(No Model.)

C. J. SANDBERG.

SHUTTER FASTENER.

No. 501,696. Patented July 18, 1893.

Fig. 1

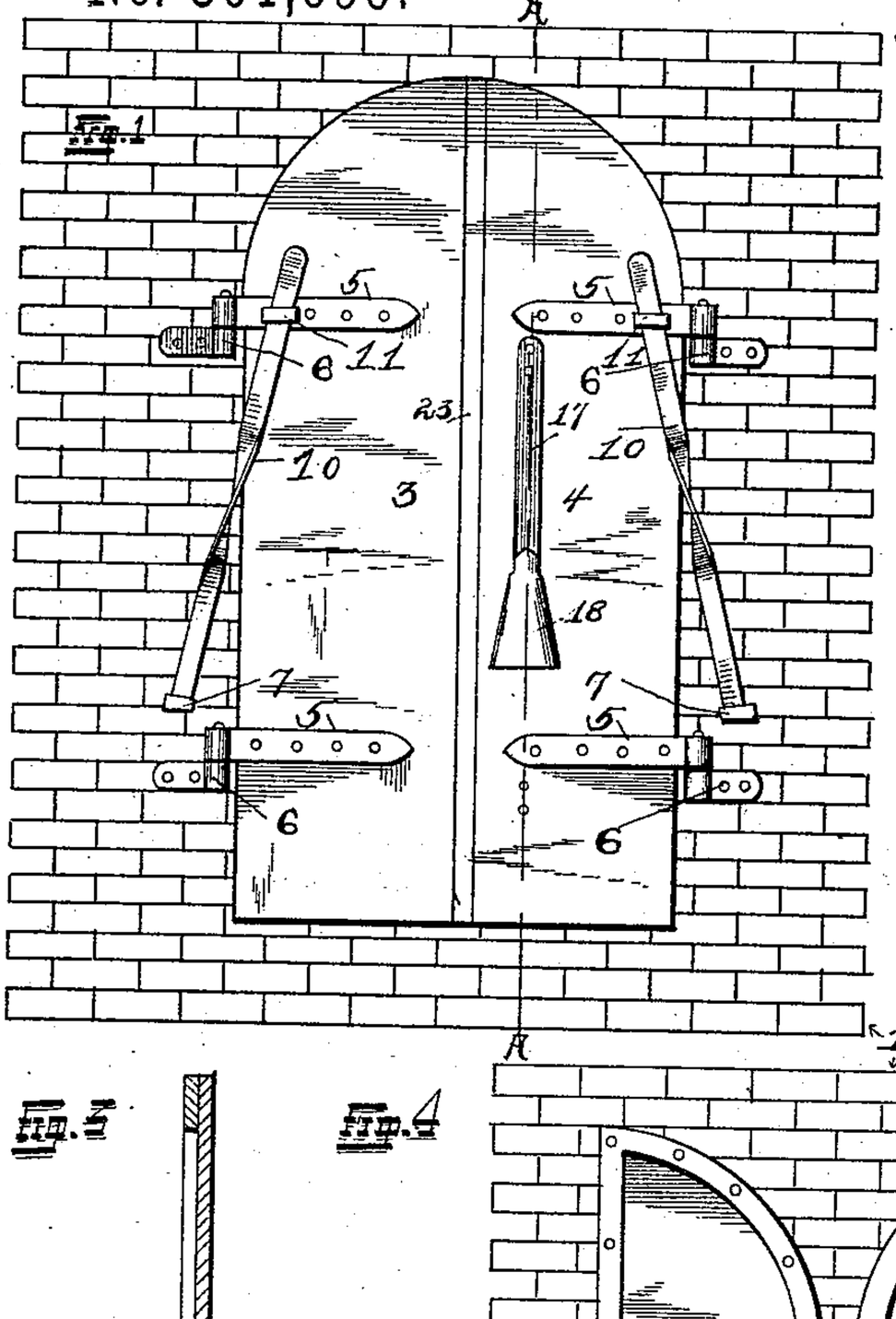

Fig. 2

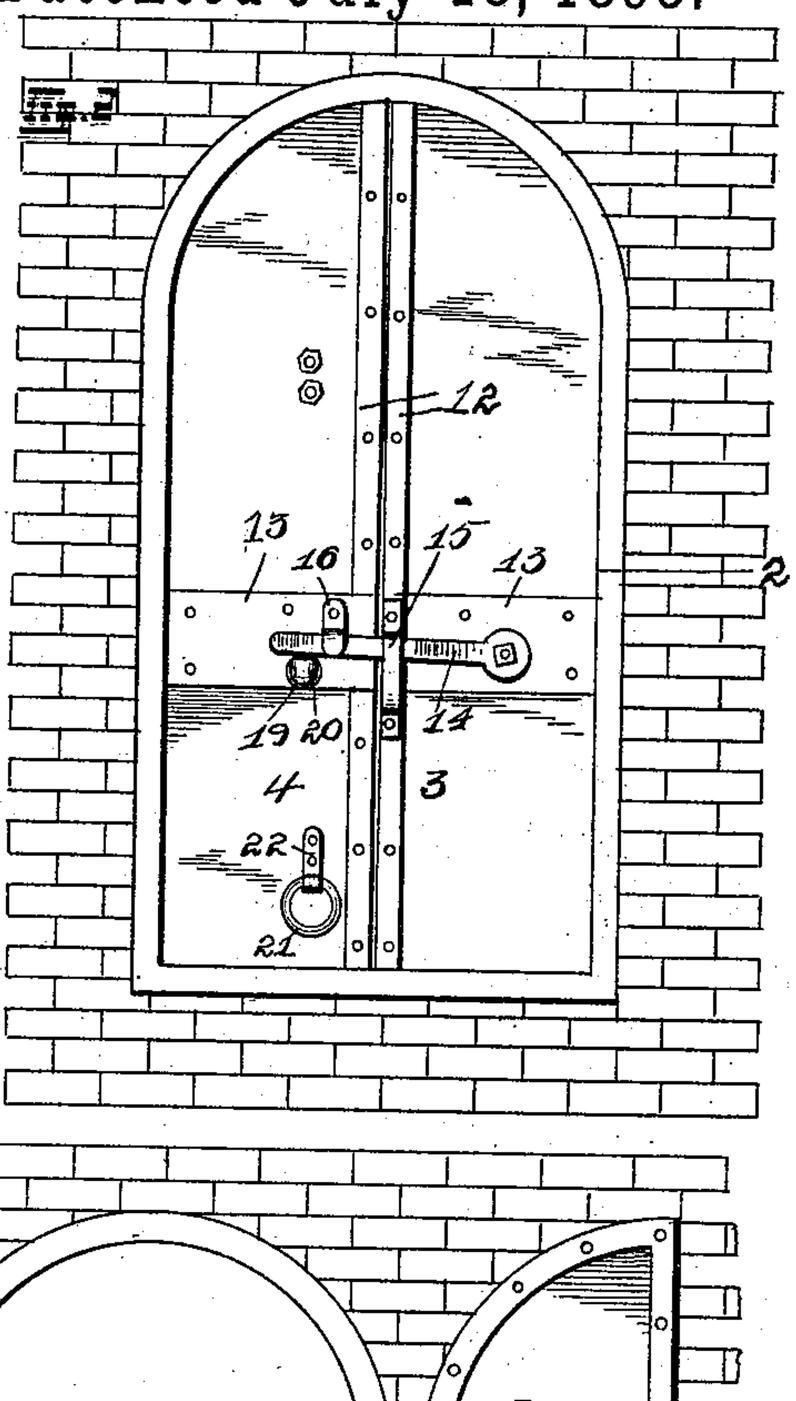

Fig. 3

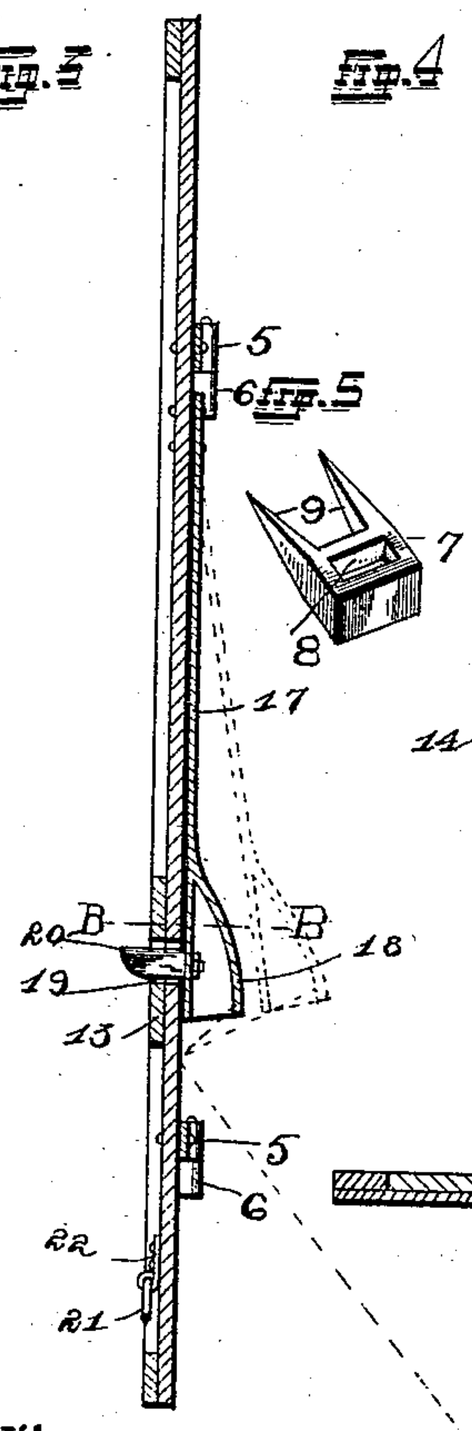

Fig. 4

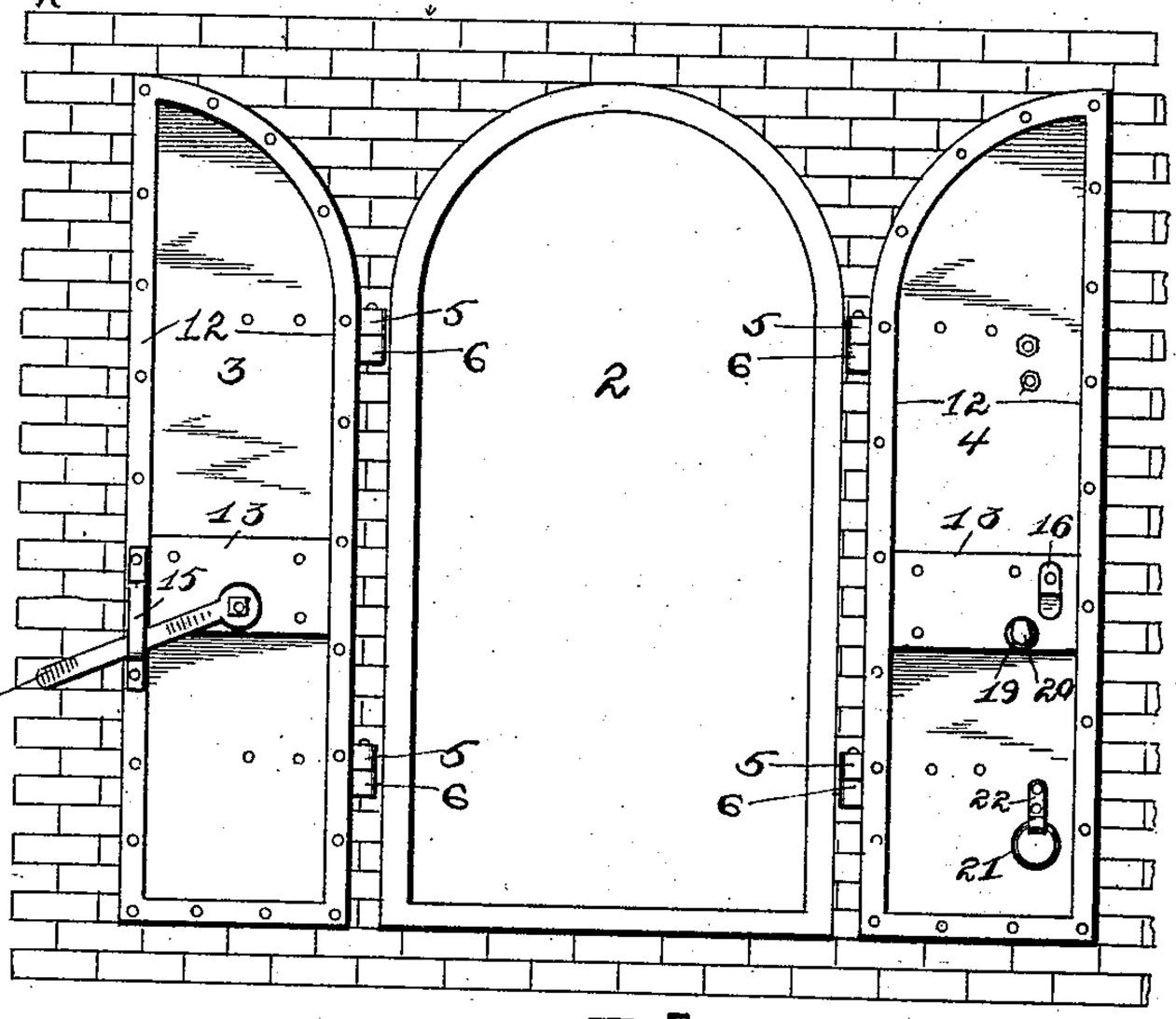

Fig. 5

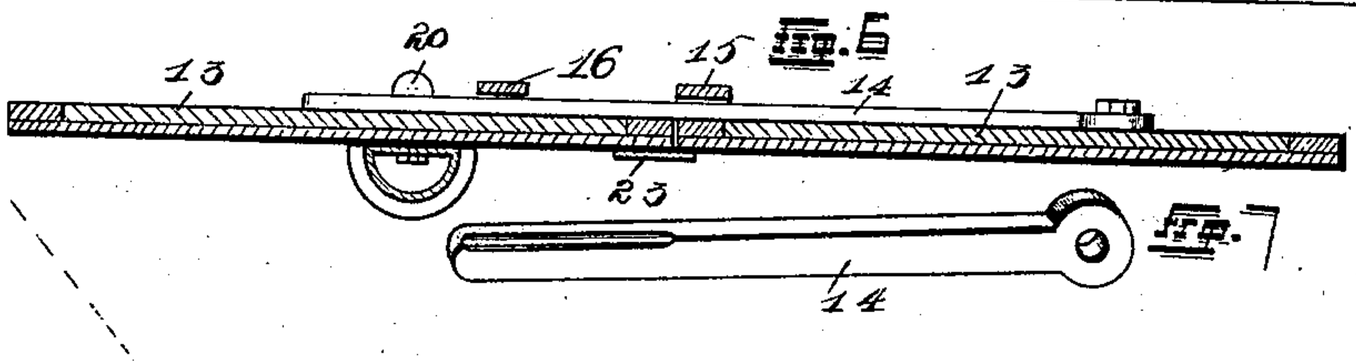

Fig. 6

Fig. 7

Witnesses
Alfred O. Eicho
Herbert L. Robinson

Inventor
Charles J. Sandberg,
By Higdon and Higdon and Longan, Attorneys.

UNITED STATES PATENT OFFICE.

CHARLES J. SANDBERG, OF ST. LOUIS, MISSOURI.

SHUTTER-FASTENER.

SPECIFICATION forming part of Letters Patent No. 501,696, dated July 18, 1893.

Application filed January 21, 1893. Serial No. 459,178. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. SANDBERG, a resident of the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Means for Opening