No. 838,770. PATENTED DEC. 18, 1906.

H. H. BUSCH.

SAFETY APPARATUS FOR ELEVATOR CARS.

APPLICATION FILED JULY 24, 1906.

2 SHEETS—SHEET 1.

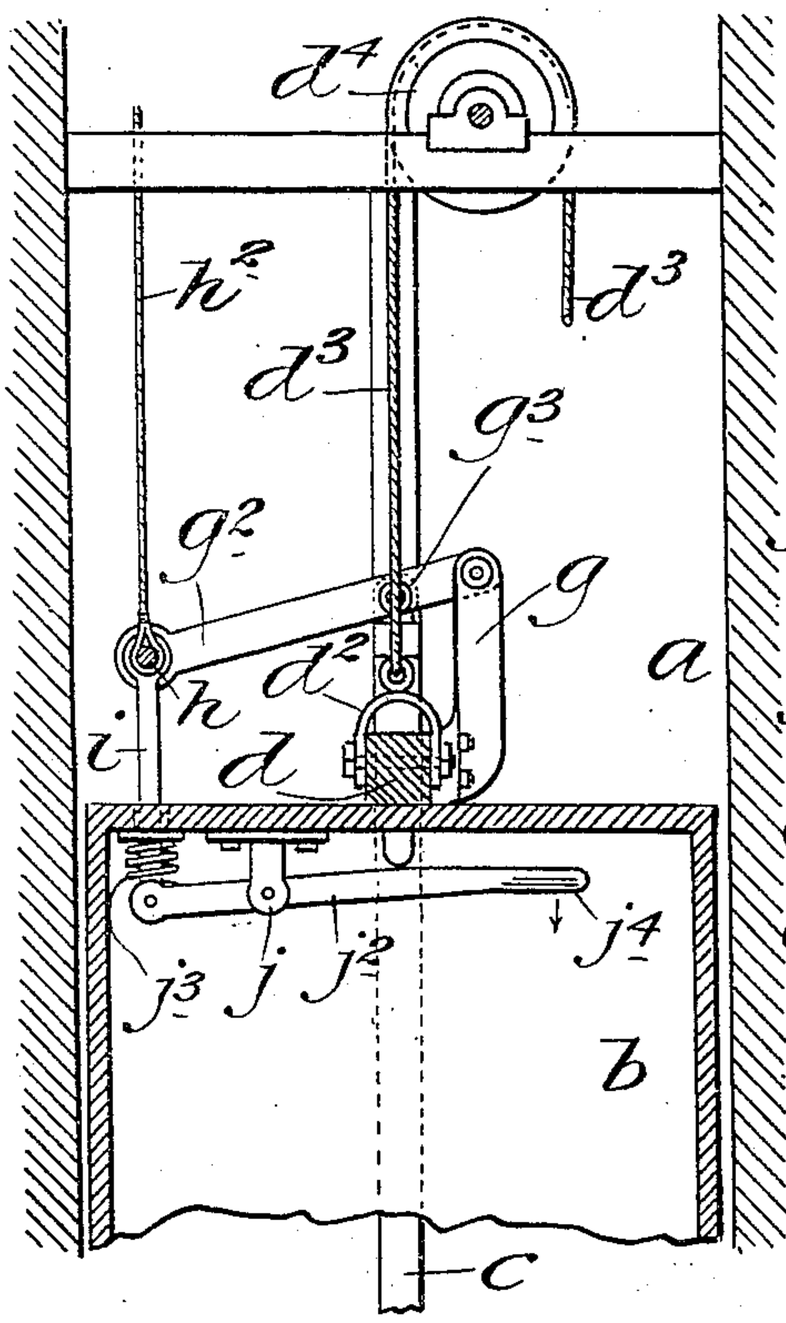


Fig: 1.

