(No Model.) 2 Sheets—Sheet 1.

H. GROSS.

BURGLAR PROOF SAFE.

No. 342,004. Patented May 18, 1886.

Fig. 1.

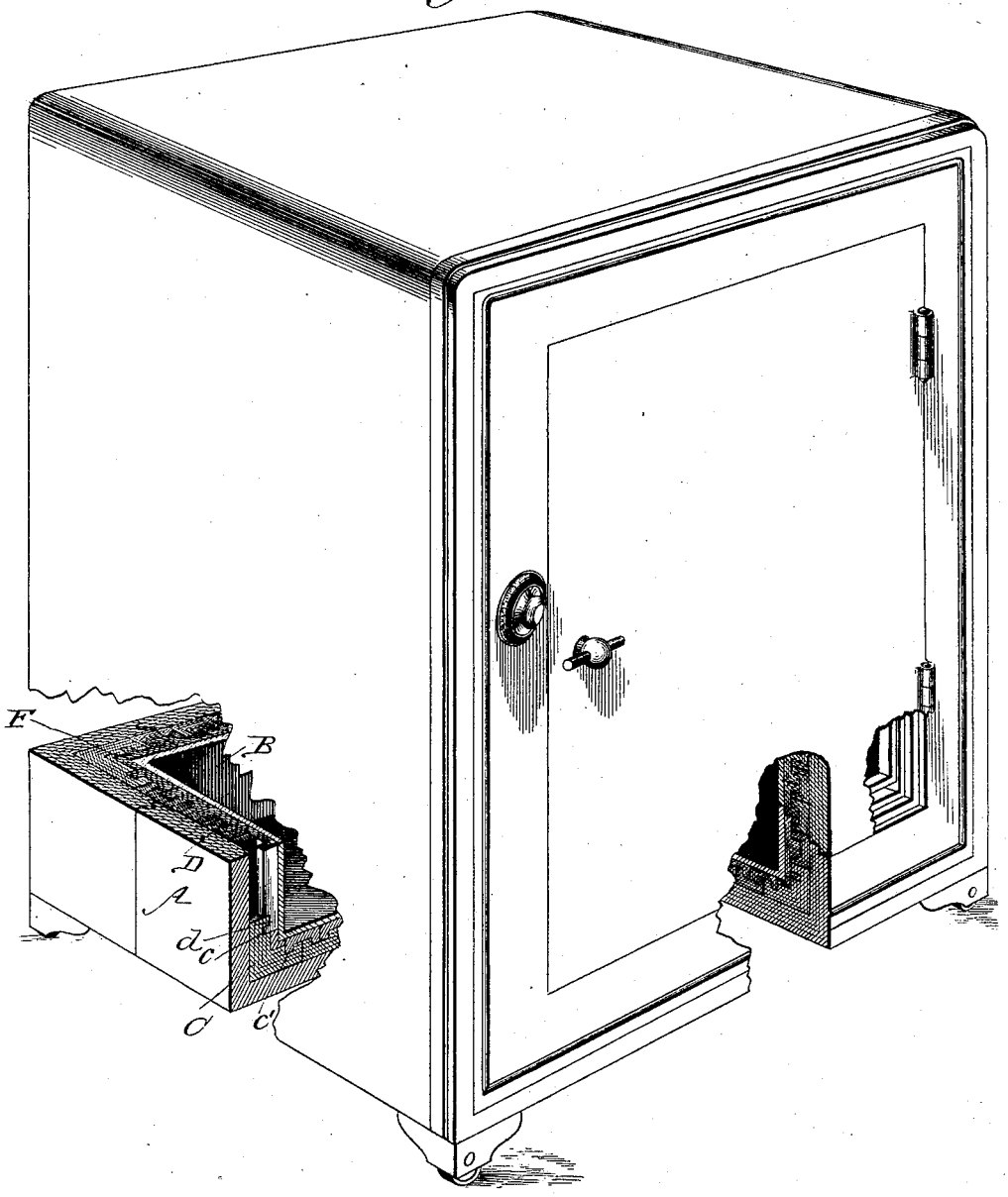
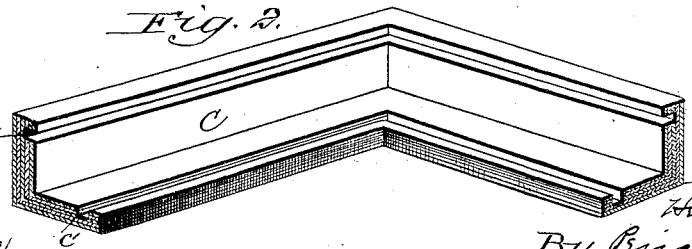


Fig. 2.