Shutters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in means for opening shutters and consists in the novel arrangement and combination of parts, as will be more fully hereinafter described and designated in the claims.

The object of my invention is to construct attachments for metallic fire-shutters which are used on all large buildings and warehouses to prevent the spreading of fire, and also as a precaution against burglars. They are principally constructed, that is, the attachments, for operation by a stream of water from a fire-hose, and as will be hereinafter described, it will be seen that a pressure against the shutter and the withdrawal of the latch-pin must be simultaneous in order that the shutters may be opened by the aid of the springs used.

In the drawings:—Figure 1 is a front elevation of a brick-wall and showing the outer side of the shutters closing an opening therein. Fig. 2 is a rear elevation of a brick-wall, showing the inner side of the shutters. Fig. 3 is a vertical transverse sectional view of the shutters, and taken on a line A—A in Fig. 1. Fig. 4 is a front elevation of a brick-wall showing the shutters open. Fig. 5 is a detail perspective view of a casting having a socket adapted to receive the lower end of a spring made use of. Fig. 6 is a longitudinal horizontal sectional view of the shutters and accompanying parts, said view being taken on a line B—B in Fig. 3, supposing that the entire width of said shutters is seen. Fig. 7 is a detail perspective view of a latch-bar.

Referring to the drawings: 1 indicates the wall of the building, having a window opening 2 therein. Two hinged meeting shutters 3 and 4 are hinged to said wall and adapted to close said opening 2, one member 5 of each hinge being secured to the shutter and the other member 6 to the wall.

Driven in between two bricks in the wall and above each of the lower hinges immediately at the sides of said shutters is a casting 7, having a rectangular portion provided with a socket 8 and two projecting prongs 9 which are driven into the wall to secure said casting 7.

Into the sockets 8 are adapted to fit the lower ends of flat steel springs 10, which are held near their upper ends in staples 11 secured to the hinge-members 5, as particularly shown in Fig. 1. When the shutters 3 and 4 are open as shown in Fig. 4 the springs 10 are perfectly flat, there being no tension in the same, but when the shutters are closed as shown in Fig. 1, said springs are twisted, therefore compelling the opening of said shutters when the fastenings are released.

