No. 897,377. PATENTED SEPT. 1, 1908.

R. W. KING.

TRUNK LOCK.

APPLICATION FILED MAY 27, 1908.

3 SHEETS—SHEET 1.

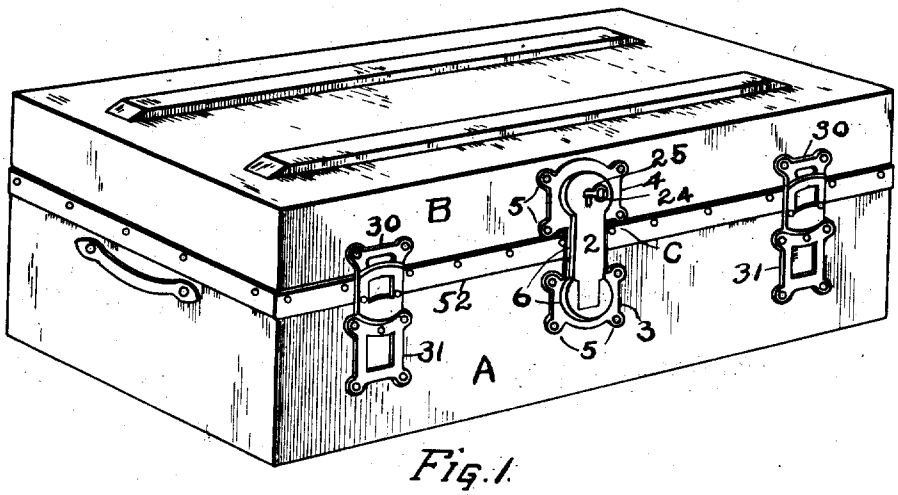


Fig. 1.

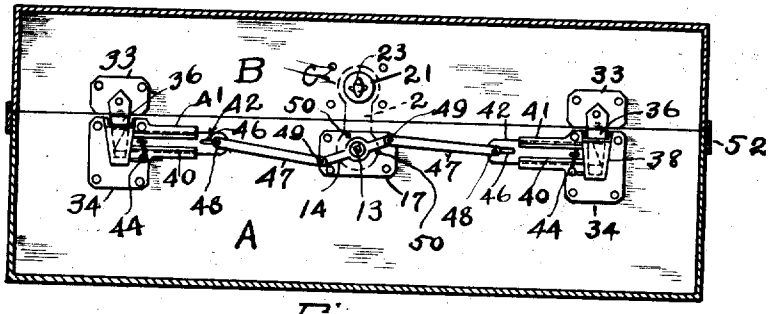


Fig. 2.

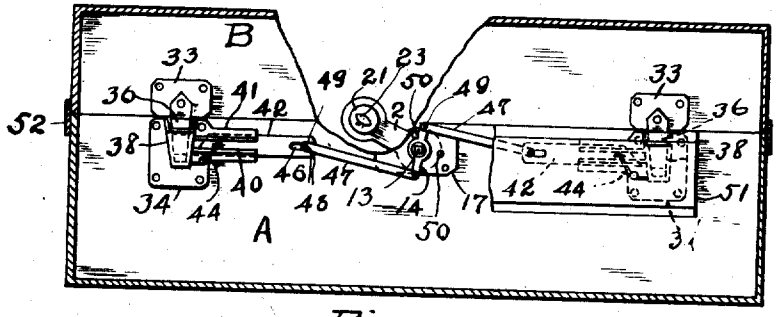


Fig. 3.

WITNESSES
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3 SHEETS—SHEET 2.

