No. 819,430. PATENTED MAY 1, 1906.

J. H. HOWARD.

BURGLAR PROOF SAFE.

APPLICATION FILED JAN. 19, 1905.

2 SHEETS—SHEET 1.

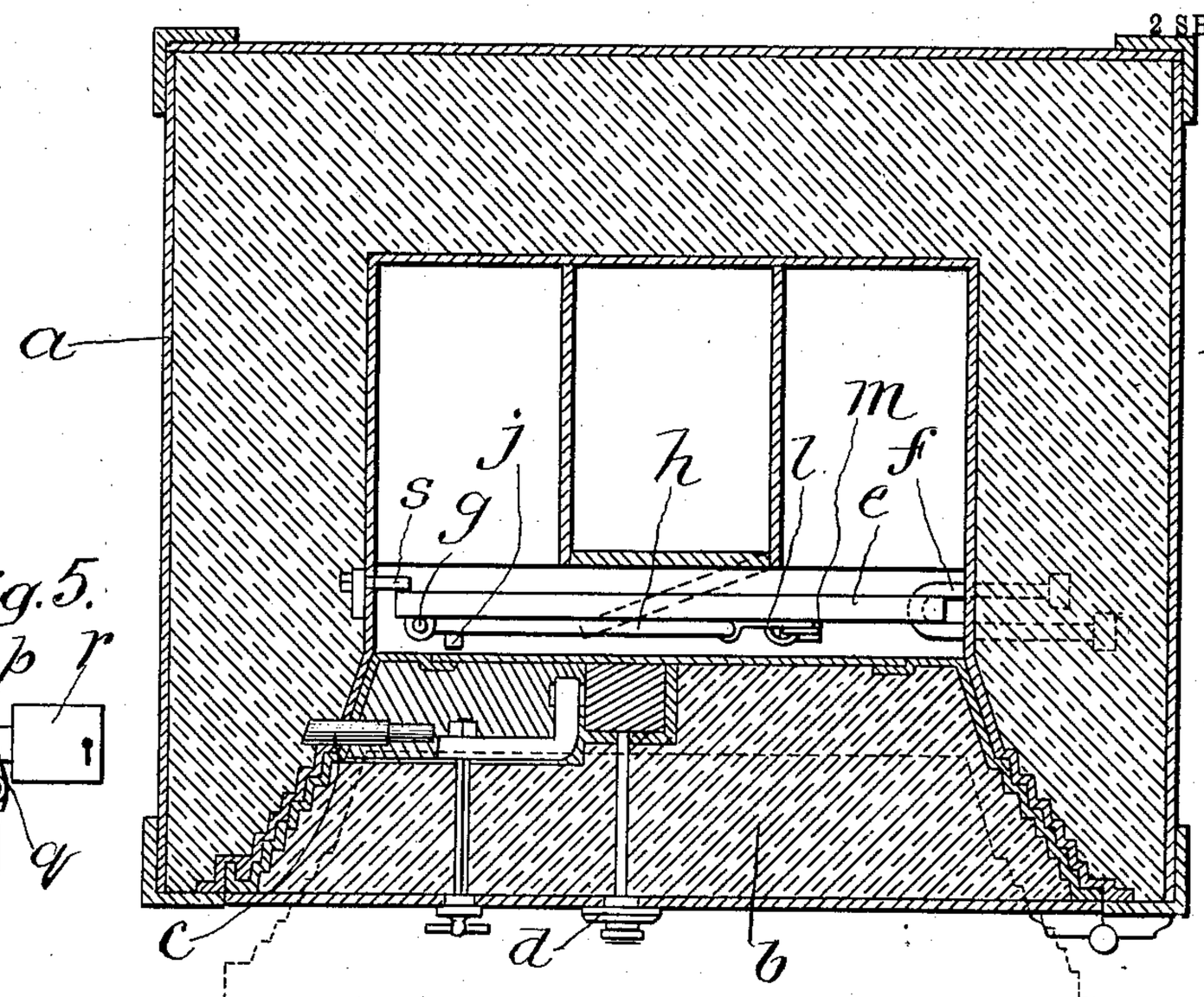

Fig. 1.