Witnesses.
W. Rossiter
Edward Thorpe.

Inventor.
Henry Gross.
By. Brice & Fisher
His Attys.

(No Model.) 2 Sheets—Sheet 2.

H. GROSS.

BURGLAR PROOF SAFE.

No. 342,004. Patented May 18, 1886.

Fig. 3.

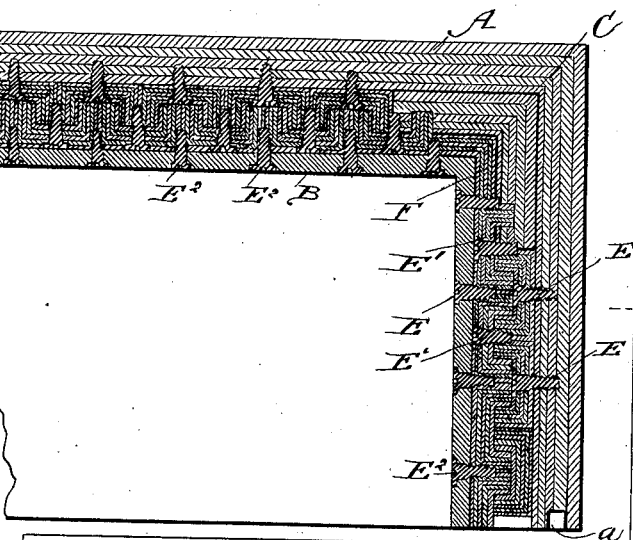


Fig. 4.

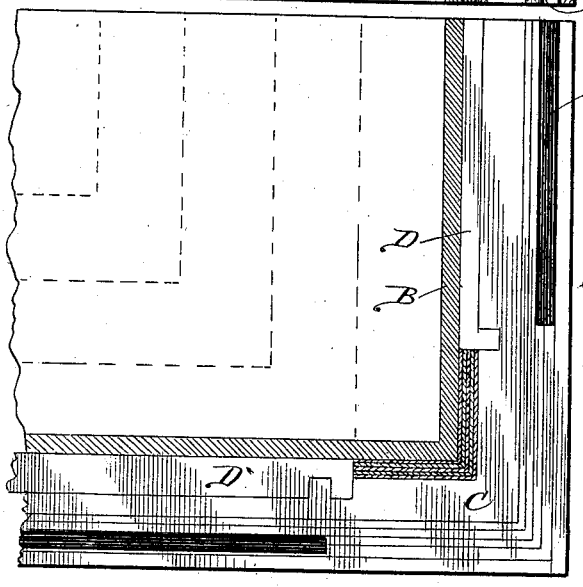


Fig. 6.

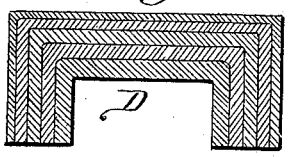


Fig. 7.

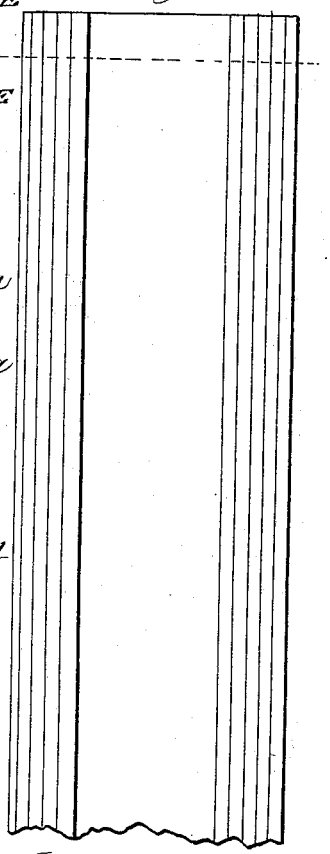
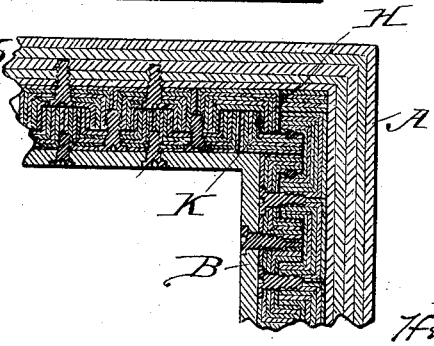


