

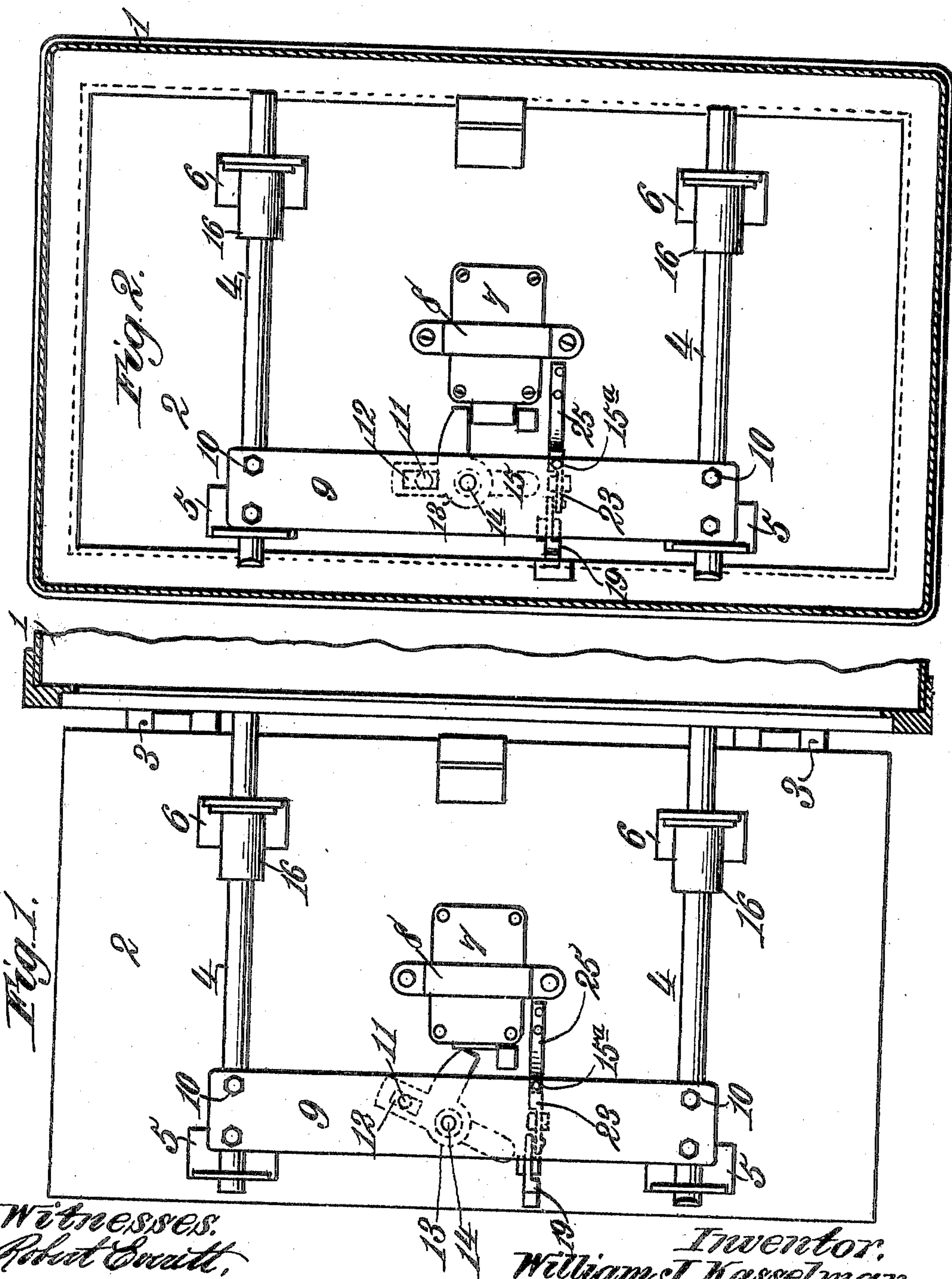
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PATENTED FEB. 6, 1906.

W. J. KASSELMAN.  
BOLT OPERATING AND LOCKING MECHANISM.

APPLICATION FILED MAR. 26, 1905.

2 SHEETS—SHEET 1.



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No. 812,044.

