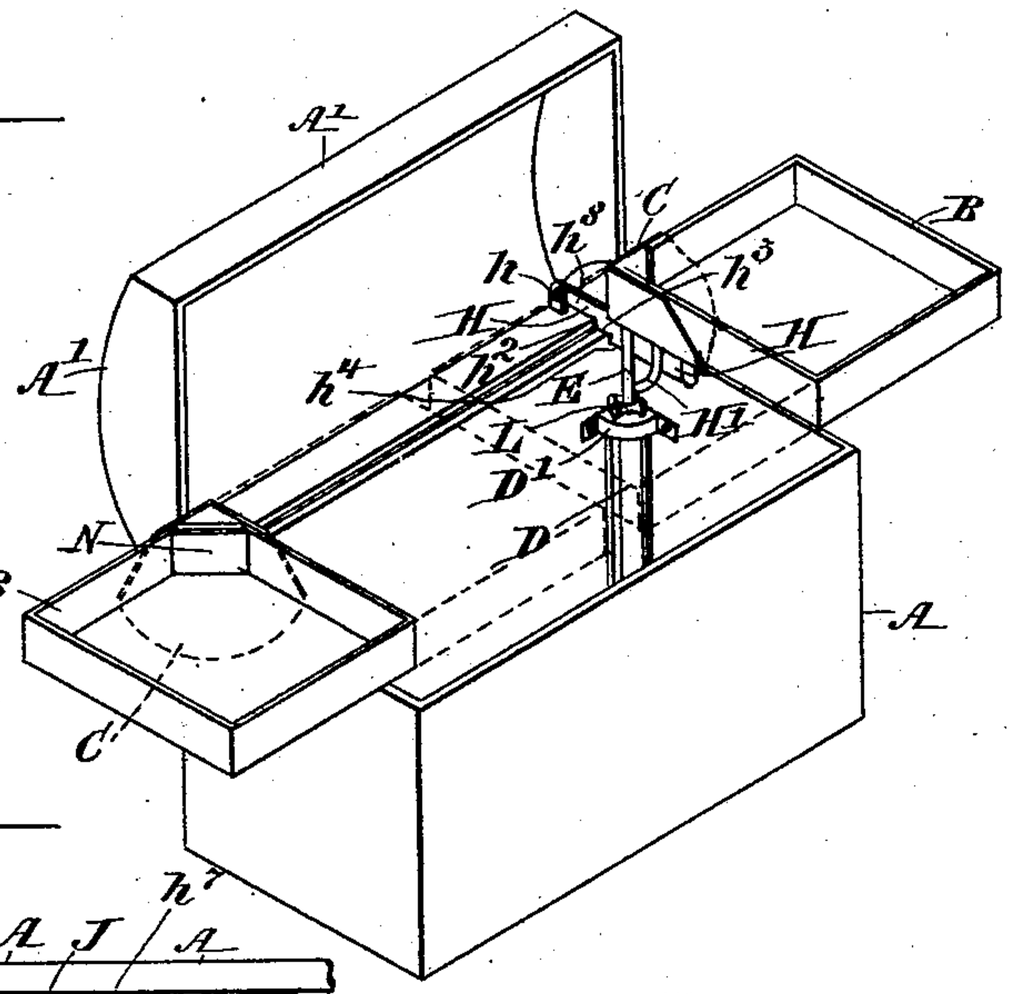
(No Model.) 2 Sheets—Sheet 1.

J. T. DWYER.

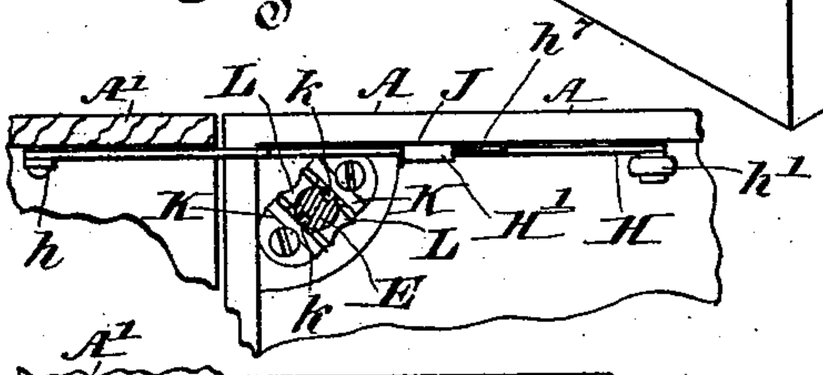
TRUNK.

