

No. 880,697.

PATENTED MAR. 3, 1908.

J. SOSS.
HINGE.

APPLICATION FILED APR. 8, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

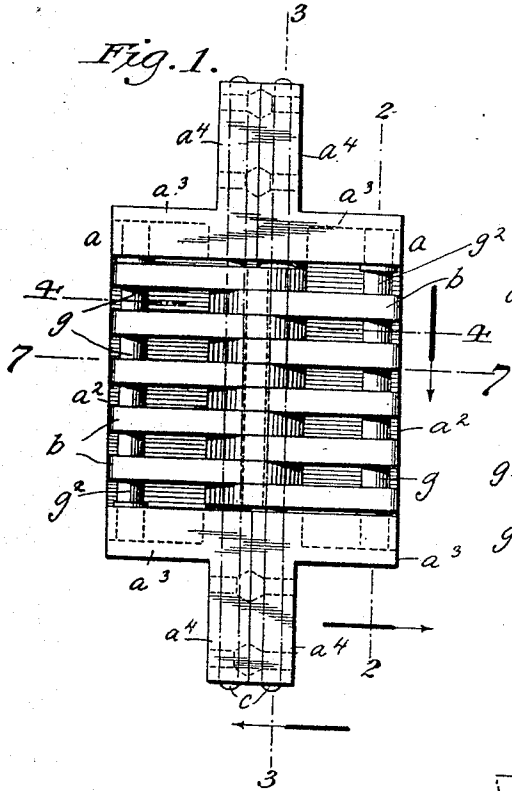


Fig. 2.

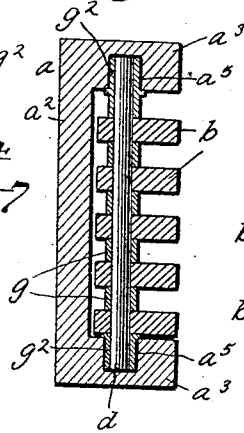


Fig. 3.

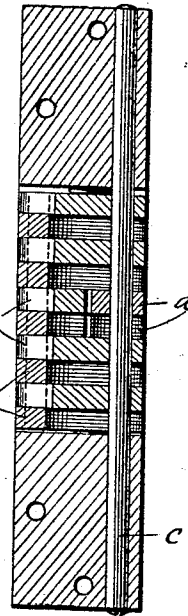


Fig. 4.

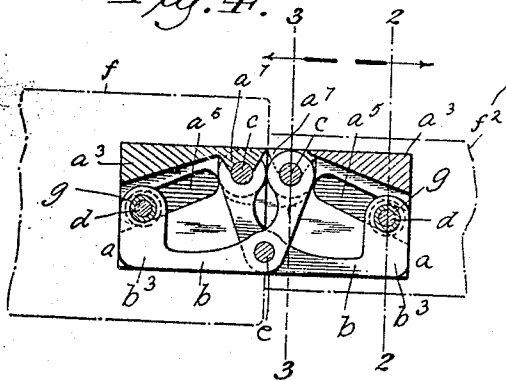
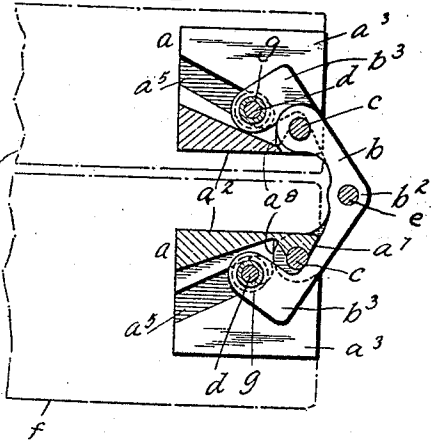


Fig. 5.



WITNESSES

A. R. Appleman
Chas. W. Dyer

BY

INVENTOR

Joseph Soss.

