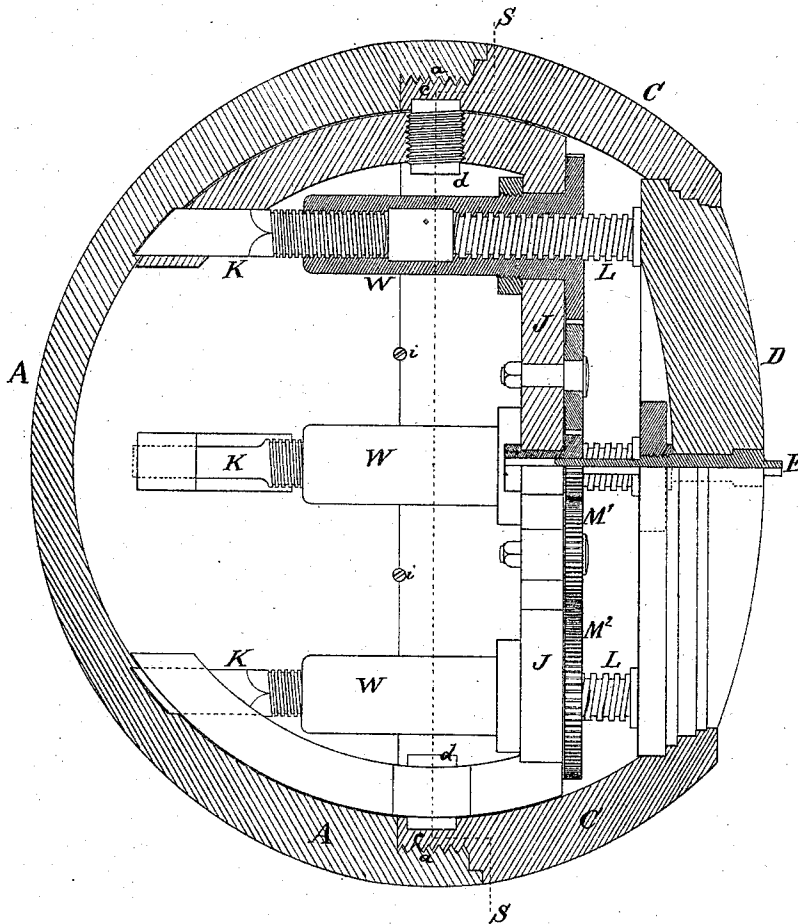


W. CORLISS.
Burglar-Proof Safes.

No. 137,061.

Patented March 25, 1873.

Fig. 1.



Witnesses;

Inventor;

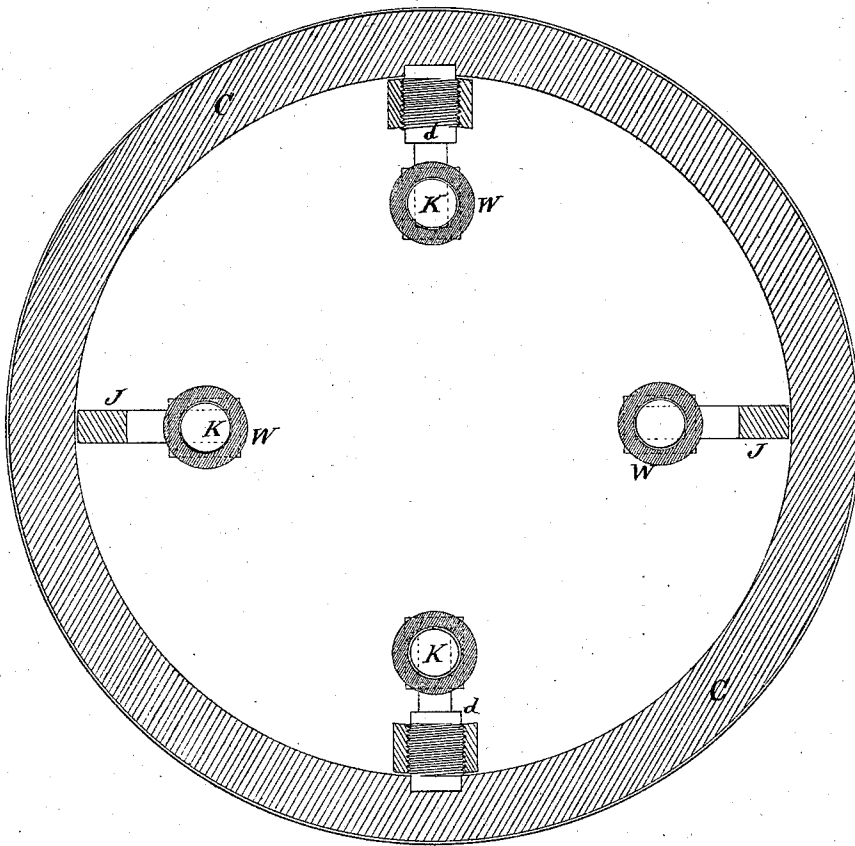
Arnold Hermann
Wm E Day
William Corliss
his attorney *Edw L Stetson*

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Fig. 2.