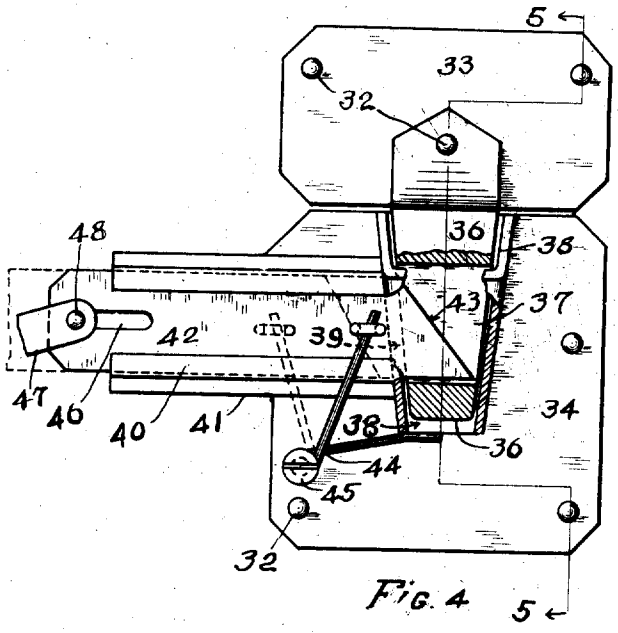


Fig. 4

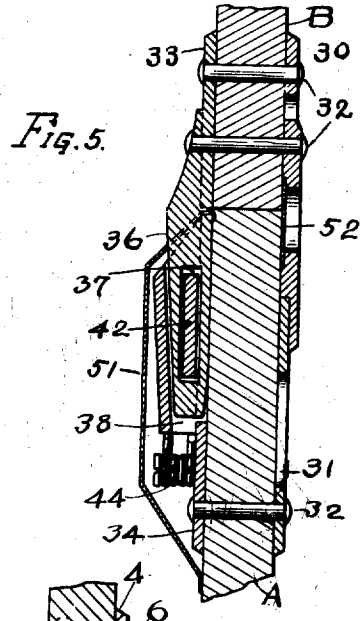


Fig. 5.

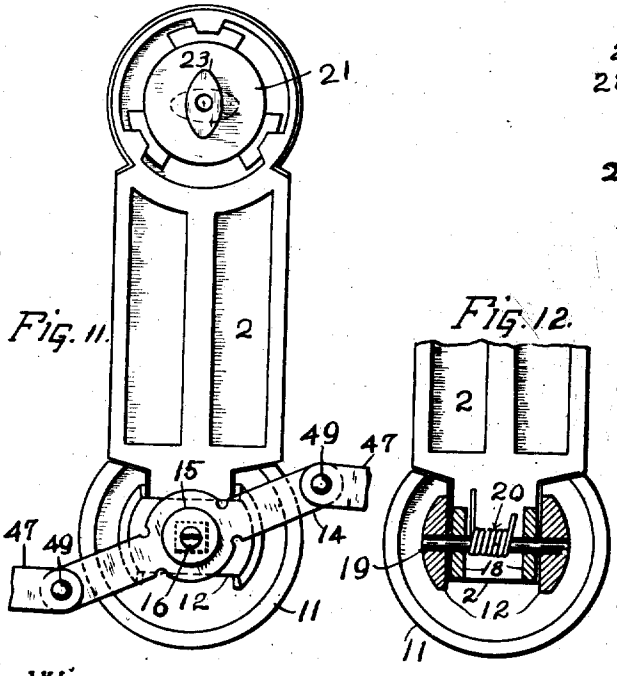


Fig. 11.

Fig. 12.

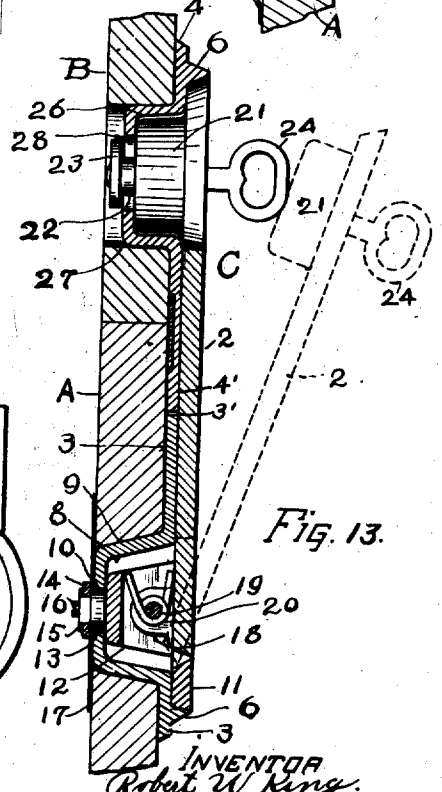


Fig. 13.

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3 SHEETS—SHEET 3.