Upon the inner side of each shutter is a raised surrounding strengthening strip 12, and across said shutters and a little below the middle of the length of same are cross-pieces 13 the same thickness as the strips 12. Intermediate of the length of the cross-pieces 13 on the shutters 3 is bolted a horizontally projecting latch-bar 14, which extends through a vertical opening in a casting 15 secured to the edge-strip of said shutter 3. The upward movement of said latch-bar is limited by a casting 16 which is secured to the cross-piece 13 upon the inner side of the shutter 4, as shown in Fig. 2.

Secured upon the exterior of the shutter 4 and immediately under the hinged member and adjacent the meeting edge of said shutter is a spring 17 which projects downwardly to a point approximately about one-half the length of the shutter and upon the lower end of said spring is secured a hollow cup-shaped device 18, the back of which is flat and adapted to fit against the shutter, the front portion being rounded and the lower end open as particularly shown in Fig. 3. Secured to the back of the said cup 18 and projecting through an opening 19 in the shutter 4 is a latch-pin 20, the free end of which is curved upon its lower side. The latch-bar 14 has its upper and inner edges rounded as shown in Fig. 7.

The shutter 4 is provided with a ring 21 secured thereto by a strap 22 and is provided thereon in order that the shutter may be pulled shut. The shutter 4 is provided with a vertical strip 23 secured along the meeting

edge of same and adapted to fit over the shutter 3 to hold the same in place. When the two shutters are closed as shown in Fig. 1 the springs 10 are twisted and the tendency of same is to force said shutters open into the position as shown in Fig. 4 if the fastening of said shutters is released. The person closing the shutters holds the shutter 4 by the ring 21 and pushes the latch-bar 14 up until the same rests upon the top of the latch-pin 20 and under the casting 16 which serves to stop the upward movement of same. The latch-bar 14 readily pushes up over the latch-pin 20 as the spring 17 allows the same to come outwardly through the opening 19 to allow the passage of said latch-bar and as soon as said bar has passed the pin, the spring forces said pin back under said latch-bar. The tension of the springs 10 keeps the two shutters locked by said latch-bar owing to the position of same in the opening in the casting 15, and under the casting 16, and even if the cup 1 with the latch-pin 20 secured thereto is pulled outwardly said latch bar will not stop. But if pressure be exerted against said shutter 4 and the latch-pin pulled out simultaneously, the latch-bar having no support, naturally drops and the tension of the springs 10 forces said shutters open. Carrying out this principle, it will be seen that the stream of water from the fire-hose, if placed so that it will strike the shutter at an angle indicated by the dotted lines in Fig. 3, the force of said water against said shutter pushes the same inwardly giving the required pressure necessary in the opening of same. The water striking the shutter spreads upwardly and outwardly and strikes the interior of the cup 18, and forces the same outwardly withdrawing the latch pin 20 from engagement under the latch-bar 14, and together with the pressure against said shutters, and with the withdrawal of said latch-pin said latch-bar drops and the tension of the springs 10 forces said shutters open.

From the above description it will be seen that the fire-shutters provided with the attachments herein shown are perfectly safe against intrusion of any kind by burglars, as it is practically impossible for them to exert the necessary pressure against the shutters and at the same time withdraw the latch pin by the outward movement of the truck 18, in order to allow the dropping of the latch-bar and the releasing of the shutters.

Having fully described my invention, what I claim is—

1. An improved means for opening shutters having a spring-controlled cup, carrying a latch-pin projecting through within the inner side of said shutter to which said spring is secured, a latch-bar carried by an adjacent shutter and adapted to be normally held upon said latch pin and under a casting secured to said shutter, substantially as set forth.

2. An improved means for opening shutters having springs held at their lower ends in sockets driven between the bricks in the wall adjacent and above the lower hinges, the upper ends of said springs projecting through staples secured to said shutters adjacent the upper hinges, a spring-controlled cup secured to the exterior of one of said shutters, said cup having a latch-pin projecting inwardly through said shutter, a latch-bar pivoted to the adjacent shutter and projecting through an opening in a casting secured upon the edge thereof and normally held above said latch pin and below a casting secured adjacent thereto, and the withdrawal of said latch pin adapted to drop said latch bar and allow the opening of said shutter, substantially as set forth.

3. An improved means for opening shutters having a spring secured vertically upon a shutter, a cup-shaped device secured upon the lower end of said spring, the side of said cup adjacent said shutter flat, the outer side of said cup rounded, a latch pin secured to the back of said cup and projecting inwardly through an opening in said shutter a latch bar secured to an adjacent shutter and normally in position above said latch pin, tension springs secured to the outer sides of said shutters and to the wall, and the tension of said springs adapted to hold said latch-bar in place independent of the support by the latch-pin, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES J. SANDBERG.

Witnesses:

HERBERT S. ROBINSON,

ALFRED A. EICKS.