Fig. 5.



Witnesses.
W. Rossiter
Edward Thorpe.

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Henry Gross
By Pierce & Fisher
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UNITED STATES PATENT OFFICE.

HENRY GROSS, OF CHICAGO, ILLINOIS.

BURGLAR-PROOF SAFE.

SPECIFICATION forming part of Letters Patent No. 342,004, dated May 18, 1886.

Application filed September 26, 1885. Serial No. 178,230. (No model.)

To all whom it may concern:

Be it known that I, HENRY GROSS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Burglar-Proof Safes, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My present invention has for its object to so construct the walls of a safe that if attempt be made to drill through the same the drill will be turned and broken before the interior of the safe is reached.

To this end my invention consists in embodying in the walls of the safe plates composed of laminæ of combined iron and steel, said plates being bent to present the plane of their laminæ at an angle to the walls of the safe.

My invention further consists in embodying in the walls of the safe plates formed of laminæ of combined iron and steel, said plates being bent so as to present their laminæ at an angle to the walls of the safe, and being interlocked so as to prevent their separation.

My invention further consists in embodying in the walls of a safe U-shaped plates formed of metals of unequal hardness, said plates being reversely arranged and interlocked.

A further object of my invention is to so construct the walls of the safe that the danger of the plates whereof the walls are composed being wedged or forced asunder by a burglar will be avoided; and to this end my invention consists in forming the safe-walls of U-shaped plates of suitable metal oppositely arranged and interlocked.

My invention also consists in certain novel features of construction hereinafter described, illustrated in the accompanying drawings, and particularly defined in the claims at the end of this specification.

Figure 1 is a perspective view of a burglar-proof safe made in accordance with my invention, parts being broken away for better illustration. Fig. 2 a is detail perspective view of a portion of one of the angle-bars. Fig. 3 is a fractional view in horizontal section at one corner of the safe. Fig. 4 is a fractional view in vertical section at a corner of the safe. Fig. 5 is fractional view in horizontal section at a corner of the safe, showing a modified way of uniting the plates. Fig. 6 is an end view, and Fig. 7 a plan view, of one of the plates of combined iron and steel.

A designates the outer wall or sheathing, and B denotes the inner wall or lining, of my improved safe. The wall A is formed of a series of plates or sections united together, as seen at *a*, by dovetail joints and bent to the proper shape. Each of the sections of the sheathing A is composed of several laminæ or thicknesses of metal of relatively unequal hardness, iron and steel being preferably employed for this purpose, in the formation of these sections the thin plates of iron and steel being placed alternately upon each other, and while in heated condition being rolled together, as well understood in the art. In the sections shown the laminæ of metal are five in number, the central one being of iron, the two adjacent ones of steel, and the two outer ones of iron.

At the several corners of the safe, against the outer sheathing, are placed the angle-bars C, formed, preferably, of combined iron and steel plates similar to the sheathing. The same angle-iron that extends along the bottom is also bent at its corners, and extends upward along the sides and across the top of the safe. Upon the inner faces of the angle-bar C are formed the grooves *c* and *c'*, into which fit the ends of the U-shaped plates D, these plates being cut away, as seen at *d* in Fig. 1, for this purpose.

The plates D are each composed of laminæ or thicknesses of combined iron and steel in manner similar to the sections of the outer sheathing—that is to say, with two thicknesses of steel and three of iron—and the plates are arranged in such manner that the backs of one set bear against the inner face of the sheathing, while the backs of the opposite set bear against the inner face of the lining, and the ends of the plates interlock, as is clearly shown by the drawings.