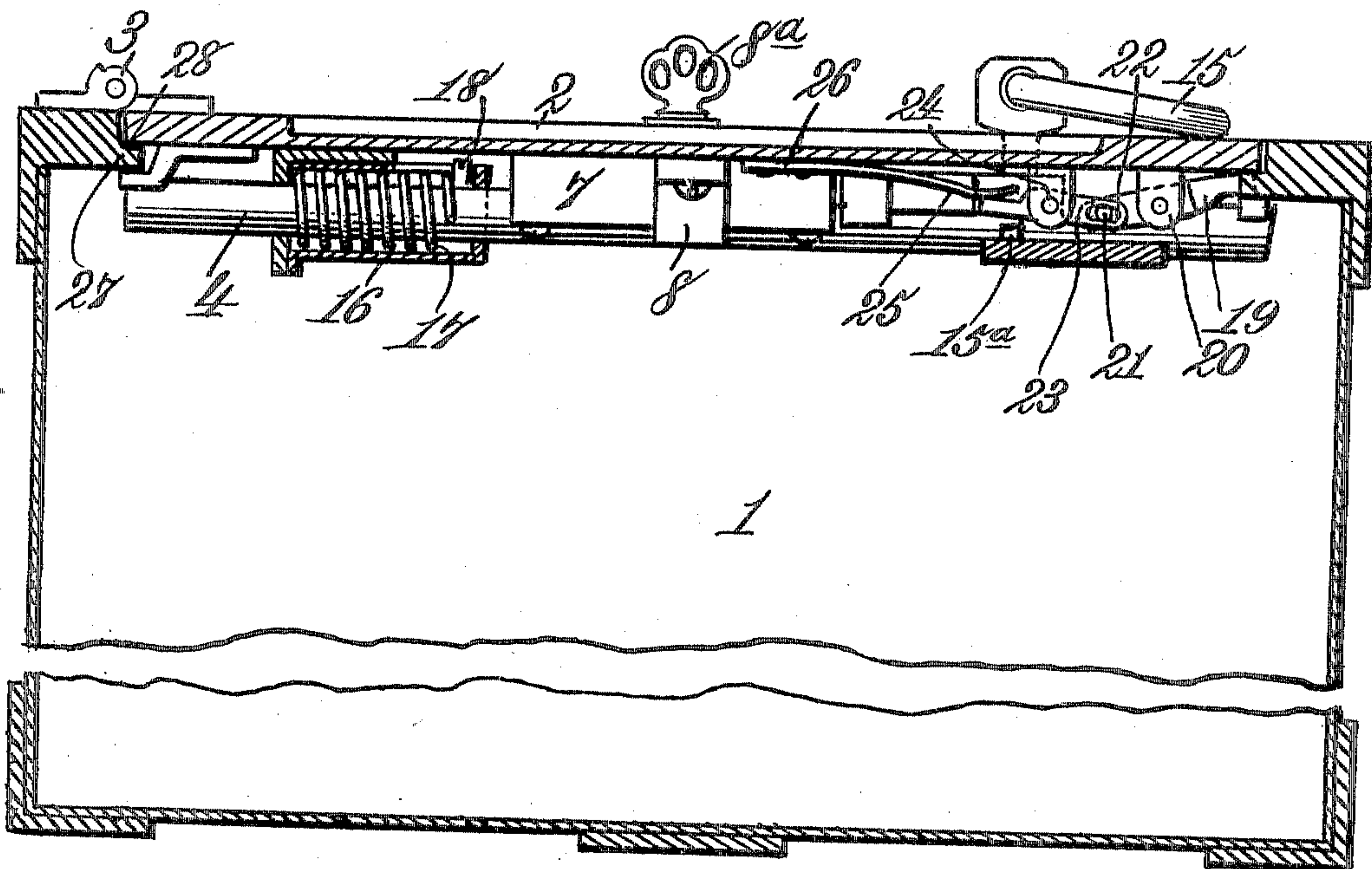
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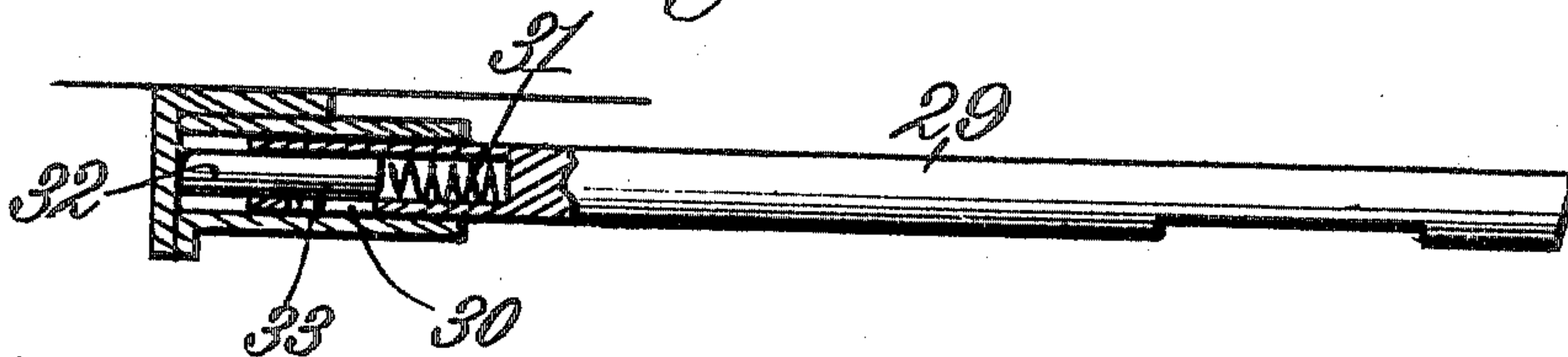
APPLICATION FILED MAR. 25, 1905.