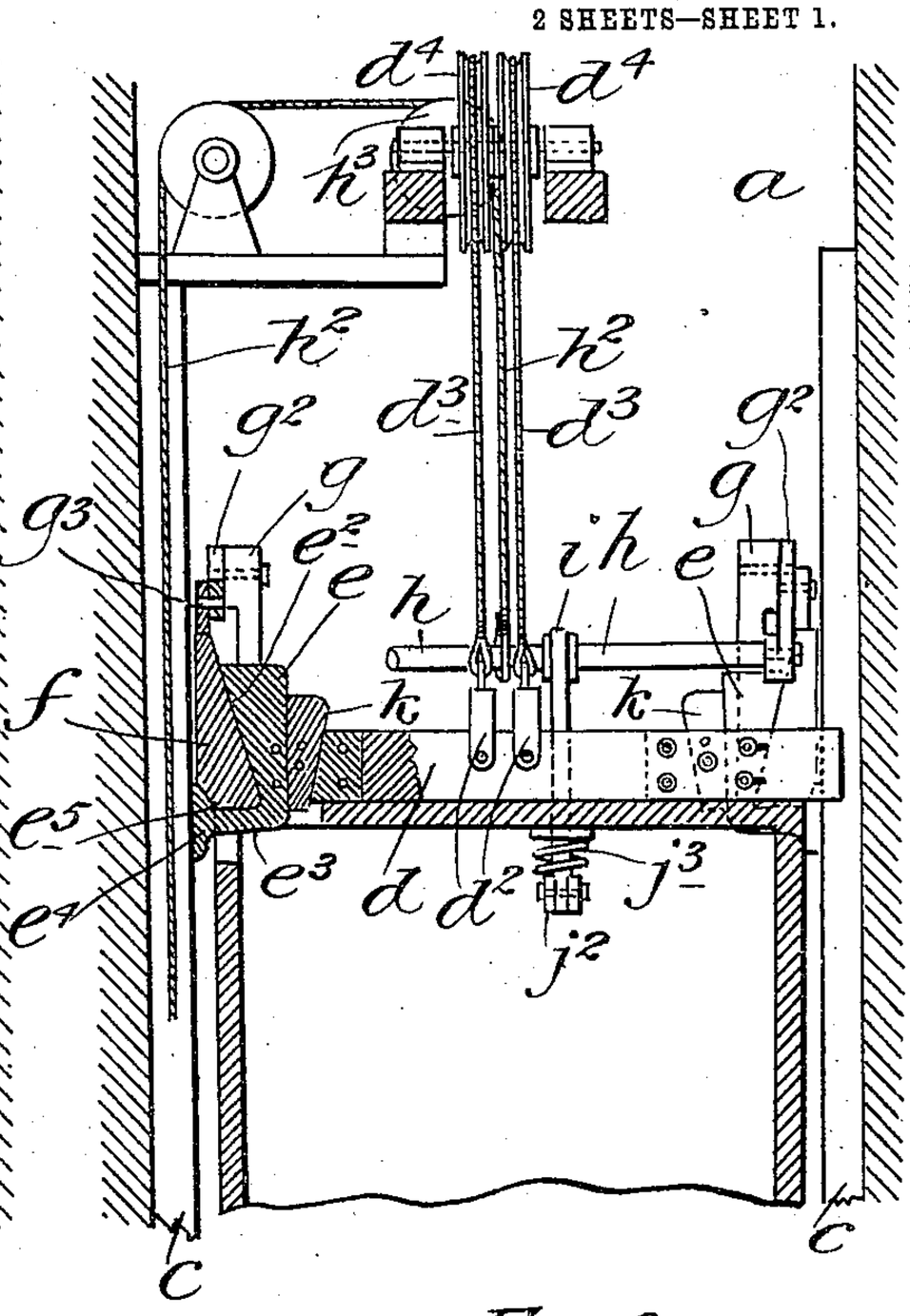
