(Model.)

J. A. TURNER.

HINGE.

No. 401,086. Patented Apr. 9, 1889.

Fig. 1.

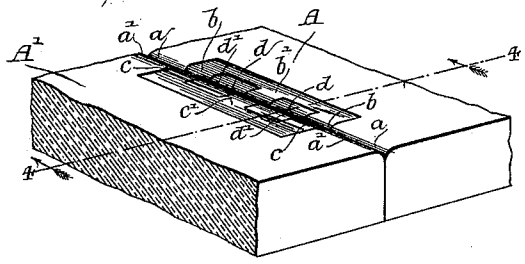


Fig. 2.

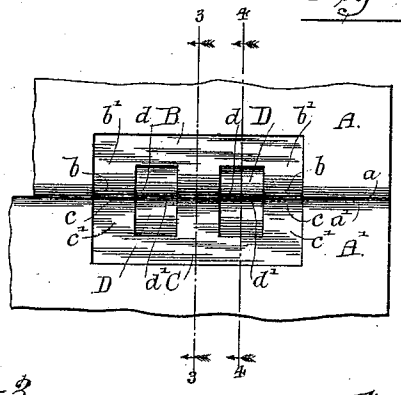


Fig. 3.

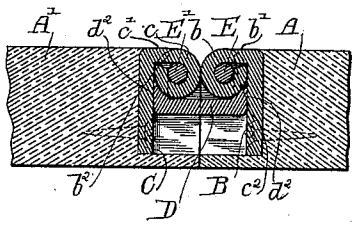


Fig. 4.

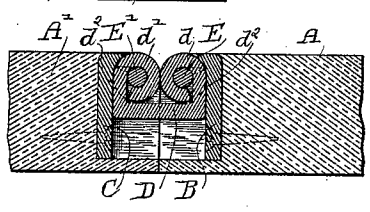
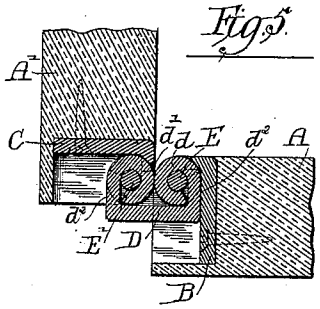


Fig. 5.



Witnesses:-
Louis M. F. Whitehead.
Wm. F. Fleming.

Inventor:-
James A. Turner.
by- Dayton, Poler & Brown
Attorneys.-

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JAMES A. TURNER, OF EVANSTON, ILLINOIS.

HINGE.

SPECIFICATION forming part of Letters Patent No. 401,086, dated April 9, 1889.

Application filed December 9, 1887. Serial No. 257,394. (Model.)

To all whom it may concern:

Be it known that I, JAMES A. TURNER, of Evanston, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hinges; 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 a novel flush hinge or hinge for use upon piano-covers or other similar places where it is undesirable that the hinge should project from the face of the parts connected by the hinge.

The invention consists in the matters hereinafter described, and pointed out in the appended claim.

Figure 1 is a perspective view of two connected parts, as of a piano-cover, united by a hinge constructed in accordance with my invention, the parts being folded into the same plane with each other. Fig. 2 is a plan view of a hinge embodying my invention in a form adapted for construction in sheet metal. Fig. 3 is a section taken upon line 3 3 of Fig. 2. Fig. 4 is a section taken upon line 4 4 of Fig. 2. Fig. 5 shows a changed position of the hinge.

As illustrated in said drawings, A A′ are two parts to be joined by the hinge—as, for instance, the stationary part or top and hinged lid of a piano.

B is the plate or leaf of the hinge, which is attached to the stationary part or top A, and C is the plate or leaf attached to the swinging portion A′.

D is a link or connecting-plate which is pivotally connected to the parts B and C by means of pivot-pins E and E′.

The parts B and C of the hinge are preferably alike, and are provided with cylindric parts or knuckles *b b c c*, for engagement with the pivot-pins of the hinge. The cylindric parts or knuckles *b c* of the two parts of the hinge are located adjacent to or in contact with each other and in alignment with the edges of the parts A A′, which edges are rounded, as indicated at *a a′*, to correspond in curvature with the surfaces of said knuckles. The link or connecting-plate D is provided with similar knuckles, *d d d′ d′*, which enter between the knuckles *b b* and *c c* of the parts B and C and engage the pivot-pins E and E′, which latter pass through central perforations of the said knuckles *b b c c* and *d d d′ d′* in a familiar manner. The edges of the parts B C, adjacent to the upper or outer surfaces of the parts A A′, are provided with square or approximately square shoulders in contact with the wood, thereby affording flat surfaces *b′ c′* flush with the outer surfaces of the wooden parts A A′, and as the hinge is preferably constructed the leaves B and C of the hinge are sunk into the edges of the parts A A′ in the manner clearly shown in Fig. 5.

