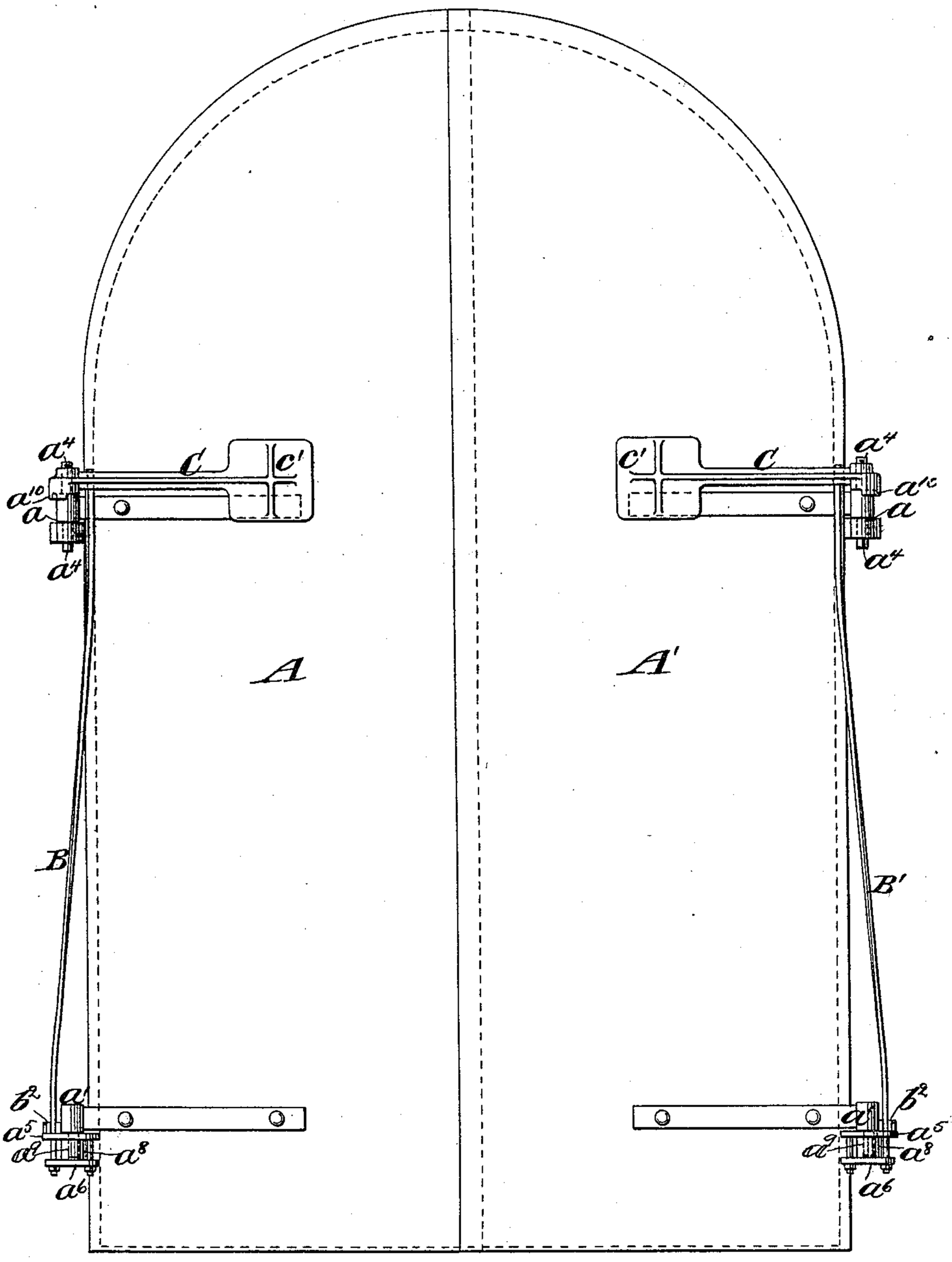
(No Model.) 2 Sheets—Sheet 1.

J. V. V. BOORAEM.

DEVICE FOR OPENING SHUTTERS.

