

April 15, 1952

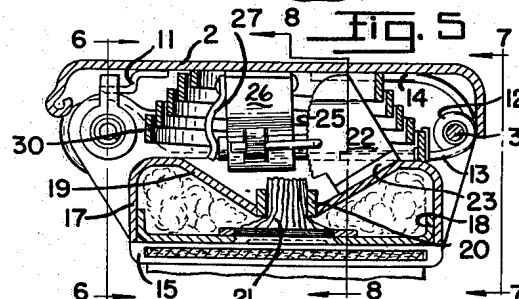
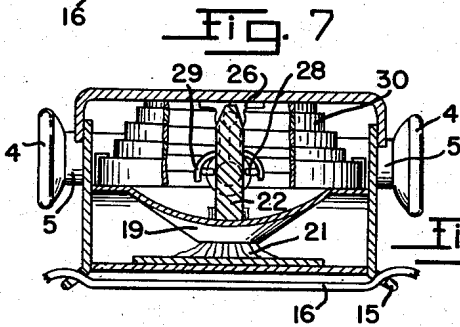
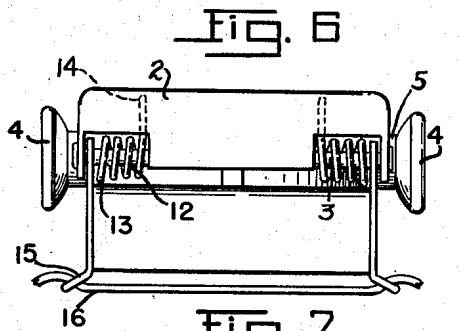
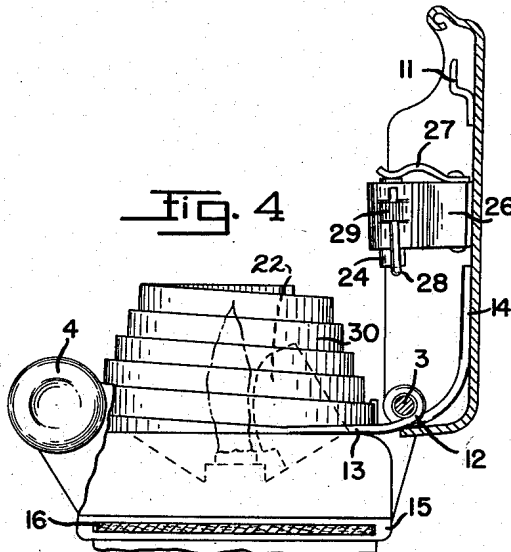
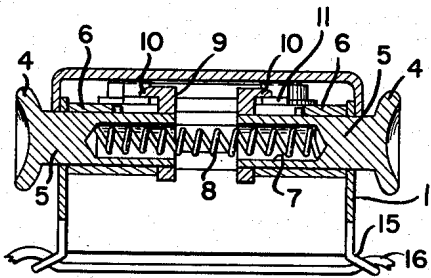
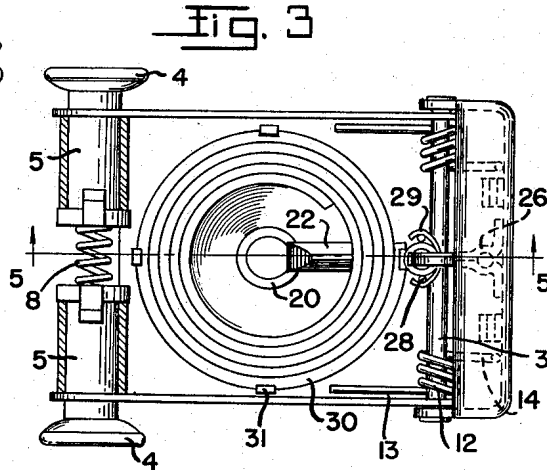
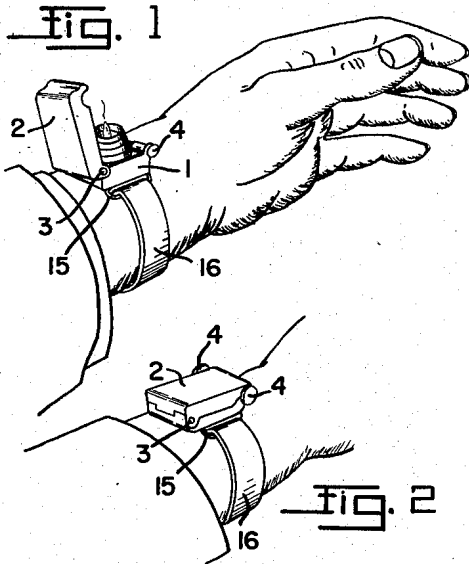
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2,593,063

