March 4, 1952 E. G. GESSMANN 2,588,231

LIGHTER

Filed Dec. 3, 1949

2 SHEETS—SHEET 1

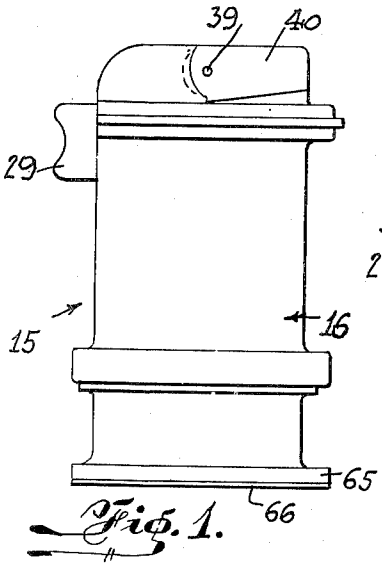


Fig. 1.

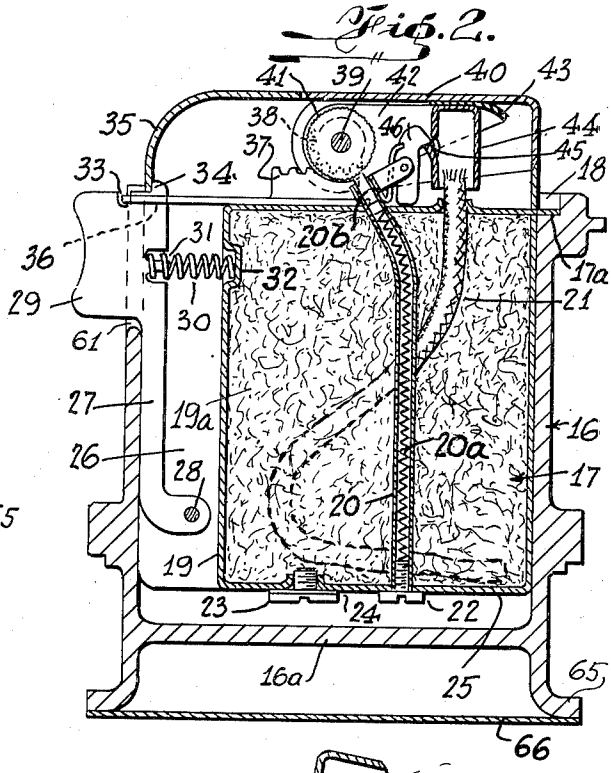


Fig. 2.

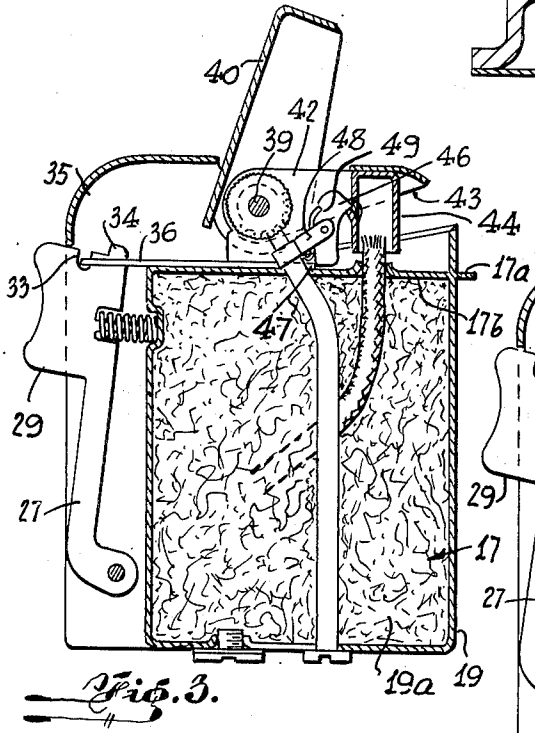


Fig. 3.