2 SHEETS—SHEET 2.

*Fig. 3.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

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## BOLT OPERATING AND LOCKING MECHANISM.

No. 812,044.

Specification of Letters Patent.

Patented Feb. 6, 1906.

Application filed March 25, 1905. Serial No. 252,029.

*To all whom it may concern:*

Be it known that I, WILLIAM J. KASSELMAN, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Bolt Operating and Locking Mechanism, of which the following is a specification.

This invention relates to that class of bolt operating and locking mechanisms which employs casting and retracting powers controlled, respectively, by the act of closing a door or closure and a suitable locking means; and the object thereof is to provide a bolt-operating mechanism, hereinafter more specifically described, which is particularly adapted for use in connection with the closures or doors of express-boxes for locking the said closures or doors to their jambs, thereby securely closing the boxes, although the said mechanism is adapted for any usages for which it may be found applicable.

Primarily the invention resides in providing a bolt operating and locking mechanism adapted to be carried by a door or closure and having means hereinafter more specifically referred to which when said mechanism is released to open the closure or door will cause the retaining of the bolt or bolts in a retracted position and when the closure or door is shut will automatically cast the bolt or bolts, thereby securely locking the closure or door in position.

The invention further aims to provide a bolt operating and locking mechanism for the purpose specified which shall be simple in its construction, strong, durable, efficient in its use, automatic in its operation in one direction, and comparatively inexpensive to set up.

With the foregoing and other objects in view the invention consists of the novel construction, combination, and arrangement of parts hereinafter more specifically described, illustrated in the accompanying drawings, which form a part of this specification, and particularly pointed out in the claims hereunto appended.

In describing the invention in detail reference is had to the accompanying drawings, wherein like reference characters denote corresponding parts throughout the several views, and in which—

Figure 1 is a plan view of a bolt operating and locking mechanism constructed in accordance with this invention, showing the adaptation thereof to an express-box and with the bolts retracted. Fig. 2 is a like view showing the bolts cast. Fig. 3 is a transverse section of a receptacle provided with a door in closed position and showing the adaptation of the bolt operating and locking mechanism in connection therewith. Fig. 4 is a sectional detail of a modified form of bolt.

As shown the mechanism is adapted for casting two bolts; but it is evident that the mechanism can be so modified as to cast a single bolt or more than two bolts.

Referring to the drawings by reference characters, 1 denotes an express-box having a door 2 for closing the top thereof. The door 2 is hinged to the body of the box through the medium of a pair of butt-hinges 3. The butt-hinges 3 are of any suitable construction so as to support the door in an inclined position when the same is open. Although the box is shown with butt-hinges, yet any other suitable construction of hinges may be employed.

