(No Model.) 2 Sheets—Sheet 1.

H. T. MOODY.

FIRE DOOR OR SHUTTER.

No. 538,026. Patented Apr. 23, 1895.

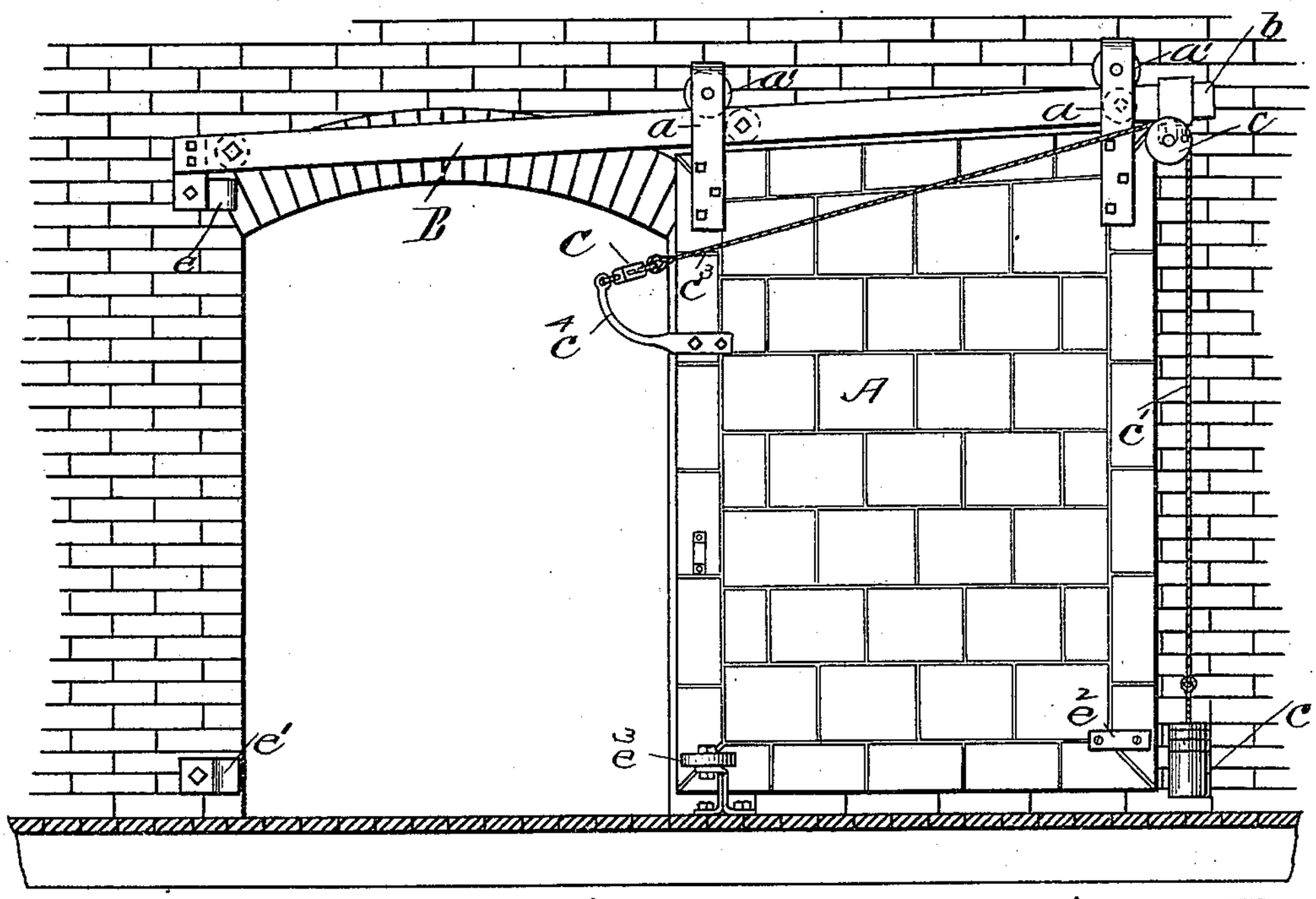

Fig. 1.

Fig. 5.