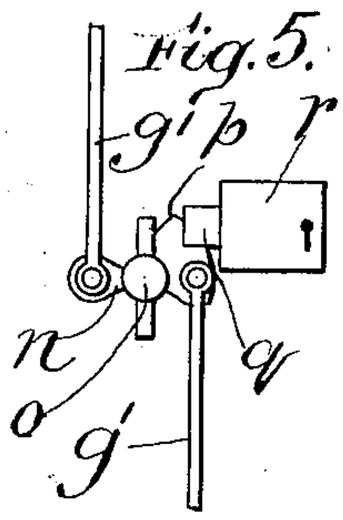

Fig. 5.

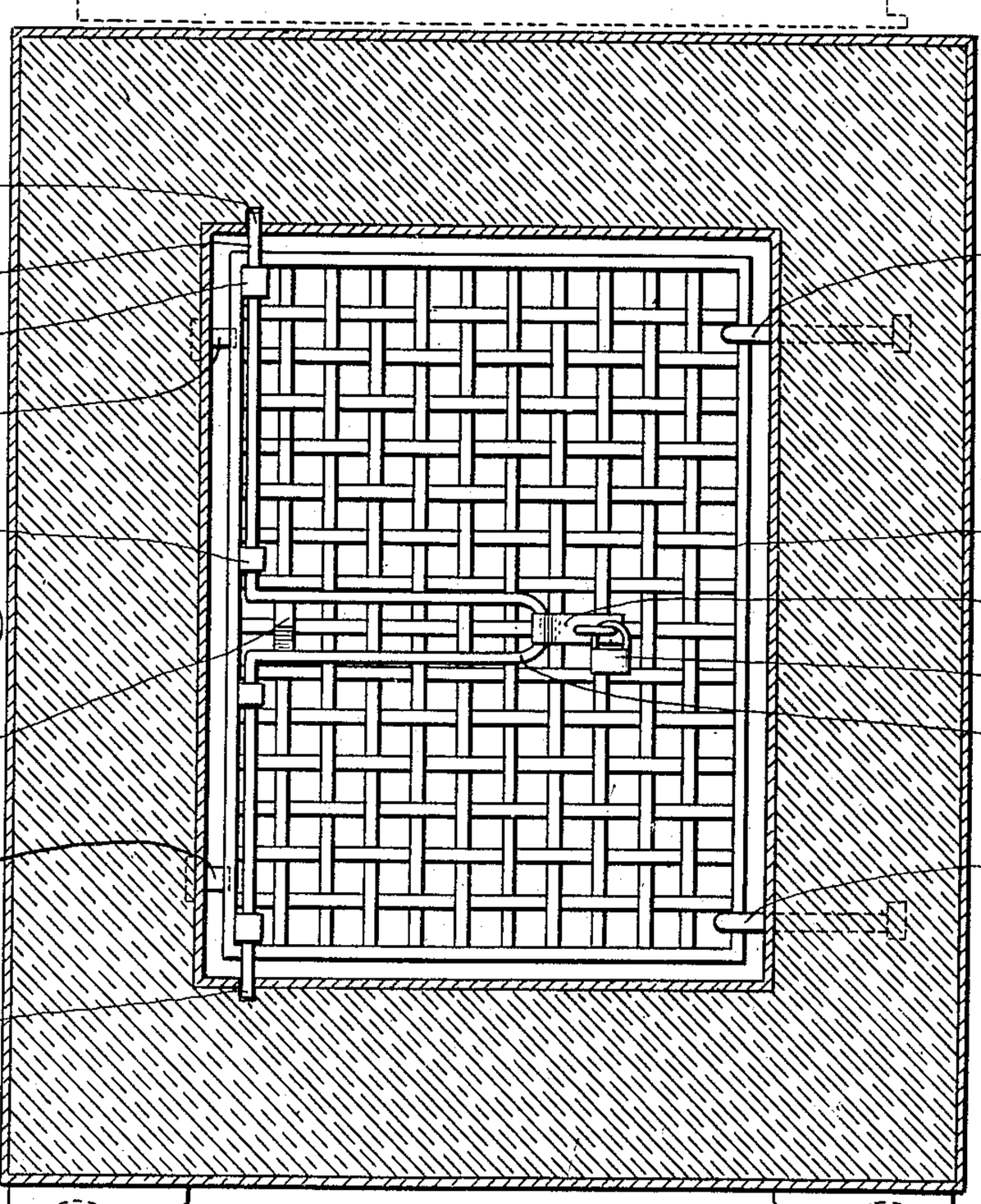

Fig. 2.

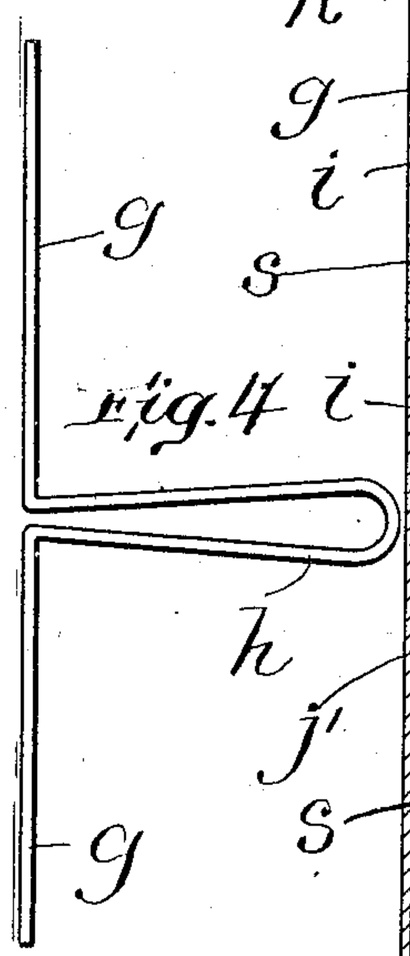

