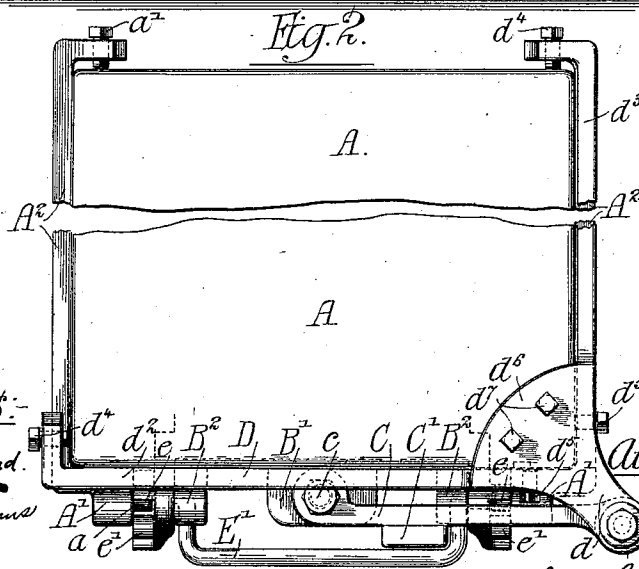
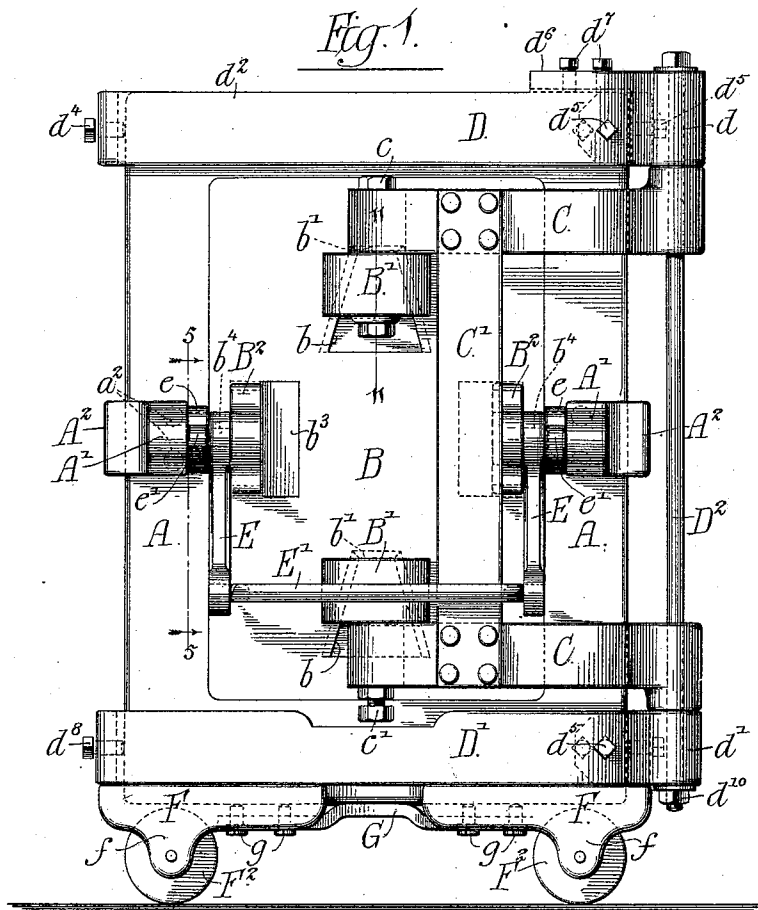


A. G. BURTON.
SAFE.

No. 564,002.

Patented July 14, 1896.



Witnesses:

Louis W. Whitehead.

