is to provide a fulcrum for the upper portion of the member 10. In other words to cause the door 10 to revolve thereon, as shown by dotted lines in Fig. 4.

The operation of my device is as follows:

- 10 Assuming that the door is closed as shown in Figs. 1 and 2, a downward pull is exerted upon the grip 22 and the lower section of the door will be pulled upward until it assumes the position as shown in Fig. 3.
- 15 When the spring members 28 grip the upper edge of the housing and rollers and hold it in this position, at the same time the counter-balance weights 30 assist materially in raising the section 11 by almost
- 20 counter-balancing it after the section 11 has assumed this position. The continued pull on the grip 22 will have a tendency to raise both doors. This tendency which would be normally vertical is converted into a tipping movement by means of the arm 33,
- 25 bracket 35 and swiveled link 34 which causes the upper portion of the door to ride outwardly as well as upwardly.

- 30 After the door or window has assumed the overbalanced position as shown by dotted lines in Fig. 4, the tendency is to fall down and inwardly and no longer necessitates the pull on the handle 22, the weight of the door performing the balance of the
- 35 opening. I may, if desired, place a fusible link 36 as portion of the cable 31, so that when this link burns through as would be the case in a fire, the cable 31 is parted and the counter-weights attached thereto re-
- 40 leased from the upper section of the door. This would allow the end of the door still in the frame to sink bringing the door back into the position shown in Fig. 2 and the sudden jar in slamming back into this position would release the spring members 28
- 45 from the lower section and it too would sink, thereby closing the door and making it act as a fire door.

Having fully described my invention, what I claim is:

1. A door composed of an upper and a lower section, a frame in which said sec-

tions are mounted, tracks carried by the upper section and sheave wheels carried by the lower section for holding the sections together, means carried by each section for counter balancing the weight thereof, cables for raising the lower section, means carried by the upper part of the upper section for retaining the lower section in elevated position, brackets carried by the frame and links swivelly connected to the brackets and upper section for tilting the upper part of both sections to a horizontal position simultaneously, a plurality of sheave wheels over which the lifting means pass, a handle connected to the lifting means, a lowering means connected to the lower section, sheave wheels over which the lowering means pass, a handle connected to the lowering means, said raising and lowering means adapted to open and close the door.

2. A door comprising a frame, an upper and a lower section mounted in said frame, strips secured to the frame at each side of the lower section forming a guide-way therefor, a groove formed in each side of the frame forming a guide-way for the upper section, a roller seated in the groove and adapted to guide the lower end of the upper section, rails carried by the upper section, sheave wheels carried by the upper portion of the lower section and riding on said rails for slidably holding said sections together, counterbalance means carried by each section, cables connecting the counter balance means and their respective sections, sheave wheels over which cables carrying the counter-balance means are adapted to pass, brackets carried by the frame and connected to the upper section for tilting both sections simultaneously when the lower section has been lifted, a cable attached to the lower section for raising and lowering the same, and sheave wheels over which said cable passes.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

GEORGE B. BOUGHTON.

Witnesses:

ELIZABETH CARTALL,  
WALTER C. STEIN.