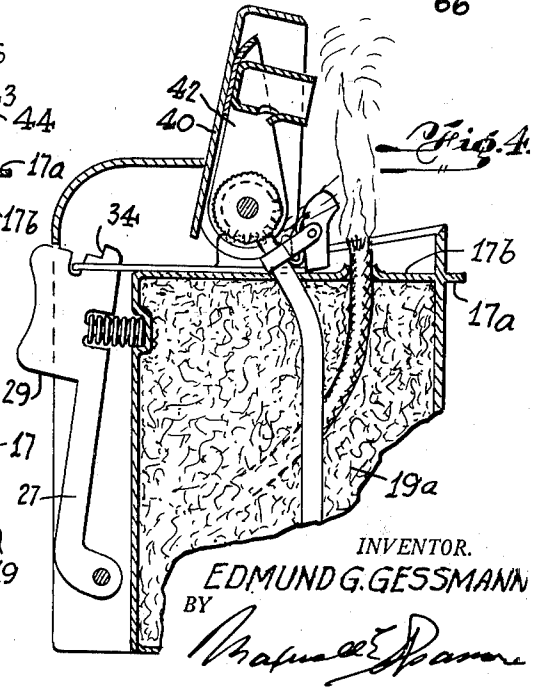


Fig. 4.

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Filed Dec. 3, 1949 2 SHEETS—SHEET 2

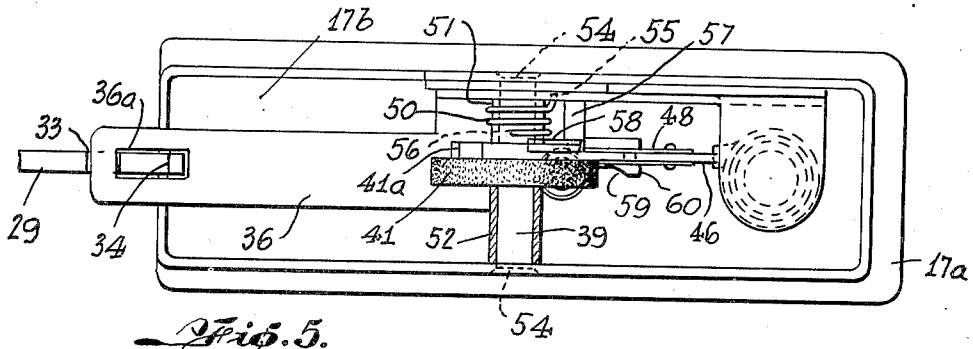


Fig. 5.

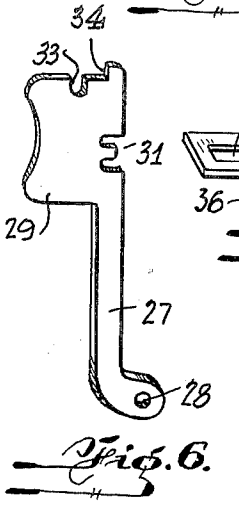


Fig. 6.

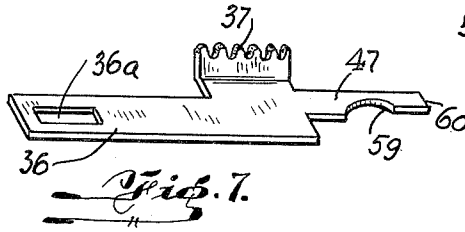


Fig. 7.

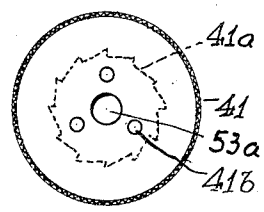


Fig. 8.

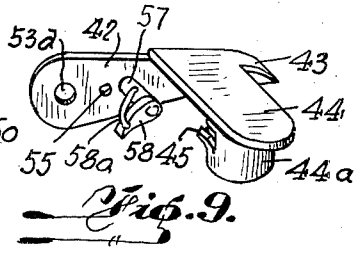


Fig. 9.

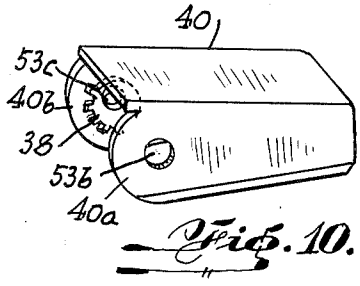


Fig. 10.

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UNITED STATES PATENT OFFICE

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LIGHTER

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Application December 3, 1949, Serial No. 130,947

8 Claims. (Cl. 67—7.1)

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This invention relates generally to cigar and cigarette lighters, and more particularly to such lighters of the flint wheel spark producing type.