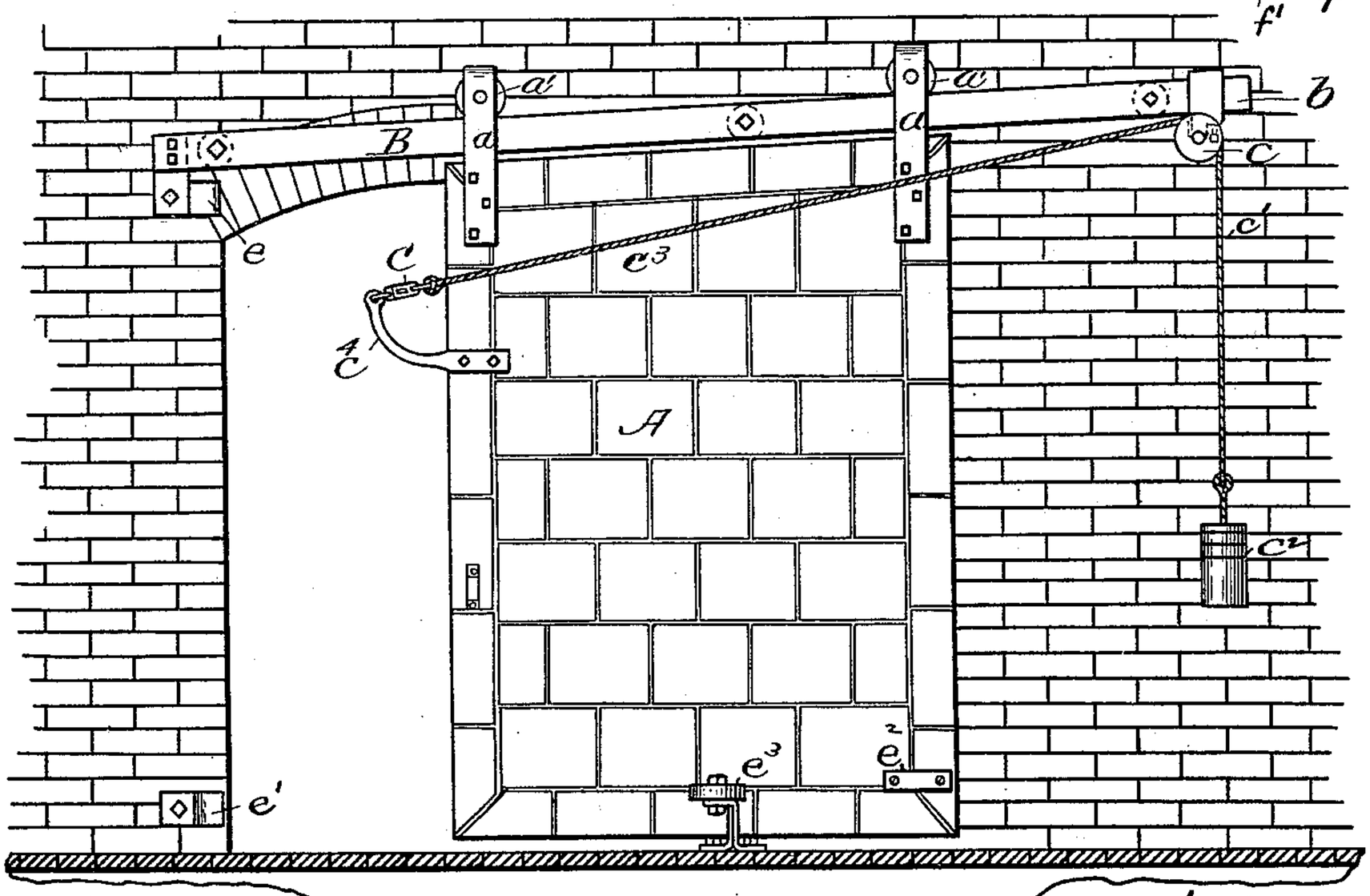

Fig. 2.