Fig. 4

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2 SHEETS—SHEET 2.

Fig. 8.

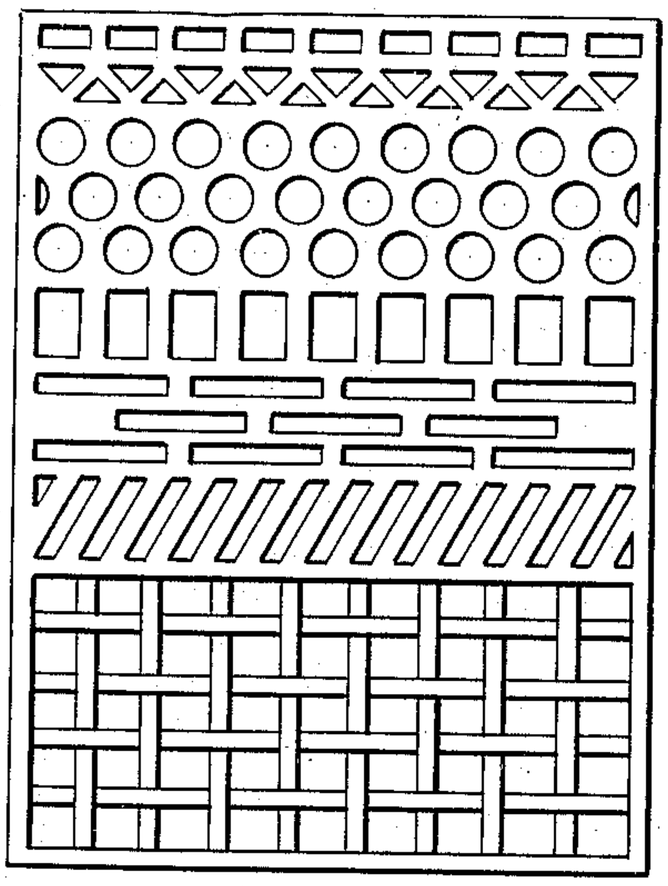


Fig. 6.

