(No Model.)

E. H. VOLLRATH & J. HOGAN.

MECHANISM FOR HINGING AND LOCKING LIDS OF TRUNKS.

No. 342,404. Patented May 25, 1886.

Fig. 1.

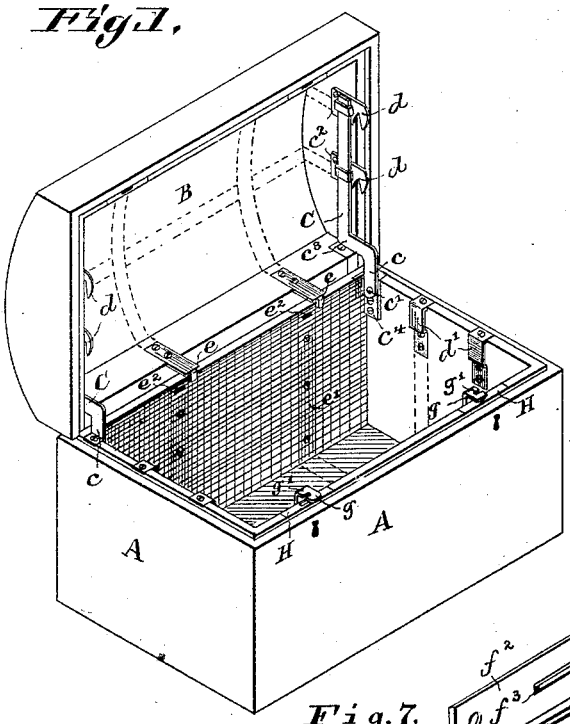


Fig. 4.

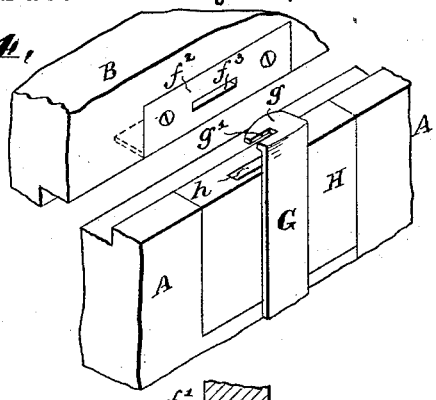


Fig. 5.

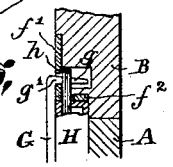


Fig. 6.

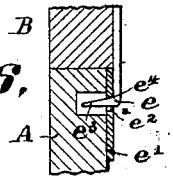


Fig. 7.

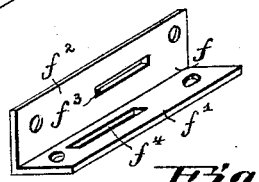


Fig. 8.

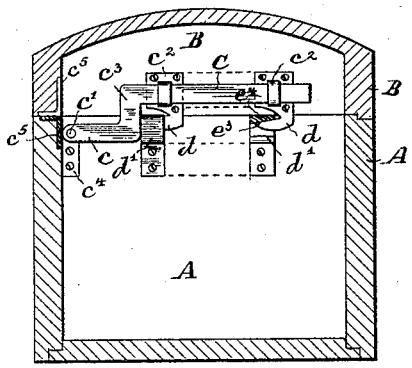
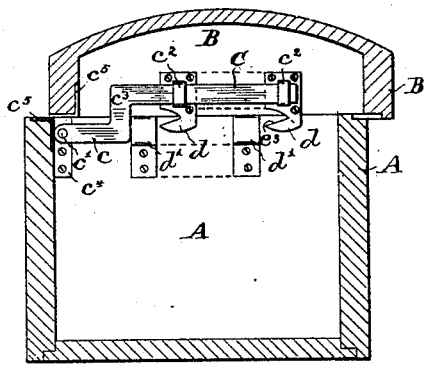


Fig. 3.



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UNITED STATES PATENT OFFICE.

ERNST H. VOLLRATH AND JOHN HOGAN, OF ST. LOUIS, MISSOURI.

