

(No Model.)

2 Sheets—Sheet 1.

B. F. BENNETT
CONCEALED HINGE BUTT.

No. 465,445.

Patented Dec. 22, 1891.

FIG. 1.

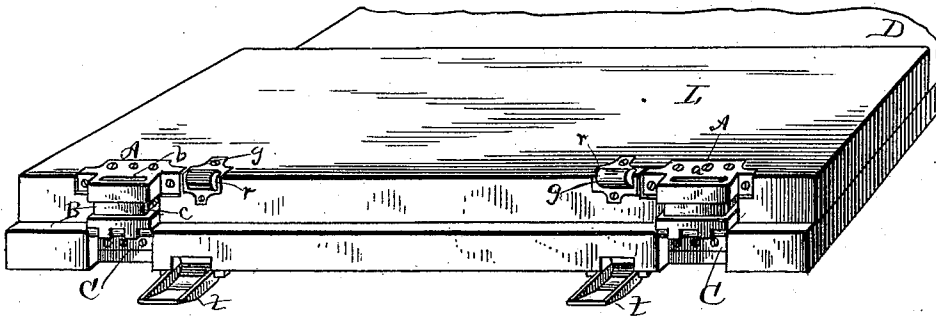


FIG. 2.

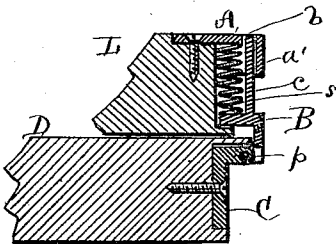


FIG. 3.

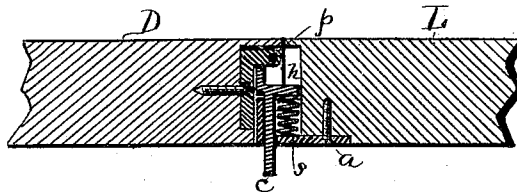


FIG. 4.

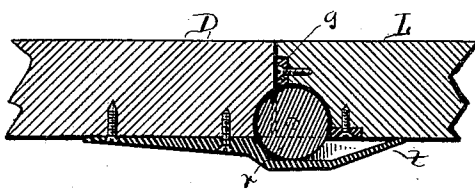
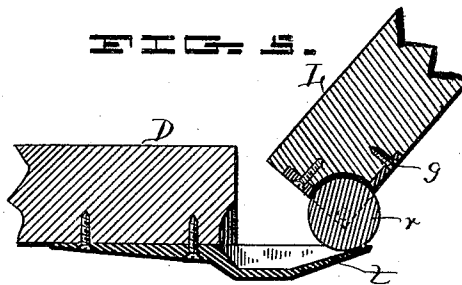


FIG. 5.



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FIG - 5.

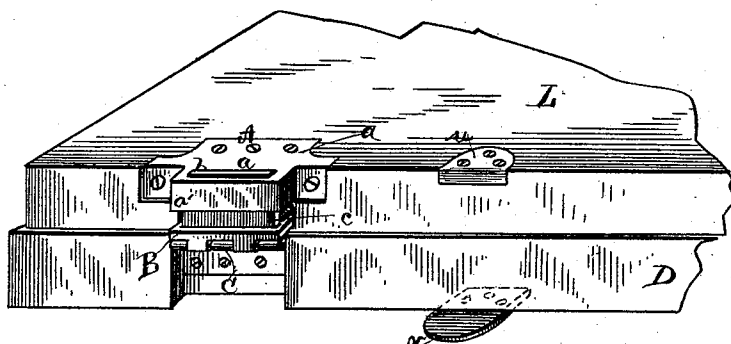


FIG - 7.

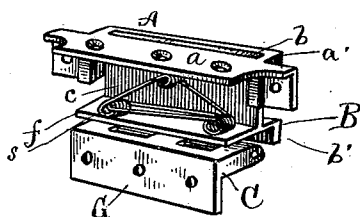
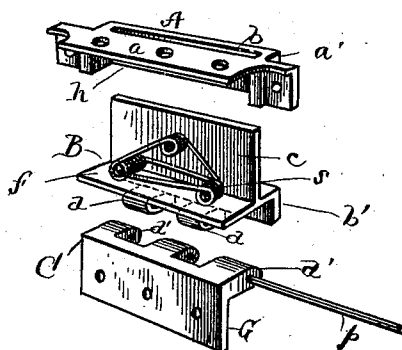


FIG - 8.



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UNITED STATES PATENT OFFICE.

BENJAMIN FRANKLIN BENNETT, OF LOCKPORT, NEW YORK.

CONCEALED HINGE-BUTT.

SPECIFICATION forming part of Letters Patent No. 465,445, dated December 22, 1891.

Application filed March 9, 1891. Serial No. 384,220. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN FRANKLIN BENNETT, a citizen of the United States, residing at Lockport, in the county of Niagara and State of New York, have invented certain Improvements in Concealed Hinge-Butts; and I do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part thereof.

This invention relates to a single-jointed hinge for theseveral purposes for which butts and hinges are used, but more especially for piano-covers, which, when set in place, is entirely concealed, except when the lid is opened and thrown back. It is constructed in three parts but with the single pin in place acts as a hinge in two parts, and the pin, when removed, allows the separating of the parts, as in ordinary hinges.

The invention also relates to frictional devices which coact with the hinges in closing piano-lids, &c.; and the invention consists in the construction and arrangements of the parts as fully hereinafter specified and claimed.