No. 477,795. Patented June 28, 1892.

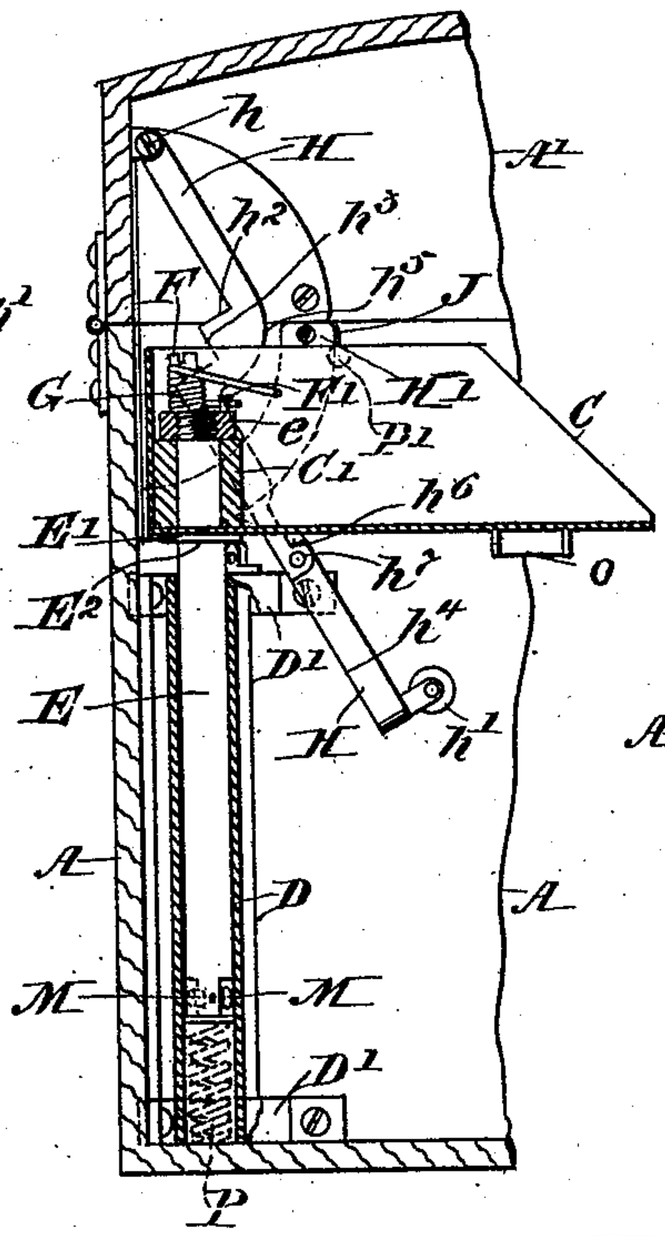
— Fig. 1 —



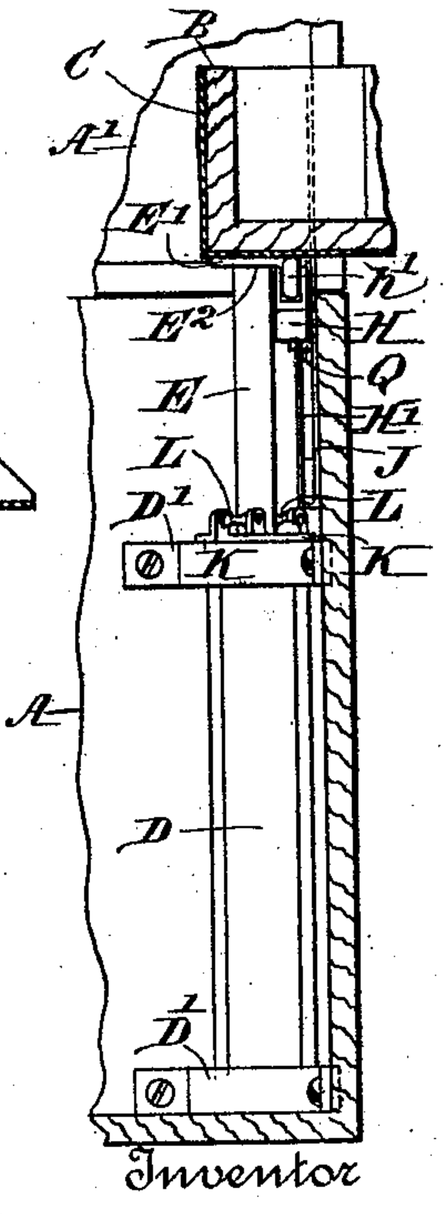
— Fig. 2 —