WRIST CIGARETTE OR CIGAR LIGHTER

Filed March 24, 1950

2 SHEETS—SHEET 1



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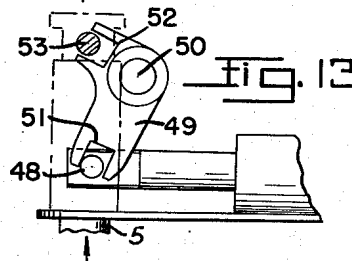
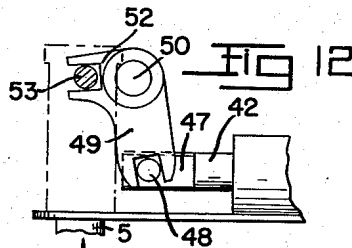
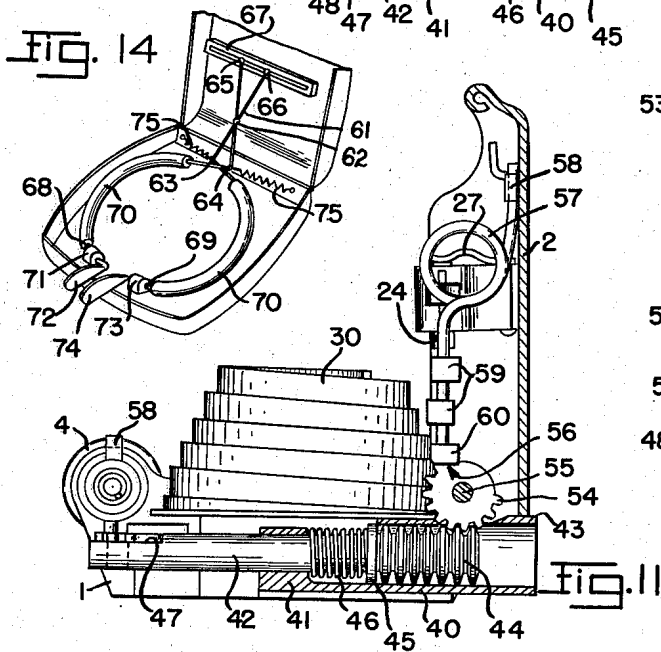
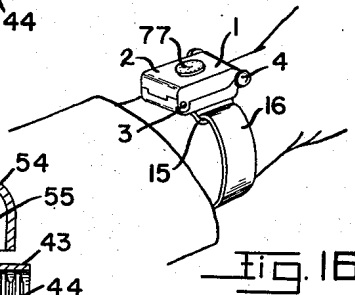
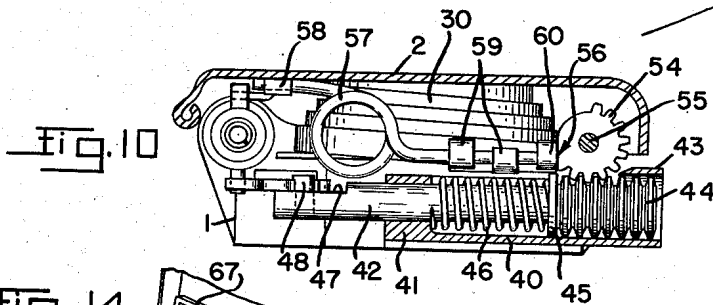
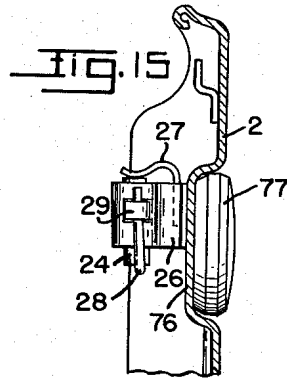
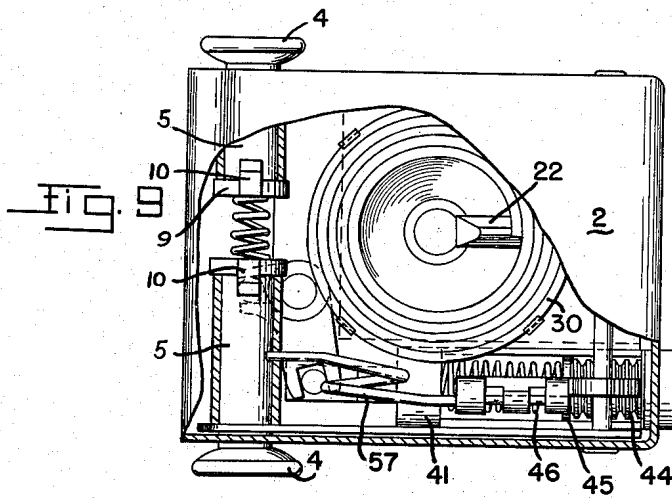
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WRIST CIGARETTE OR CIGAR LIGHTER

