April 9, 1940. M. E. TROLLEN 2,196,879

DESK LIGHTER

Filed July 15, 1937 2 Sheets-Sheet 1

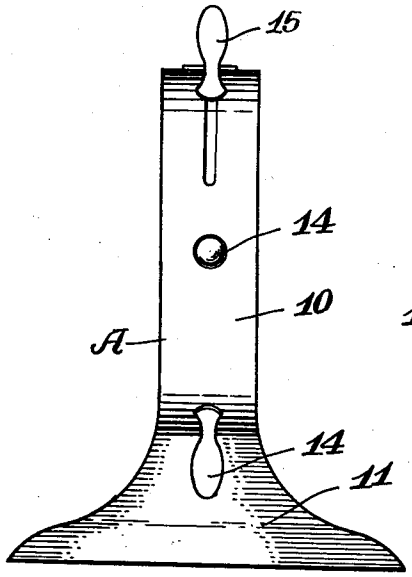


Fig. 2

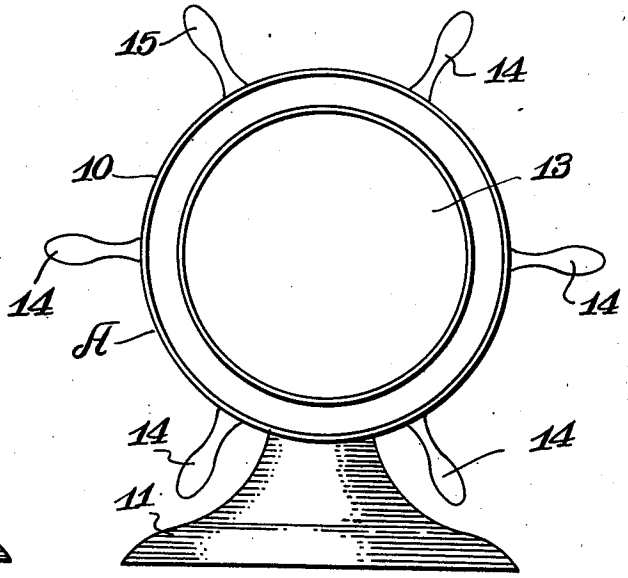


Fig. 1

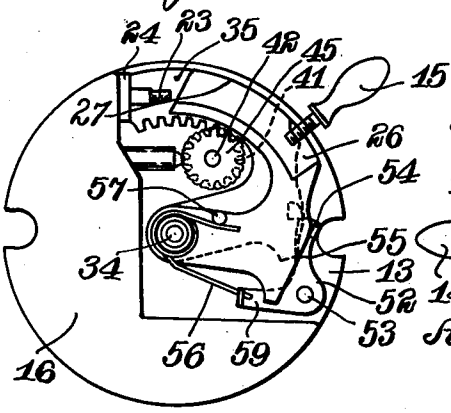


Fig. 4

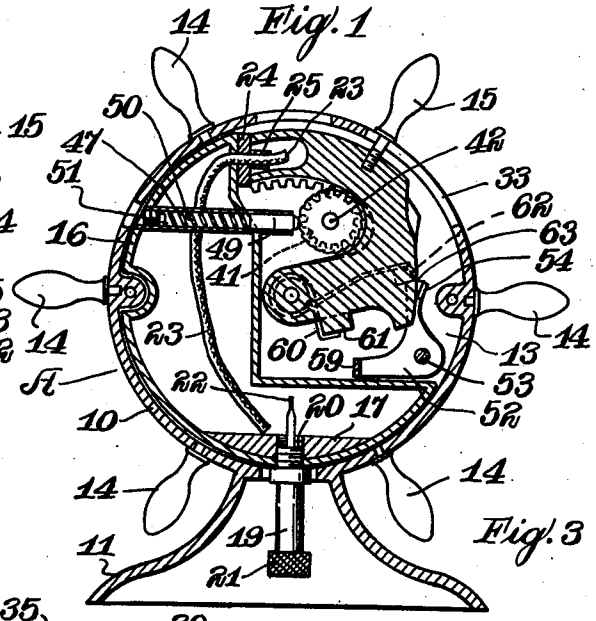


Fig. 3

Fig. 5

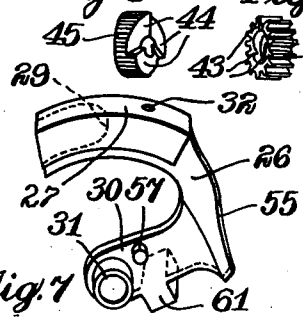


Fig. 6

Fig. 7

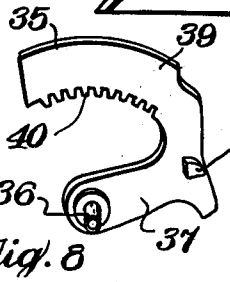


Fig. 8

Martin E. Trollen
INVENTOR.
BY Howard Fiehe
ATTORNEY.