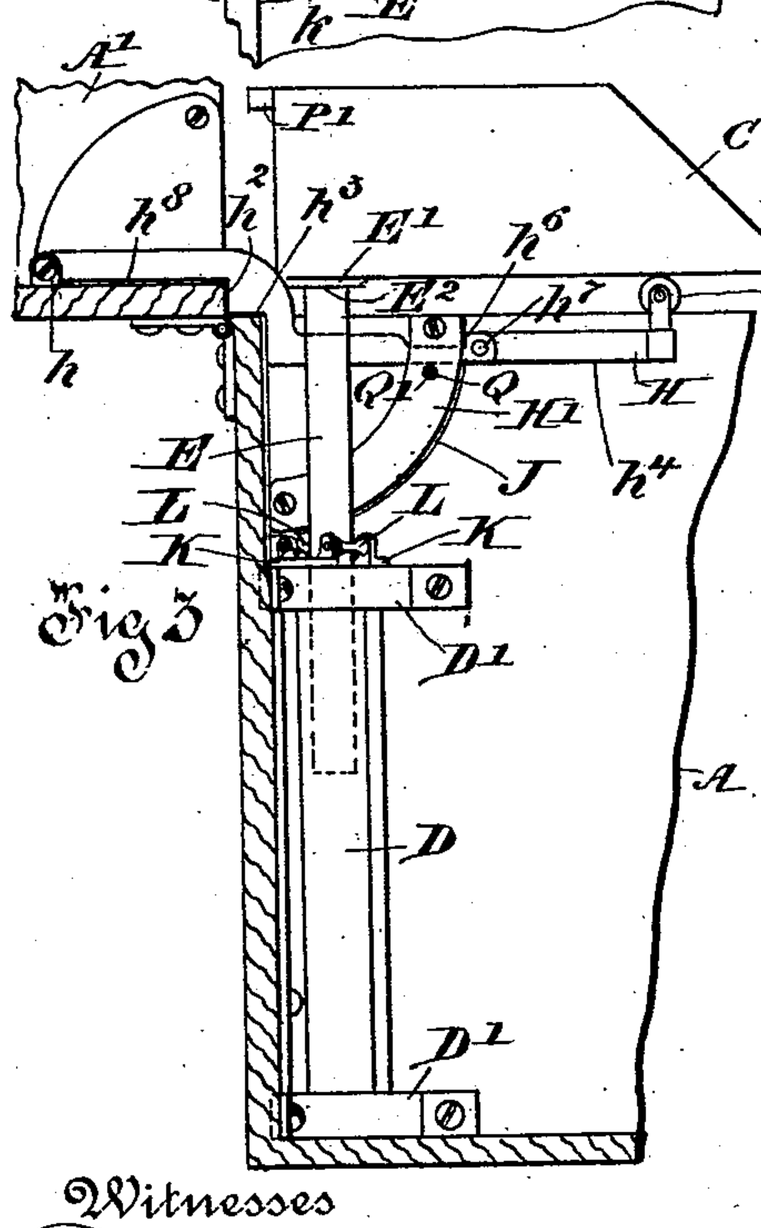
— Fig. 4 —



— Fig. 5 —



— Fig. 3 —



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(No Model.) 2 Sheets—Sheet 2.