No. 433,884. Patented Aug. 5, 1890.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

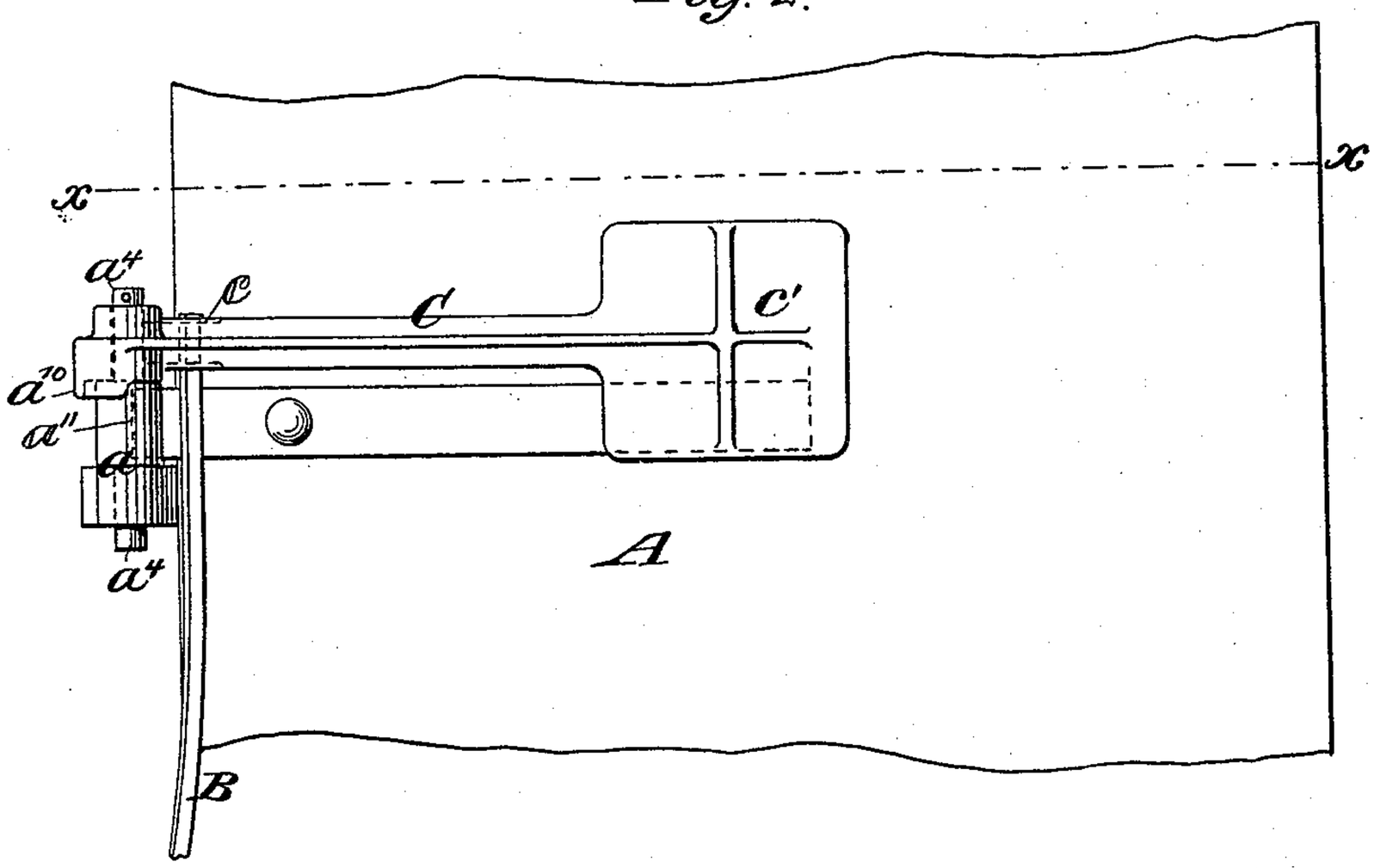


Fig. 3.