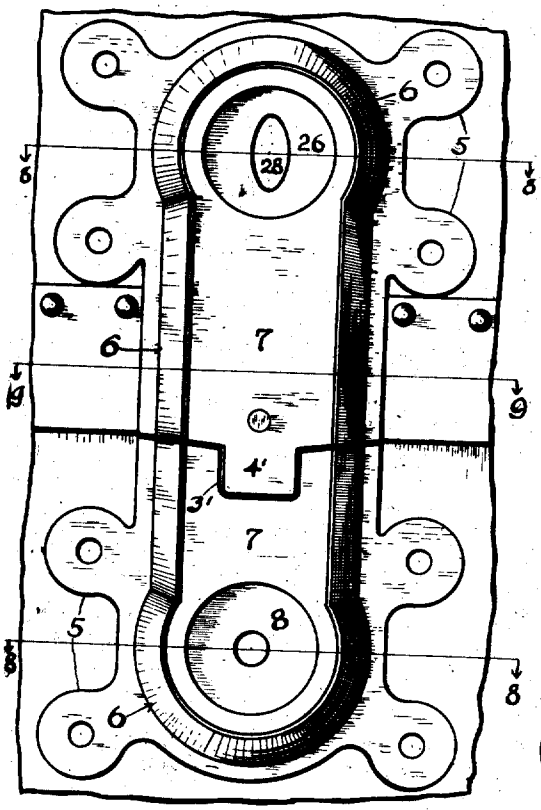


Fig. 6.

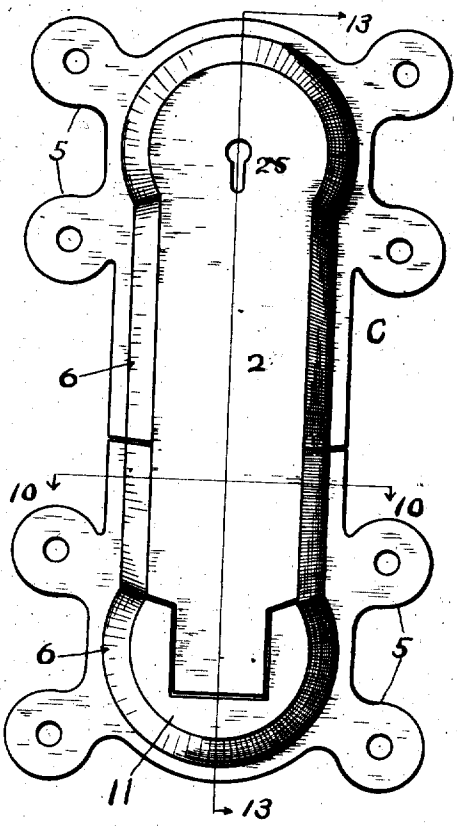


Fig. 7.

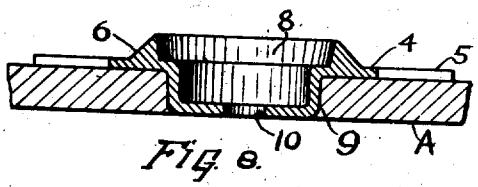


Fig. 8.

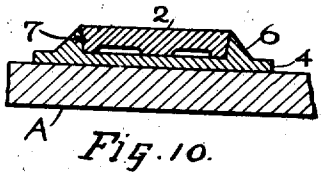


Fig. 10.

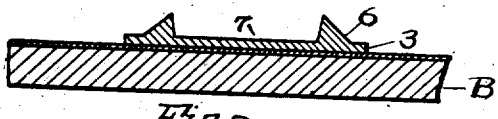


Fig. 9.

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UNITED STATES PATENT OFFICE.

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TRUNK-LOCK.

No. 897,377. Specification of Letters Patent. Patented Sept. 1, 1908.

Application filed May 27, 1908. Serial No. 435,215.

To all whom it may concern:

Be it known that I, ROBERT W. KING, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Trunk-Locks, of which the following is a specification.

This invention relates to improvements in lock mechanisms, designed for use in connection with trunks, chests and the like, and the invention relates particularly to a locking mechanism having a plurality of locks connected and operated as one part.

The object of this invention is to provide a lock mechanism for use on trunks, cases or doors, which is simple, effective, strong and inexpensive, and wherein the construction and arrangement of the parts are such that a trunk-lid or a door may be readily and securely locked, or unlocked at several different points at the same time.