A bolt operating and locking mechanism constructed in accordance with this invention comprises a locking device for the bolt or bolts after being cast, a retracting means for the bolt or bolts, a trip device for releasing the bolt or bolts when the closure or door is closed, thereby permitting of the bolt or bolts being cast, so as to cause the bolt or bolts to securely lock the closure or door in position, and a casting means for the bolt or bolts. The locking device, as shown, is operated by a key, and the retracting means, as shown, is operated by a rotatable handle, the key turning in an opposite direction with respect to the movement of the handle. The construction and arrangement as shown and described of the locking device, retracting means, trip device, and casting means are given by way of example, as any suitable construction and arrangement which comes within the scope of the claims hereunto appended can be used for the purposes desired.

The reference character 4 denotes the bolts, which, as shown, extend transversely of the lower face of the door 2. Two bolts are shown, each of which finds bearings in a pair of supporting-brackets 5 6, through which



the bolts operate. The brackets are secured to the inner face of the door 2 in any suitable manner. The locking device for the bolts, which also acts as a locking medium for the re-  
 5 retracting means, by way of example, is illustrated as a lock (designated by the reference character 7) and which is arranged approximately centrally, as well as being secured to the inner face of the door 2, and is protected  
 10 through the means of the strap 8, which extends over the lock 7 and is secured to the inner face of the door 2. The strap 8 may be of any suitable width desired, and the door 2 is provided with an opening for the key-tube  
 15 of the lock.

The reference character 8<sup>a</sup> denotes the key for operating the lock 7.

The retracting means for the bolt or bolts is shown by way of example as consisting of a  
 20 connecting-bar 9, arranged in advance of the lock 7, secured at its ends to the forward ends of the bolts, as at 10, and the said bar 9 has secured to one face thereof a little to one side of the lock 7 a lug 11, which operates in an  
 25 enlarged slot 12, formed in one arm of a bell-crank lever 13, while the other arm of said bell-crank lever 13 when the bolts 4 are cast is adapted to extend at the side of the bolt of the lock 7; but when the bolts 4 are retracted  
 30 it is adapted to find a seat upon the bolt of the lock 7. The bell-crank lever 13 is fixed to the inner end of a short rotatable shaft 14, which extends through the door 2 and carries on its outer end a handle 15 for operating  
 35 the said retracting means. The handle 15 operates in an opposite direction with respect to the movement of the key 8<sup>a</sup>. The bar 9 is furthermore provided with a beveled lug 15<sup>a</sup>, which coöperates with the trip device to be  
 40 hereinafter referred to.

The casting mechanism for the bolts in Figs. 1, 2, and 3, as shown by way of example, consists of a barrel 16, surrounding each  
 45 of the bolts 4 and fixed to each of the brackets 6. Interposed between each of the barrels 16 and surrounding each of the bolts 4 is a coiled expansion-spring 17. Said springs 17 when the bolts are retracted are compressed through the medium of the protuberances 18,  
 50 formed on the bolts 4, so that when the retracting means is released the tension of the springs 17 will cast the bolts, thereby moving them to locking position when the door 2 is closed.

55 The trip device, by way of example, consists of a trip-arm 19, pivoted in the bearing 20, secured to the inner face of the door 2 near the front edge thereof, and the said arm 19 at its inner end is provided with a stud 21, which extends and operates within the slot  
 60 22, formed in the outer end of a pivoted dog 23, said dog 23 pivoted in the bearing 24 and having its inner end engaged by a flat bearing-spring 25, the latter having its inner end  
 65 secured to the inner face of the door 2, as at

26. The dog 23 is adapted, through the action of the spring 25, to be positioned in the path of and be engaged by the beveled lug 15<sup>a</sup> of the retracting mechanism, so as to retain the said mechanism in its retractive po-  
 70 sition, thereby retaining the bolts 4 in such position, and the said trip-arm 19 when the door 2 is closed is adapted to engage and be operated by the ridge 27 of the door-jamb 28, and thereby rock the dog 23, so that it will be  
 75 moved out of the path of the lug 15<sup>a</sup> and release the retracting as well as the casting means, so that said casting means will cast the bolts to locking position below the ridge 27 and jamb 28.  
 80

In the modified form of bolt-casting means shown in Fig. 4 the same consists in constructing one end of the bolt 29 hollow and furthermore providing that end with a slot  
 85 30. Within the hollow end of the bolt 29 is arranged an expansion-spring 31, having a short shaft 32 bearing against one end thereof, and the said shaft 32 is provided with a stop-lug 33, which operates within the slot  
 90 30. It will be evident that when the bolt 29 is retracted the spring 31 will become compressed, and when the bolt 29 is released the action of the spring 31 will cause the casting of the bolt 29 to locking position.