Filed March 24, 1950

2 SHEETS—SHEET 2



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UNITED STATES PATENT OFFICE

2,593,063

WRIST CIGARETTE OR CIGAR LIGHTER

Martin E. Sieber, Dayton, Ohio

Application March 24, 1950, Serial No. 151,569

5 Claims. (Cl. 67—4.1)

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The present invention relates to cigarette or cigar lighters, particularly those having a hinged cover and a wind guard.

The primary object of the invention is to provide an improved cigarette lighter of the hingeable cover type having an internal structure of such diminutive size as to permit the lighter to be carried about the wrist.

Another object is to provide a wrist lighter that produces a flame when the cover is opened.

Still another object is to provide a lighter with a collapsible wind guard such that when the lighter is closed the guard is caused to collapse within the confines of the case.

Another object is to provide a lighter as thin as a wrist watch and having a guard which expands when the lighter is operated to protect the flame from the wind.

A further object is to provide a lighter adapted to be strapped to the wrist and is provided with a collapsible flint-striking and wind guard structure of a character as to permit the lighter to assume wrist watch dimensions when closed.

Still another object is to provide a lighter having an improved flint-striking mechanism which responds to the movements of the cover-opening mechanism.

A further object is to provide a normally closed lighter provided with a hinged cover which can be opened only when at least two fingers are employed to operate the opening mechanism.

Another object is to provide a lighter case containing a flint-striking and wick structure together with a wind guard, the device having dimensions no larger than a wrist watch when the case is closed but having the ordinary lighter dimensions when the case is opened.

Still another object is to provide a lighter for cigarettes or cigars having a case with a hingeable cover and containing a wick-lighting structure, the cover being opened by a hand-operated mechanism which unlatches the cover and also controls the rate of opening.

Another object is to provide a cigarette or cigar lighter of the hingeable cover type and having an improved flint-striking mechanism which cooperates with the cover-opening mechanism so that upon opening the cover a flame is automatically produced within the lighter.

Another object is to provide a cigarette lighter of a wrist watch size but including a wind guard and a flint-striking mechanism cooperating with a wick extending out of a fuel reservoir, the reservoir having a maximum fluid capacity notwithstanding its relatively diminutive size.

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Another object is to provide a cigarette or cigar lighter having a hingeable cover, which when closed, causes the interior lighting mechanism to collapse, and a watch secured to the cover, the overall thickness of the lighter and watch being not substantially greater than the thickness of the ordinary wrist watch.