Witnesses:

Inventor:

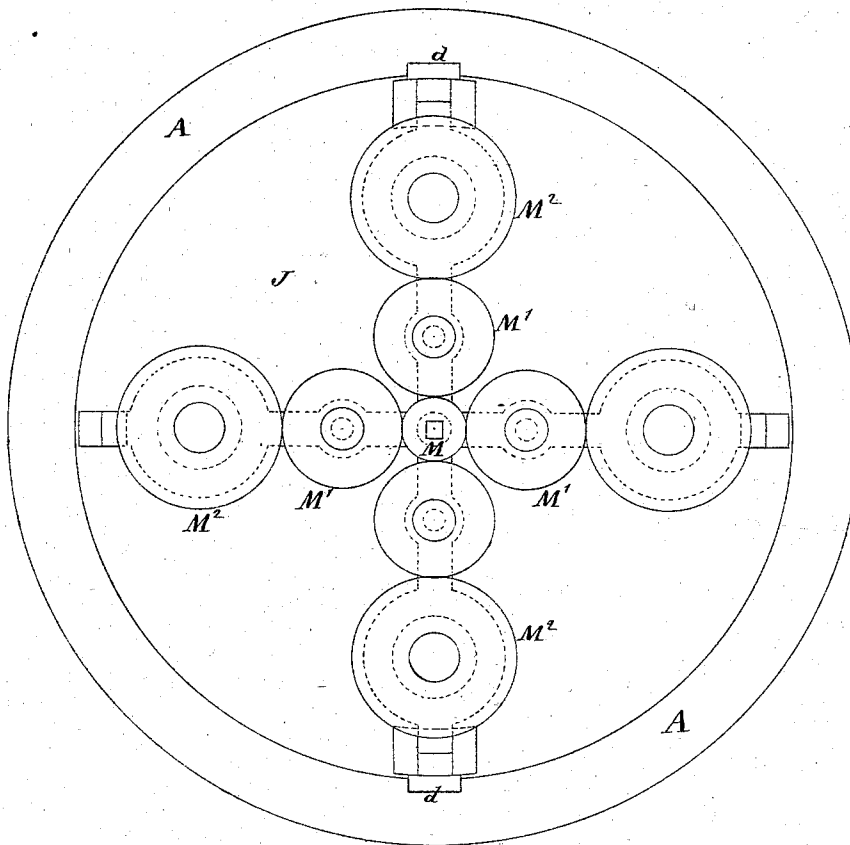
Arnold Hermann.
Wm C. Day
Isaac Atkins
William Corliss
J. L. Stetson

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Fig. 3.



Witnesses;

Inventor:

Arnold Hornum.

Wm. C. Day

William Corliss
his atty

UNITED STATES PATENT OFFICE.

WILLIAM CORLISS, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN BURGLAR-PROOF SAFES.

Specification forming part of Letters Patent No. 137,061, dated March 25, 1873.

To all whom it may concern:

Be it known that I, WILLIAM CORLISS, of Providence, Rhode Island, have invented certain Improvements in the Construction of Burglar-Proof Safes, of which the following is a specification:

I manufacture the parts in massive sections each of a single thickness, and thus am able to easily construct safes of any desired dimensions, and preserve the general spherical or spheroidal form. I apply these sections together so as to secure great strength of the shell along the line of junction. I guard very efficiently against a separation of the sections. I operate the door and impart to it a large extent of forward and backward motion while providing for its swinging around on an axial pivot within the safe; and I employ very efficient means for holding the door very strongly in its closed position until it is drawn inward by the proper devices.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawing forms a part of this specification.

Figure 1 is a vertical section through the shell with a corresponding sectional view of a part of the interior mechanism. It shows the safe with the door in its closed position. Fig. 2 is a section on the line S S of Fig. 1 looking toward the back of the safe. Fig. 3 is a front view of a portion. The front section of the shell and the door are removed. This view exhibits the front of the revolving frame which supports the door.

Similar letters of reference indicate like parts in all the figures.

A is a hemispherical back portion of the shell. C is a partial hemispherical front portion of the shell. D is a door or the part that performs the functions of a door. J is a revolving frame, adapted to carry all the shelves and other internal work of the safe, and also to carry the door and its operating mechanism. There are centers or pintles *d*, which serve as an axis for the revolving frame J and its connections.

The parts A and C are manufactured separately and secured together.