April 9, 1940. M. E. TROLLEN 2,196,879

DESK LIGHTER

Filed July 15, 1937 2 Sheets-Sheet 2

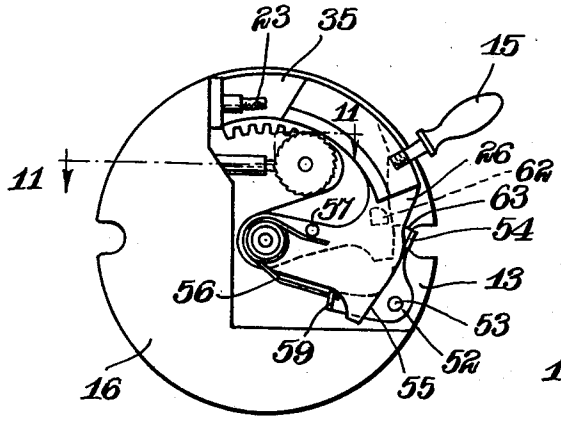


Fig. 9

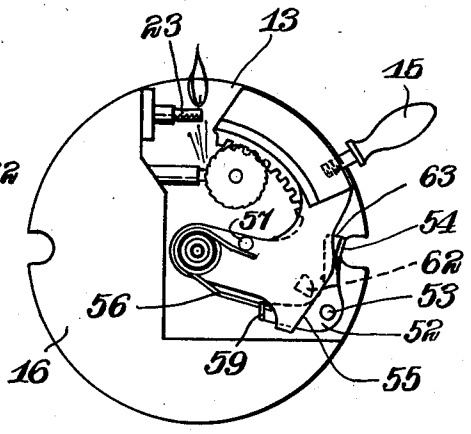


Fig. 10

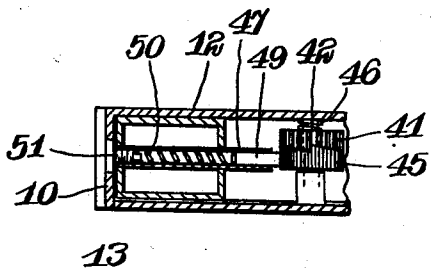


Fig. 11

Martin E. Trollen
INVENTOR.

BY Thomas J. Fisher
ATTORNEY.

Patented Apr. 9, 1940

2,196,879

UNITED STATES PATENT OFFICE

2,196,879

DESK LIGHTER

Martin E. Trollen, St. Paul, Minn., assignor to Brown & Bigelow, St. Paul, Minn., a corporation of Minnesota

Application July 15, 1937, Serial No. 153,765

2 Claims. (Cl. 67—4.1)

My invention relates to an improvement in lighters wherein it is desired to provide an ornamental lighter for cigars and cigarettes which simulates the wheel of a ship when resting upon the surface of a desk or table.

It is the purpose of my invention to provide a lighter embodying a wick used in combination with a flint and steel mechanism for producing sparks. The wick is ordinarily sealed from the outer atmosphere by a suitable closure member which prevents evaporation of the lighter fluid when the lighter is not in operation. The moving of this closure member from position over the wick acts to automatically operate the spark producing mechanism to light the wick.

It is an object of my invention to provide a spark producing mechanism which is operated automatically by movement of the wick closure, so that movement of this wick closing means out of sealing position will automatically start the spark producing means into operation. It is a feature of my invention that the spark producing means does not operate until the wick closure has been entirely removed from closing position. Obviously the wick cannot be lighted until the closure has been removed from the same and accordingly my construction prevents the use of the spark forming mechanism unnecessarily.

It is a feature of my invention to provide a lighter body having a pair of pivoted members reciprocably secured thereto. One of these members provides a closure for the wick so that the wick is sealed unless this pivoted member is pivoted away from sealing position. The second pivoted member includes a gear segment so that pivoting of this second member rotates the pinion to rotate a steel roller forming a part of the spark throwing apparatus. A trigger arrangement is formed which normally holds the second pivoted member from movement. This trigger mechanism, however, is tripped by the first pivoted member when the wick is exposed, permitting the second pivoted member to pivot. This causes rotation of the spark forming mechanism to ignite the exposed wick.