Other objects and features will be apparent as the following specification is perused in connection with the accompanying drawings, in which:

Figure 1 represents a perspective view of the improved lighter applied to the wrist and showing the device in operative condition. The dimensions depicted in this figure are somewhat more than twice the actual size of the device;

Figure 2 is a perspective view of the lighter shown in Figure 1 but with the cover closed and the interior parts compressed to a thickness not substantially greater than that of an ordinary wrist watch;

Figure 3 represents a plan view of the improved lighter, but greatly enlarged, with the cover open to expose the interior parts. The sleeves which hold the finger-unlatching devices are shown in section;

Figure 4 is an elevational view of the improved lighter drawn to the same enlarged scale as Figure 3, showing the manner in which the contents of the case become extended when the cover is opened. This cover is shown in section;

Figure 5 is a vertical sectional view of the device illustrated in Figure 4, but showing the lighter with the cover closed;

Figure 6 is a sectional view taken along line 6—6 in Figure 5 and looking in the direction of the arrows;

Figure 7 is an elevational view of the improved lighter looking toward the rear end of the device as indicated by the line 7—7 in Figure 5;

Figure 8 is a transverse sectional view of the lighter taken at about the line 8—8 in Figure 5;

Figure 9 is a plan view, but broken away to expose some of the interior parts of a modified form of the improved lighter;

Figure 10 is a longitudinal sectional view, partly in elevation, of the lighter shown in Figure 9. This Figure and Figure 9 are also of greatly enlarged size;

Figure 11 is an elevational view of the lighter shown in Figures 9 and 10, but with the cover open and in section;

Figures 12 and 13 are detailed views in two respective positions of the levers included in the cover-opening mechanism;

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Figure 14 is a perspective view of still another modified lighter structure in which a different form of mechanism is employed from that shown in Figures 3 and 9 for raising the cover in response to squeezing the finger-operated knobs;

Figure 15 is a fragmentary sectional view of the cover of the improved lighter shown in Figures 4 and 5 but with provision therein for receiving a relatively thin wrist watch; and

Figure 16 is a perspective view of the combined lighter and wrist watch structure shown in Figure 15 depicted as a complete unit and strapped about the wrist.

Referring more particularly to Figs. 1 to 3, reference character 1 represents the lower or main portion of the lighter casing, the cover of which is indicated at 2. This cover is hinged to the casing portion at 3 and is provided with a latching device which can best be seen in Figs. 5 and 6. The latching mechanism is provided for preventing the cover from accidentally opening and, as will be explained hereinafter, the arrangement is such that separate fingers must be applied in a compressing action against the two knobs 4 before the cover is unlatched and springs open. This is a safety feature in that if one or the other of the knobs were accidentally struck or pressed the latch would still hold. These finger knobs are carried on a rod 5 and are contained in sleeves 6, secured in any suitable manner at their outer ends to the interior surface of the case 1. The rods 5 are of a length as to leave a space between the inner ends when the knobs are at their fully extended position as shown in Fig. 6 and these ends are provided with a recessed opening indicated at 7 for receiving an aligned compression spring 8.

The arrangement is such that when a double compressing action is exercised at the finger knobs 4 the rods 5 will move inwardly and upon release of the pressure the spring will cause the rods to move outwardly, i. e. away from one another. These rods at their inner ends, carry a bar 9 which is provided at its upper end with a finger or latch 10. This latch is adapted to engage the inner or upper surface of a metal tongue 11 positioned at opposite sides of the cover 2 as indicated in Fig. 5. In order that the cover will automatically open when the latches 10 are withdrawn from the tabs or tongues 11, a pair of torsional springs 12 surrounding the pin 3 is employed, the lower leg 13 of each spring being secured to the interior surface of the case and the upper or longer leg 14 rests against the underside of the cover. Thus when the finger knobs 4 are compressed, for example, between the forefinger and the thumb, the latches 10 are disengaged from the tongues 11 and the cover immediately springs upward due to the urge of the springs.