WITNESSES

J. M. Dolon.

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INVENTOR

Henry T. Moody

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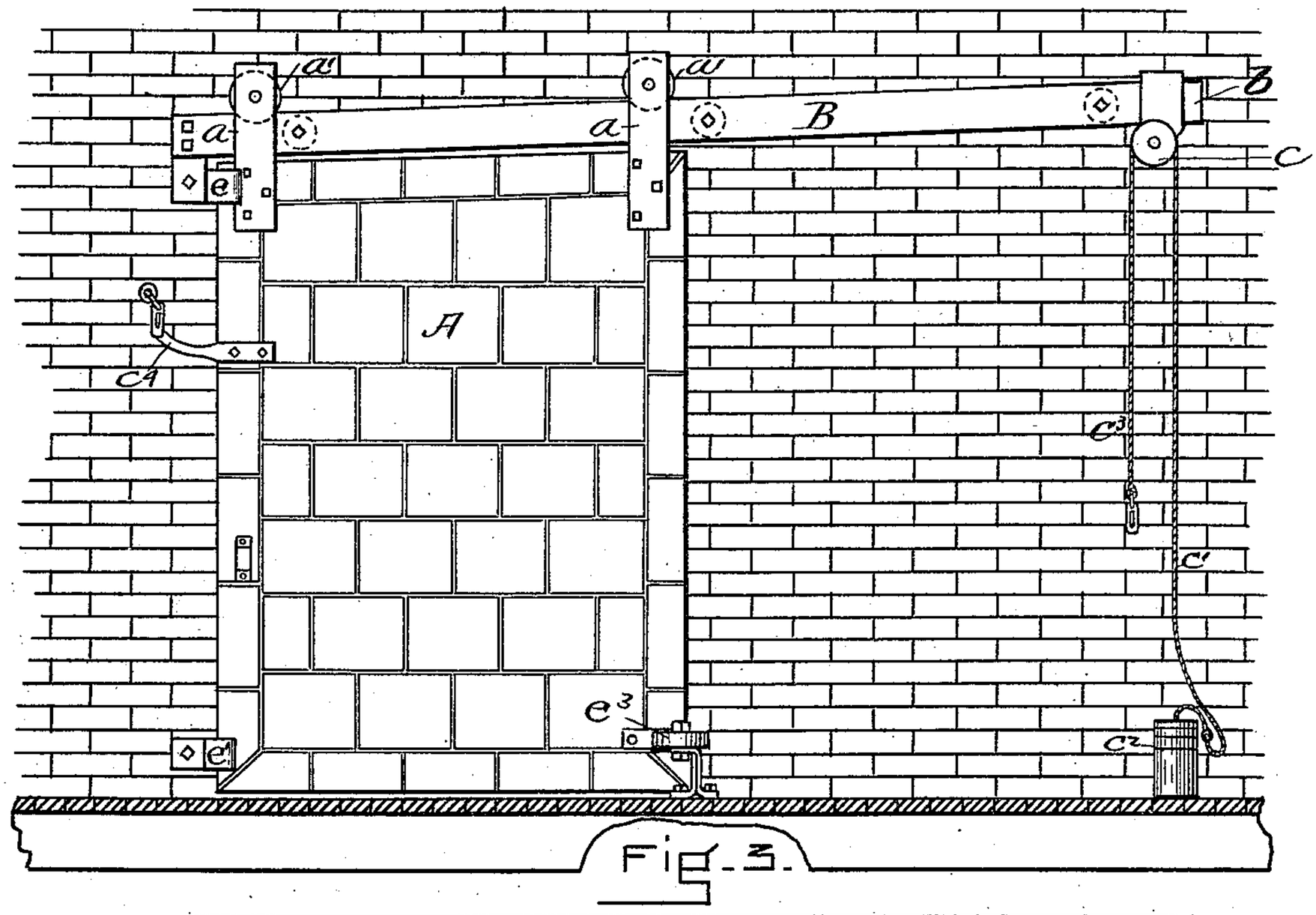

Fig. 3.