The hinge constructed as above described is made of sheet-metal plates or leaves B and C, which are secured to the edges of the stationary and movable parts A A′ of the cover, being extended outwardly to the exterior faces of said parts A A′ and there bent at right angles, so as to form horizontal parts b^2 c^2, arranged flush with the adjacent surface of the parts A A′. The marginal parts of the plates or leaves are formed into prongs or fingers, which are bent into cylindric form, so as to embrace the pivot-pins E and E′ and constitute the knuckles *b* and *c*. The connecting-plate D consists of a piece of sheet metal bent at right angles near its ends, to form parts or shoulders d^2 d^2, Fig. 4, which rest in contact with the leaves B and C, said parts d^2 d^2 being provided with prongs or fingers, which are bent around the pivot-pins between the knuckles *b c*, so as to form the knuckles *d d′*, in the manner clearly shown in Fig. 4 of the drawings.

The operation of the said hinge, when the movable part or lid A′ is swung upwardly or lifted, is more clearly shown in Figs. 2, 3, and 4, and is as follows: When the lid A′ is in its horizontal position, the plate D is horizontal and its parts or shoulders d^2 d^2 bear against the leaves B C of both parts of the hinge. In lifting the lid A′ the part d^2 of the plate D remains in contact with the part B of the hinge, the lid at the beginning of its movement turning solely upon the pivot-pin E′ remote from the stationary top A. The said part or shoulder d^2 therefore serves to hold the connecting-plate D horizontal, so as to sustain the weight of the lid A′ and enable the latter to swing

freely about the pivot B′ without coming in contact with the stationary cover A. The position of the parts when the lid A′ has been folded into a vertical position is clearly shown in Fig. 5, from which it will be clearly seen that the connecting-plate D at this time rests in a horizontal position and sustains the weight of the said lid A′. After the lid A′ has reached its vertical position, a further backward movement thereof brings the flat exterior or end surface, c', of the part C into contact with the curved surface of the knuckle b belonging to the part B of the hinge which is attached to the stationary top A. The contact of said surface c' with the knuckle b arrests the rotative motion of the lid A′ about the pivot E′ and causes the connecting-plate D to swing about the pivot E, the said surface c' sliding upon or riding over the said knuckle b in this movement of the said plate. As the lid A′ is folded back, the weight thereof is thus partially transferred to the knuckle b and the lid and connecting-plate are moved smoothly back until the lid has reached a horizontal position, the connecting-plate at this time standing in a vertical or approximately vertical position.

The employment of the parts d^2 adjacent to the leaf C is obviously not essential, inasmuch as in most instances the cover or lid A′ will be sustained in its horizontal position by the part upon which the lid rests when closed. It will usually be preferred, however, to make the hinges alike on both sides, in order that they may be uniform in appearance and to enable them to be applied with either side or leaf against the stationary member of the parts which they are employed to connect.

The sheet-metal hinge constructed as above set forth affords important improvements in point of simplicity and economy over similar hinges heretofore made. Such improvements arise mainly from the particular form of the connecting-link D, wherein said link is bent at right angles near its ends to form the parts or shoulders d^2 d^2, thereby not only affording broad and substantial surfaces for engagement with the leaves, but enabling the knuckles to be easily formed in proper position upon the link.

I claim as my invention—

The herein-described hinge, consisting of the leaves B C, adapted for attachment to the parts to be joined, knuckles b c, formed on said leaves, pivots passing through said knuckles, a link, as D, connecting the two leaves, said link being bent at right angles near its ends to form flat faces or shoulders located in position to rest in contact with the adjacent flat faces of the leaves when the leaves are folded together or parallel with each other, and having knuckles formed upon the ends of the bent portions of the link to engage the pivots E E′, substantially as described.

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

JAMES A. TURNER.

Witnesses:
C. CLARENCE POOLE,
WM. P. TURNER.