The manner in which the mechanism oper-  
 95 ates is as follows: It will be assumed that the bolts are in their cast position, as shown in Fig. 2, by reference to which it will be seen that one arm of the bell-crank 13 is arranged at the side of the bolt of the lock 7. Conse-  
 100 quently no movement can be imparted to the bell-crank, and therefore the retracting means cannot be operated. By operating the lock 7 through the medium of the key 8<sup>a</sup> the bolt of the lock is withdrawn out of the path of  
 105 that arm of the bell-crank lever 13 which is at the side of the bolt of the locking device 7. After the bolt of the locking device 7 has been withdrawn through the operation of the key 8<sup>a</sup> the handle is then turned, swinging one  
 110 arm of the bell-crank lever over and upon the bolt of the lock 7. By such movement the slotted arm of the bell-crank lever 13 is moved inwardly, carrying the connecting-bar 9 therewith, which in turn retracts the bolts  
 115 4. During the rearward movement of the bar 9 the beveled lug 15<sup>a</sup> is carried by said bar over and against the free end of the dog 23, so that the said beveled lug 15<sup>a</sup> engages the free end of the dog 23 and holds the re-  
 120 tracting mechanism with the bolts 4 retracted, as the function of the spring 25 is to force the free end of the dog 23 in the path of the lug 15<sup>a</sup>, so that said lug 15<sup>a</sup> will engage said dog 23. During the operation of the re-  
 125 tracting mechanism to withdraw the bolts the springs 17 are compressed through the medium of the protuberances 18, and the said springs 17 are held in such position until the trip-arm 19 releases the dog 23 from its  
 130



engagement with the beveled lug 15<sup>a</sup>. The release of the trip-arm 19 is caused by the rocking thereof when the door 2 is closed. The rocking of the trip-arm which is caused by its engagement with the ridge 27 and the jamb 28 elevates the free end of the dog 23, so as to move the same out of the path of the lug 15<sup>a</sup>, thereby releasing it. When the beveled lug 15<sup>a</sup> is released from its engagement with the inner end of the dog 23, the springs 17 will then be able to expand and cast the bolts, and at the same time the bolts 4 will carry the bar 9 forwardly, and owing to the action of lug 11 in the slotted end of the bell-crank 13 the latter will be rocked so that one arm of the bell-crank will be caused to assume the position shown in Fig. 2, and thereby prevent the retracting of the bolts 4 until the locking device 7 is operated so that the bolt thereof will be moved out of the path of the bell-crank to enable the operation of the retracting means and the compressing of the springs 17 of the casting means.

Although the locking device for the bolt, which also acts as a locking medium for the retracting means, is shown, by way of example, as a lock operated by a key turning in a direction opposite to that of the handle which operates the retracting means, yet said locking means and said retracting means may be so mounted in respect to each other that the locking means can be operated by the key, so that the key will move in the same direction as the handle. Although the lock is termed a "locking medium," yet it is nothing more than a checking device. Furthermore, in lieu of the lock a combination-lock operating with a dial having a spring-bolt could also be employed, or in lieu thereof any suitable mechanism which would perform the function desired.

Although the trip device is recited as comprising the flat bearing-spring 25, this bearing-spring is shown merely by way of example as one form of an element from which the necessary function could be obtained, yet any suitable form of trip device which would obtain the function desired can be used.

From the foregoing construction and arrangement of the bolt operating and locking devices it will be evident that when the door is closed it is always locked, and no matter if the key 8<sup>a</sup> is not removed the bolts 4 are thrown forward in such a position that the door is firmly fastened, and therefore no danger of the contents of the box being spilled over the street or elsewhere in handling, as is frequently the case. Furthermore, the locking of the door is almost instantaneous, and in case of trouble the box can be very quickly closed. Then, again, while the door is open there is no possible chance of getting the bolts into a locked position, or rather casting the bolts, except through design by operating the trip and lifting of the handle at the same time,

so that at all times under ordinary usages the bolt or bolts is or are in the exact position they should be to be cast automatically when the door is closed.