MECHANISM FOR HINGING AND LOCKING LIDS OF TRUNKS.

SPECIFICATION forming part of Letters Patent No. 342,404, dated May 25, 1886.

Application filed February 1, 1886. Serial No. 190,548. (No model.)

To all whom it may concern:

Be it known that we, ERNST H. VOLLRATH and JOHN HOGAN, citizens of the United States, and both residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Mechanism for Hinging and Locking Lids to Trunks, &c., of which the following is a specification.

This invention specially relates to trunks, but is adaptable to other similar cases and boxes as well.

As is well-known, in the construction of trunks it has been the common practice to use common hinges and locks—the former at the back and the latter at the front. These were required to withstand all the strain, knocks, and pressure from the outside as well as the inside, and were the only means for holding the lid and trunk together, and hence were always considered the weakest part of a trunk, and generally required straps, bands, ropes, &c., to be placed around the trunk and lid to partially relieve them of the strain and to keep the lid and trunk together. Further, the hinges are usually of very light construction, and are placed on the outside of the trunk and lid, or are placed so that part of them is exposed, thus enabling any person to easily break or remove them and to open the trunk without unlocking the lock. Further, all strain, pressure, knock, &c., being brought on the hinges and lock soon loosens or breaks both. To overcome these difficulties it has been proposed to make the hinges and locks heavier in construction; also, to add clips, hooks, catches, bolts, and other similar devices on the outside of the trunk. These additional devices have added advantages to the trunk in this, that they partly removed the strain from the hinges and lock; but they had their disadvantages in rendering themselves liable to be easily broken off, because of being on the outside as well as being in the way for proper handling of the trunk.

The object of the present invention is to overcome all the difficulties heretofore existing, as above stated; and the improvements consist, first, in the new and novel manner of hinging the lid to the trunk, so that the hinges will be on the inside; second, in the new and novel means employed for taking all the strain off the hinges when the cover is down; third, in the mechanism for holding the end sides of the lid firmly down; fourth, in the mechanism for holding the front and rear sides of the lid down; fifth, in the mechanism for locking the lid without bringing any strain whatever on the lock-bolt; and, lastly, in the detail construction of parts, all of which will hereinafter fully appear and be claimed.

Of the drawings, Figure 1 is a perspective view of a trunk with the lid opened to its full extent, and clearly showing our improved hinges and locking devices. Fig. 2 is a cross-section of the trunk with the lid down, showing the position of the hinges and locking mechanism when locked. Fig. 3 is a similar section of the trunk with the lid down in position slightly projecting forward beyond the trunk and the locking mechanism shown unlocked. Fig. 4 is a detail perspective view of the inside face of the front walls of the lid and trunk, clearly showing front locking mechanism when unlocked. Fig. 5 is a section through the front locking mechanism when locked. Fig. 6 is a section through the rear locking mechanism when locked. Fig. 7 is an enlarged perspective view of the upper member of the front locking device.

Similar letters refer to similar parts throughout the several views.

A represents a trunk or box, B the lid or cover.

C C are angled arms or rods made of cast or wrought metal. One end, *c*, of each of these arms is pivoted or hinged at *c'* to the inside face of its respective right and left end wall of the trunk, near its upper rear corners. The other end of each arm C extends longitudinally with the inner face of the respective end wall of the lid or cover B, and into one or more guide-plates, c^2, secured to the inner face of the said respective end wall of the lid, as clearly shown in Figs. 1, 2, and 3. These angled arms C turn on the pivot *c'*, and serve as the right and left hinges of the cover or lid B. They are inside of the trunk, and when the lid is down and locked, as will be described further on, are inaccessible from the outside, and cannot be removed or injured without breaking or injuring the trunk or lock itself.