These, and other objects and novel features of my invention will be more fully and clearly set forth in the following specification and claims:

In the drawings forming a part of this specification:

Figure 1 is a front elevation view of my lighter.

Figure 2 is a side elevation view of the same.

Figure 3 is a cross-sectional view vertically through the center of my lighter.

Figure 4 is a front elevation view of the operating mechanism removed from the outer casing.

Figure 5 is a perspective view of a portion of the spark forming mechanism.

Figure 6 is a perspective view of a pinion used in conjunction with the spark forming mechanism.

Figure 7 is a perspective view of the pivoted closure member for sealing the wick when the lighter is not in operation.

Figure 8 is a perspective view of the pivoted member which actuates the spark forming mechanism.

Figure 9 is a view similar to Figure 4, showing the parts of the lighter in a slightly different position.

Figure 10 is a view similar to Figures 4 and 9, illustrating the various parts in still another position.

Figure 11 is a cross-sectional view on the line 11—11 of Figure 9.

My lighter A comprises a cylindrical casing 10 mounted upon a base 11. The casing 10 is provided with one integral end wall 12, and a second end wall 13, which is removable with respect to the casing 10. The operating mechanism may be mounted directly upon this removable plate 13 and may be removed with this plate.

A series of spokes 14 are angularly spaced about the periphery of the casing 10 to simulate the spokes or handle of the wheel of a ship. One spoke 15 forms the means by which the lighter may be actuated in a manner which will be hereinafter more clearly described.

A substantially L-shaped tank 16 adapted to contain lighting fluid, is mounted upon the removable plate 13. As illustrated in Figure 3 of the drawings, the wall thickness is increased at the bottom 17 of the tank 16 and a closing plug 19 is threaded into an opening 20 through the tank 16 at the bottom 17. This closing plug 19 is provided with a knurled end 21 and is provided on the opposite end with a screw driver portion 22. When the plug 19 has been removed, it may be used as a screw driver for adjusting the tension of the flint upon the spark roller.

A wick 23 extends to a point adjacent the bottom 17 of the tank 16 and extends through a plate 24 overlying and reinforcing the tank 16 and is provided with a sleeve 25 through which the wick 23 extends.

The pivoted closure for the wick is illustrated in perspective in Figure 7 of the drawings. This lever 26 is provided with an arcuated portion 27 having a pocket 29 formed in the end of the same and is provided with a radially extending arm 30 having a journal 31 at the end thereof. The spoke 15 threadably engages a radially extending opening 32 in the arcuated portion 27, and this spoke 15 extends through a slot 33 in the casing 10 so that the lever 26 may be pivoted from the sealing position illustrated in Figure 3 of the drawings to the open position illustrated in Figures 9 and 10 of the drawings.

A central shaft 34 is mounted upon the disc

13 at the center thereof, and the arm 26 is pivotally mounted upon this shaft 34. The shaft 34 also forms a bearing for the spark forming driving member 35 illutrated in perspective in Figure 8 of the drawings. The lever 35 is provided with a central journal 36 and a radially extending arm 37 pivotally mounting the arcuated portion 39 of the lever 35. Gear teeth 40 are provided on the inner surface of this arcuated portion 39 and mesh with a rotatable pinion 41 mounted upon a shaft 42.

The pinion 41 is provided with ratchet teeth 43 on one surface thereof, which co-operate with ratchet teeth 44 on a steel wheel 45 mounted on the shaft 42. The wheel 45 is provided with transverse teeth or grooves formed therein, as illustrated in Figure 5 of the drawings. As may be seen from Figure 11 of the drawings, the pinion 41 engages the wheel 45 under tension of the spring 46 which permits the gear 41 to operate in one direction without rotating the wheel 45.

A sleeve 47 extends transversely through the tank 16 and contains the flint 49 which bears against the grooved surface of the wheel 45. A spring 50 holds the flint 49 against the surface of the wheel 45 and the tension of the spring 50 is adjusted by the threaded end plug 51 which is threaded into the outer end of the sleeve 47.