The lower case 1 may be provided with metal loops 15 (Fig. 1), similar to a wrist watch, for receiving a strap 16 for encircling the wrist. Within the case there is a reservoir for lighting fluid, this reservoir being constituted of a cylindrical metal member 17 secured peripherally to upstanding lips 18 formed on the bottom of the case 1. The upper plate portion of the reservoir 17 is preferably given a downwardly extending conical shape as indicated at 19, which is provided at the center with an apertured sleeve 20. The purpose of this conical structure will be explained hereinafter. Within the sleeve there is a wick 21 which may be formed of non-burnable fiber such as fine asbestos for carrying the

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fuel by capillary action through the fibers. The length of this wick is as short as possible, particularly that portion which extends into the reservoir, in order not unduly to reduce the fuel capacity of the reservoir. The conical portion 19 serves to maintain shortness of the length of the wick. Any suitable and well known arrangement may be employed to fill the reservoir with a flame-producing fuel.

A flint-striking structure is employed for igniting the wick. This structure comprises a vertically extending steel plate 22 which may be flanged as indicated at 23 in order to provide a solid foundation surface for securing the plate 22 to the inclined portion 19 of the reservoir. The left-hand or active edge (as seen in Fig. 5) of the plate 22 is serrated in order to give a rasping effect. A flint rod 24 cooperates with the steel plate 22 to provide the necessary igniting spark and this flint rod is caused to move rapidly over the serrations 25 when the cover is opened in response to pressure on the finger knobs 4. For this purpose the flint rod is slidably carried on a bracket 26 which is secured to the under-surface of the cover, and a leaf-spring 27 may be riveted to the bracket in order to exert pressure on the end of the flint rod opposite from where the rod contacts the serrations 25. These details are shown more clearly in Figs. 4 and 5.

In order to prevent the flint rod 24 from sliding through its bracket 26 when the cover is opened, as shown in Fig. 4, a pair of restraining rods or hooks 28 is employed. These rods are fixably secured to opposite sides of the bracket 26 in any suitable manner, for example by slitting the bracket at two places on each side to leave a pair of ears 29 which hold the rods 28 against the bracket. These rods are provided with hooks (not shown) at their lower ends, the hooked portions extending toward one another and serving as a support for the lower surface of the flint rod 24, as seen in Fig. 4.

The mounting 29 for these rods is flexible so that the rods can be temporarily forced outwardly on both sides of the plate 22 when the cover 2 is moved to closed position as shown in Fig. 5. However, when the cover is released at the knobs 4 and springs upwardly, the rods 28 are eventually withdrawn from the plate 22 and move toward one another, as indicated in Fig. 4, to furnish a support for the flint rod 24. It will be understood that the spring 27 maintains a firm rubbing contact between the flint rod 24 and the serrated edge 25 of the plate 22 and after the cover has been released and flies upwardly, sparks are produced at the end of the flint rod which ignite the wick 21.

It is desirable to provide a wind guard for the flame and in my improved lighter this is accomplished by means of a helically formed strip of spring steel 30, the convolutions being of smaller diameter as the top of the helix is approached (as seen in Fig. 4) and adapted to fit flatwise within one another when compressed by the closing action of the cover 2 as shown in Fig. 5. The lower or largest convolution of the spring metal guard may be secured to the upper surface of the reservoir 17 by means of retaining links 31 (Fig. 3).

From the foregoing it is evident that I have disclosed a lighter mechanism in which the outstanding feature is practicability consistent with diminutive size and in which all the parts, including the wind guard, can be collapsed to a flattened state, nesting snugly within one an-

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other. The total thickness of the lighter, as shown in Fig. 2, and including the cover and the lower case and the length and width, are such that the lighter is no larger than an ordinary sized rectangularly formed wrist watch. However, when the cover is released by pressing on both of the knobs 4 and thereafter allowed to swing upwardly due to the pressure of the spring 12, a wind guard is provided of sufficient height to protect the enclosed flame, even in a strong wind. Upon closing the cover 2, the flame is immediately snuffed out.