A further object of the invention is to eliminate the auxiliary movable catches or latches usually employed on the outside of trunks and similar cases and coöperating with the main lock for holding the lid closed, and to substitute therefor a series of powerful blind auxiliary locks or latches disposed on the inside, and a series of fixed plates on the outside of the trunk.

A further object of the invention is to provide a lock mechanism having a plurality of locking members or parts, capable of being operated simultaneously to lock or unlock a lid, door or other movable part at different points, wherein the arrangement of the parts of each individual lock is such that, one or more of the locks may be broken or impaired without rendering the remaining parts ineffective.

A further object of the invention is to provide a plurality of locking mechanisms, disposed in different parts of a trunk or chest, and operatively connected in a manner to permit the locking or unlocking of certain of the individual locks independently of the others. And a further object of the invention is to provide a lock mechanism for trunks and other portable cases, the principal working parts of which are concealed and shielded from contact with other objects which might damage or otherwise impair the same.

The invention consists principally of a main locking mechanism comprising a pivoted spring-hasp or like part to which is connected a lock controlled by a key, the main locking parts preferably disposed on the outside of the body of a case or door in position to afford ready access to the same.

The invention further consists of one or more auxiliary bolts of peculiar and novel construction, which are preferably disposed inside of a trunk or door, at some distance from the main lock, the said bolts being operatively connected with the pivoted hasp, for the purpose of releasing them simultaneously, after the main lock has been released. The said auxiliary bolts also capable of being set in locked position automatically without the coöperation of the main lock. Each of said bolt-locks comprising a female member attached to the body of the case, a male member connected to the lid of the case, and a spring controlled reciprocating bolt or latch to hold said members interlocked.

The invention further consists of means for connecting the bolts with the pivoted hasp of the main lock, by means of which the said bolts may be operated simultaneously, in the direction to unlock the cover or lid, from the outside of the case.

The invention further consists of the novel features and the combinations of the parts set forth in the detail description which follows, and then particularly pointed out in the claims, reference being had to the accompanying drawings, which form a part of this specification.

Referring to the drawings, Figure 1 is a perspective view of a trunk or chest showing the location of the main lock, when in locked position; also showing generally the construction and arrangement of the exposed parts of the device. Fig. 2 is a rear side elevation of the front wall of the case, showing in full and dotted lines the location and arrangement of the main and auxiliary locking parts, the catch of the main lock being in released position, and the bolts being in locked position. Fig. 3 is a rear side elevation of the front wall of the trunk or case, showing the main lock and bolts in full release; also showing, by breaking away a portion of the front wall of the case, the spring-hasp disposed at an angle

for effecting the simultaneous releasing of the auxiliary latch-bolts; also showing a portion of the detachable shield employed for concealing the auxiliary locking mechanism. Fig. 4 is an enlarged detail view partly in elevation and partly in section, of one of the bolts and related parts, showing the construction and arrangement of the same. Fig. 5 is an enlarged detail sectional view substantially on the line 5—5 of Fig. 4, showing the auxiliary locking parts in locked position and inclosed in the shield; also showing the face and back plates, and the means for connecting the several parts to the walls of the trunk and lid. Fig. 6 is an enlarged face view of the central face plates, showing a large recess to receive and house the spring-hasp and main lock. Fig. 7 is an enlarged face view of the main locking parts, showing the spring-hasp disposed in the recess of the central face plates. Fig. 8 is a sectional view substantially on the lines 8—8 of Fig. 6, showing the manner of constructing the sockets in the central face plates. Fig. 9 is a sectional view taken on the line 9—9 of Fig. 6, showing the recess in the face plate formed by an integral beveled flange. Fig. 10 is a sectional view on the line 10—10 of Fig. 7, showing the hasp disposed in the recess of the face plate flush with the beveled flange, as when in locked position. Fig. 11 is a detail rear-face view of a modified form of hasp, showing the manner of applying the main lock to the upper end of the hasp; also showing the arrangement of the pivot mechanism and the cross-arm for operating the bolts. Fig. 12 is a detail view of the lower portion of the hasp and pivotal support, partly in elevation and partly in section, showing the details of the pivot parts; also showing the spring which controls the hasp. Fig. 13 is an enlarged detail section of the main locking parts, taken on the line 13—13 of Fig. 7, showing by full lines, the construction and disposition of the spring-hasp, together with the main lock and key and the pivot mechanism, when in locked position; also showing by dotted lines, the hasp and main lock thrown outwardly into released position by the spring.