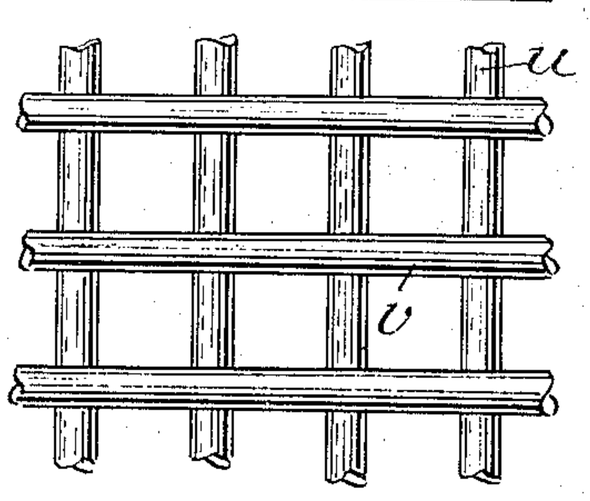
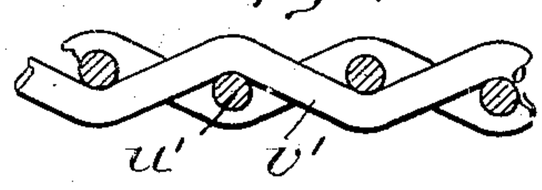


Fig. 7.

Fig. 9.



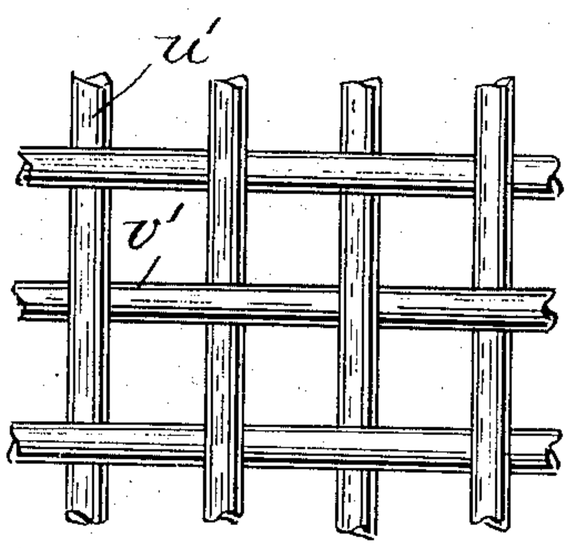


Fig. 10.

Fig. 3.