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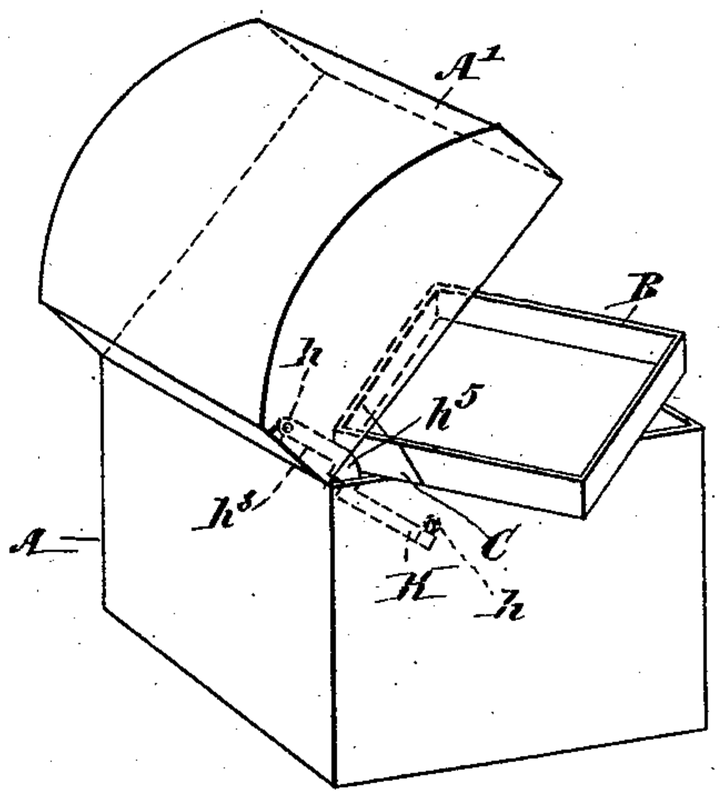
TRUNK.

No. 477,795. Patented June 28, 1892.

Fig. 6



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UNITED STATES PATENT OFFICE.

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TRUNK.

SPECIFICATION forming part of Letters Patent No. 477,795, dated June 28, 1892.

Application filed April 23, 1891. Serial No. 390,160. (No model.)

To all whom it may concern:

Be it known that I, JOHN THOMAS DWYER, of the city of Montreal, in the District of Montreal and Province of Quebec, Canada, have invented certain new and useful Improvements in Trunks; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to means for avoiding the necessity of lifting the usual trays bodily out of place in order to reach the contents of the body of the trunk under trays, and has for its object the automatic displacement and replacement of such trays by the opening and closing of the trunk-lid.

The invention consists in dividing the usual tray into two independent parts, pivotally connecting each of them at their rear outer corners with a movable support, arranging a lever-bar in position so that one of its ends will be pivotally connected with the lid of the trunk and its opposite end bear beneath the tray to lift same when such lid is being raised, a spring serving, when the tray is sufficiently elevated to clear the edge of the trunk-body, to turn such tray out to one side thereof, leaving the body of the trunk open, and a central curved portion of said lever-bar bearing against the side of the tray when the lid is being closed to turn the tray back over the edge of the trunk, so that it can drop to its normal position.

For full comprehension, however, of the invention reference must be had to the annexed drawings, forming part of this specification, in which like symbols indicate corresponding parts, and wherein—

Figure 1 is a perspective view of an open trunk with trays arranged and displaced according to my invention; Fig. 2, a horizontal sectional detail of one of the rear corners of the trunk and the adjoining part of the lid fitted with the tray-actuating mechanism; Fig. 3, a vertical transverse sectional detail of the corner portion of the trunk, showing the tray-actuating mechanism in elevation with the lid open and the tray raised and turned outward or displaced, Fig. 4 being a similar view of the same mechanism, but in vertical section and with the position of the parts reversed—*i. e.*, the lid closed and the tray turned in and lowered or replaced; Fig. 5, a vertical section taken longitudinally of the trunk or at right angles to Figs. 3 and 4 and showing in elevation the same parts shown in such figures and the tray raised the same as in Fig. 3 and Fig. 6 a perspective view showing means whereby the tray is turned in and lowered or replaced.

A is the body of the trunk, A′ the lid of same, and B B the two trays used in this case instead of the usual single one. Each of the trays is connected at one corner to and carried by a metal shoe or corner-piece C, provided with a perforated boss or sleeve C′, cast in the extreme corner of same.

In each of the rear corners of the trunk-body is arranged a vertical guide in the form of a tube D, open at top and provided with corner-pieces or end plates D′ for securing it in place, and in such guide a plunger-rod E is located, having the upper portion of its length of reduced diameter to allow a washer E′ to be slipped down and rest on a shoulder E^2 on same, and such upper end passing through the sleeve C′ of the corner-piece C and being screwed to receive a nut *e*, which, with the washer E′, serves to hold such corner-piece freely in place or pivotally on such rod. A large pin F and a small pin F′, the former inserted in a hole drilled partially in the end of the rod E and the head of the nut *e*, so as to lock such nut in place, and the latter (the pin F′) inserted in the head of such nut, serve to hold in place a spring G, which is coiled around the large pin F and has one end bearing against the small pin F′, while its opposite end bears against the corner-piece C with a tendency to turn or throw it out over the edge of the trunk-body, as before mentioned.