Similar characters of reference designate corresponding parts throughout the several views.

To illustrate the application and working of my improved locking mechanism, I have shown the same applied to a trunk or chest having a body A and a lid or cover B. The exposed or external portion of the lock mechanism comprises a main lock C, which is preferably mounted on the front face side of the trunk as shown in Fig. 1. The main lock consists of a hasp or lever 2, the lower end of which is pivotally supported by a face plate 3 which is secured to the front side of the body A. The hasp 2 is preferably made to a length, and disposed in such manner that, its upper end overlaps the front face of the lid B (see Figs. 1, 2, 7 and 13). The upper end of the hasp is circular, and when in locked position is held in place by the face plate 3 and a similar face plate 4, which is secured to the front face of the lid B directly above the plate 3. The face plates 3 and 4 are preferably made as shown in Figs. 1, 6, 7 and 13, having perforated lugs 5 by means of which they are fastened to the case, and each having a beveled integral rib or flange 6, arranged when the lid is closed, to form a large shallow recess 7 into which the hasp 2 operatively fits. Face plate 4 extends downwardly and overlaps the body A, and is provided with a central tongue 4′ which fits in a corresponding notch 3′ of plate 3 to help hold the lid in place. The recess 7 is provided to afford a housing for the hasp to protect it from being struck or battered by contact with other objects, when being handled or shipped. The lower face plate 3 is depressed centrally to form a cup or socket 8, which is disposed in a circular mortise or opening 9, formed through the front wall of the body A. The bottom or inner wall of the socket 8 having a central perforation 10.

11 represents a circular plate or part having an angular portion cut away from its center and upper side to receive the lower end of the hasp 2.

12 represents an integral stirrup formed on the inner face of the pivot-plate 11, as shown in Figs. 11, 12 and 13, having an integral stud 13, which passes through the perforation 10, and forms a pivot for the lateral operation of the hasp 2. The outer end of the stud 13 is squared to receive a cross-arm 14, which is provided with a square hole to fit the stud. The cross-arm 14 is held in place by a washer 15 and a screw 16.

17 represents a plate, which is attached to the inner wall of the case A in suitable manner and is perforated to receive the stud 13.

18 represents a pair of inwardly facing integral lugs formed on the lower end of the hasp 2, which are disposed between the parallel sides of stirrup 12, to which the lugs are pivotally connected by a pin 19, which passes through stirrup 12 and also through the lugs.

20 represents a coil spring mounted on pin 19 between lugs 18, and adjusted to exert its tension to force or throw the upper end of the hasp 2 outwardly away from the front wall of the case as shown by dotted lines in Fig. 13. The connection between the hasp 2 and the part 11 is such that the latter rotates with the hasp on the stud 13, when the hasp is in its outer or released position. The main lock proper consists of a case 21, which may be connected to the inner face of the hasp 2 in any suitable manner, but preferably as shown in Fig. 11.

22 represents a stud or bolt projecting in-

wardly from the lock-case 21, upon the outer end of which is mounted a catch or member 23. The stud 22 and catch 23 are rotated by means of a detachable key 24, which enters the case 21 through a key hole 25 in hasp 2. The lock-case 21, the stud 22, and catch 23, and also the key 24 comprise parts of a well-known trunk or chest lock in common use, the detail description of which are not material to the present invention, as any suitable form of lock may be employed in connection with the hasp 2 for carrying out the working of my invention. The upper face-plate 4 is depressed centrally in a manner similar to plate 3, to form a cylindrical cup or socket 26, which is disposed in a perforation or mortise 27 formed in the lid B. The bottom or inner wall of the socket 26 is provided with an oval perforation 28, through which catch 23 of the main lock is adapted to have free passage. Catch 23 is formed to correspond with perforation 28, and to lock and unlock hasp 2, it is only necessary to operate the key a quarter of a turn, which will rotate the latch to the position shown by dotted lines in Figs. 2 and 11. The full lines in said figures show catch 23 in unlocked position and registering with the perforation 28.