Edgar Tate

ATTORNEYS

16. MISCELLANEOUS HARDWARE.

Examiner's Room

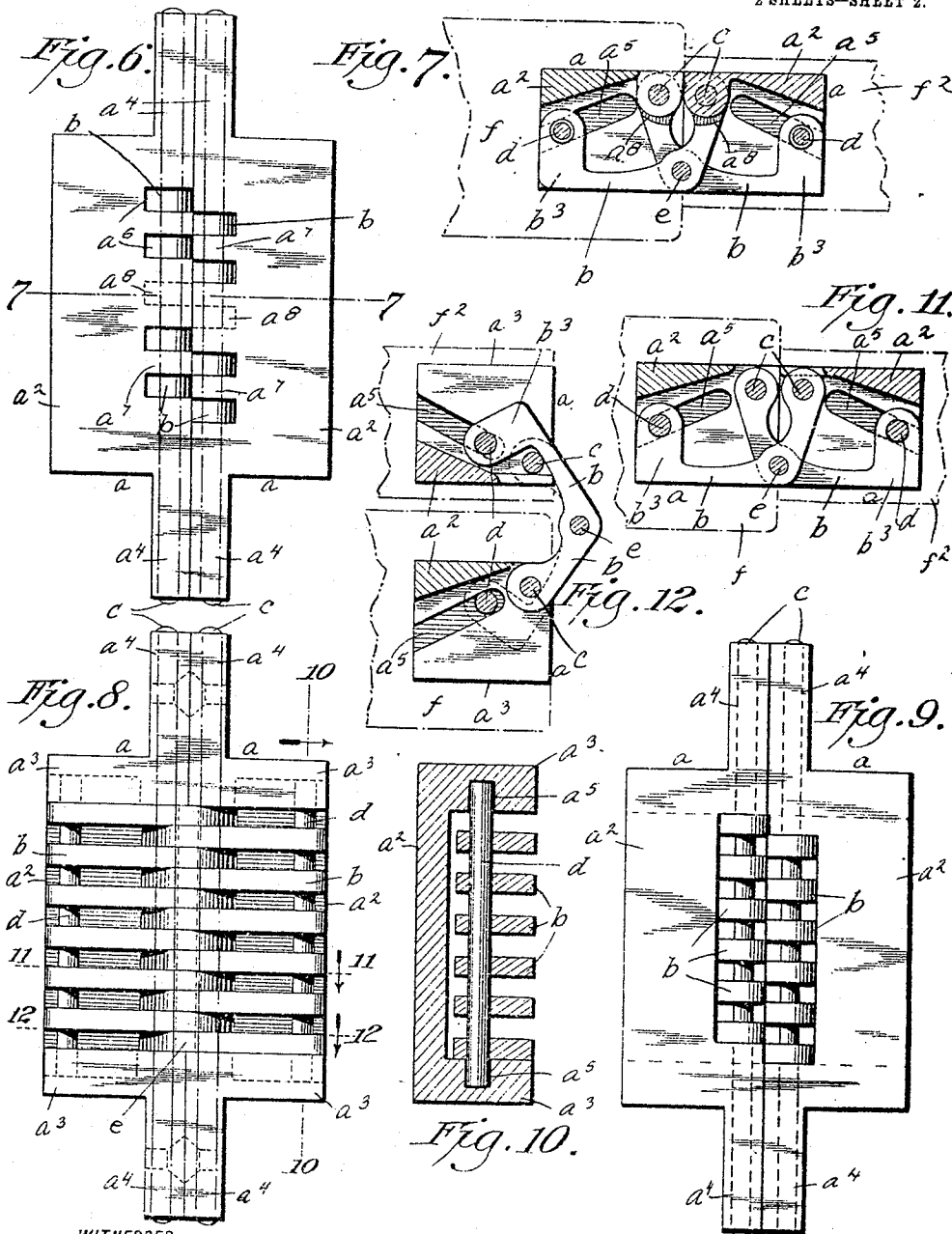
No. 880,697.

PATENTED MAR. 3, 1908.

J. SOSS.
HINGE.

APPLICATION FILED APR. 8, 1907.

