Oct. 7, 1924. 1,510,632

J. NUTRY

LOCK MECHANISM

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Fig. 1.

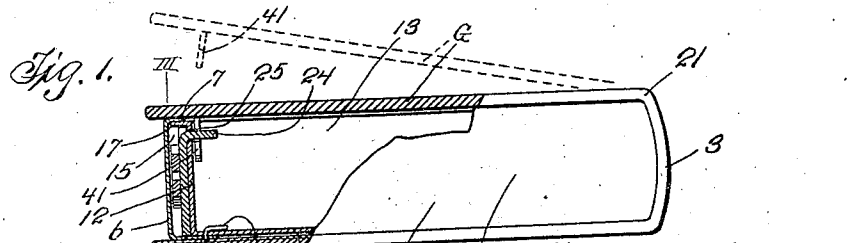

Fig. 2.

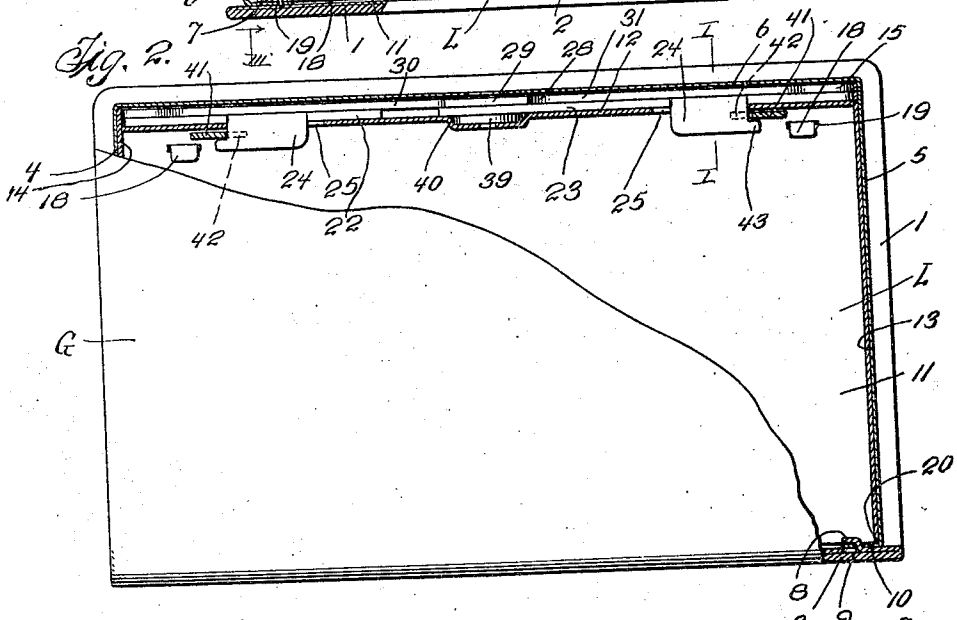

Fig. 3.

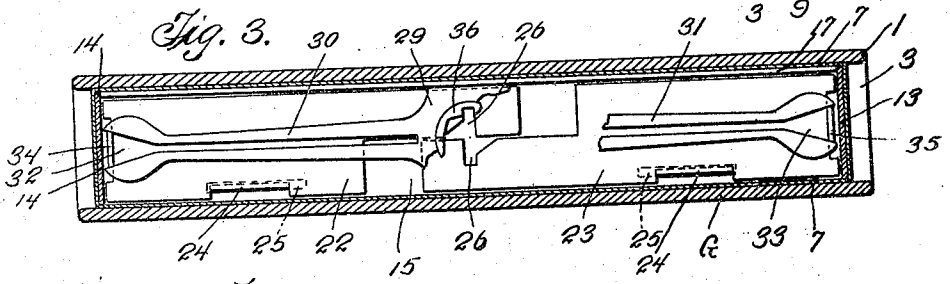

Fig. 4.