In practice when the operator manipulates the key 24 and shifts catch 23 to the position last described, the spring 20 will disengage the upper end of the hasp 2 from the face-plate 4, and throw it outwardly to the position shown by dotted lines in Fig. 13. To lock the trunk or case the operator should first insert or take hold of the key 24 and turn it sufficiently to set catch 23 in position to register with the perforation 28. He should then press the hasp inwardly against the tension of spring 20 until the hasp enters and lies in the recess 7, as shown by full lines in Fig. 13, and then by turning the key a quarter turn catch 23 will be shifted or rotated to the position shown by dotted lines in Fig. 11 which will effect the locking of the lid and case. The relation of catch 23 and hole 28 are such, that after the hasp and lock 21 have been inserted in the socket 26 and key 24 operated a quarter turn, catch 23 is thereby rotated to horizontal position, as shown by dotted lines in Figs. 2 and 11, which effects the locking of the lid in closed position.

Instead of the movable catches or latches usually employed on the front side of trunks or cases, at or near the opposite corners thereof, for coöperation with the main lock for holding the cover in closed position, I provide simple flush face-plates 30 and 31 which may be cast, or formed out of sheet-metal of suitable gage or stiffness, but preferably thin and flat, so as to project but slightly beyond the surface of the case and lid. These plates are preferably made of ornamental design, as shown. The upper plate 30 of each pair, is secured to the front face of the lid, and its lower end is arranged to overlap the upper edge of plate 31, which is secured to the face side of the body A, as shown in Figs. 1 and 5. All of the plates 30 and 31 and also the plates 3 and 4 are rigidly secured to the body A and lid B by rivets or bolts 32. These plates have no movable or operating parts and each preferably consists of a single piece of metal. On the inner side of the front wall of the case A and lid B, directly opposite the plates 30 and 31, are disposed back-plates 33 and 34, which are perforated to receive the rivets 32, by means of which the corresponding face and back plates are held rigidly in place (see Fig. 5). Each back plate 33 is provided with a male locking member consisting of a downwardly projecting V-shaped tongue 36 formed integrally with the plate, and each tine or tongue is provided with a narrow transverse slot 37. The tongues 36 project downwardly a considerable distance below the lower edges of plates 33 and overlap the body A. When the lid is closed as shown in the drawings, the tongues 36 extend their full length below the upper edge of the body A and enter corresponding female members, consisting of angular sockets 38, which are formed integrally on the inner face of back-plates 34. The sockets 38 having broad upwardly facing mouths to receive the tongues 36 when the lid is closed down on the case A.

39 represents a slotted opening formed in the side of each socket 38 facing the center of the case, which registers with the slots 37 of tongues 36 (see Figs. 4 and 5).

40 represents a slotted guide formed on a laterally projecting integral arm 41 of each back plate 34, the ways of said guides registering with the slotted openings 39.

42 represents reciprocating latch-bolts, which are operatively fitted and confined in the guides 40. The inner ends of latch-bolts 42 are adapted to pass through slots 39, and stand in the slotted openings 37 of tongues 36.

Figs. 2, 3, 4 and 5 show the preferred construction and disposition of the latch-bolts 42. The inner ends of latch-bolts 42 are preferably beveled and pointed at 43 as shown in said figures, to facilitate their free passage through the slots, and also for the purpose of permitting the tongues 36 to enter the sockets and force the latch-bolts outwardly against the tension of a spring 44, which is pivoted to the back-plate 34 at 45, and which normally exerts its tension to hold the latch-bolts in the locking position, shown in Figs. 2 and 4. Under this arrangement when tongues 36 descend into sockets 38, the points of the tongues, by reason of the bevels 43, force the latch-bolts outwardly, and as soon as the tongues reach the bottom of the sockets, and slots 37 register with slots 39,

latch-bolts 42 will be forced inwardly by the spring 44, to the position shown in Fig. 4, which will effect the automatic locking of the auxiliary parts. The outer ends of latch-bolts 42 are provided with slots 46. The latch-bolts 42 are employed for independently locking the lid or cover of a trunk or chest in closed position, and they are intended to take the place of the common spring catches or latches usually employed on the outside of portable articles of the class. The latch-bolts 42 are operated reciprocally in equal time, by means of a pair of links 47, which have their outer ends pivotally connected to the slotted ends of the latch-bolts by pins or bolts 48, which pass through and play in the slots 46. The inner ends of links 47 are pivotally connected by bolts 49 to the opposite ends of cross-arm 14, which is mounted upon the square inner end of stud 13, which forms the pivot for hasp 2. The slots 46 are provided to permit the free reciprocal movement of the latch-bolts independently of the operation of the cross-arm and link-rods, as when the lid is closed and the tongues 36 force the bolts outwardly, and then the springs 44 force the bolts inwardly to their normal position.