John W. Adams

Inventor:

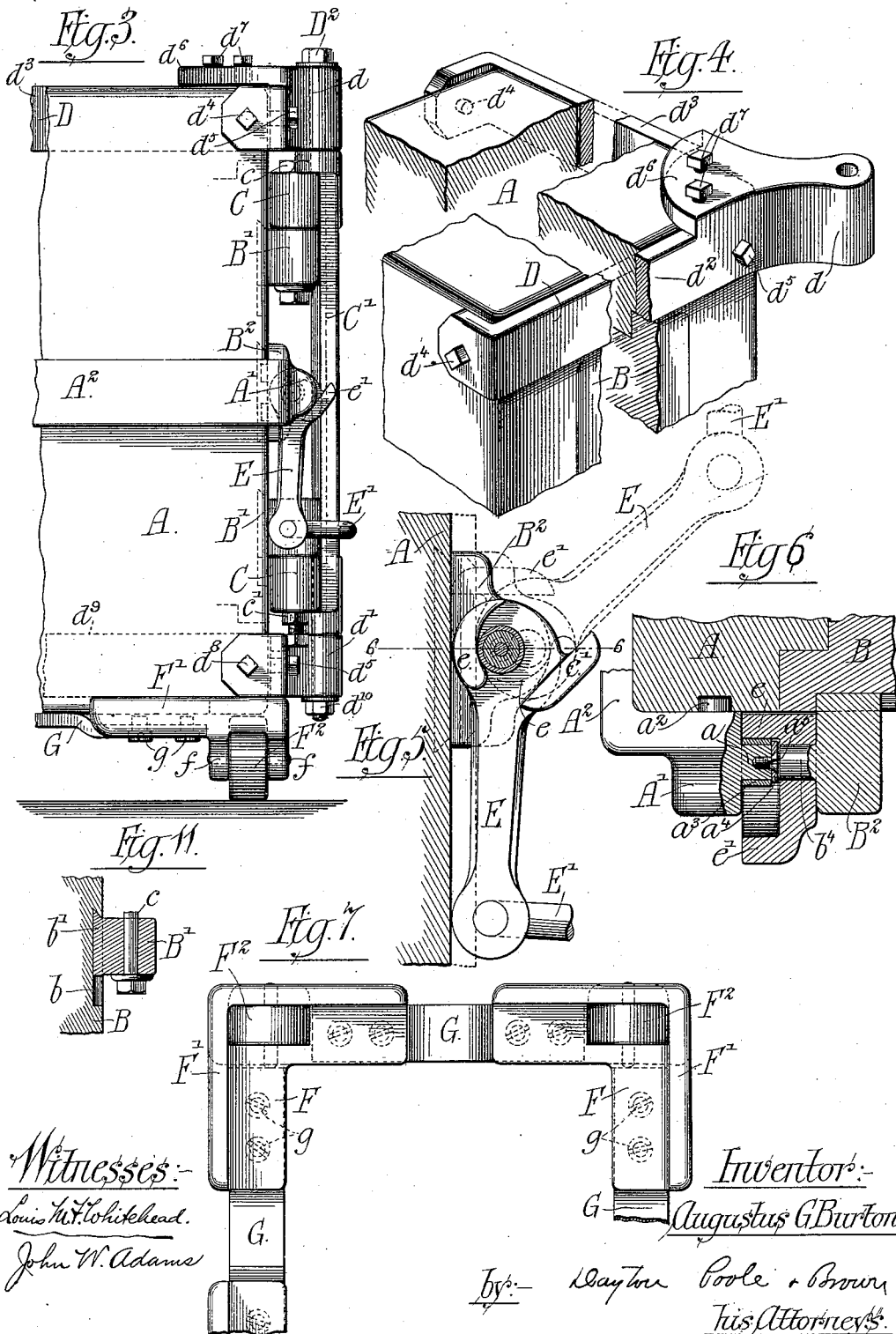
Augustus G. Burton.

By: Clayton, Poole & Brown, Attorneys.

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Dayton Poole & Brown

His Attorneys.

(No Model.)

3 Sheets—Sheet 3.

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Fig. 8.