An object of this invention is to provide a cigar or cigarette lighter, having separate snuffer and outer cover members, and in which the cover member is initially moved to open position, and then the snuffer is pivoted to uncover the wick.

Another object of this invention is to provide a cigar or cigarette lighter having igniting means operable with the snuffer, when the latter is pivoted to wick uncovering position, a covering member engageable, when closed, over all of the working parts of the lighter, and operating means for initially opening the cover, and then pivoting the snuffer to wick uncovering position.

A further object of this invention is to provide a cigar or cigarette lighter having a snuffer engageable over the wick, and pivotable upwardly to uncover the wick and to operate a spark producing means, a cover member engageable over all of the working parts of the lighter, and a finger piece connected to operating mechanism for initially opening the cover member, upon movement of the finger piece, and then pivoting the snuffer and operating the spark producing means, upon further movement of the finger piece.

Still another object of this invention is to provide a cigar or cigarette lighter having a separate snuffer which operates the spark producing means, and a cover member, and operating means for automatically sequencing the opening of the cover and the operation of the snuffer and spark producing means.

Finally, it is an object of this invention to produce a cigar or cigarette lighter having automatic cover, snuffer, and igniter operating means of simple construction, and having reliable and efficient operating characteristics.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that various changes and modifications may be resorted to without departing from the spirit or scope of the invention as defined in the claims, and without sacrificing the advantages thereof.

In the drawings:

Figure 1 is a side elevational view of a cigar or cigarette lighter constructed according to an embodiment of my invention,

Figure 2 is a vertical sectional view taken substantially through the center of the lighter illustrated in Figure 1, with the lighter in inoperative position, and shown on an enlarged scale,

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Figure 3 is a sectional view of the lighter illustrated in Figure 2, with the cover opened, but before firing position,

Figure 4 is a view similar to that of Figure 3, but in operative position, with the wick being ignited,

Figure 5 is an enlarged top view of the lighter unit shown in Figure 2, with the housing removed,

Figure 6 is a perspective view of the operating handle or lever,

Figure 7 is a perspective view of the combined cover and snuffer operating member,

Figure 8 is a side view of the firing wheel,

Figure 9 is a perspective view of the firing wheel operating dog, the snuffer, and the arm upon which these members are mounted,

Figure 10 is a perspective view of the movable cover.

Referring to the drawings, wherein similar reference numerals designate corresponding parts, a lighter constructed according to this invention is generally indicated by the numeral 15. The lighter 15 includes a flat sided outer housing 16 open at the top end thereof, and formed with a bottom wall 16a spaced upwardly from the bottom edge thereof. An outwardly extending flange 65 is formed upon the bottom edge of the housing 16, and a soft, anti-scratch cover or pad 66, which may be formed of felt or the like, is secured by cement or other suitable means to the bottom surface of the flange 65. The outer housing may be formed of metal or other similar material of suitable durability, and may be plated as with chromium, or some other suitable ornamental coating.

A lighter unit, generally indicated by the numeral 17, includes a fuel chamber forming housing 19, engageable within the outer housing 16. The inner housing or casing 19 includes a top wall 17b, and an outwardly extending flange 17a aligned with the top wall and engageable upon the top edge of the outer housing 16 to limit the downward movement of the inner housing 19 relative to the outer housing 16. As seen in Figure 2, the bottom wall 25 of the inner housing 19 is spaced upwardly relative to the bottom wall 16a of the outer housing. A vertically extending groove 26 is formed in one end of the inner housing 19 and is open at the upper and lower ends thereof. A fixed cover member 35 extends upwardly from the top of the inner housing 19 and is disposed substantially midway across the top wall 17b thereof. A filler opening is formed

through the bottom wall 25 of the inner housing, and is sealed by the plug 23 and the sealing washer 24. The cotton filling 19a is disposed within the inner housing 19 and is saturated with liquid fuel, or lighter fluid, and constitutes the fuel reservoir for the lighter. A second opening is formed through the bottom wall 25, and a tube 20 bent at the upper portion thereof communicates with this latter opening in the bottom wall 25 and extends upwardly through the top wall 17b. The tube 20 is secured to the top and bottom wall of the inner housing by soldering, or similar fastening means, at the points where the opposite ends of the tubes intersect the respective walls. A wick member 21 is disposed within the inner housing 19 and has one end thereof extending through the top wall 17b.