In order to securely connect the plates D together and to the sheathing and lining of the wall, I drill through the backs of the outer series of plates and partially through the sheathing threaded holes adapted to receive the screws E, which serve to firmly unite the

outer series of plates to the sheathing, and through the backs of the inner plates, D, and the abutting ends of the outer plates I also drill threaded holes to receive the screws E′, which serve to connect the inner and outer series of plates securely together. The lining B is joined to the inner series of plates by means of the screws E″, that enter threaded holes cut for that purpose in the abutting sides of the inner plates.

The plates D upon the sides of the safe extend, preferably, in vertical direction, while those upon the top and bottom walls are arranged horizontally, as shown; and, as already stated, the ends of the vertical plates are cut away, as at *d*, to fit into the corresponding spaces, *c*, in the angle-bar C, while the side of the horizontal plate nearest the angle-bar locks into the channel or space *c′*, formed in this bar.

At the vertical corners of the safe the U-shaped plates D are connected to the angle-bars by having their outer ends locked into the grooves *c* and *c′*, formed in the faces of the angle-bar, as seen in Figs. 1 and 3. In the space between the corners of the angle-bar C and the lining B are placed the short filling-bars E, preferably of combined iron and steel plates, bent as shown.

It will be readily understood that the precise arrangement of the U-shaped plates may be varied, and other suitable means may be employed for locking them together and to the lining and sheathing of the wall, although in practice the construction shown has proved efficacious. It will be seen that by the use of the U-shaped plates the space between the sheathing and the lining of the safe-wall is in effect composed of many thin laminæ of metal of unequal hardness, and if attempt be made at any point to drill a hole into the safe, the drill, by striking the ends of the plates D, will be deflected or broken, because of the unequal hardness of these plates. Moreover, it will be apparent that, whether the U-shaped metal plates be of laminate structure or not, a decided advantage results from locking these plates together in the manner shown, since by such construction any attempt to force the safe by wedging the plates asunder will be successfully resisted.

In Fig. 5 is illustrated a somewhat modified arrangement of the plates D and the method of uniting the same together. In this construction the corner plates will each be formed with grooves throughout its length, adapted to receive the pins or keys H, which serve to firmly hold the plates together, and instead of employing an angle-bar, as in the construction above described, that abuts against the sheathing A, I employ a small angle-bar, K, the ends of which project within and abut against the sides of the two adjoining plates D of the outer series at the corner of the wall, and are keyed to these plates by means of the pins H.

It will be readily understood that the U-shaped or channeled plates may be formed in any approved manner, although I regard rolling as the preferable way of forming such plates. By making these plates of U shape or channeled, so that they can interlock, all danger of forcing the safe-wall by wedging the plates asunder is avoided.

In practice it has been found that the edges of the U-shaped plates do not extend at precisely right angles to the faces of the safe-walls; but this deviation is but an incident in the rolling of the plates, and is in no sense a departure from the invention.

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

1. A burglar-proof safe the walls whereof are formed of plates composed of laminæ of combined iron and steel, said plates being bent to present the plane of their laminæ at an angle to the walls of the safe, substantially as described.

2. A burglar-proof safe the walls whereof comprise a series of plates formed of laminæ of combined iron and steel, said plates being bent to present the plane of their laminæ at an angle to the walls of the safe, and being interlocked to prevent separation, substantially as described.

3. A burglar-proof safe the walls whereof comprise U-shaped plates formed of metals of unequal hardness, said plates being reversely or oppositely arranged and interlocked, substantially as described.

4. A burglar-proof safe the walls whereof comprise laminate plates of combined iron and steel, having their ends extending toward the faces of the walls, and grooved angle-bars to which said plates are attached, substantially as described.

5. A burglar-proof safe the walls whereof comprise U shaped plates of combined iron and steel, having their ends transversely grooved, and having their sides interlocked, and angle-bars having their inner faces grooved to receive the ends of the plates, substantially as described.

6. A burglar-proof safe the walls whereof comprise U-shaped metal plates reversely or oppositely arranged and interlocked to prevent their separation, substantially as described.

HENRY GROSS.

Witnesses:
GEO. P. FISHER, Jr.,
JAMES H. PEIRCE.