The object of extending the arms C through

the guide plate or plates c^2, as just described, is to allow the cover, while turning on the hinges, to move or slide back and forth on the arms, this movement being caused by the pivot c' or point of hinging being below and in front of the top rear edge of the trunk or usual point of hinging it. The cover, when open, thus rests on the rear upper edge of the trunk-box, as clearly shown in Fig. 1, and is held from falling back by the angle or elbow c^3 of the arm C, which abuts against the inside face of its rear wall, and also by the arm c, which comes flush and abuts with the rear wall of the trunk. When the cover is down, it first assumes the position shown in Fig. 3, slightly extending forward beyond the front face of the trunk or box.

The guide-plates c^2 may be provided with hooks or L-bolts d, extending downward, as shown in Figs. 1, 2, and 3, or these bolts may be separately attached to the inside face of the end walls of the lid, as desired. These bolts, when the lid of the trunk is down, as shown in Fig. 3, are directly in front of and in line with a loop or catch-plate, d', secured to the inside face and near the top of the end walls of trunk.

e are one or more hooks or L-bolts secured to the inner face of the rear wall of the trunk-lid, and extend downward and rearward, as shown in Figs. 1 and 6.

e' are one or more plates secured to the inner face of the rear wall of the trunk-box.

e^2 is a hole or slot cut in the upper end of each plate e'.

The hooks or bolts e, when the lid is down, as shown in Fig. 3, are directly in front of and in line with a respective hole or slot, e^2, of the plate e'.

f is an angle-plate, secured to the inner lower edge of the front wall of the lid, so that one side, f', of the angle will be flush with the lower edge of said wall, while the other side, f^2, is flush against its inner face.

f^3 is a slot cut in side f^2, for the reception of the hooked end g of an angle-plate, G, secured to the inner face of the front wall of the trunk. The slot f^3, when the lid is down, as shown in Fig. 3, is directly in front of and in line with the hooked end g of the plate G, as shown in Fig. 4. The angle-plate f and angle-plate G may be duplicated, if desired.

The lid of the trunk, when now pushed back to bring its front face flush with the front face of the trunk-box, as shown in Fig. 2, by sliding with the guide-plates c^2 on the arms C the parts just described will engage their respective counterparts or pieces, as follows: The side hooks or bolts, d, will engage with the loops or catch-pieces d', as shown in Fig. 2. The rear hooks, e, will enter the slots e^2 of the plate e', as shown in Fig. 6, and the slot f^3 of the front L-plate, f, will admit and pass around the hook g of the angle-plate G. The sides rear and front of the lid are thus locked with the respective sides rear and front of the trunk, thus preventing any one from lifting the former from the latter without first bringing it forward. Further, in holding the lid down in this manner all around all strain is removed from the hinges C, as well as the pivot c'. The latter, therefore, can be made very light and small to take up little room without being too weak to serve its purpose.

To prevent the lid from being drawn forward and thereby disengage the parts just described, a common drawer-lock, H, is provided, as usual, to the trunk itself, the bolt of the lock extending up into the lid, or vice versa; but to insure more strength of the bolt of the lock, the lock H is placed on the front wall of the trunk, so that the angle-plate G will be directly behind it, as shown in Figs. 4 and 5, and the hooked end g of the plate G is provided with an open slot, g' at one side, directly in line with the bolt h of the lock (see Fig. 4) which enters and passes through it, as shown in Fig. 5, when thrown out of the lock.

The L-plate f is provided with a slot, f^4, in the lower side, f'. (See Fig. 7.) This slot comes directly in line with and above the bolt h of the lock H when the lid is down and pushed back in position, (shown in Fig. 2,) so that when the bolt h is thrown out it will pass through it, as shown in Fig. 5.

The relative positions of the slots f^3 and f^4 in the plate f are shown in Fig. 7, the slotted hooked end g of the plate G engaging about one-half of the lock-bolt h. The slot f^3, which receives this hook, is placed to one side of the slot f^4, which receives the whole lock-bolt.

The object of the open slot in the hook g is to hold the bolt h firm at the top, while the lock itself holds it firm below, and the strain of the lid through the tendency to force it forward is brought at the middle of the bolt between the hook and lock. The trunk is now securely locked, and all strain is entirely removed from the lock-bolt, except a forced strain tending to move the lid forward, which is but slight, and for this purpose the bolt is additionally strengthened, as described.