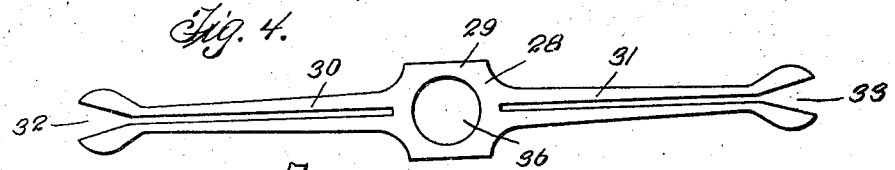

Fig. 5.

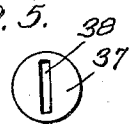

Fig. 6.

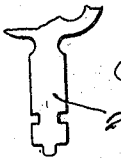

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Fig. 7.

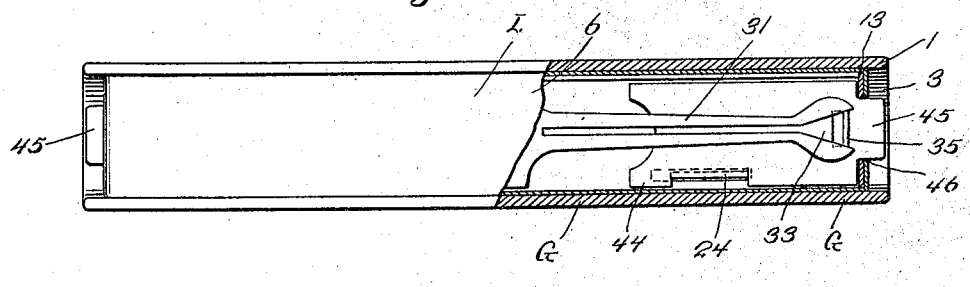


Fig. 8.

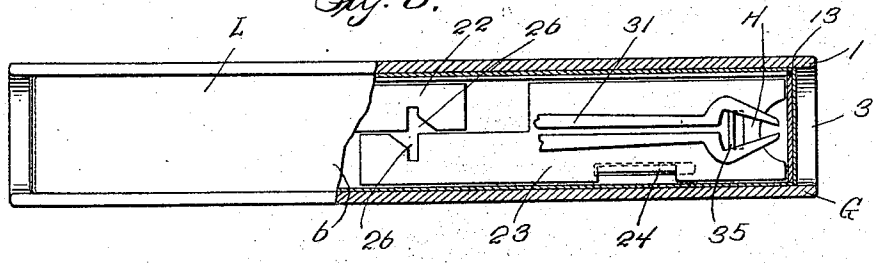


Fig. 9.

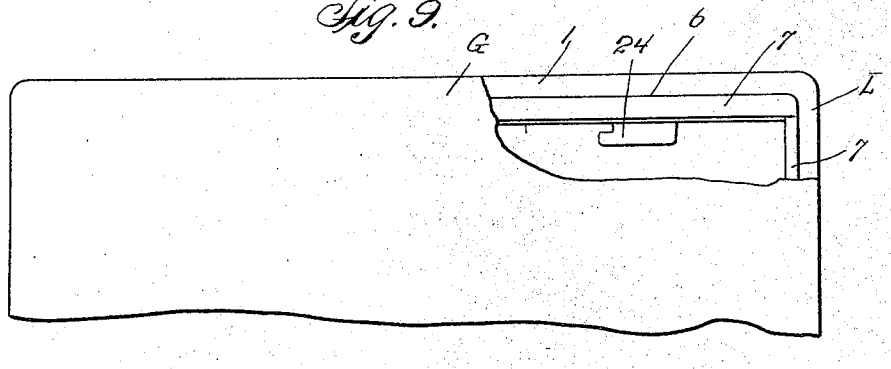
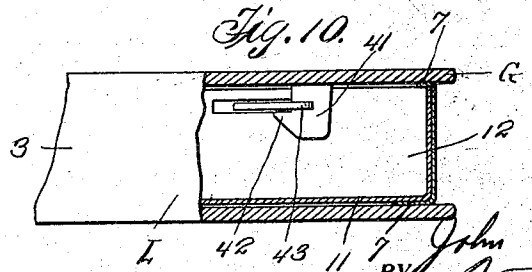


Fig. 10.