A pivot pin 39 is carried by the opposite side wall of the fixed cover member 35, above the top wall 17b and substantially in the middle thereof. A firing wheel 41, having a roughened peripheral edge, is rotatably mounted upon the pivot member 39. A pyrophoric element 20b is slidably disposed within the tube 20, and is urged upwardly into contact with the edge of the firing wheel 41 by means of the spring 20a disposed within the tube. A screw member 22 is threaded into the bottom end of the tube 20 and abuts against the bottom end of the spring 28 to provide a means for adjusting the compression of the spring and hence the intimacy of the contact between the pyrophoric element 20b and the firing wheel. A combined firing wheel operating arm and snuffer carrier 42 is rockably mounted upon the pin 39 which passes through the opening 53d formed therein. The spring member 50 is coiled about the pivot and has one end thereof secured to the pivot by engagement within the hole 56 formed therein, and the other end connected to the arm 42 by engagement within the opening 55 formed in the latter. The spring 50 will then be effective to constantly urge the lever 42 away from the top wall 17b of the inner housing. A horizontally directed flange 43 is formed upon the outer portion of the top edge of the arm 42 and includes an extension 44 to the underside of which the inverted cup shaped snuffer 44a is secured.

The ratchet wheel 41a is secured to the side face of the firing wheel 41 and is rotatable with the latter. A pawl 58 is rockably carried by the outer end of the pawl pin secured to the rockable arm 42, and is constantly urged against the surface of the ratchet wheel 41a by the spring member 58a. The pawl 58 is then effective to rotate the ratchet wheel 41a and the firing wheel 41, when the arm 42 is pivoted upwardly by the spring 50. The latch 46 is rockably carried upon the end of the bracket 48 secured to the upper end of the tube 20, and is constantly urged by the spring 49 into contact with the catch 45 struck out of the side surface of the snuffer 44. The latch 46 is then effective to prevent upward swinging of the arm 42 and the snuffer 44.

A movable cover member 40 is pivotally mounted upon the opposite ends of the pivot pin 39, and when closed is engageab'e over the arm 42, the snuffer assembly, and the spark producing means. A rack wheel, or gear segment, 38 is fixedly mounted to the inner face of one of the side walls of the movable cover 40, for a purpose hereinafter set forth. An operating member 36, shown in detail in Figure 7, consists of a plate slidable along the top wall 17b of the inner housing 19. A gear rack 37 is formed along an offset side edge of the member 36, and meshes with the gear segment 38 fixed to the movable cover 40. A finger 47 extends from one end of the member 36, and is provided with a cutout 59 to accommodate the upper end of the tube 20. The end of the member 36, removed from the finger 47, is provided with a longitudinal opening 36a, which extends over the top end of the groove 26 formed in the end wall of the inner housing. The operating lever 27 is loosely disposed within the groove 26 and has the lower end rockably mounted upon the pin 28, which extends through the opposite side walls of the groove. A pair of notches are cut into the inner edge of the lever 27 in order to form the spring holder 31 which engages one end of the coil spring 30. The other end of the spring 30 engages within the recess 32 formed in the inner housing wall, so that the spring 30 constantly urges the lever 27 outwardly, or away from the housing. A stop member 34 is formed upon the upper end of the lever 27 and abuts against the lower edge of the fixed cover member 35, in order to limit the outward swinging of the lever 27. A finger piece, or finger rest, 29 extends outwardly from the upper portion of the outer edge of the lever 27, and projects through the upwardly opening slot 61 formed in the outer housing 16. A notch 33 is cut into the top edge of the lever 27, and the portion of the top end inwardly of the notch projects loosely into the elongated opening 36a of the member 36 to provide a connection between the lever 27 and the member 36. The finger 47 of the member 36 is of such length that contact between the end 60 of the finger and the bottom portion of the latch member 46 is not effected until the lever 27 has been pivoted inwardly an extensive degree.