2 SHEETS—SHEET 2.



WITNESSES
A. R. Sprenkle
Chas. H. Gibbs

INVENTOR
Joseph Soss.
Edgar Soss & Co
ATTORNEYS

UNITED STATES PATENT OFFICE.

JOSEPH SOSS, OF NEW YORK, N. Y.

HINGE.

No. 880,697.

Specification of Letters Patent.

Patented March 3, 1908.

Application filed April 8, 1907. Serial No. 367,073.

To all whom it may concern:

Be it known that I, JOSEPH SOSS, a citizen of the United States, and residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Hinges, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to hinges for doors, and the object thereof is to provide an improved hinge of this class of the invisible type, or which is invisible when the door is closed, the hinge described and claimed herein being an improvement on that described and claimed in the United States Letters Patent No. 825,943 granted to me on the 17th day of July, 1906; a further object being to provide a hinge of the class specified which, in addition to being adapted for use in connection with doors and door frames, may also be used in connection with the covers of pianos, wardrobes, closets, and also in connection with the doors or covers of cabinets and various other boxes and receptacles.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which;—

Figure 1 is a front view of a hinge made according to this invention; Fig. 2 a section on the lines 2—2 of Figs. 1 and 4; Fig. 3 a section on the lines 3—3 of Figs. 1 and 4; Fig. 4 a section on the line 4—4 of Fig. 1 and showing my improvement applied to a door frame and door and showing the door in a closed position; Fig. 5 a view similar to Fig. 4 but showing the door in an open position; Fig. 6 a back view of the hinge shown in Fig. 1. Fig. 7 a section on the line 7—7 of Fig. 6 and showing the hinge applied to a door and door frame; Fig. 8 a front view similar to Fig. 1 but showing a modified form of hinge; Fig. 9 a back view of the hinge shown in Fig. 8; Fig. 10 a section on the line 10—10 of Fig. 8; Fig. 11 a section on the line 11—11 of Fig. 8 and indicating the hinge applied to a door and door frame and indicating the door in a closed position; and, Fig. 12 a view similar to Fig. 11 and showing the door open.

In the practice of my invention as shown in Figs. 1 to 7 inclusive, I provide a hinge which involves two main part or holders a each of which comprise a back plate a^2 hav-

ing integral parallel end members a^3 and parallel end projections a^4 at right angles to the end members a^3 and by means of which the main parts or holders a are secured to a door frame and door. The said hinge also involves swinging arms or members b which are pivoted to rods c which pass through the end projections a^4 and through the end members a^3 adjacent to the abutting faces of the main parts or holders a when the separate parts of the hinge are closed together, and also adjacent to the corresponding edges of the back plates a^2 , and the end members a^3 of the separate main parts or holders a are provided in their adjacent faces with slots or grooves a^5 in which are mounted rods d which are freely movable in said slots or grooves, and the swinging members or arms b are, as will be seen, arranged in separate sets, one set being pivoted to the rods c in one of the main parts or holders a and to the rod d in the other main part or holder a , and the other set being pivoted to the rods c in the last named main part or holder c and to the rod d in the other main part or holder a .

The swinging arms or members b are, in the form of construction shown, slightly angular in form and are provided with an elbow b^2 which divides said arms into separate end portions one of which is longer than the other, and passed through the elbow portions b^2 of the separate sets of swinging arms or members b is a rod e by which the swinging arms or members of the separate sets are pivotally connected. The shorter end portions of the separate sets of swinging arms or members b are connected with the rods c , while the longer end portions of the said swinging arms or members are connected with the rods d , and the said longer end portions of the arms or members b are provided with angular end extensions b^3 , in the form of construction shown, through which the rods d pass, the object of this construction being to increase the radius of the movement of the door when swinging from a closed to an open position or from an open to a closed position.

In Figs. 4, 5 and 7, I have shown or indicated at f a part of a door frame and at f^2 a part of a door, and said views also show the method of connecting the separate parts of the hinge with said frame and door, the said separate parts of the hinge being sunk into mortises formed in said frame or door in the usual manner.