To move the door outward and inward, I operate a shaft, E, which passes through the

door D and operates by means of the small gear M, giving motion to the intermediate gears M¹, and thereby to the larger gears M². Each gear M² is made a part of or attached to one of the long column-nuts, four of which are here used. Each column-nut serves as a double nut. Each is mounted in an appropriate bearing in the frame J. The part toward the door is tapped to receive the large screws L, which are fixed rigidly into the door, and do not turn, but carry the door bodily backward and forward as the column-nuts W are turned in one direction or the other. The end toward the back of the safe is tapped to receive another large screw-bolt, marked K, which passes through an arm of the frame J and enters a slight recess in the back of the main shell, as shown in Fig. 1. The outer end of each bolt K is squared or splined and passes through a corresponding hole in the frame J to prevent its turning. The column-nuts W are made with a right-hand thread at one end, and a left-hand thread at the other end, the screws L and K being correspondingly threaded. The large screws L are unable to turn by reason of their being fast in the door D. The large screws K at the other end are unable to turn on account of the form of the parts passing through the frame J. It follows that as the several gears M M¹ M² are turned and the column-nuts W are turned the screws L and K are thrust outward or drawn inward simultaneously, according as the shaft E is turned. By this arrangement the back screws K are engaged with or leave the recesses provided for them in the inner surface of the part A, and the door D is moved inward and outward. When the door in its outward movement has reached the bearing in the aperture which it is to close the screws L and K and the column-nuts W unite in forming inflexible stanchions to support it in its closed position against any pressure that can be brought to bear against it.

As the back screw-bolts K need move only sufficiently to clear them from the shallow recesses in the rear, and the door D requires much more outward and inward motion, I make the pitch of the screws L proportionately greater than the pitch of the screws K. There is a recess in each column-nut, as shown, in which the different threads terminate.

By imparting to the door considerable reciprocating motion, its face, when closed, may be flush with the outside of the safe, and the exterior may be thereby made entirely free from objectionable corners or projections.

The locking of the shaft E by one or more suitable locks engaging in a collar on the shaft, or otherwise properly connected, precludes the possibility of operating it by any but the proper parties. As a means of fitting together the strong sections A and C of the exterior shell, I fit one within the other for a little distance, and provide them with strong screw-threads, as represented. The screw-threads on the back piece A are marked *a*, and the screw-threads on the front piece C are marked *c*. To put together the parts, after having nicely finished the threads, I warm the part which applies exterior to the other, (in the drawing, this is part A, but the parts may be matched the other way, if preferred,) and having touched the surfaces slightly with red lead or other strong cementing material, or having touched the metal slightly with a solution of sal-ammoniac, to induce a rusting of the surfaces together after they are in place, I apply the parts together, and turn them slowly around by levers or by machinery provided for the purpose. The screw-threads *a* and *c* apply together, as will be readily understood, and when the surfaces have come tightly together, and the temperature of the two parts A and C has become equalized, the joint is very strong and tight. As a security against any possible unscrewing of these parts, I drill and tap from the inside on the line of the seam, and insert a screw, key, or bolt, as indicated by *i*. There may be two or more of these keys *i*, if preferred. I believe that the key or keys *i* thus inserted from the inside will hold the parts with absolute certainty against unscrewing, even if the parts A and C are simply put together by hand-power without heating. I propose in some cases to transport the safes to their destination in sections, and put them together in the vaults of banks, or in the upper stories of office buildings, as required. The offset on the part A, matching into a corresponding rabbet on the part C, is intended to still further guard against the possibility of tampering with the joint formed by the coming together of the parts A and C, as described, by means of wedges or otherwise.

Some of the advantages due to certain features of the invention may be realized without the whole. Thus, for example, the parts A and C are preferably formed by casting or forging from a mixture of hard and soft material. It may be sufficient in this specifica-

tion to say that the invention provides that the valuables are inclosed within a thick casing of impermeable material, or material that is as difficult to drill or break as is possible to compound, and that the general form of the casing is spherical, or a combination of the spherical with the cylindrical form, thereby offering great strength and resistance to all ordinary or extraordinary means of breaking it open. The door D is supported and carried by four large screws, L, that stand within stout columns or deep revolving nuts W, which I will term column-nuts, mounted upon and within the revolving frame J. In order to shut the door D, it is turned with the frame J, on the central axis *d*, until it is in line with, or abreast of, the aperture which it is to close, and then it is forced outward until its edges, by moving outward along the corresponding adjacent surfaces, have engaged therewith very closely. Now, any force applied to swing the door on its axis *d* is directly resisted by the contact of the edge of the door against the adjacent inner edge of the surrounding part C. The door is preferably made of the same material as the main shell, and its edge is provided with steps matching to corresponding steps on the jambs or edge of the opening in the shell. To open the door, it must first be moved bodily inward, until its edges are disengaged from the surrounding material, and then swung around with the frame J which supports it.

I claim as my invention—

1. A safe-shell, made in sections, each in a single thickness, and secured together internally by the screw-threads *a* and *c*, substantially as described.
2. The key *i* in combination with the threaded portions A C of a sectional safe, and serving as a means for preventing the turning of the sections upon each other, as specified.
3. The revolving frame J and door D, with means for moving the same relatively to each other, arranged to serve within a safe, as herein specified.
4. The column-nuts W and screws K L, arranged as shown, in combination with a door, D, opening inwardly, so as to move the door forward and backward, and to hold it in the forward position by bracing across the interior of the entire structure, as specified.

In testimony whereof I have hereunto set my hand this 28th day of March, 1872, in the presence of two subscribing witnesses.

WILLIAM CORLISS.

Witnesses:

WM. C. DEY,
ARNOLD HÖRMANN.