The operation of the lighter described above is as follows:

Initial movement of the lever 27, effected by pressure exerted upon the finger piece 29, will effect immediate opening of removable cover 40, by reason of the meshing of the movable rack 37 formed on the member 36 with the rack wheel 38 secured to the movable cover. This initial position is illustrated in Figure 3 of the drawing. Further movement of the lever 27 into the groove 26, will effect the extreme movement of the member 36 across the top 17b of the inner housing, and will finally result in contact between the end 60 of the finger 47 and the lower end of the latch 46. This contact will effect the rocking of the latch 46, which will thereby be disengaged from the catch 45 formed upon the snuffer. When the latch is so disengaged, the arm 42 will be free to pivot upwardly in response to the force exerted by the spring 50. Such upward pivoting of the arm 42 will result in the uncovering of the wick 21; and through the pawl 58 carried by the arm 42, and the ratchet wheel 41a mounted upon the firing wheel, will also effect rotation of the firing wheel 41 in contact with the pyrophoric element 20b to thereby produce a spark for the ignition of the fuel burning wick. When the finger piece 29 is released, the end 60 of the finger 47 will immediately be moved out of contact with the latch 46, the spring 30 operating upon the lever 27 will cause the member 36 to be moved towards the end of the housing formed with the groove 26 therein. This movement of the member 36 will result in downward pivoting of the movable cover member 40, which will act upon the top surface of the flange 43 formed upon the arm

42 and both the movable member 40 and the arm 42 will thereby be pivoted together, towards the top wall 17b. When the snuffer 44a has closed upon the top end of the wick 21, for extinguishing the flame, the latch 46 will once again engage upon the catch 45 for maintaining the arm 42 in depressed position.

Having thus described a preferred embodiment of my invention, it will be understood that the specific embodiment described is merely illustrative of the application of the invention and not restrictive, reference being had to the appended claims rather than the foregoing description to indicate the scope of the invention.

What I claim is:

1. A lighter comprising a housing, a fuel burning wick extending above the top wall of said housing, a snuffer pivoted above said top wall and engageable over said wick, spring means biasing said snuffer to wick uncovering position, a latch engageable with said snuffer and adapted to retain the latter in wick covering position, igniter means connected to said snuffer and operable when the latter is pivoted towards wick uncovering position, a pivoted cover mounted above said housing and engageable over said snuffer and said igniter means, and operating means operatively associated with said cover and said latch and adapted to initially pivot said cover to open position and then actuate said latch to release said snuffer for pivoting of the latter to wick uncovering position and consequent operation of said igniter means, and spring means cooperating with said operating means for moving the latter in an opposite direction and thereby return said cover and therewith said snuffer to closed position.

2. A lighter comprising a housing, a fuel burning wick extending above the top wall of said housing, a snuffer engageable over said wick and spring pressed to wick uncovering position, latch means retaining said snuffer in wick covering position, a firing wheel rotatably mounted above said top wall, a pyrophoric element contacting said wheel, clutch means connecting said snuffer to said wheel whereby the latter is rotated during movement of the snuffer to wick uncovering position, a cover pivoted above said top wall and engageable over said wheel and said snuffer and operating means operatively associated with said cover and said latch means and adapted to initially open said cover and then actuate said latch means to release said snuffer to uncover said wick and rotate said firing wheel, and spring means cooperating with said operating means for moving the latter in an opposite direction and thereby return said cover and therewith said snuffer to closed position.

3. A lighter comprising a housing, a fuel burning wick in said housing and having an end thereof extending through the housing top wall, a snuffer arm rockably carried by said top wall and having a snuffer engageable over said wick end when in depressed position, spring means constantly urging said snuffer arm to raised position, a rockable latch carried by said top wall and adapted to engage said snuffer for retaining the latter in depressed position, a firing wheel, clutch means carried by said snuffer arm and said wheel adapted to rotate said wheel during the raising of said arm, a pyrophoric element mounted in contact with said firing wheel, a cover pivoted upon said housing and engageable over said snuffer and said wheel, and operating means movable relative to said housing and

adapted to initially rock said cover to open position and then to rock said latch for releasing said snuffer arm to permit raising of the latter and rotation of said firing wheel for producing a spark to ignite said wick, and spring means cooperating with said operating means for moving the latter in an opposite direction and thereby return said cover and therewith said snuffer to closed position.