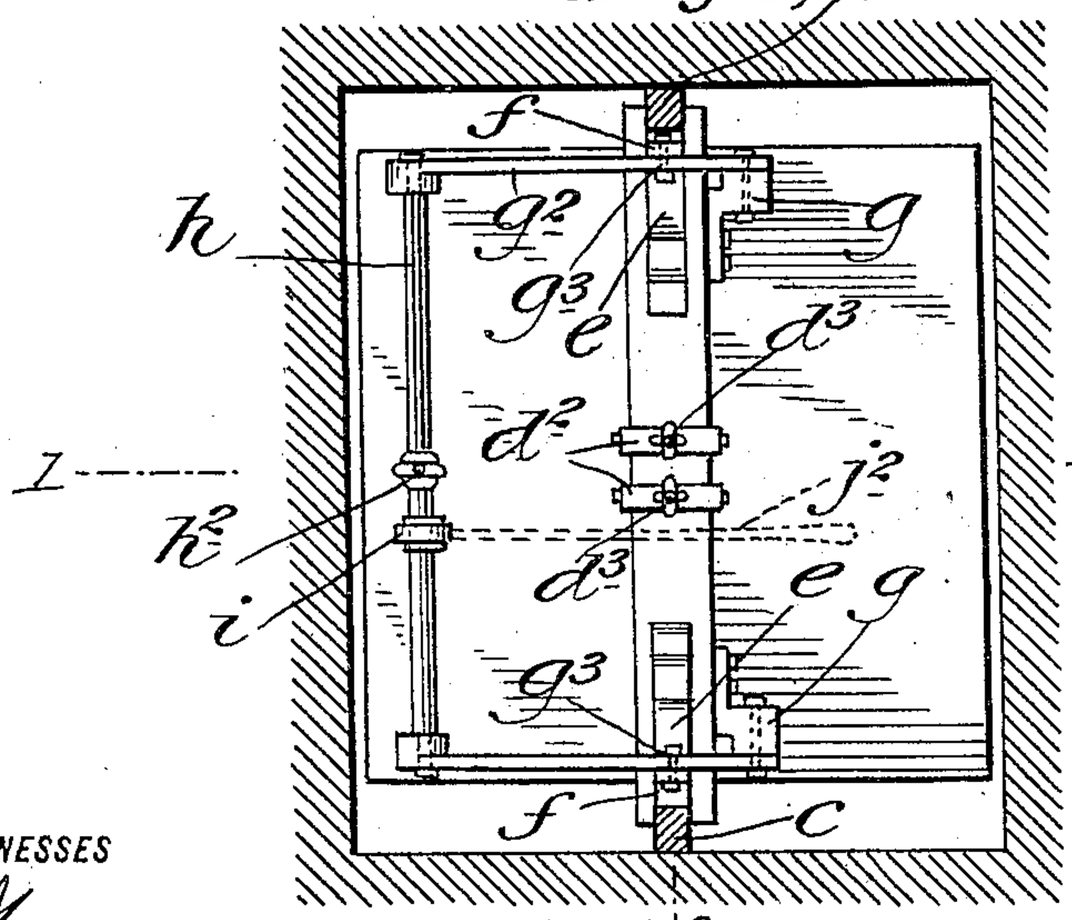