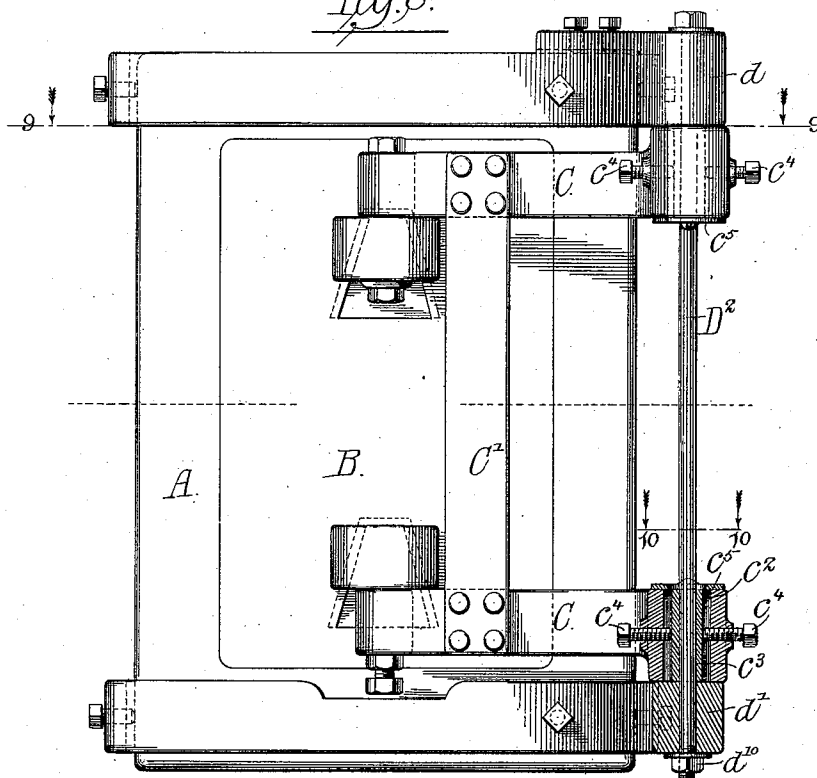


Fig. 10.

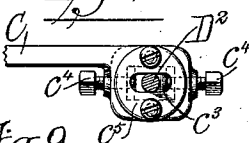
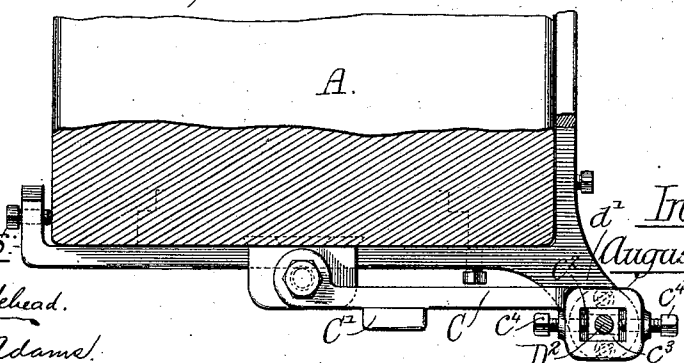


Fig. 9.



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UNITED STATES PATENT OFFICE.

AUGUSTUS G. BURTON, OF CHICAGO, ILLINOIS.

SAFE.

SPECIFICATION forming part of Letters Patent No. 564,002, dated July 14, 1896.

Application filed June 19, 1893. Serial No. 478,147. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS G. BURTON, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Safes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in fire or burglar proof safe construction, and it consists in the matters hereinafter set forth, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a front elevation of a safe provided with devices embodying my invention. Fig. 2 is a top plan view thereof. Fig. 3 is a side elevation of the same with the rear part broken away. Fig. 4 is a broken perspective detail of the upper end of the safe, showing the manner of supporting the upper part of the hinge. Fig. 5 is an enlarged detail section taken on line 5 5 of Fig. 1, looking in direction of arrows. Fig. 6 is a section on line 6 6 of Fig. 5. Fig. 7 is a broken plan view of the safe-supporting truck. Fig. 8 is a front elevation of a safe provided with door-supporting devices somewhat modified from those previously shown. Fig. 9 is a sectional view taken on line 9 9 of Fig. 8, looking in direction of arrows. Fig. 10 is a detail on line 10 10 of Fig. 8. Fig. 11 is a detail section of one of the door-supporting lugs, taken on line 11 11 of Fig. 1.

A designates the body of the safe, and B the door of the same.