Figures 9 to 13 inclusive show a modified form of the lighter from the standpoint of keeping the upward movement of the cover 2 under control of the knobs 4 at all times, and even after the cover has been unlatched. The parts in these figures, which have the same structure and function as the parts in Figures 1 to 8 previously described, have been given the same reference characters. In general, the latching and unlatching device indicated at 10, 11 is the same as in Figures 1 to 8 in that as the knobs 4 are compressed between two fingers, the latch 10 is caused to be withdrawn from the metal tongues 11. However, the purpose of this particular modification is to provide a positive mechanical connection between the inward movement of the knobs 4 and the upward movement of the cover 2 after the latter has become unlatched.

In the bottom of the case and to one side, as shown in Fig. 9, there is a rod 40 having a wall 41 at the left-hand end (Fig. 10) board for slidably receiving a plunger 42. The member 40 is cut away for part of its length to the right of the wall 41 and terminates in a larger sleeve portion 43. This sleeve rotatably supports a circularly grooved member 44 which is integral with the rod 42. A shoulder 45 is formed on the rod to serve as a seat for a compression spring 46, the other end of the spring resting against the inner surface of the wall 41. The rod 42 is provided with a flat portion 47 having a pin 48 thereon. There is a bell crank lever 49 (Figs. 12 and 13) pivoted at 50 in any suitable manner to the case 1. The lower end of the bell crank is provided with a square slot 51 for loosely receiving the pin 48. The other or upper end of the bell crank is also provided with a square slot 52 for loosely receiving a pin 53 which is secured to the rod 5 of each finger knob 4.

Consequently, as each rod 5 is moved, for example upwardly, as indicated by the arrows in Figs. 12 and 13, the pin 53, in moving, will turn the bell crank 49 clockwise about the pivot 50 to pull the rod 42 to the left. The succeeding positions of the bell crank and the rod 42 can readily be seen by comparing Figs. 12 and 13. This movement to the left of the rod will cause the spring 46 (Fig. 10) to compress.

Directly above the grooved member 44 there is a partial gear element 54 pivoted at 55 in any suitable manner on the case 1, this gear having a flat surface indicated at 56. There is a torsional spring 57 located directly above the rod 42, one tail of the spring being secured at 58 to the cover 2, and the other tail being carried through guides 59 and terminating in a collar 60 which is secured as by welding to the surface 56 of the gear 54. Thus as the circular projections 44 are moved to the left when the finger knobs 4 are compressed, the gear 54 is caused to rotate clockwise (Fig. 10) and the flat surface 56 causes the right-hand end of the torsional spring to move to the left and thus place

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the circular portion of the spring under compression. The only way that the spring can relieve itself of this internal stress is to push upwardly against the cover 2 at the point 58, thus causing the cover to raise slightly.

Assuming that it is desired to open the cover in order to operate the lighter, the finger knobs 4 are compressed together as in the case of the previously described figures, and the latches 10 (Fig. 6) move toward one another to release themselves from the tongues 11. Inasmuch as the rods 4 are connected through a rigid lever system, including the bell crank 49 and the pins 53, 48 to the rod 42, the element 44 and gear 54, the gear will immediately turn and will place the torsional spring 57 under compression. Thus the spring serves to take up or absorb the initial movements of the rigid lever, element 44 and gear system until the latches 10 clear their respective tongues 11.

At this point in the operation there will be a slight flip-up of the cover from the case due to the stress in the spring, but after that, the upward movement of the cover will be controlled directly in response and in relation to the inward movements of the finger knobs 4 because the spring then serves as a relatively rigid lever secured at the right end to the gear 54. When these knobs have moved to their innermost position, the cover 2 will have reached a vertical position as shown in Fig. 11. It was explained that the left-hand movement of the rod 42 causes the spring 46 to compress (see Fig. 11) so that immediately upon releasing the knobs 4, as by moving the fingers away, the spring will expand longitudinally to move the rod 42 and the threads 44 to the right. This causes the gear 54 to rotate counter-clockwise and to swing the spring-like lever 57 through an arc until the cover has reached a closed position.