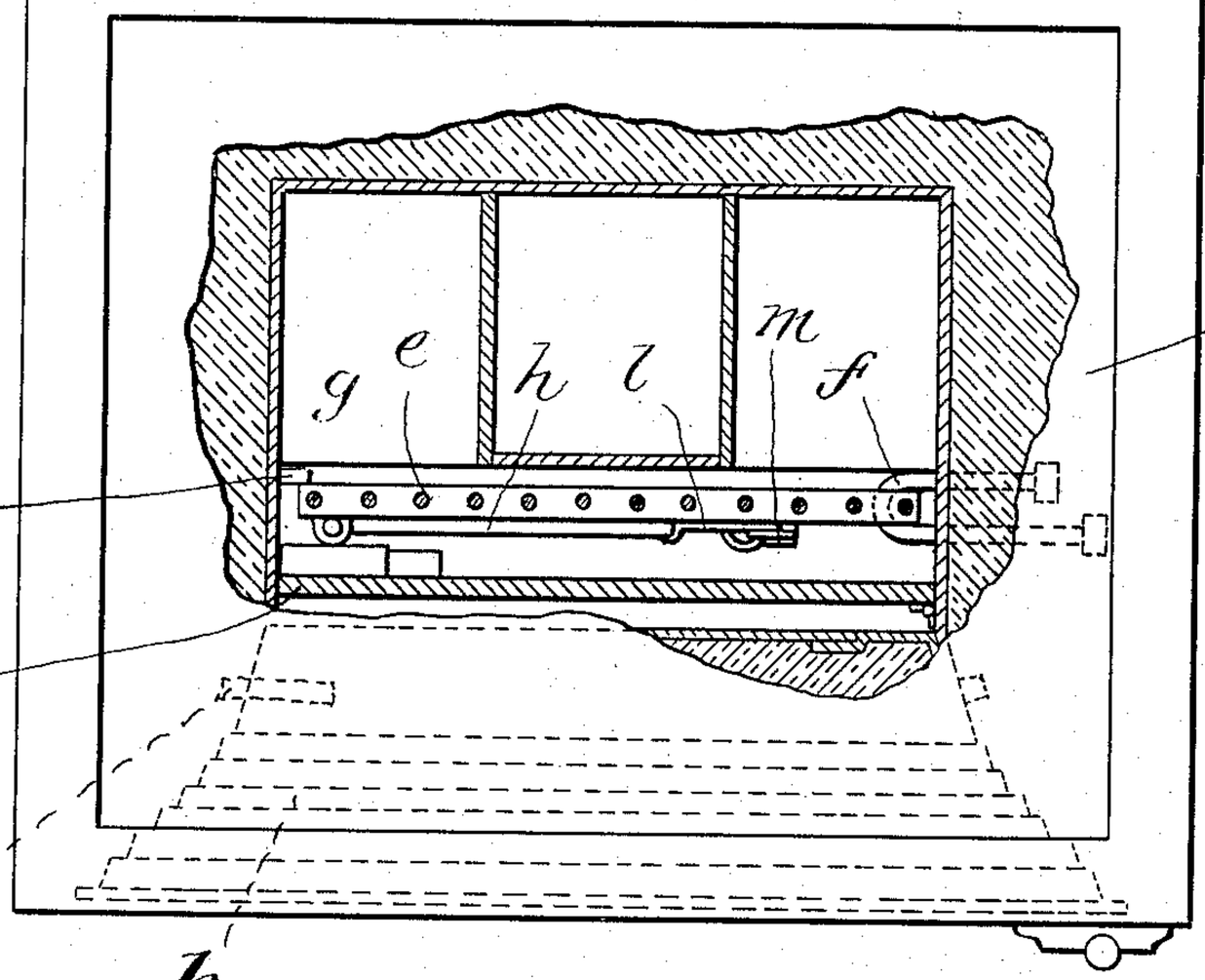


Fig. 13.

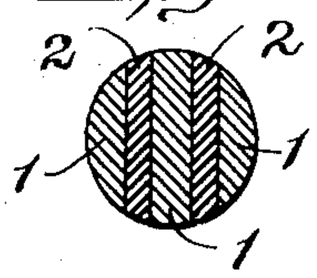


Fig. 14.

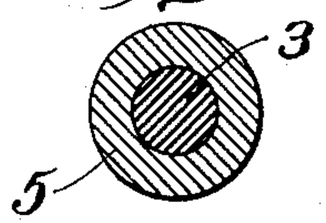


Fig. 15

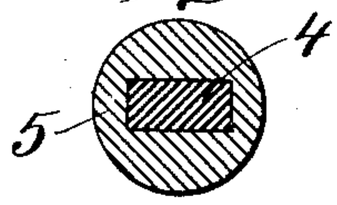


Fig. 11.