To insure a secure engagement of the side and rear hooks or bolts with their respective catch pieces or loops and slotted plates, the former are beveled at their top edge, e^3, as shown in Figs. 2, 3, and 6, and the latter are beveled off at their top at e^4, (see Fig. 6,) these bevels thus causing the lid of the trunk to be drawn down tight on the trunk-box when the former is pushed back into the position shown in Fig. 2 after it has been closed down on the latter, as shown in Fig. 3. All these parts may be properly incased or countersunk in any well-known manner, so as to be flush with the walls of the trunk and lid, and so as to be out of the way and free to operate without interfering with the contents of the trunk.

The side-hook-plates of the lid, when duplicated at each end, may be formed of one piece, and likewise the corresponding loops or catch-pieces on the end of the trunk, as shown by dotted lines, Figs. 2 and 3, to secure perfect fitting, cheapness, and durability.

The slotted plates at the rear of the trunk may be made short, as shown in Fig. 6, or longer, as shown in Fig. 1, so as to extend to the bottom of the trunk; or they may be made in bands to extend still farther across the bottom and up the front wall and form the hooks *g*, thereby adding strength to the front and rear walls and bottom of the trunk. Similarly the hooks at the rear of the trunk-lid may be made short or long, as shown in Fig. 1, and pass across the top of the lid to the front and form the L-piece *f*, for adding to the strength of the lid; and, further, the top and bottom end pieces, *d* and *d'*, may be formed in bands to extend across the lid and trunk, as shown by dotted lines, Fig. 1, and serve to strengthen the lid and trunk.

The pivots *c'*, to which the arms C are hinged, may be cast on plates c^4, which are secured to the walls of the trunk by screws.

The lid and trunk may be protected by countersunk plates c^5 at the points where the shoulder c^3 and arm *c'* of the hinges C abut and rest for holding the lid up, as shown in Fig. 1.

What we claim is—

1. In a trunk or box, the combination, with one or more arms, C, serving as hinges and pivoted to the inner side of a trunk-box, and connected to a lid by means of one or more guides, of a lid moving back and forth on said arms C, substantially as and for the purpose set forth.

2. In a trunk or box, the angled arms C, moving in guides on the lid and hinged or pivoted to the inside of the box, as shown and described, for the purpose of holding the lid from falling back when open, as set forth.

3. In a trunk or box having a sliding lid, the combination of one or more side catches, *d*, with one or more counter-pieces, *d'*, as and for the purpose set forth.

4. In a trunk or box having a sliding lid, the combination of one or more side catches or hooks, *d*, beveled off at e^3, with one or more counter-pieces, *d'*, beveled off at e^4, substantially as and for the purpose set forth.

5. In a trunk or box having a sliding lid, the combination of one or more rear hooks, *e*, beveled off at e^3, with one or more slotted plates, *e'*, substantially as and for the purpose set forth.

6. In a trunk or box having a sliding lid, the combination of one or more L-plates, *f*, having a front slot, f^3, with one or more hooks, *g*, substantially as and for the purpose set forth.

7. In a trunk or box having a sliding lid, the combination of the side hooks, *d*, rear hooks, *e*, and front slotted plate, *f*, of a lid with the respective side pieces, *d'*, slotted rear plate, *e'*, and hook *g*, of the front plate, G, of a trunk or box, substantially as and for the purpose set forth.

8. In a trunk or box having a sliding lid, the front L-plate, *f*, having a front slot, f^3, for the reception of the hooked end *g* of a plate, G, and an under slot, f^4, for the reception of the bolt *h* of a lock, H, in combination with the hook *g*, having the open slot *g'*, for receiving part of the bolt *h* of the lock, and the lock H, substantially as herein shown and described, and for the purpose set forth.

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JOHN HOGAN.

Witnesses:
CHAS. F. MEISNER,
CHAS. E. METZ.