In the drawings, Figure 1 is a perspective of the top and lid of a piano, the latter thrown back, showing the inside view of the hinges and frictional devices in place; Fig. 2, a cross-section through one hinge and top and lid, the latter thrown back, as in Fig. 1; Fig. 3, a cross-section through the same, the lid closed, the hinge entirely concealed from view from the outside; Fig. 4, a cross-section of the frictional roller and shoe in position in the cover and lid, the latter closed; Fig. 5, a cross-section of the same, the lid partly raised; Fig. 6, an enlarged view of one hinge in place and a simplified form of a frictional device in place; Figs. 7 and 8, detail views of the hinge and all the separate parts.

A represents one leaf, or that part of the hinge that is screwed to the rear edge and under surface of the lid L, having a flat flange *a* screwed to the under side of the lid. The outer portion of the leaf is provided with a downwardly-projecting flange *a'*, between which and the flange *a* is an oblong slot *b*. The second or intermediate section B of the hinge has a flat portion *c*, which forms the sliding wing that fits in the slot *b* and is adapted

to be moved back and forth through it at right angles to the flange *a* of the section A as the hinge is opened and closed. This protrudes through the slot *b* when the cover is shut, as shown in Fig. 3. Standing out at right angles from this piece *c* is a step or shelf *f*, and when the hinge is in place, in connection with the lid, makes a concealed chamber *h* and a top rest for a spring *s*, (see Figs. 2, 3, 7, and 8,) which aids in throwing the parts back into place and governing the action of the same to a certain extent. Back and over the step *f* are the lugs *d d'* of the hinge, corresponding to the ones *d' d'* on the third part C, and through these lugs the pin *p* goes, making the hinge complete. This third piece C is screwed to the front edge of the cover and only consists of the lugs and the downwardly-projecting wing part *e*, which is secured to the wood. (See Figs. 7 and 8.) The second part B is independent of any attachment to the wood, being hinged to part C and working in part A.

In attaching the hinge the material is recessed or cut away upon the adjacent faces or edges of the two parts to be hinged or secured together, which, when the parts are closed, forms a cavity within which the hinges are concealed, except upon the under side. As the cavity does not extend to the upper surfaces of the lid and cover, the top of the piano will be perfectly smooth and even.

The feature of this concealed hinge is to enable the sliding wing *c* to lengthen or shorten while the lid is being opened or closed. The lengthening allows the lid to be carried out, up, and over upon its associate cover or bed-piece, or in a door to be carried out and around and against the wall or casing. In its normal condition the tendency of the spring is to force the wing *c* out of the slot *b*. This is necessary to cause the lengthening of the hinge to carry the lid up onto the cover, as shown in Fig. 2; but when the lid is being closed it is necessary to compress the spring, so that the cover can be moved back into the same plane with the lid and have the tops of the parts register or be even with each other. To cause this compression of the spring and to move the wing *c* through the slot *b*, I make use of a shoe *t*, which is secured to the cover, and a friction device *g*

upon the lid to engage with it when the lid is closed. As there is a certain amount of friction by the contact of the friction device with the shoe, I employ anti-friction rollers *r r*, (see Figs. 1, 4, and 5,) of rubber or metal running in metal frames *g*, set in the sharp lower edge of the lid *L*, as in Fig. 1, the rollers working on an axle, their ends in frame *g*. On the lower under side of the cover *D* exactly under the rollers are fastened metal shoe-plates *t*, (see Figs. 1, 4, and 5,) slanting from the projecting front edge downward and backward, it and the wood being hollowed out to receive the roller when the lid is being closed. As the roller strikes the shoe the rear edge of the lid is forced up against the action of the hinge and causes it to come in the same plane with the cover *D*, as shown in Fig. 4. In Fig. 6 this frictional device is simplified, a flat right-angled piece *u*, with rounded edge taking the place of the rollers, and a projecting flat plate *v* on the underside of the cover in place of the shoe *t*, the effect being the same, but not so smooth as the rollers. These plates may be set in the wood of the lid and frame of the piano, if desired, at the sides, or as shown in Fig. 5.

This concealed hinge is for doors and covers and lids of all kinds; but it is especially applicable to piano-covers, their projecting hinges having long been considered objectionable.

The use of my device totally disguises the presence of any hinge when the cover is down and the lid closed, the joints of the wood coming closely together, and when the lid is laid back it lies perfectly flat on the cover part, as in Fig. 3, a perfect surface-contact being had.

I claim—

1. A hinge comprising three sections *A B C*, two of which *B* and *C* are hinged together, and the third one *A* is provided with a flange and an oblong slot, through which a portion of the section *B* is adapted to be moved at

right angles to the flange, and means for moving said section through the slot, substantially as described.

2. A concealed hinge comprising three sections, *A*, *B*, and *C*, two of which, as *B* and *C*, are hinged together, and the other one, as *A*, is provided with a flange *a*, whereby it may be secured to the movable part, and also with a downwardly-projecting lip *a'*, and with an oblong slot *b* between the lip and the flange, and one of the other sections, as *B*, having its free end or wing *c* adapted to project through and freely slide in the slot *b*, and having a step *f*, projecting from one side thereof and forming, with the lip *a'* and flange *a*, a chamber or recess, and a spring within said recess, one end of which rests against the step and the other end bears against the flange *a* of the section *A*, substantially as described.

3. In a concealed hinge, the combination, with two parts adapted to be moved one upon the other, as the lid and cover of a piano, of a three-part hinge, the end sections of which are secured to the parts respectively, and the intermediate section is movable longitudinally through one of the end sections and at right angles thereto, and is hinged to the other end section, a spring engaging with said intermediate section and with the section through which said intermediate section moves, and two frictional devices, also secured to the parts of the lid and cover, respectively, and adapted to engage with each other when the lid is being closed to counteract the force of the spring and to cause the intermediate section to move longitudinally through the end section and to cause the lid to come into the same plane with the cover, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

BENJAMIN FRANKLIN BENNETT.

Witnesses:

J. R. DRAKE,

H. D. FOLINSBEE.