Flat against each end of the trunk and the ends of the lid, also, and confined and steadied by curved metal straps H′ are arranged flat lever-bars H, the respective ends of which are pivoted at *h* in the lid of the trunk and carry rollers *h′*, which make contact with the bottoms of the corner-pieces C and serve to elevate same, as before mentioned. These lever-bars H perform the triple function of elevating the trays, holding the lid in a vertical position, and turning the trays inward over the edge of the trunk against the force of the spring G, a special shape or configuration of the bars

being requisite to such end, and which shape I will now describe. The lower edge of the bar when the lid is opened runs parallel, as at *h*, with the back piece of the lid. It also has a doubled right-angled turn h^2 h^3 corresponding to the edge of said lid back piece, the edge of the back piece of the trunk-body, and the inner side of this last-mentioned piece, against all of which parts it (the lower edge of the bar) bears, and finally extends outward parallel, as at h^4, with the edge of the end piece of the trunk-body, but at a lower level than same, while the upper edge of such bar follows the shape of the lower edge, with the exception that a convex curve or arc h^5 connects the parts that run parallel with the back piece of the lid and the edge of the end piece of the trunk-body, and a depression h^6 is formed in the forward portion to interlock with the end of the guiding-strap H′, and such forward portion being jointed, as at h^7, so as to fold up, if necessary, when lowered into the body of the trunk to avoid interfering with articles below the tray in the body of the trunk.

Metal wearing-plates J J are preferably located between the bars H and the parts of the trunk with which they come in contact to receive any rub from such bars and facilitate action, and the plunger-rod E for similar purposes is also preferably grooved, as at *k k*, down its sides to receive tongue projections from plates K K, set in place on the top end corner-plate D′, so that such rod will be prevented from turning in any way, and thus make it possible to use anti-friction rollers of concave form—such as L L—carried between bearings on the plates K K and convex rollers M M, pivoted in the lower end of the rod itself, as shown in Fig. 4. The upper parts of the rod E are separated from the body of the tray by a corner-strip N, and a projecting stop O, which makes contact with the roller *h′* on the end of the lever-bar H, is carried on the bottom of the corner-piece C to prevent the tray being turned inward too far.

If desired, a spring action (indicated at P, Fig. 4, beneath the plunger-rod E) could be used to elevate the tray, a projection P′ from the corner-piece O of same being arranged for the edge of the end piece of the trunk-lid to bear upon and press such tray against the action of the spring P.

A removable pin Q is used for insertion in the hole Q′ in the curved straps H′ to lock the lever-bar H in place and avoid any chance of the lid of the trunk closing accidentally.

The operation of the parts consist, solely, in the free ends of the lever-bars (as the trunk-lid is gradually opened) coming in contact with the bottom of the trays and elevating same sufficiently above the edge of the trunk-body to enable the spring G to turn them outward, such lever-bars finding a fulcrum on the lid and rear edge of the back of the trunk, and when such lid is closed the tray is returned by the curved portion h^5 of the lever-bar bearing against its edge, as before mentioned.

Although this invention is primarily applicable to trunks, it may be used for boxes of all kinds and other receptacles.

What I claim is as follows:

1. The combination, with the body and lid of a trunk, of a tray or trays pivotally connected with said body and means for automatically elevating and swinging such tray or trays outward over the end or ends of the trunk upon the raising of the lid of same, as set forth.

2. The combination of a trunk-tray pivotally connected with a vertical plunger-rod located in the body of the trunk, means for elevating such rod, and a spring for turning said tray outward over the end of the trunk, as and for the purpose set forth.

3. The combination of a trunk-tray pivotally connected with a vertical plunger-rod located in the body of the trunk, a lever-bar pivoted in the lid of the trunk, suitably guided and having a free end adapted to bear beneath said tray and elevate the same upon the raising of such lid, and a spring for turning said tray outward over the end of the trunk, said lever-bar being also shaped to bear upon and return said tray inward against the force of said spring, as and for the purpose set forth.

4. The combination, with the trunk-body and its lid, of a locking-bar shaped to correspond with and fit the angles formed by the edges of the back pieces of said trunk and lid when the same are situated at approximately right angles to each other, one end of such bar being pivoted within said lid and the other end located and working within a confining-strap in the trunk-body, as and for the purpose set forth.

Montreal, 28th day of February, 1891.

J. T. DWYER.

Witnesses:
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WILL. P. MCFEAT.