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Patented Oct. 7, 1924. 1,510,632

UNITED STATES PATENT OFFICE.

JOHN NUTRY, OF RIDGEWOOD, NEW JERSEY.

LOCK MECHANISM.

Application filed April 18, 1922. Serial No. 555,469.

To all whom it may concern:

Be it known that I, JOHN NUTRY, a citizen of the United States, residing at Ridgewood, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Lock Mechanism, of which the following is a specification.

This invention relates to a lock mechanism which, altho capable of use in various connections, is nevertheless particularly adapted for use in connection with a novelty container such, for instance, as those indicated in my co-pending applications, Serial Nos. 555,468 and 550,587.

A particular object of the invention is to provide a lock mechanism which consists of parts of simple design and which may be easily and cheaply manufactured and assembled.

A further object is to so design the lock that portions of the casing thereof are extended to constitute essential parts of the container structure.

Other objects and aims of the invention, more or less specific than those referred to above, will be in part obvious and in part pointed out in the course of the following description of the elements, combinations, arrangements of parts and applications of principles, constituting the invention, and the scope of protection contemplated will be indicated in the appended claims.

In the accompanying drawings which are to be taken as a part of this specification, and in which I have shown merely a preferred form of embodiment of the invention:—

Figure 1 is an edge view of a container constructed in accordance with this invention, being partly in transverse section to illustrate the construction and arrangement of the lock mechanism.

Figure 2 is a plan view of the container, partly in section, also for disclosing the construction and arrangement of the lock mechanism.

Figure 3 is a transverse sectional view taken substantially upon the plane of line III of Fig. 1.

Figure 4 is a plan view of the spring element employed in the lock mechanism.

Figure 5 is a plan view of a key-receiving disc employed.

Figure 6 is a view illustrating the form of key employed.

Figure 7 is an edge view of the container, being partly in section substantially the same as in Fig. 3, but illustrating a modified arrangement in accordance with which the lock may be finger controlled.

Figure 8 is a view similar to that seen in Fig. 7, but illustrating a modification in which the lock elements are constructed to operate oppositely to corresponding parts of the previous figures.

Figure 9 is a fragmentary detail view of the structure seen in Fig. 8 for illustrating particularly the arrangement of the latch members employed, and

Figure 10 is a fragmentary sectional view illustrating the manner in which the latch members of the lock mechanisms Figs. 1 to 7 are adapted to interengage with the latch lugs.

Referring to the drawings for describing in detail the structure which is therein illustrated, the reference character L indicates the body of the container. This is rectangular in shape and a cover G is provided for closing the otherwise open upper side thereof.

Preferably this container is constructed so that to outward appearance it closely resembles an ordinary book, the cover G constituting one of the book covers and the body L constituting the other cover, indicated 1, the leaf portion, indicated 2, and the back portion indicated 3.

The two covers and the back portion may be finished in leather, fabric, or other suitable material, and may be printed or ornamented as desired as is the practice with ordinary books. The leaf portion may be made from a single strip of sheet brass bent into U shape to provide opposite leg portions 4 and 5 suitably polished outside to resemble the end leaf edges, and the connecting portion 6 of the U being disposed and likewise polished to resemble the front leaf edge portion.

This strip of metal may be formed with marginal flanges, as 7, for stiffening and ornamental purposes, and the ends of the legs 4 and 5 may be connected with the back 3 preferably by means of tangs, as 8, which project from the back thru apertures, as 9, which are formed thru inturned flanges 10 upon said legs.