C C are horizontal hinge-bars, herein shown as connected by a vertical bar C' and constituting part of a crane-hinge. The safe-door B is pivotally supported upon the free ends of the bars C C, by means of suitable pivots c c', which are seated in said bar ends and engage lugs B' B', projecting from the outer face of the door B. As a novel and convenient method of securing said lugs B' B' to the door B, the latter is provided with shallow recesses b b of inverted truncated V-shape, the upwardly-converging side walls

and the top wall of which are undercut or dovetailed, as shown, and the lugs B' B' are provided with cooperating lugs b' b' of corresponding shape adapted to tightly fit within the upper portions of said recesses. Said lugs b' b' are first inserted in the enlarged lower portions of said recesses b b and then slipped upward until firmly seated in the upper portions thereof, the weight of the door B obviously serving to finally maintain the lugs in their seats.

D D' are clamp-bars, which are detachably secured to the exterior of the safe above and below the door B, and are provided with eyes d d' to receive the pivot D² of the hinge. As herein shown, the upper bar D is composed of two integral arms d² and d³ extending from the pivot-eye d across the adjacent faces of the safe and with their remote ends bent to lap a short distance upon the other two faces of the safe and provide seats for set-screws d⁴ d⁴, by means of which said bar D may be firmly clamped in position. To permit adjustment, the bar D is made to fit the safe loosely and is provided with additional set-screws d⁵ d⁵ located adjacent to the pivot-lug d and directly opposite the set-screws d⁴ d⁴, so that by adjusting the set-screws the lug d may be carried toward or from either face of the safe.

For the purpose of supporting the clamp-bar D against downward strains upon the eye d, said bar is provided with a horizontal web d⁶ extending across the corner formed by the juncture of the arms d² and d³ and adapted to rest upon the top of the safe. Adjusting-screws d⁷, as herein shown, extend downward through the web d⁶ and afford a convenient means for adjusting the clamp-bar up and down without interfering with the positive nature of its support at this point.

The lower bar D', as herein shown, merely extends across the front of the safe with its ends bent to lap a short distance upon the sides of the same, set-screws d⁸ being provided, as in the same manner as in the bar D, to clamp the bar D' adjustably in place. Obviously, however, the bar D' may be extended across the faces of the safe in the same manner as the bar D, if so desired,

such construction being indicated by the dotted lines at d^b in Fig. 3. In this instance the pivot D^2 of the hinge is formed by a single vertical rod or bolt which engages the eyes d d' of the clamp-bars D D' and is provided at one or both ends with an adjusting-nut d^{10} by means of which the distance between the bars may be adjusted as desired. With this construction the adjacent end of the lower hinge-bar C rests and rotates upon the eye d' of the lower clamp-bar D' , transferring the weight of the door to said eye d' and thence through the pivot-rod D^2 to the upper eye d and web d^6 . Obviously, however, the upper hinge-bar C might be pivotally hung from the eye d in such manner as to relieve the lower bar d' from downward strain, the weight of the door in either case being positively supported from the top of the safe.

In Figs. 8, 9, and 10 I have shown a construction by which a further adjustment of the door B than that afforded by the movement of the clamp-bars D D' may be obtained. The ends of the hinge-bars C C , which engage the pivot-rod d^2 , are in this case formed with slots or apertures c^2 , which are elongated in the plane of said bars and are provided with adjustable bearing-blocks c^3 . The latter are bored to fit the pivot-rod and are adjusted within the slots c^2 by means of set-screws c^4 . A suitable cap-plate c^5 serves, as herein shown, to exclude dirt from the bearing thus formed and impart a proper finish to the parts.

By adjusting either of the blocks c^3 within the slots c^2 the door B may be swung either up or down in the plane of the bars C C about the other hinge-bearing as a center, and by adjusting both the blocks c^3 said door B may be carried bodily toward either side of the safe. Obviously, the same result may be effected by providing such adjustable bearing in the eyes d and d' instead of in the bars C C , if so desired. The movements effected by such adjustable bearings in connection with those afforded by the clamp-bars C C permit a considerable adjustment of the door B in every direction, so that it may be made to register perfectly with the doorway and be readily swung to and from its seat therein. The clamp-bars C C , moreover, while affording a positive support for the hinge without necessitating the penetration of the plates of the safe by fastening-bolts, may readily be moved when it is desired by passing the safe through a narrow opening (as, for example, a vault-door) only large enough to loosely admit the body of the safe.