A trigger 52 in the form of a bell-crank lever, is centrally pivoted at 53 and has one end 54 thereof extending upwardly into engagement with a cam surface 55 on the lever 26. A spring 56 holds the end 54 of the lever 52 against the cam 55. This spring 56 extends around the shaft 34 and is anchored by a lug 57 on the arm 26. The other end of the spring 56 engages the end 59 of the bell crank lever 52.

A spring 60 connects the levers 26 and 35 and tends to rotate the lever 35 with the lever 26. This spring 60 extends over a lug 61 on the lever 26, winds around the shaft 34 and engages behind a lug 62 on the lever 35. The lugs 61 extend beneath the radially extending portion 37 of the lever 35, the lever 35 together with the lever 26, when the lever 26 is moving in a counter-clockwise direction.

In operation, the plug 19 is removed from the opening 20 in the tank 16 and this tank is filled or partially filled with lighter fluid. If desired the tank 16 may be stuffed with cotton or other absorbent material to hold this lighter fluid. The wick 23 absorbs some of this fluid and becomes moistened with the fluid even to the portion thereof extending out through the sleeve 25.

After the plug 19 has been replaced and the wick 23 has absorbed sufficient fluid, the lighter is in readiness for operation. The spoke 15 is rotated downwardly in the slot 33, pivoting the lever 26 about the shaft 34. This is usually done by grasping the spoke 15 and the next adjacent spoke 14 between the fore-finger and the thumb, thus pivoting the spoke 15 downwardly. This action of the lever 26 uncovers the exposed end of the wick 23. During this time the spring 60 tends to force the lever 35 downwardly in a similar manner as this spring 60 causes a tendency for the levers 26 and 35 to move in unison. However, the upper extremity 63 of the lever 52 is in engagement with the lug 62, preventing the pivoting of the lever 35. Figure 4 of the drawings illustrates the lever 26 pivoted downwardly to uncover the wick 23, while the lever 35 still remains in its usual position.

As the lever 26 moves into a position illustrated in Figure 4, however, or into the extreme position illustrated in Figure 9 of the drawings, the end 54 of the bell crank lever 52 has pivoted the bell crank lever 52 until the upper extremity 63 of the bell crank lever 52 has become disengaged from the lug 62. As soon as the lug 62 is disengaged from the lever end 63, the lever 35 pivots in a clockwise direction, thus rotating the pinion 41 in a clockwise direction and driving the wheel 45 in a similar direction. The wheel 45 rotates over the end of the flint 49, causing sparks to be thrown upwardly against the exposed end of the wick 23 and causing the lighter material on this wick to be ignited. When the light or flame is no longer desired, the spoke or handle 15 is disengaged and the spring 56 acts upon the lever 26 to pivot this lever into sealing position with the exposed end of the wick 23 in the pocket or aperture 29. The lug 61 engages against the arm 37 of the lever 35 and pivots this lever back into the starting position illustrated in Figure 3 of the drawings. During the rotation of the lever 35 in a counter-clockwise direction, the teeth 40 rotate the gear 41 in a counter-clockwise direction, but the co-operating ratchet teeth 44 and 43 are disengaged and the wheel 45 is not rotated. Accordingly the wheel 45 is not pivoted with respect to the flint 49 during the return of the levers 26 and 35 to their starting position, and no sparks are created. When the levers 26 and 35 reach the position illustrated in Figure 3 of the drawings, the spring 56 urges the bell-crank lever 52 in a counter-clockwise direction so the upper extremity 63 of this lever engages the lug 62 to hold the lever 35 from pivotal movement until this trigger lever 52 is released by downward movement of the lever 26.

In accordance with the patent statutes I have described the principles of construction and operation of my lighter, and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that this is only illustrative of a means of carrying out my invention and that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A lighter comprising a cylindrical body, a wick in said body, a spark creating device in said body adjacent said wick, a series of spokes extending radially from said body beyond the diameter thereof, one of said spokes moving angularly and connected to said spark creating device to create a spark, and means securing the next adjacent spoke fixedly to said body.

2. A lighter comprising a fuel container, a wick projecting therefrom, a pair of levers concentrically pivotally mounted, a snuffer for said wick on one of said levers, a segmental internal gear on the other of said levers, a pinion cooperable with said gear and mounted within said segmental gear, a lighter wheel concentrically mounted with said gear and operable thereby, spring means tending to rotate said levers in unison, means for holding said lever supporting said gear stationary as the other lever is pivoted, and releasing means for said holding means to cause rotation of said lever bearing said gear to operate said pinion to rotate said lighter wheel.

MARTIN E. TROLLEN.