In the form of construction shown, the in-

ner faces of the back plates a^2 are beveled or inclined in the direction of the corners of the separate main parts or holders a in which the rods c are placed, and the slots or grooves a^5 are arranged substantially parallel with said
 5 faces or in a diagonal position between the rods c and the opposite corners of the end members a^3 of the back plates a^2 , but the exact arrangement of the slots or grooves a^5
 10 may be varied to a considerable extent, and in some cases may be parallel with the front edges of the end members a^3 , or said slots or grooves may be segmentally curved if desired as shown in my United States Letters
 15 Patent hereinbefore referred to, the position and form of said slots or grooves together with the form of the longer end portions of the swinging arms or members b serving to control the radius of the movement of the
 20 door f in opening and closing the same.

The back plates a^2 of the main parts or holders a are cut out transversely in their adjacent faces or edges to form angular recesses a^6 in which the shorter end portions of the
 25 swinging arms or members b are pivoted, and this construction forms corresponding angular lugs or projections a^7 which fit between the said end portions of the separate arms or members b , and the lugs or projections a^7
 30 have segmental recesses in which the rods c fit as clearly shown in Figs. 4 and 5, and said lugs or projections serving to brace the rods c and also as stops for the swinging arms or members b when the separate parts of the
 35 hinge are fully opened, and in the form of construction shown in Figs. 1 to 7 inclusive, in order to strengthen the hinge and to strengthen the rod c the adjacent edge portions of the back plates a^2 are provided centrally thereof with integral inwardly directed
 40 lugs or projections a^8 through which the rods c pass and one of said lugs or projections is shown in full lines in Fig. 7 and the other in dotted lines, and both of said lugs or projections are indicated in dotted lines in Fig. 6,
 45 and the shorter end portions of the swinging arms or members b , the positions of which correspond with the lugs or projections a^8 , are not connected with the rods c but are made segmental in form and slide freely on
 50 the corresponding faces of said lugs or projections a^8 , and said swinging arms or members b are therefore simply idlers or dummies and are put in to hold the other arms or members b in proper position and regulate
 55 the movement thereof.

It will be observed that, in the form of construction shown, the lever end portions of the swinging arms or members b are substantially straight and when the separate parts of the hinge are closed together as shown in
 60 Figs. 1, 4, 6 and 7, the central or body portion of the hinge is rectangular and oblong in form in cross section, but it will also be observed that the end parts of the swinging

arms or members b are both turned inwardly and the general form of said arms or members is therefore curved or segmental and instead of having the end portions of said arms abruptly curved or projected inwardly, the
 70 entire arms or members may be formed on a general curve without affecting the operation of the hinge in most cases.

The form of hinge shown in Figs. 8 to 12 inclusive, while being shown on the same
 75 scale as that shown in Figs. 1 to 7 inclusive, is intended principally for use in small work, as in connection with the covers of pianos, cabinet work, or other boxes or receptacles; and when a hinge of this construction is employed in work of the class referred to, the
 80 separate parts of the hinge may be made small enough to be countersunk or mortised into wood which is not over one-half an inch or five-eighths of an inch in thickness. The form of hinge shown in Figs. 8 to 11 is the
 85 same in all respects as that shown in Figs. 1 to 7, except that the lugs or projections a^8 and the dummy or idler and swinging arms or members b are omitted and all the swinging arms or members b are active or operating
 90 arms or members, and the back plates a^2 of the main parts or holders a are not provided with lugs or projections a^6 which fit between the shorter end portions of the swinging arms or members b , this feature
 95 being clearly shown in Fig. 9.