E E designate the operating-levers of my improved device for pressing or forcing home the safe-door B after the same has been swung into an approximately closed position. Said levers E E are pivoted near opposite margins of the door B to projecting lugs B^2 , which are herein shown as secured to the door by being dovetailed into suitable recesses in the outer

face thereof. The inner ends of said recesses are enlarged to permit the insertion of the lugs B^2 B^2 , and are shown as afterwards filled by suitable filling pieces or plates b^3 b^3 , which at once prevent the removal of the lugs and leave a smooth and finished appearance to the safe-front. Integral cylindric projections b^4 b^4 , extending horizontally from the outer sides of the lugs B^2 B^2 , form in this instance the pivots of the levers E E , and the latter are herein shown as adapted to be oscillated in unison by means of a connecting-handle E' , pivoted at its ends in the outer ends of the levers E E and looped or bent outward in its central portion to pass the lower lug B' and outward bar C' .

Upon the outer faces of the inner ends of the levers E E are provided cam-lugs e e , adapted to engage horizontal projections a a provided on the inner sides of lugs A' A' , the latter being located on the front of the safe A adjacent to the side margins of the door B and opposite the lugs B^2 B^2 thereof. As a convenient and desirable method of securing the lugs A' A' to the safe, they are, in this instance, provided with clamping-arms A^2 A^2 , which extend around to the back of the safe and are provided at their ends with clamping-screws a' a' . The lugs A' A' are further provided with projections a^2 a^2 , which engage suitable shallow apertures in the front of the safe. Obviously, when the set-screws a' a' are tightened, the lugs A' A' will be drawn firmly against the safe-front and be held from displacement by the projections a^2 a^2 .

The projections a a are in this instance made cylindrical in form, and are provided with loose surrounding friction-sleeves a^3 a^3 , secured in place by plates a^4 a^4 and screws a^5 a^5 , and said projections are in this instance so located that their axes coincide with the axes of the pivots b^4 b^4 . When the levers E E are raised, the cam-lugs e e are carried out from behind the projections a a and the door B is free to be swung open. The downward movement of the levers E E causes the ends of the lugs e e to pass behind the projections a a and, by reason of their cam shape, force the door B to its seat.

For the purpose of positively withdrawing the door B the levers E E are further provided at points substantially opposite to the cam-lugs e e with projecting lugs $e'e'$, adapted to engage the sides of the safe.

Obviously, with such construction, the dropping of the levers E E after the door has been brought into approximately closed position will cause the cam-lugs e e to pass behind the projections a a and press the door forcibly to its seat, while the raising of said levers will first release the cam-lugs e e from the projections and then, by the engagement of the lugs $e'e'$ with the body of the safe, withdraw the door from its seat, as shown in dotted lines in Fig. 5.

In Figs. 1, 3, and 7, I have shown an im-

proved form of rolling support for safes, the same consisting of four corner-pieces F F, provided with upwardly-projecting marginal flanges F', adapted to engage the sides of the safe, and with a supporting-roller F², journaled downwardly between projecting lugs f. Said corner-pieces are detachably connected by connecting-bars G, the ends of which are secured to the adjacent portion of the corner-pieces by any suitable bolts or screws g. Obviously, the corner-pieces of a safe-supporting truck thus formed are adapted to fit any size of safe, it being only necessary to provide different lengths of connecting-bars G, and in passing through narrow openings, such as vault-doors, such truck may be readily detachable, if necessary.

Undercut recesses and dovetailed projections arranged horizontally have heretofore been employed for securing hinge-lugs or other parts to safes, as shown in my prior patent, No. 425,404, dated April 15, 1890.

The construction herein shown in the device for attaching the hinge-lugs to the door, in which the dovetailed recesses are arranged vertically and made of wedge shape with upwardly-converging side walls, has an important advantage—namely, that the weight of the door tends to tighten the lugs in the recesses and thereby secure a tight fit and rigid connection, while at the same time enabling the parts to be easily and conveniently connected in assembling the parts of the safe.