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

1. A bolt operating and locking mechanism comprising a bolt-retracting means, a locking device for said retracting means, operating means for said device, and operating means for said bolt-retracting means, said operating means for said device moving in an opposite direction with respect to the direction of movement of the operating means for the said bolt-retracting means, said bolt-retracting means when in its operative position engaging said locking means and retaining it from movement until the retracting means is moved to inoperative position, combined with one or more bolts connected to said retracting means and adapted to be moved in one direction by said means, and a casting means engaging said bolt or bolts for operating it or them in the opposite direction when said retracting means is released.

2. A bolt operating and locking mechanism comprising a bolt-retracting means, a locking device for said retracting means, a key for operating said device, and a handle for operating said bolt-retracting means, said key operating in a different direction with respect to the direction of movement of the said handle, said bolt-retracting means when in its operative position engaging said locking means and retaining it from movement until the retracting means is moved to inoperative position, combined with a bolt connected to said retracting means and adapted to be moved in one direction by said means, and a casting means engaging said bolt for operating it in the opposite direction when said retracting means is released.

3. A bolt operating and locking mechanism comprising a bolt-retracting means, a locking device for said retracting means, operating means for said device, and operating means for said bolt-retracting means, said operating means for said device moving in an opposite direction with respect to the direction of movement of the operating means for the said bolt-retracting means, combined with one or more bolts connected to said retracting means and adapted to be moved in one direction by said means, a casting means engaging said bolt or bolts for operating it or them in the opposite direction when said retracting means is released, and a trip device for releasing said retracting device.

4. A bolt operating and locking mechanism comprising a bolt-retracting means, a locking device for said retracting means, a key for operating said device, and a handle for operating said bolt-retracting means, said key operating in a different direction with re-



spect to the direction of movement of the said handle, combined with one or more bolts connected to said retracting means and adapted to be moved in one direction by said means, a casting means engaging said bolt or bolts for operating it or them in the opposite direction when said retracting means is released, and a trip device for releasing said retracting device.

5. A bolt operating and locking mechanism comprising a bolt-retracting means, a locking device for said retracting means, operating means for said device, and operating means for said bolt-retracting means, said operating means for said device moving in an opposite direction with respect to the direction of movement of the operating means for the said bolt-retracting means, said bolt-retracting means when in its operative position engaging said locking means and retaining it from movement until the retracting means is moved to inoperative position, combined with one or more bolts connected to said retracting means and adapted to be moved in one direction by said means, a casting means engaging said bolt or bolts for operating it or them in the opposite direction when said retracting means is released, and a trip device for releasing said retracting device.

6. A bolt operating and locking mechanism comprising a bolt-retracting means, a locking device for said retracting means, a key for operating said device, and a handle for operating said bolt-retracting means, said key operating in a different direction with respect to the direction of movement of the said handle, said bolt-retracting means when in its operative position engaging said locking means and retaining it from movement until the retracting means is moved to inoperative position, combined with a bolt connected to said retracting means and adapted to be moved in one direction by said means, a casting means engaging said bolt for operating it in the opposite direction when said retracting means is released, and a trip device for releasing said retracting device.

7. A bolt operating and locking device comprising as a part thereof, a bolt-retracting means, said means comprising a bolt-carrying bar, a lug secured to said bar, a bell-crank having one of its arms slotted into which operates the said lug, a shaft having its inner end fixed to said bell-crank, a handle fixed to the outer end of said shaft, and a beveled lug carried by said bar, combined with a trip device engaging said beveled lug and acting as a means for retaining said retracting means in its operative position.

8. A bolt operating and locking device comprising as a part thereof means for simultaneously and automatically casting a plurality of bolts, said means comprising a barrel for each of the bolts, an expansion-spring arranged in the barrel and adapted to surround the bolts, combined with a bolt extending through each of the barrels and each having a protuberance engaging its respective spring for compressing it when the bolt is moved in one direction, a bar for connecting the bolts together, and a trip engaging the bar for arresting the movement thereof, thereby retaining the springs in a compressed position until the trip is released to permit of the automatic and simultaneous casting of the bolts.

9. A bolt operating and locking device comprising the combination with a bolt, of a retracting means connected with the bolt and adapted when operated to move the bolt in one direction, a casting means engaging the bolt and adapted to move it in an opposite direction, and a locking means for the retracting means when the bolt is cast, said retracting means when moved to operative position adapted to act as a retaining means for holding the locking means in an inoperative position.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM J. KASSELMAN.

Witnesses:

S. L. CARY,  
E. T. FLACH.