Within the space defined by the parts 4, 5 and 6, is a lining, or stiffening, member

comprising a bottom wall 11, a front wall 12 and opposite end walls 13 and 14, the front and end walls being formed as integral flanges bent upwardly from the bottom wall, the end walls being disposed to lie snugly against the inner surface of the legs 4 and 5 and the front wall being disposed to stand spaced away from the inner surface of the wall, or part, 6 so as to define a lock chamber 15. Preferably the upper edge of the wall 12 is provided with a flange 17 which laps within the adjacent flange 7 and which is of suitable proportions to definitely space the upper portions of the walls 6 and 12.

The bottom wall 11 is held rigidly to the cover 1 preferably by means of tangs 18 which extend upwardly from the cover and thru suitable apertures formed in the wall 11. Preferably also these tangs extend thru mating apertures, as 19, which are formed thru the interposed portions of the flanges 7, and in this way said tangs serve to definitely space the lower portions of the walls 6 and 12.

End edge portions, as 20, of the walls 13 and 14 also engage against the inner surfaces of the flanges 10 and thus the liner, or stiffening member is held rigidly in position as a part of the body and cooperates with the wall 6 to define the compartment 15 within which the lock mechanism is contained.

Any suitable form of hinge structure may be arranged at the locality indicated by the reference numeral 21, by which the cover G is adapted to swing into and out of position closing the open upper side of the body.

The lock mechanism consists of a pair of slide plates, as 22 and 23, arranged within the compartment 15, both lying flat against the wall 12 and each having one or more latch members 24 thereon projecting thru the wall 12 into the interior of the container, suitable slots, as 25, being provided thru said wall to permit required back and forth sliding movement of the latch members as shown.

The adjacent ends of these slide plates are suitably cut away so that they are adapted to slide past each other, and the remaining portions are provided with key notches 26 therein into which the key, as 27, may be inserted and against the walls of which the key may operate to simultaneously slide the plates together.

Fitted into the compartment, and lying parallel with and against the plates 22 and 23 is a spring device 28. This device consists of a central, or body, portion 29 and two pairs, as 30 and 31, of spring arms, said pairs extending in opposite directions away from the central portion and being shaped, at their outer ends, to define wedge openings 32 and 33 respectively which are disposed at all times to engage against opposite end edges of lugs, as 34 and 35, of the slide plates.

This spring device is preferably made as a stamping from a single piece of sheet metal and it is formed so that the arms of each pair are slightly sprung apart to accommodate the lugs 34 and 35. The wall surfaces forming the wedge openings 32 and 33 are disposed so that whenever the plates are slid together as by the key 27, the lugs will operate to further spread the arms. As soon as the key pressure is relieved the tendency of the arms to return to normal will wedge the lugs outwardly and return the slide plates to normal or "release" positions.

The central, or body portion 29 is preferably formed with an opening 36 within which is rotatably received a disc 37, said disc having a key slot 38 therethru thru which the key may extend into engagement with the notches 26 of the slide plates. A similar disc, as 39, may be mounted within a depression 40 of the wall 12, the two discs being substantially concentric and serving together to properly rotatably support the key.

The cover G is fitted with latch lugs 41 having nose portions 42 which are adapted when the cover is closed to engage behind the latch members 24 for holding the cover closed. When the latch members 24 are moved toward each other, as just described, however, they disengage from the nose portions 42 and thereby leave the cover free to be opened.

Preferably the latch members 24 also have nose portions, as 43, thereon disposed to lap the inner sides of the latch lugs 41 thereby improving the interlocking connection between the parts when the cover is closed.

In the modification Fig. 7 the structure there shown is substantially identical with what has been already described except that the slide plates 44 thereof carrying the latch members 24 are provided with finger extensions 45 which project outwardly thru openings, as 46, formed thru the end wall portions of the compartment 15, said portions 45 being adapted to be pressed together, by finger pressure, whenever it is desired to release the cover G. No key operating feature is required for this structure.