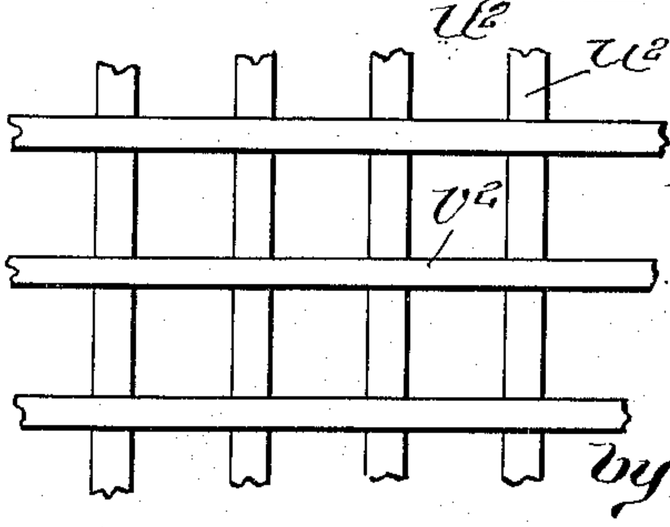


Fig. 12.

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UNITED STATES PATENT OFFICE.

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BURGLAR-PROOF SAFE.

No. 819,430. Specification of Letters Patent. Patented May 1, 1906.

Application filed January 19, 1905. Serial No. 241,757.

To all whom it may concern:

Be it known that I, JAMES H. HOWARD, of Medford, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Burglar-Proof Safes, of which the following is a specification.

This invention has for its object to provide a safe with an additional protecting device to prevent a burglar from rifling the safe even after the outer door has been removed; and it consists of a burglar-resisting inner vented guard connected to the safe inside of or behind the outer door, said guard being free from liability to injury from an explosion within the safe, so that immediate access cannot be had to the contents of the safe after an explosion.

Of the accompanying drawings, Figure 1 represents a horizontal cross-section of a safe embodying my invention. Fig. 2 represents a vertical section of the same. Fig. 3 represents a plan of a slightly-modified form of the invention, partly broken away to show the interior of the safe. Figs. 4 and 5 represent views of two forms of locking device which may be used to hold the inner guard shut. Figs. 6 to 12, inclusive, represent various forms of inner guard which may be used. Figs. 13 to 15, inclusive, represent sectional views of bars having hardened portions from which the inner guard may be made.

The same reference characters indicate the same parts in all the figures.

a represents an ordinary fireproof safe having a door *b*, bolts *c*, lock *d*, &c., of the usual construction. Extending across the interior of the safe within the door *b* is a burglar-resisting vented inner guard *e*, hinged at one side, preferably by the staple-hinges *f*, to the side of the safe, and of such strong construction as to be adapted to resist for a considerable length of time the attempt of a burglar to break it open. This vented guard is foraminous or formed with a large number of small openings or vents extending through it, so as to present a minimum of resisting-surface consistent with the requisite strength for guarding the interior of the safe and provide for the free passage of gases through the guard. It is preferably made of less width and height than the doorway of the safe in order to leave a space for the passage of gases between its edges and the surrounding walls of the safe. Suitable locking means are provided for holding the vented guard shut, two forms of lock being illustrated in Figs. 4 and 5. The lock of Fig. 4 consists of a resilient bar bent to form two straight bolts *g*, which are journaled in lugs *i* on the guard and an intermediate loop *h*. A V-shaped projection *j* is mounted on the guard with its apex projecting between the legs of the loop. When the inner guard is closed, it is locked by turning the locking member in the bearing-lugs into the position shown in Fig. 2, whereby the legs of the loop are brought into contact with the inclined sides of the projection and separated, moving the bolts in opposite directions to project them into sockets *k*. The locking member is retained in this position by appropriate means, such as a hasp *l* and padlock *m*. In order to open the guard, the padlock is removed and the loop *h* swung outwardly clear of the projection *j*, when the resiliency of the loop brings its legs together into the position seen in Fig. 4, withdrawing the bolts from their sockets.

The locking means shown in Fig. 5 consist of two bolts *g'*, connected to a pivoted rocker *n*, which has a handle *o*, by which the bolts are manually projected and withdrawn. They are held in projected position by a bolt *q*, which enters a notch in a wing *p*, carried by the rocker, and is itself operated by a key turned in an ordinary lock *r*.