The main features of this invention which distinguish it from that described and claimed in my prior United States patent
 100 hereinbefore referred to, consists in forming the main parts or holders a of back plates a^2 and parallel end members a^3 , whereby I secure the greatest possible strength for said parts or holders in proportion to the space
 105 they occupy when sunk into a door frame and door or into any stationary and swinging member, and in the form and construction of the swinging arms or members b and their connection with the main parts of
 110 holders a . It will be observed, as hereinbefore stated, that the rod e by which the separate sets of swinging arms b are connected where they cross each other divides said arms into longer and shorter end
 115 portions, the shorter end portions being connected with the stationary rods c and the longer end portions with the sliding rods d , and this provides for a greater radius of movement for the door or swinging member
 120 when said door or swinging member is being swung into an open position or a closed position, and this enables said door or swinging member to be swung around a thicker stationary member, as shown in Fig. 5, than
 125 would otherwise be possible and also prevents the shorter end members of the arms b from interfering with the sliding rods d when the door is opened as shown in Fig. 12; another feature of the invention consisting
 130

in the lugs or projections a^8 which strengthen the rods c , in the form of construction shown in Figs. 1 to 7 inclusive, and which limit the opening movement of the hinge.

5 In the form of construction shown in Figs. 1 to 7 inclusive, I also preferably place on the rods d , which are movably mounted in the slots or grooves a^5 , sleeves or collars g which separate the swinging arms or mem-
10 bers b and hold them in proper relative position and facilitate the working of the hinge, and sleeves or collars g^2 are also placed on the ends of the rods d and fit in the slots or grooves a^5 , and the form of construction
15 shown in Figs. 8 to 12, however, is designed principally for very small hinges, and in this case the said sleeves or collars will not be needed.

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

1. A hinge composed of two similar main parts or holders, each of which comprises a back plate and integral parallel end members
25 at right angles thereto, the end members being provided in their adjacent faces with slots or grooves which range approximately in the same direction as the front faces of the back plates in transverse section and in which
30 are mounted sliding rods which are movable in said grooves, said main parts or holders being also provided with stationary rods which are passed through the end members adjacent to the corresponding edges of the
35 back plates when the separate parts of the hinge are closed together, and separate sets of swinging arms or members pivoted to the last named rods of each main part or holder and extended into the other main part or
40 holder and connected with the rod mounted in the slots or grooves in the end plates thereof, said separate sets of arms or members being crossed and pivotally connected where
45 crossed by a rod passed therethrough, the end portions of the arms of each set between the last named rod and the sliding rods being longer than the end portions connected with the stationary rods.

2. A hinge composed of two similar main
50 parts or holders, each of which comprises a back plate and integral parallel end members at right angles thereto, the end members being provided in their adjacent faces with slots or grooves which range approximately
55 in the same direction as the front faces of the back plates in transverse section and in which

are mounted sliding rods which are movable in said grooves, said main parts or holders being also provided with stationary rods which are passed through the end members
60 adjacent to the corresponding edges of the back plates when the separate parts of the hinge are closed together, and separate sets of swinging arms or members pivoted to the last named rods of each main part or holder
65 and extended into the other main part or holder and connected with the rod mounted in the slots or grooves in the end plates thereof, said separate sets of arms or members being crossed and pivotally connected where
70 crossed by a rod passed therethrough, the end portions of the arms of each set between the last named rod and the sliding rods being longer than the end portions connected with the stationary rods, the back plates being
75 also provided on their corresponding edges when the separate parts of the hinge are closed together with forwardly directed lugs through which the second named rods are passed.

3. A hinge composed of two similar main parts or holders each of which is provided with parallel end members having slots or grooves formed in the adjacent faces thereof
85 and in which are mounted sliding rods movable in said grooves, said main parts or holders being also provided with stationary rods which are passed through the end members adjacent to the corresponding edges
90 when the separate parts of the hinge are closed together, and separate sets of swinging arms or members pivoted to the last named rods of each main part or holder and extended into the other main part or holder
95 and connected with the rod mounted in the slots or grooves in the end plates thereof, said separate sets of arms or members being crossed and pivotally connected where
100 crossed by a rod passed therethrough, the end portions of the arms of each set between the last named rod and the sliding rods being longer than the end portions thereof connected with the stationary rods.

In testimony that I claim the foregoing as my invention I have signed my name in
105 presence of the subscribing witnesses this 5th day of April 1907.

JOSEPH SOSS.

Witnesses:

C. E. MULREANY,
A. WORDEN GIBBS.