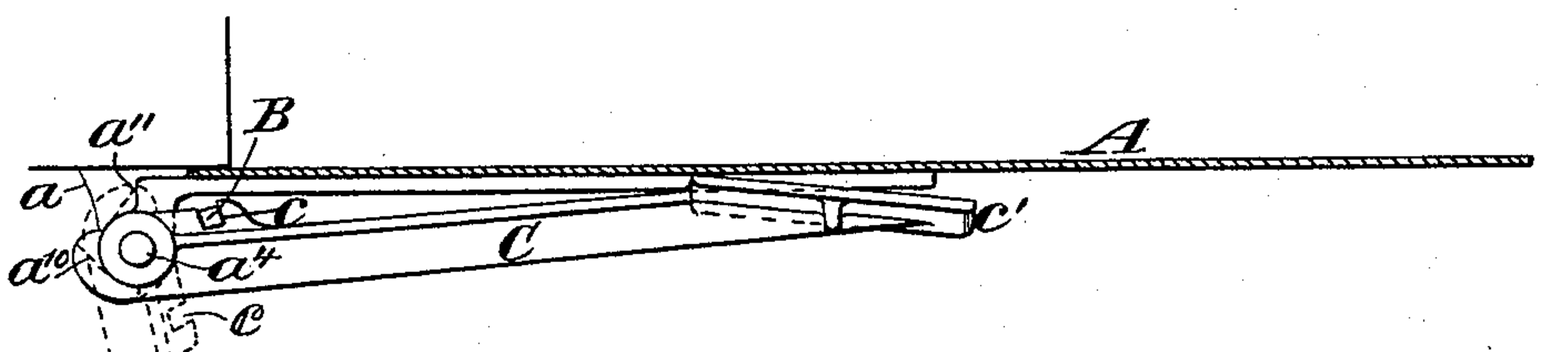


Fig. 4.

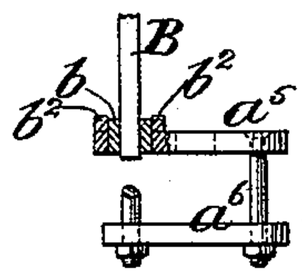
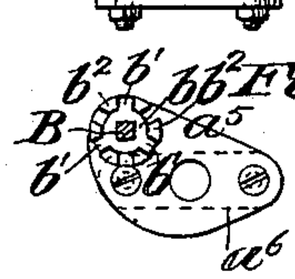


Fig. 5.



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UNITED STATES PATENT OFFICE.

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DEVICE FOR OPENING SHUTTERS.

SPECIFICATION forming part of Letters Patent No. 433,884, dated August 5, 1890.

Application filed March 24, 1890. Serial No. 345,044. (No model.)

To all whom it may concern:

Be it known that I, JOHN V. V. BOORAEM, of Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Devices for Opening Shutters, of which the following is a specification.

My improvement is applicable to iron shutters for windows, which shutters are placed upon the exterior of a building, and is designed to afford a ready means whereby the shutters may be opened in case of necessity to permit firemen to throw a stream of water into the building.

I will describe my improvement in detail, and then point out the novel features in claims.

In the accompanying drawings, Figure 1 is a face view of a pair of shutters embodying my improvement. Fig. 2 is a similar view partly broken away and on an enlarged scale. Fig. 3 is a horizontal section, also on an enlarged scale, taken on the line $x x$, Fig. 2. Fig. 4 is a detail, on an enlarged scale, of a portion of one of the lower hinges of the shutter, the same being shown partly in section and partly broken away and looking at the side. Fig. 5 is a plan or top view of the same, drawn to the same scale as Fig. 4.

Similar letters of reference designate corresponding parts in all the figures.

A A′ designate iron shutters, and a a' the hinges therefor, upon which the shutters may turn. Each of said hinges comprises a strap portion, which is secured to the shutter. The hinges a have their strap portions provided with pins a^4, which extend through suitable eyes secured in the brick-work of the building upon which the shutters are arranged. The straps of the lower hinges or a' are provided with pins a^9. These pins each extend through a plate a^5 and nearly to a plate a^6. The plates a^5 a^6 are arranged the former upon the upper side and the latter upon the lower side of a metallic projection a^8 of any suitable kind extending from the wall of the building and preferably secured therein when the building is being constructed. The projection a^8 is provided with a suitable vertically-extending aperture, through which the pin a^9 will pass. The plates a^5 a^6 are bolted together, as shown, about the metallic projection a^8.