Stops *s* are mounted in the side wall of the safe to arrest the motion of the guard after it has been turned far enough to bring the bolts into position to engage the sockets.

Ordinary safes are not entirely burglar-proof, because they can be perforated by a drill and enough dynamite or powder inserted through the hole to blow off the door or doors and blow open the cash-box door, as shown by dotted lines in Fig. 1. An explosion of force enough to accomplish this, however, will also make a sufficiently loud noise to attract attention, and the burglar to avoid being caught must seize the valuables and make his escape immediately. When a safe is provided with the vented inner guard above described, however, he is unable to do this, for the said vented guard will offer so little resistance to the pressure of the gases produced by the explosion as to be practically unharmed thereby. The burglar thus finds himself confronted with the necessity of breaking through the guard after the explosion before he can secure the valuables in the safe and after he has made noise enough to arouse the whole neighborhood. This will

delay him so much that it will in most cases be impossible for him to get away with the loot before he is discovered and captured; but generally the burglar will not risk the delay and will escape without attempting further to rifle the safe.

In the form of safe shown in Fig. 3 an additional solid door *t* is interposed between the outer door and the vented guard.

Figs. 6 and 7 show two views of a vented guard made of longitudinal bars *u* and cross-bars *v*, electrically welded together to form a rigid structure.

In Fig. 8 the guard is made of a plate having perforations of different shape arranged to make an ornamental design.

In Figs. 9 and 10 the bars *u' v'* are woven together, and in Figs. 11 and 12 the longitudinal bars u^2 are passed through perforations in wider cross-bars v^2 and so held together.

Preferably the vented guard will be made as a grill of bars electrically welded, as in Figs. 6 and 7, and the bars will preferably be made of steel having portions of different degrees of hardness, various forms of such bars being illustrated in Figs. 13, 14, and 15. In Fig. 13 the bar is made of alternate layers 1 of low-carbon steel and layers 2 of high-carbon steel welded together. In Fig. 14 is a central cylindrical core 3, and in Fig. 14 a prismatic core 4, of the high-carbon steel, each being surrounded by a covering 5 of the low-carbon steel. When a bar made up in any of the ways illustrated is headed and suddenly cooled, the portions 2 3 4, having the high percentage of carbon, become very hard, though brittle, and the parts 1 5, having less carbon, remain soft and tough. Thus a composite bar which will defy the efforts of a safe-breaker for a considerable time is produced. The hard core prevents the bar from being sawed or filed through, as it will dull the teeth of the cutting-tool as soon as it is reached, and the softer covering by its greater toughness prevents the core from being snapped by hammering or bending. Both the locking device, hinges, hasp, and padlock will be made of the same material or entirely of hardened steel, so as to render it impossible to open the door by filing or sawing alone; but the lock or parts of the door must be broken by a sharp blow, which will make more noise and further attract attention after people have been aroused by the explosion before the valuables in the safe can be reached.

I do not wish to be confined to the precise details of construction and arrangement hereinbefore described, as many minor changes may be made without departing from the spirit of my invention. For instance, the lock may be mounted on the door-jamb instead of on the door, or other forms of lock may be used, or the vented guard may be held in place by locks on opposite sides instead of hinges on one side.

I claim—

1. A safe having an outer door, a burglar-resisting vented inner guard interposed between the outer door and the interior of the safe, and means for locking said guard.

2. A safe having a suitable door of fireproof material, a burglar-resisting vented inner guard interposed between the outer door and the interior of the safe and hinged thereto, the guard being constructed to permit the passage of gases through it and separated at its edges from the sides of the door-opening to permit the passage of gases across its edges, and means for locking the said guard.

3. In a safe, a vented inner guard adapted to be locked in the safe behind the outer door thereof, consisting of a plurality of crossed rods, the rods being made of material having portions of different degrees of hardness.

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

JAMES H. HOWARD.

Witnesses:

A. C. RATIGAN,

A. H. BROWN.