Fig: 2.

Fig: 3, C



WITNESSES

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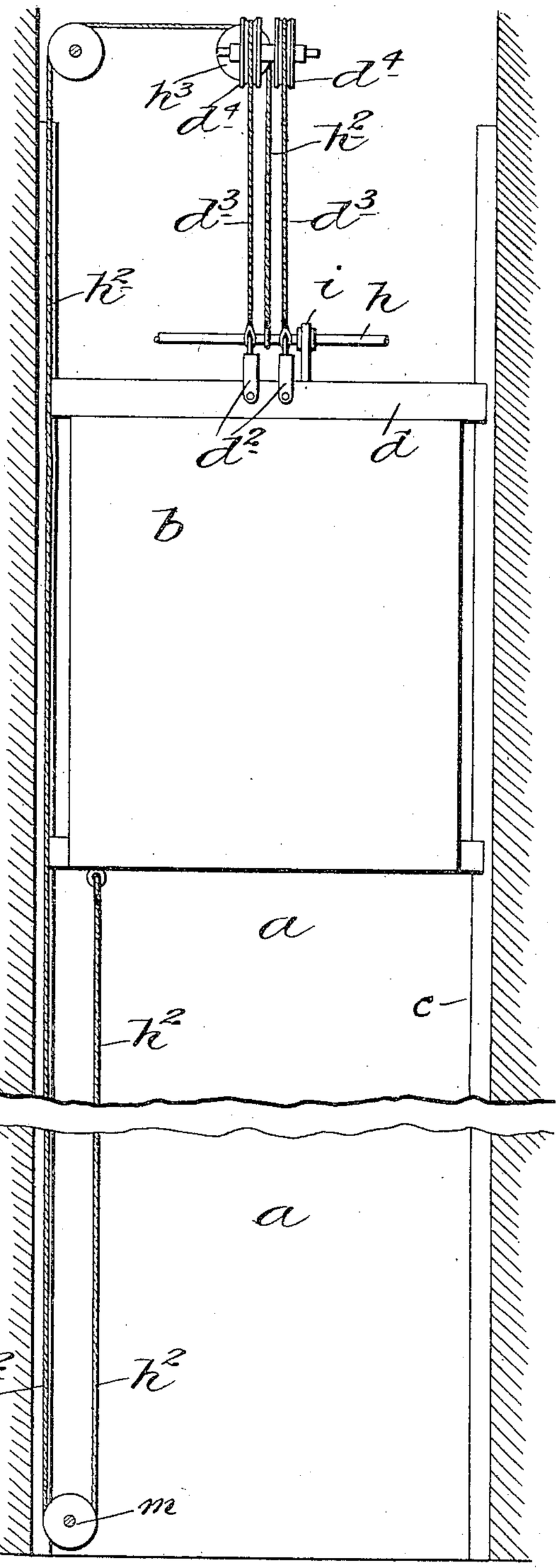

Fig. 4.

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UNITED STATES PATENT OFFICE.

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SAFETY APPARATUS FOR ELEVATOR-CARS.

No. 838,770. Specification of Letters Patent. Patented Dec. 18, 1906.

Application filed July 24, 1906. Serial No. 327,494.

To all whom it may concern:

Be it known that I, HUGO H. BUSCH, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Safety Apparatus for Elevator-Cars, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to elevators; and the object thereof is to provide an improved safety attachment for apparatus of this class which will automatically operate to prevent the fall of the car if the hoisting and lowering cable or cables should break, a further object being to provide a safety attachment of this class which may also be operated by hand; and with these and other objects in view the invention consists in the construction, combination, and arrangement of the parts hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which—

Figure 1 is a vertical section showing part of an elevator-shaft with part of a car mounted therein and showing also my improved safety attachment, the section being on the line 1 1 of Fig. 3; Fig. 2, a view similar to Fig. 1, but taken at right angles thereto; Fig. 3, a horizontal section taken above the car; and Fig. 4, a view similar to Fig. 1, but showing a complete elevator-shaft and showing in full certain features of the construction which are only partially shown in Fig. 1.

In the drawings forming part of this specification I have shown at a an elevator-shaft in which is mounted a car b, and the shaft a is provided at the opposite sides thereof with the usual vertically-arranged guide-bars c, in connection with which my improved safety attachment operates.

Arranged transversely of the top of the car and connected therewith in the usual manner is a beam d, provided with yoke-shaped attachments d^2, with which the hoisting-cables d^3 are connected, and the hoisting-cables d^3 are passed over pulleys d^4 at the top of the elevator-shaft and carried downwardly and connected with the drum of the hoisting motor or engine (not shown) in the usual manner.