In Fig. 2 the main lock C is shown unlocked but the hasp is still in the position shown in Fig. 1, while the latch-bolts are shown in locked position.

In Fig. 3 the hasp 2 is shown in angular position, as when having been swung laterally on the pivot 13. This lateral movement of the hasp 2, by reason of its connection with the cross-arm 14 and the connecting rods 47, effects the withdrawing of the latch-bolts 42. Owing to the position and function of the springs 44, which exert their tension to force and hold the latch-bolts in locking position, the hasp 2 must be forced or swung over to the position shown in Fig. 3, by the operator, and he must hold the hasp in this position while he raises the lid B. As soon as the lid is lifted sufficiently to disengage tongues 36 from sockets 38, he may release his hold on the hasp 2, and then the springs 44 will immediately restore the hasp to its upright position, and at the same time force the latch-bolts 42 back into the socket 38 and hold them there. To close the lid again it is only necessary to let the same gravitate till it meets the case A, the tongues 36 will then be forced into the socket 38 by the weight of the lid. The downward movement of the tongues will force the latch-bolts outwardly, and as soon as the tongues are seated in the sockets springs 44 will force the latch-bolts inwardly to their normal position as shown in Figs. 2 and 4, which will effect the locking of the lid. The operation of the bolts for locking the lid is automatic and does not require the assistance of the operator or the coöperation of the hasp 2. To unlock the bolts, however, owing to their being located on the inner side of the trunk or chest and having no exposed parts, it is necessary to manipulate the hasp 2 in the manner shown in Fig. 3. Under the disposition and arrangement of the main lock and bolts as shown herein, the closing of the trunk lid will effect the automatic locking of the lid at two distant points from the center of the case. The main lock C is not automatic and must be operated by a key. After the main lock is unlocked the normal position of the hasp 2 is as shown by dotted lines in Fig. 13. When the hasp is in the last named position it may be rotated freely on the pivot 13 a distance allowed by stop pins 50 which are carried by the back plate 17, and disposed in the path of the cross-arm 14. Under the construction and arrangement shown in Figs. 2 and 3, the hasp may only be rotated to the right. The parts may, however, be so arranged as to permit the hasp to be rocked to the left instead of to the right. To conceal and properly shield the auxiliary locking parts from contact with the contents of a trunk or chest, I provide a detachable metal shield 51, which incloses all of the movable parts inside the case, and this shield may be attached in any suitable manner.

52 represents a valance strip disposed on the front and ends of the cover B in position to overlap the upper edges of the main case A.

It is obvious that the lock mechanism herein shown and described may with a few variations be applied to doors and other movable parts, as well as, to trunks or chests, and also that some changes or modifications of the detail parts may be made without departing from the spirit of my invention, and I therefore do not restrict myself to the precise construction, arrangement and application of the same as herein shown and described.

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

1. A lock mechanism, comprising a main lock, a key for operating said lock, a spring-hasp to carry said main lock, a pivotal support for said hasp, by means of which said hasp may be rotated or rocked laterally, a plurality of bolt locks, each comprising a male and a female member and a reciprocating bolt, a cross-arm connected to said pivotal support, and a series of links to connect said bolts with said cross-arm.

2. A lock mechanism, comprising a main lock, a key for operating said lock, a spring-hasp to carry said main lock, a pivotal support for said hasp, by means of which said hasp may be rotated or rocked laterally, a plurality of bolt locks, each comprising a male and a female member and a recipro-

cating bolt, a cross-arm connected to said pivotal support, a series of links to connect said bolts with said cross-arm, and stop-pins to limit the operation of said cross-arm and said hasp.

3. A lock mechanism, comprising a main lock, a key for operating said lock, a spring-hasp to carry said main lock, a pivotal support for said hasp, by means of which said hasp may be rotated or rocked laterally, a plurality of bolt locks, each comprising a male and a female member and a reciprocating bolt, a cross-arm connected to said pivotal support, a series of links to connect said bolts with said cross-arm, and a spring to normally hold each of said bolts in locking position, and also to restore said hasp to its normal upright position.