Even after the cover has reached this position, the spring will still cause the rod 42 to move to the right and this movement will communicate itself through the bell crank 49 to the rods 5 to cause the latches 10 to re-engage their respective tongues. Thus the cover is automatically locked in position and cannot be opened until the finger knobs 4 are again compressed. It is apparent that the spring 57 absorbs the mechanical energy that is communicated to it by the spring 46 and which normally would have no other place to go after the cover had reached its closed position but before the latching effect takes place. Thus the spring 57 serves to absorb mechanical energy both when the finger knobs 4 are initially pressed but before the cover has raised, and again to absorb energy when the cover has been closed but before the latching has taken place.

It will be further noted that the torsional spring, the compression spring, the threaded element 44 and the gear 54 are placed to one side of the collapsible wind guard 30 so as not to interfere with the collapse of the wind guard element when the cover is closed. It is apparent that the modification shown in Figs. 9 to 13 inclusive contains a reservoir 17 and wick positioned within the wind guard, also the steel plate 22, and flint rod lighting mechanism automatically operates when the cover is caused to be opened in response to compression exercised at the finger knobs 4.

Still another modification in which the upward rate of travel of the cover 2 is controlled by the knobs 4 is shown in Fig. 14. In this figure

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there is employed a pair of scissors-like levers 61 pivoted at 62. The lower ends of the levers 61 terminate in pivots 63, 64 which are carried on blocks (not shown) adapted to slidably move within a groove across the bottom of the case. The opposite ends of the levers 61 are also pivotally mounted as indicated at 65, 66 in blocks which are slidably movable in a groove or channel 67 located in the cover. Within the case there is a pair of steel wires 68, 69 passing through tubing 70. The wire 68 is connected to the pivot 64 at one end and at the other end is slidably received in a bracket 71, and a finger lug 72 is secured to that wire, this lug extending outwardly through the case. Likewise, the wire 69 is connected at one end to the pivot point 63 and at the other end is received by a bracket 73 to which a radially extending lug 74 is secured. Thus, by compressing the lugs 72, 74, the pivot points 63, 64 are caused to move together and likewise the pivots 65, 66 which, in effect, would cause the cover to raise.

A latching device can be used similar to that described in connection with Fig. 6 and any take-up necessary to accommodate the movement of the latch before the cover is actually raised can be accommodated by providing a greater length of wire 68, 69 than is necessary to cause movement of the pivot points 63, 64. For this purpose the tubing 70 would be somewhat larger than the wire in order to allow a certain amount of play. Tension springs 75 may be positioned in any suitable manner between the casing and the cover so that as the cover is moved upward, these springs are placed under tension and when the finger pressure on the lugs 72, 74 is released, these springs cause the cover immediately to return to its closed position. The springs would also operate the latching device 10, 11 and any take-up in the thrust effect in the wires 69 during the cover-closing operation can be readily accommodated by the loosely surrounding tubing 70.

The modification shown in Fig. 14 also lends itself readily to the use of the helical wind guard that automatically pushes up to its expanded position as compression is continued to be exerted at the lugs 72, 74 and the same lighting effect is obtained by the friction between the flint-rod and the steel plate as was explained in connection with the other figures. It is further apparent that the rate of travel of the cover upwardly to its vertical position is controlled by the rate of the pinching effect between the lugs 72, 74, and immediately upon releasing this finger pinch, the cover will automatically move to its closed position on account of the springs 75.

While the improved apparatus is intended mainly as a lighter for cigarettes and cigars, adapted on account of its diminutive size to be used in place of a wrist watch, it is evident that the structure lends itself to carrying a watch in the flat portion of the cover. In Figs. 15 and 16 there is shown a modification in which the cover 2 is provided with a well or countersunk portion 76 for receiving a thin watch 77 so that the overall thickness of the watch and the lighter is not substantial. It will be noted that the watch is set down almost flush with the upper or outer surface of the cover, this added depth being obtained by reducing the height of the bracket 26. It is apparent that what little fumes might arise from the lighter during operation cannot possibly affect the watch because the latter is positioned on the opposite side of

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the cover that faces the flame or the fuel reservoir and wick.