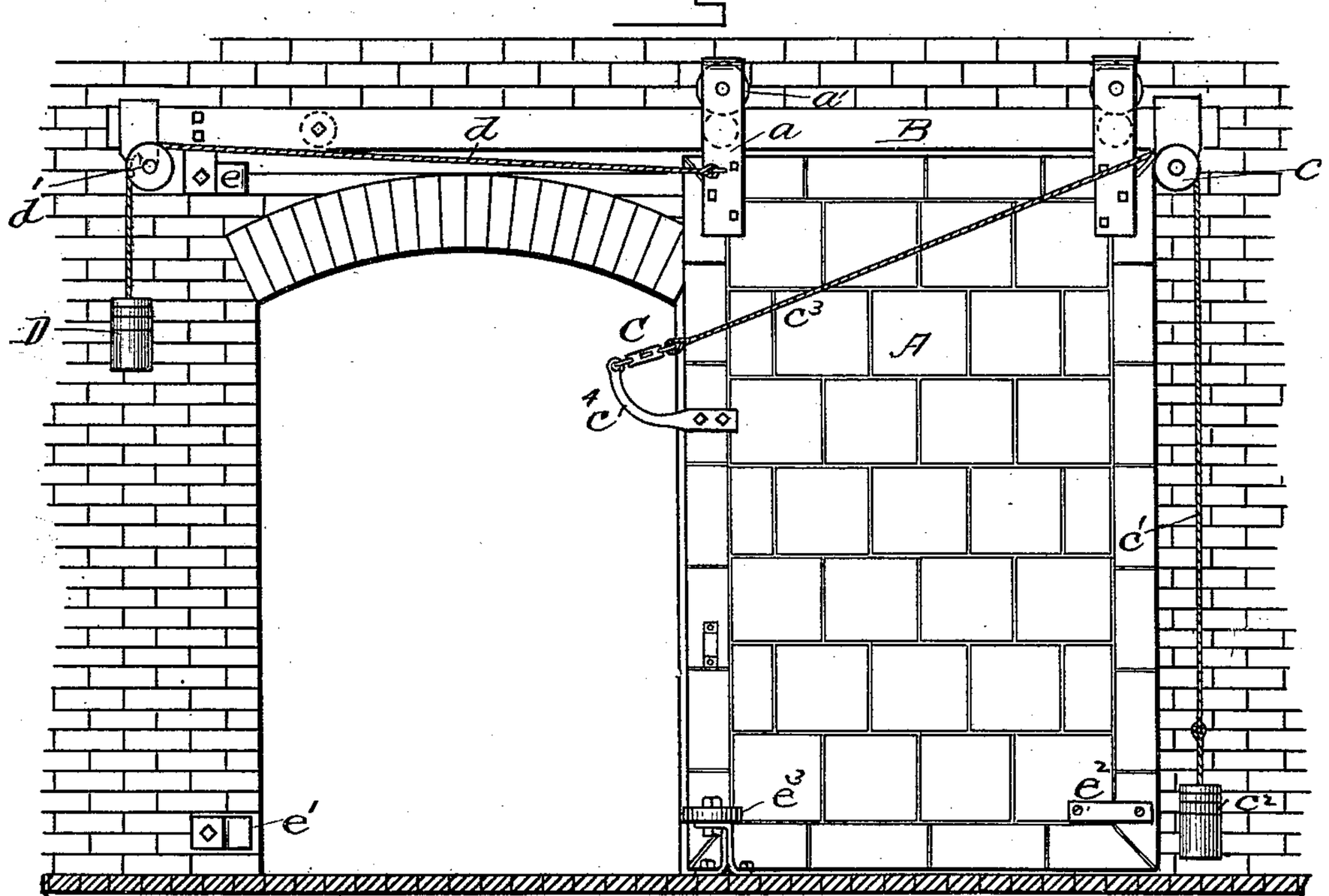

Fig. 4.

WITNESSES

J. M. Dolan.

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UNITED STATES PATENT OFFICE.

HENRY T. MOODY, OF NEWBURYPORT, MASSACHUSETTS, ASSIGNOR TO THE VICTOR MANUFACTURING COMPANY, OF SAME PLACE.

FIRE DOOR OR SHUTTER.

SPECIFICATION forming part of Letters Patent No. 538,026, dated April 23, 1895.

Application filed May 26, 1894. Serial No. 512,577. (No model.)

To all whom it may concern:

Be it known that I, HENRY T. MOODY, of Newburyport, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Fire Doors or Shutters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention relates to a sliding door which preferably is hung upon an inclined rail or track and which is held open or partially open by a counter-balance attached to the door by a fusible connection, the melting of which severs it and allows the door to close automatically. Broadly speaking, doors of this construction and operation are not new, and my invention comprises the specific features of construction whereby the fusible link is always maintained in the door opening until the door is entirely closed.

In the drawings, Figure 1 is a view in elevation showing the door wide open. Fig. 2 is a view showing the door partially closed. Fig. 3 is a view showing the door entirely closed and the weight detached, as in case of its automatic release by the presence of heat or fire; and Fig. 4 illustrates a modified form in which, in lieu of the inclined rail, a closing weight is employed. Fig. 5 is a detail view of an adjustable stop and pulley-holder carried by the rail and which is hereinafter more fully described.

The door A is of any suitable fire-proof construction or material. Wood covered with tin is very largely used for this purpose. It has at its upper end hangers *a* which support rolls *a'* that rest and run on the inclined rail or track B. This track extends from over the door-way a sufficient distance to permit the door to be moved its full width from the door-way, and it supports at its end *b* a pulley *c* over which the cord or chain *c'* carrying the counter-balance c^2 extends. This cord at its forward end c^3 is connected with an arm or bracket c^4 by the fusible link or connection C. This arm c^4 is attached to the edge of the door about a third of its height from the top and is so shaped as to hold the fusible link just beyond the edge of the door and so as to be within or substantially within the door-way, and this relation of the fusible link to the door-way and edge of the door does not change or vary while the door is being closed or opened; that is, it always occupies the same position as regards the edge of the door; and that position is one as near said edge as it can be brought and be within the door-way and near the upper part thereof, and this insures that the fusible link shall always be within the door-way whether the door is wide open or less than half open or practically closed. This holding of the link in such position I consider to be of very great consequence, as it provides for the automatic release of the door in case of fire, in whatever open or partially open position it may be. This is well illustrated in Fig. 1, where the door is wide open and in Fig. 2 where the door is half open. This use of the bracket c^4 and location of the fusible link C permits me to use a relatively short cord *c'* for the counter-balance and a single pulley *c*, and I thereby get a directness of counter-balance and an economy in the cost of construction which is very desirable.