In the modification Fig. 8, the structure is the same as described with reference to Figs. 1 to 6, except that in this instance the arms of the spring member 28 have their wedge openings reversed with respect to the showing in the previous figures. The slide plates 22 and 23, in this instance, therefore, are normally urged in a direction toward each other. The key notches 26 and the latch members 24 of said plates are, therefore, also reversed.

As many changes could be made in this

construction without departing from the scope of the invention as defined in the following claims, it is intended that all matter contained in the above description, or shown in the accompanying drawings, shall be interpreted as illustrative only and not in a limiting sense.

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

1. A lock mechanism comprising a pair of plates mounted to slide with respect to each other, means whereby said plates may be slid, and a single spring device arranged to engage said plates to urge said plates to normal position, said plates being disposed in a common plane, and said spring device comprising a single piece of sheet metal resting flat upon said plates collectively and having resilient portions engaging said plates.

2. A lock mechanism comprising a pair of plates mounted to slide with respect to each other, means whereby said plates may be slid, and a spring device arranged to engage said plates to urge said plates to normal position, said spring device consisting of an integral member having parts defining a pair of wedge shaped openings, the portions of said parts constituting the walls of said openings standing in engagement with interposed portions of said plates, and said parts being resilient and disposed to exert a pressure against the interposed portions of said plates to thereby move said interposed portions toward the larger ends of said openings.

3. A lock mechanism comprising a pair of plates mounted to slide with respect to each other, means whereby said plates may be slid, a spring device arranged to engage said plates to urge said plates to normal position, said spring device consisting of a single integral member having parts defining a pair of spring arms, said arms being shaped to provide wedge shaped openings between them, and said slide plates each having a lug projecting into one of said wedge shaped openings and engaging said arms adapted to spread said arms when said plates are slid thereby generating a power in said spring device for returning said plates.

4. A lock mechanism comprising a pair of plates mounted to slide with respect to each other, means whereby said plates are supported to lie in a common plane, means whereby the plates may be slid, a spring device for yieldingly holding said plates in normal position, said spring device comprising a single integral piece of sheet metal disposed in a plane at one side of the plane of said plates and resting flat against said plates, said spring device being shaped to provide a central portion and a pair of spring extensions projecting therefrom, the end portions of which stand in constant engagement with parts of said plates respectively.

5. A lock mechanism comprising a pair of plates mounted to slide with respect to each other, means whereby said plates are supported to lie in a common plane, means whereby the plates may be slid, a spring device for yieldingly holding said plates in normal position, said spring device comprising a single integral piece of sheet metal disposed in a plane at one side of the plane of said plates and resting flat against said plates, said spring device being shaped to provide two pairs of spring arms, said arms having wedge shaped openings between them, and lugs formed upon said plates extending into said openings arranged to engage said arms for springing said arms apart and for thereby generating a power in said arms for moving said plates.

6. A lock mechanism comprising a pair of plates mounted to slide with respect to each other, means whereby said plates are supported to lie in a common plane, means whereby the plates may be slid, a spring device for yieldingly holding said plates in normal position, said spring device comprising a single integral piece of sheet metal disposed in a plane at one side of the plane of said plates and resting flat against said plates, said spring device being shaped to provide a central portion and two pairs of spring arms projecting therefrom, the central portion having an opening therethru, the portions of said plates beneath said central portion having key notches provided therein accessible thru the opening of said central portion, a key insertable thru said opening for engaging said notches operable to move the plates in one direction, said spring arms having wedge shaped openings between them, and lugs formed upon said plates extending into said wedge shaped openings arranged to engage said arms for springing said arms apart and for thereby generating a power in said arms for moving said plates contrary to the movement imparted by said key.

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

JOHN NUTRY.

Witnesses:
ELIZABETH SYGIEL,
ALBERT MIDONICK.