At the opposite ends of the bar or beam d are placed keepers e, comprising upright body portions having inclined outer sides e^2, which face the guide-bars c, and outwardly-directed base portions e^3, having stationary guide-shoes e^4, which operate loosely on or in connection with the guide-bars c, and mounted in the keepers e are vertically-movable wedge-shaped brake-shoes f, the inner faces of which are inclined to correspond with the inclined outer faces of the keepers e and the lower end portions of which are so formed as to fit in the recesses e^5 in the bottoms of the keepers e.

At the opposite ends of the bar or beam d are secured upwardly-directed supports g, with which are connected levers g^2, which range transversely of the car b and which are pivoted at g^3 to the brake-shoes f, and the ends of the levers g^2 opposite the supports g are connected with a transverse rod or bar h, with which is connected a rope h^2, which is passed over a pulley h^3 at the top of the elevator-shaft and then over another pulley h^4 and carried downwardly to the bottom of the elevator-shaft, as indicated in Fig. 4, where it is passed around another pulley m and then carried upwardly and connected with the bottom of the car. A link member i is also connected with the rod or bar h and passed downwardly through the top of the car, and pivoted to a hanger j, secured to the top of the car, is a lever j^2, which is pivoted to the lower end of the link member i, and between the end of the lever j^2 which is pivoted to the link member i and the top of the car is placed a spiral spring j^3, which normally serves to depress the rod or bar h and hold the same and brake-shoes f in the position shown in Figs. 1 and 2, and the free end of the lever j^2 is provided with a handle j^4, by which it may be operated when desired, and said spring j^3 holds the rope h^2 in its normal position and permits of the operation of the apparatus, as hereinafter described.

The keepers e are supported in such manner that they may be adjusted laterally, and in order to accomplish this result wedge-blocks k are employed in connection therewith, said wedge-blocks k being mounted between the ends of the beam or bar d and said keepers, and any suitable construction may be employed for accomplishing this result.

In the accompanying drawings I have not shown the means by which the car-operator controls the ascent and descent of said car

and the stoppage thereof at any desired point for the reason that said means forms no part of this invention, said invention relating only to the safety device or devices for stopping the descent of the car or arresting the fall thereof in case of the breakage of the operating-cables.

It will be understood that one or more of the operating-cables d^3 may be employed, and if at any time such cable or cables or any part of the hoisting apparatus should break the quick downward movement of the elevator-car would cause the rope h^2 to pull up the rod or bar h. The free ends of the lever g^2 would also be raised, and the brake-shoes f would be thrown into contact with the guide-bars c at the opposite sides of the elevator-car, and the descent of the car would be immediately checked or stopped, and it will be apparent that a similar result may be accomplished at any time, if necessary, by means of the lever j^2, which may be operated at any time by the operator of the car, a pull on the free end of said lever serving to raise the brake-shoes f and throw them into operation, as above described.

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

1. The herein-described safety device for elevator-cars, comprising vertically-arranged guide-bars at the opposite sides of the elevator-shaft, laterally and vertically movable brake-shoes mounted at the opposite sides of and at the top of the car and adapted to operate in connection with said guide-bars, pivoted levers connected with said brake-shoes, a transversely-arranged rod connected with said levers and said brake-shoes, and a rope connected with said rod and passing through pulleys at the top of the elevator-shaft and around a pulley at the bottom of said shaft and connected with the bottom of the car.

2. The herein-described safety device for elevator-cars, comprising vertically-arranged guide-bars at the opposite sides of the elevator-shaft, laterally and vertically movable brake-shoes mounted at the opposite sides of and at the top of the car and adapted to operate in connection with said guide-bars, pivoted levers connected with said brake-shoes, a transversely-arranged rod connected with said levers and said brake-shoes, and a rope connected with said rod and passing through pulleys at the top of the elevator-shaft and around a pulley at the bottom of said shaft and connected with the bottom of the car, said rod being also provided with a link member which passes downwardly into the car, a spring for normally depressing said link member, and a lever connected with the lower end of said link member.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 23d day of July, 1906.

HUGO H. BUSCH.

Witnesses:
F. A. STEWART,
C. J. KLEIN.