In Fig. 4, I have represented the rail B as straight instead of inclined, as in the other figures, and upon the melting of the fusible link, the door is closed by the over-balance D which is connected with the door by means of the cord or chain *d* which passes over the pulley *d'*. This construction is used where the space over the doorway precludes the employment of the inclined rail and is a mechanical equivalent of the inclined rail. Binder stops *e*, *e'*, wedge e^2 and guiding roll e^3 are used as the ordinary types of doors of this character. The wedge e^2 shuts upon the roll e^3 as the door is closed and acts to throw the lower end of the door inward to close more tightly the cracks or spaces at the bottom and edge.

The pulley *c* is attached to the rail B by means of a flat holder or sleeve which slips upon the rail and is held in any desired position thereon by a screw *f* (Fig. 5). This sleeve also has the stop *f'* against which the door is held by the counter-balancing weight c^2 when the door is wide open and a base f^2

for receiving and holding the pivot which supports the pulley.

I would say that, while I have described the invention as employed in connection with fire doors, it may also be used in connection with fire shutters or any similar fire screen or barrier, and when it is used with a shutter, the shutter may be arranged upon the inside or the outside of the window, as may be desired, and the rail upon which it runs is located over the window space in the same way that it is arranged over the door space. The bracket c^4 is attached to its edge in the same manner and is connected with the counter-balance by the fusible link and connecting cord, as above specified. I would further say that any form of door hanger may be employed. The bracket c^4 in some instances may be attached to extend from the door or shutter near its bottom instead of near the top, as above explained.

The upper combined binder and stop *e* is represented as attached to the rail as in Fig. 1. It is an advantage to attach this and the pulley support to the rail instead of the wall as is ordinarily done, because it does away with the necessity for forming long holes in the wall and the use of long bolts and permits the machine work to be done at the factory and before the hanger is erected.

By making the stop f' adjustable, the door opening may be varied as desired, it being necessary for changing the size of the opening simply to move the stop upon the rail to any desired position. This is of value, because it is quite often desirable but partially to open the door.

I would say that I do not, of course, confine myself to any special way of holding the fusible link or device in front of the edge of the door, as I consider that my invention is practiced when the link or device is so located as to bear a constant relation to the edge of the door and slightly in advance of it in the organization of the door herein described; that is, a balanced door. I would say also that in some instances it will be necessary to use more than one pulley for the counterbalance cord or chain. This will be necessary when the door is wider than it is high or, in case of a window, when the shutter is located upon the outside, as of course it would be desirable, as a rule, that the counter-balance be upon the inside of the wall and it would then be necessary to use two pulleys.

The fusible link in some instances may be located in relation to the door edge so as to be slightly above the door way.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The sliding fire door or shutter and its counter-balancing weight connected with the door or shutter by a fusible link held in or above the doorway or window in fixed or in variable relation to the door or shutter edge, as and for the purposes described.

2. The combination of the sliding fire door or shutter adapted to be closed automatically upon the release of its counter-balance, an arm extending from the door or shutter into or in front of the doorway or window and near the top thereof, a counter-balance and a flexible connecting device connecting the counter-balance with said arm and an interposed connecting device separable or destructible upon the application of undue heat thereto, located between the arm and the flexible connecting device, as and for the purposes described.

3. The combination of the sliding door or shutter A adapted to be automatically closed upon the release of its counter-balance, the arm c^4 arranged to extend therefrom as specified, the counter-balance c^2, the single pulley *c*, and the counter-balancing cord c' extending over the pulley and connected with the arm c^4 beyond the door or shutter edge by a connection fusible or destructible by undue heat, as and for the purposes described.

4. The combination of the shutter or door rail B, with a sliding pulley support carried thereby and means for fastening it in any desired position thereon, as and for the purposes described.

5. The combination of the rail B, the pulley support adjustable thereon, its locking screw *f* and the stop f', as and for the purposes described.

6. The combination of the rail B with the binder *e* fastened to said rail, as and for the purposes described.

7. A fire door or shutter having at its front edge an arm extending therefrom as specified and a fusible door-holding link connected with the arm, as and for the purposes described.

HENRY T. MOODY.

In presence of—
OSCAR KNOTT DALRYMPLE,
CHARLES ALBERT DAVIS.