From the foregoing it is evident that I have disclosed a lighter for igniting cigarettes and cigars or for general lighting or igniting purposes in which the total thickness, width and length of the lighter is not substantially greater than the thickness, width and length of the average wrist watch, and yet when the lighter cover is open, a wind guard of adequate height is provided. The opening of the cover after the latch has been disengaged can be caused either by a torsional spring 12 which thereafter makes the opening operation independent of the finger knobs 4, or by means of the bell crank lever 49 or the wire cables 68, 69, in which case the rate of travel of the cover is controlled directly by the inward movements of the finger knobs. In all cases a wind guard is provided which moves upwardly to form a cylindrical element when the cover is opened.

It will be understood that various modifications and arrangements in structure could be made without departing from the spirit of my invention and, accordingly, I desire to comprehend such modifications and substitutions of equivalents as may be considered to come within the scope of the appended claims.

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

1. A wrist lighter comprising a case and a movable cover, a lighter in the case, means responsive to the opening of the cover for igniting the lighter, a collapsible wind guard surrounding the lighter and adapted to extend to full length when the cover is opened and the lighter is ignited, said wind guard being constituted of coiled flexible strip material positioned edgewise, the convolutions being contained within one another so as to form a conically shaped member when in extended position to protect the flame from wind.

2. A wrist lighter comprising a case and a hingeable cover therefor, a lighter in the case, a releasable latch for maintaining the cover closed, means for releasing the latch and for opening the cover, said means comprising a finger-operated lever and a flexible connecting link to take up movement of said lever while the latch is being released and before the cover has started to open, means for igniting the lighter upon movement of the cover, and a wind guard formed of a collapsible helical coil of strip metal positioned edgewise and surrounding the lighter, said coil being held under compression when the cover is closed but caused to expand to its full extended length when the cover is opened and the lighter is ignited.

3. A cigarette or cigar lighter including a totally enclosed case containing a wick lighter mechanism and a wind guard, said wind guard being formed as a helix of spring strip metal positioned edgewise and surrounding said mechanism; said case being adapted to be opened to ignite the lighter and to present the wind guard in a longitudinally expanded condition to the ignited lighter, said case being carried on a strap and fastening to the wrist.

4. A wrist lighter comprising a case and a hingeable cover therefor, a lighter in the case, a releasable latch for maintaining the cover closed, means including a dual operated lever mechanism for releasing said latch and for moving the cover to its opened position at a

rate directly dependent on the rate of movement of said lever mechanism, means for igniting the lighter as the cover is opened, and a collapsible wind guard with telescoping convolutions surrounding the lighter, said wind guard being adapted to extend to its full height when the cover is raised.

5. A wrist lighter comprising a case and a hingeable cover therefor, a lighter mechanism and a collapsible wind guard of helical spring strip metal positioned edgewise in the case, a releasable latch for maintaining the cover closed, means for releasing the latch and for opening the cover, said means including a finger-operated mechanism, a reservoir of fuel in the case, a wick extending into the reservoir, means operable upon opening the cover for igniting the lighter and the wick, also for releasing the wind guard from its collapsed to a telescoped extended condition to guard the flame from wind, said

case and cover when closed having diminutive dimensions comparable to those of a wrist watch.
MARTIN E. SIEBER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,702,947	Quercia -----	Feb. 19, 1929
1,793,515	Segal -----	Feb. 24, 1931
1,998,339	Stansbury -----	Apr. 16, 1935
2,164,178	Maltner -----	June 27, 1939
2,395,783	Holtzman -----	Feb. 26, 1946

FOREIGN PATENTS

Number	Country	Date
137,025	Austria -----	Apr. 10, 1934
742,426	France -----	Dec. 27, 1932