B B′ designate springs. (Here shown as square torsion-springs.) The lower ends of these springs are secured in blocks b, which blocks are provided with one or more projections b'. The upper side of the plate a^5 is provided with a number of projections b^2, having spaces between them. The springs B B′ fit square holes in the blocks b, so that when the block b is rotated the projection or projections b' thereon may by moving the springs downwardly be caused to extend into the spaces between the projections b^2 upon the plate a^5. Thus when the upper ends of the springs are held or secured against turning a suitable degree of twist or torsion may be imparted to the springs B B′. The upper ends of the springs B B′ extend loosely into pockets or recesses c, formed in arms C near one of the ends of the latter. The shape of the pockets c is such that the springs B B′ cannot turn therein. One of the ends of each of the arms C is pivoted upon the pins a^4 of the hinges a at the upper ends of said pins. These arms are provided at that portion thereof which engages the pins a^4 with projections a^{10}, which projections are adapted, when the arms are swung outwardly into a position at approximately right angles to the shutters, to contact with shoulders or projections a^{11} upon the straps of the hinges a. This arrangement guards against the arms C being swung too far in the direction indicated. The other ends of the arms C are provided with enlarged or cup-shaped portions c', which are formed integral therewith.

The torsional resistance offered by the springs is such as to always tend to force the shutters to a closing position and to hold them there. If, however, the arms C are swung outwardly into the position shown more clearly in dotted lines in Fig. 3, the arms will be released from the springs B B′, and the latter will be sprung outwardly past the side edges of the shutters, and will then of course cease to exert any influence to tend to close the shutters.

In case there is a fire within the building,

and firemen desire to open the shutters, they direct a stream of water between the rear sides of the cup-shaped portions c' and the shutters. The water will richochet and force the arms C outwardly clear of the springs B B'. The stream may then be played upon the rear sides of the cup-shaped portions c'. This will cause the arms to be swung into position shown in dotted outlines in Fig. 3, whereby the stops a^{10} will contact with the projections a^{11}. The arms will then act as levers, and by continuing the play of water upon the rear sides of the portions c' will force the shutters open.

It will be seen that by my improvement a means is provided whereby, when required, the shutters will always be held closed, but whereby the shutters may be instantly opened by firemen when it is desired to direct a stream of water into the interior of a building, and this without the necessity of erecting ladders against the exterior of the building or unlocking the shutters from the interior, as has heretofore been the case.

I may, if desired, omit the springs B B' altogether, and employ any well-known or convenient self-closing device in conjunction with the shutters. In this event the operation of the water in swinging the arms C and eventually forcing open the shutters will be the same as that previously described.

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

1. The combination, with a swinging shutter and a device tending to force said shutter into a closed position, of a pivoted arm having a swinging movement toward and away from the shutter, said arm having a loose engagement with the shutter-closing device, and being provided with a stop for limiting its swinging movement independently of the shutter, substantially as set forth.

2. The combination, with a shutter and its supporting-hinge, of an arm pivoted at the hinge to swing toward and away from the shutter and a spring tending to hold the shutter closed, the said arm having a projection near its pivoted end so located as to engage a projection on the shutter and cause it to swing with the arm after the arm has been partially swung open, the said arm having a loose connection with the spring for releasing the spring as the arm is swung open, substantially as set forth.

3. The combination, with a swinging shutter and a spring tending to hold the shutter closed, of a swinging arm provided with an enlarged portion near its free end, the said arm having a detachable connection with the spring by which the arm is held in contact with the shutter, the said arm being further provided with a projection to engage a projection on the shutter during its swinging movement away from the shutter, and thereby causing the shutter to open by its further swinging movement, substantially as set forth.

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Witnesses:
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ELIZABETH BOORAEM.