4. A locking mechanism, comprising a main lock operated by a key, a hasp to carry said main lock, a spring to operate said hasp when the main lock is released by the key, a pivotal support for said hasp adapted to permit said hasp to be rotated after the same has been operated by said spring, a pair of auxiliary locks, each comprising a slotted tongue and a reciprocating latch-bolt, a guide for each of said latch-bolts, a spring to operate each latch-bolt in one direction, a link connected to each latch-bolt, a cross-arm connected to said pivotal support and to said hasp and also with said links, adapted to effect the withdrawing of said latch-bolts when said hasp is rotated, and a spring to restore each latch-bolt to normal locking position, and also to restore the hasp to its normal upright position.

5. A locking mechanism, comprising a main lock, a key for operating said lock, a hasp to support said main lock, a spring to throw said hasp outwardly when the main lock is released, a pivoted support for said hasp, a cross-arm connected to said pivoted support and movable with said hasp, a plurality of auxiliary locks, each comprising a male and a female member, and a reciprocating latch-bolt, a spring to normally hold each of said latch-bolts in locking position, and a link to connect each latch-bolt with said cross-arm, by means of which said latch-bolts may be shifted into released position by the operation of said hasp on said pivoted support.

6. A locking mechanism, comprising a spring hasp pivotally connected at its lower end, a face plate to operatively support the lower end of said hasp, a main key-lock connected to the upper end of said hasp, a face-plate having a perforated socket to receive said main lock, an auxiliary lock, comprising a tongue, a socket and a latch-bolt, the said tongue and socket having corresponding slots to receive said latch-bolt, a cross-arm connected to and capable of being operated by said hasp, a link to connect said cross-arm and said latch-bolt, and a spring to normally hold the latch-bolt in engagement with said tongue and socket.

7. The combination with a trunk, having a body and a lid, of a main lock, a spring-hasp to support said main lock, the said hasp mounted on the front side of the trunk body and overlapping the front face of the lid, a face-plate mounted on the body and having a socket to pivotally support said hasp, a face-plate secured to the lid having a socket to receive the main lock and adapted to co-operate with said lock for holding the lid in closed position, a pair of back-plates secured to the inner side of the trunk lid, each of said plates having a depending V-shaped tongue overlapping the body, and having a transverse slot, a pair of back-plates secured to the inner side of the trunk-body, each of said plates having a socket adapted to receive the corresponding tongue of the upper plate, and each of said sockets having a slot adapted to register with the slots in said tongues when the lid is closed, a guide formed integrally with the back-plates of the body, a latch-bolt operatively disposed in each guide, adapted to pass through the slots in said tongues and said sockets, to effect the locking of the trunk lid in closed position, a spring to normally hold said latch-bolts in locking position, a cross-arm connected to said spring-hasp and operable therewith, and a pair of links to connect said latch-bolts with said cross-arm.

8. The combination with a trunk having a body and a lid, of a series of one-piece face-plates secured to the outer surface of said body, one of said face-plates disposed near each front corner of the body, and one plate disposed in the middle of the body, the latter plate having a central socket disposed in a mortise in the body, a series of one-part face-plates secured to the front side of the lid above the corresponding plates of the body, each of said plates arranged to overlap the body, and one of said plates having a socket disposed in a mortise in the lid, a spring-hasp pivoted in the socket of the central face-plate of the body, a key-lock mounted on the upper end of said hasp and adapted to fit in the socket of the corresponding lid face-plate, a cross-arm disposed inside the body connected to and operable with said hasp, a pair of back-plates secured to the inside of the lid registering with the corner face-plates, integral slotted tongues projecting from said back-plates and overlapping the body, a pair of back-plates secured to the body and registering with the corresponding face-plates, an integral slotted socket formed on each of said back-plates adapted to receive said tongues when the lid is closed on the body, a latch-

bolt slidable in a guide formed on said last named back-plates, the said latch-bolts adapted to engage said tongues for the purpose of locking the lid to the body, a spring to control said latch-bolts, and a pair of links to operatively connect said latch-bolts with said cross-arm and said hasp.

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

ROBERT W. KING.

Witnesses:
WM. C. ANDERSON,
HARRY DE WALLACE.