I claim as my invention—

1. The combination with a safe and a safe-door, of clamp-bars for supporting the door, said clamp-bars being of L shape, and each having an integral hinge member at its angle and inwardly-bent ends, said clamp-bars being attached to the safe above and below the door thereof, clamping means on the inwardly-bent ends of the clamp-bars, hinge members on the door pivoted to the hinge members of the clamp-bars, the upper hinge member of the door being below the upper clamp-bar, and the lower hinge member of the door being above the lower clamp-bar, said upper clamp-bar being provided adjacent to the hinge-pivot with a portion which engages the top of the safe to positively support the weight of the door, and the hinge member of the lower clamp-bar being connected with the hinge member of the upper one by a supporting-rod, substantially as described.

2. The combination with a safe, of a clamp-bar detachably secured to the exterior of the safe near the top thereof, a second clamp-bar detachably secured to the lower portion of the exterior of the safe, and a vertical rod connecting the two clamp-bars and serving as the pivot of the door-hinge, the upper clamp-bar being provided with a portion engaging the top of the safe adjacent to the pivot-rod, whereby the weight of the door is positively supported, substantially as described.

3. The combination with a safe, of a clamp-

bar detachably and adjustably secured to the exterior of the safe near the top thereof, a second clamp-bar detachably and adjustably secured to the lower portion of the safe, and a vertical rod adjustably connecting the two clamp-bars and serving as the pivot of the door-hinge, the upper clamp-bar being provided with a portion adjustably engaging the top of the safe adjacent to the pivot-rod, substantially as described.

4. The combination with a safe, of a detachable clamp-bar extending around two or more corners of the safe near the top thereof and provided with set-screws adjustably engaging the exterior of the safe to secure said bar in position, a second clamp-bar similarly secured to the lower portion of the safe, a vertical rod adjustably connecting the two clamp-bars and serving as the pivot of the door-hinge, the corner of the upper clamp-bar adjacent to the pivot-rod being provided with a horizontal web having set-screws adjustably engaging the top of the safe to positively support the weight of the safe-door, substantially as described.

5. The combination with a safe, of clamp-bars detachably secured to its exterior at the top and bottom thereof, hinge-pivots attached to said clamping-bars and slotted hinge-sleeves secured to the safe-door and provided with adjustable bearing-blocks engaging said vertical rod, substantially as described.

6. The combination with a safe, of a clamp-bar detachably and adjustably secured to the exterior of the safe near the top thereof, a second clamp-bar detachably and adjustably secured to the lower portion of the safe, a vertical rod adjustably connecting said clamping-bars, and slotted hinge-sleeves secured to the safe-door and provided with adjustable bearing-blocks pivotally engaging said vertical rod, the upper clamp-bar being provided with a portion adjustably engaging the top of the safe adjacent to the pivot-rod, substantially as described.

7. A device for forcing a safe-door to and from its fully-closed position, comprising an oscillatory part pivotally mounted upon the safe-door, a cam-lug upon said part projecting beyond the margin of the door, a projection secured to the body of the safe in the path of the cam-lug and between which and the face of the safe the cam-lug is adapted to be passed when the part is oscillated in one direction, and a second lug upon said part located in position to strike the face of the safe-body when the part is oscillated in the other direction, substantially as described.

8. As a means for connecting the door-supporting lug of a crane-hinge to a safe-door, a recess in said door having undercut upwardly-converging sides, and a cooperating dovetailed tongue of similar shape on said lug, adapted to engage said recess, whereby the weight of the door will tend to more firmly unite the parts, substantially as described.

9. As a means for connecting the door-supporting lug of a crane-hinge to a safe-door, an inverted truncated **V**-shaped recess in said door with its converging and top sides
5 undercut, and a cooperating tongue of similar shape in said lug adapted to engage said recess, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

AUGUSTUS G. BURTON.

Witnesses:

C. CLARENCE POOLE,
G. W. HIGGINS, Jr.