4. A lighter comprising a housing, a fuel burning wick extending from the top wall of said housing, a snuffer assembly pivoted upon said top wall and engageable over said wick in the closed position thereof, spring means biasing said snuffer assembly to raised wick uncovered position, a firing wheel rotatably mounted upon said top wall, a pyrophoric element contacting said firing wheel and mounted adjacent to said wick, clutch means connecting said snuffer assembly to said firing wheel whereby the latter is rotated during raising of said snuffer assembly, latch means rockably mounted on said top wall and engageable with said snuffer assembly for holding the latter in the closed position, a cover pivoted on the top of said housing and engageable over said firing wheel and said snuffer assembly, and operating means engageable with said cover and with said latch and adapted, when moved relative to said housing, to initially rock said cover to open position and then to release said latch whereby said snuffer assembly is raised to uncover said wick and said firing wheel is rotated to produce an igniting spark, and spring means cooperating with said operating means for moving the latter in an opposite direction and thereby return said cover and therewith said snuffer to closed position.

5. A lighter comprising a housing, a fuel burning wick extending through the top wall of said housing, a pivot member disposed above said top wall, a snuffer arm rockably mounted upon said pivot member and having a snuffer thereon engageable over said wick, spring means connected to said arm and biasing the latter to raised wick uncovering position, a latch rockably carried above said top wall and spring pressed towards said snuffer for retaining the latter in position over said wick, a firing wheel rotatable upon said pivot member, clutch means upon said snuffer arm and said wheel adapted to rotate the latter when said arm is raised, a pyrophoric element mounted in contact with said wheel for producing a wick igniting spark when said wheel is rotated, a cover member pivoted on said pivot member and engageable over said wheel and snuffer, a gear segment fixed to the interior of said cover member, operating means for said cover member and said snuffer arm including a slidable elongated plate disposed upon said top wall, a gear rack on said plate meshing with said gear segment, a finger extending from said plate engageable with said latch after substantial movement of said plate relative to said housing, and actuating means connected to said plate for moving the latter across said top wall to thereby initially open said cover member and subsequently rock said latch to release said snuffer to permit raising of the latter and rotation of said firing wheel.

6. A lighter as set forth in claim 5 wherein said housing is formed with an outwardly opening vertical groove in one end thereof, and said actuating means includes a lever loosely disposed within said groove and having one end pivoted to said housing, the other end of said lever pro-

jecting above said top wall and engaging through an opening formed in said plate, a spring interposed between said housing and said lever constantly urging said plate to cover closing and latch disengaging position, and a finger rest formed on said lever and extending out of said groove.

7. A lighter comprising a housing, a fuel burning wick extending from the top wall of said housing, a snuffer assembly pivoted upon said top wall and engageable over said wick in the closed position thereof, spring means biasing said snuffer assembly to raised wick uncovered position, a firing wheel rotatably mounted upon said top wall, a pyrophoric element contacting said firing wheel and mounted adjacent to said wick, clutch means connecting said snuffer assembly to said firing wheel whereby the latter is rotated during raising of said snuffer assembly, latch means rockably mounted on said top wall and engageable with said snuffer assembly for holding the latter in the closed position, a cover pivoted on the top of said housing and engageable over said firing wheel and said snuffer assembly, and operating means engageable with said cover and with said latch and adapted, when moved relative to said housing, to initially rock said cover to open position and then to release said latch whereby said snuffer assembly is raised to uncover said wick and said firing wheel is rotated to produce an igniting spark, said operating means including a slidable member, a gear segment mounted on said cover, a gear rack on said slidable member meshing with said gear segment,

and a finger extending from said slidable member normally spaced from said latch and engageable with the latter after substantial movement of said slidable member, and actuating means engaging said slidable member and adapted to move the latter.

8. A lighter as set forth in claim 7 wherein said actuating means includes a lever pivotally connected at one end thereof to said housing, an upstanding lug formed on the opposite end of said lever loosely engaging within a slot formed in said slidable member, spring means interposed between said lever and said housing adapted to urge said lever and said slidable member to cover closing and latch disengaging position, and a finger rest formed adjacent said opposite end of said lever for moving said lever and said slidable member against the force of said latter spring means.

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