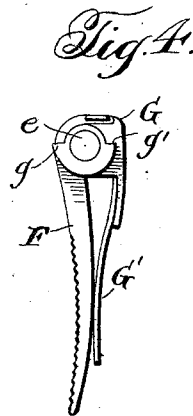
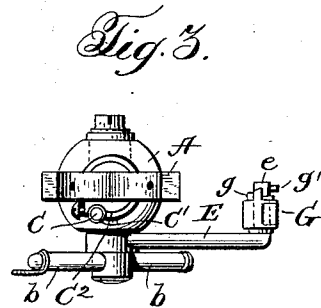
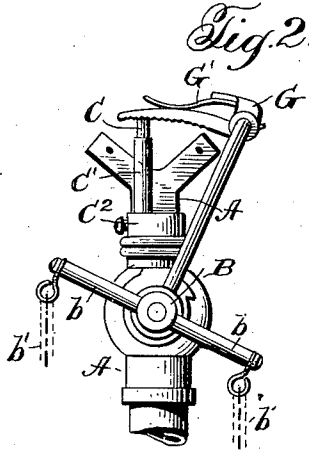


1,065,961.

Fig. 1.

The diagram illustrates a mechanical assembly, possibly a pump or engine component. It features a central vertical shaft with various levers, valves, and a large circular component. The drawing is labeled with letters A, B, C, C', C'', E, G, G', F, b, b', and b'. The central shaft is labeled C, C', and C''. A large circular component is labeled B. A lever arm is labeled E. A valve or piston is labeled G. A small component is labeled F. A long vertical rod is labeled b. A circular component at the bottom is labeled b'. A small circular component is labeled b'.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC GAS-LIGHTER.

1,065,961.

Specification of Letters Patent.

Patented July 1, 1913.

Application filed October 10, 1912. Serial No. 725,005.

To all whom it may concern:

Be it known that I, JOHN A. NELSON, a citizen of the United States, residing at Davenport, in the county of Scott and State of Iowa, have invented certain new and useful Improvements in Automatic Gas-Lighters, of which the following is a specification.

This invention relates to an improvement in automatic gas lighters, and one of the primary objects of the present invention is the provision of an improved gas lighter of this type which is operatively associated with the valve of the gas burner in such a manner that when the valve is actuated to permit the flow of gas to the burner, the lighter will be simultaneously actuated to cause the ignition of the gas at the burner.

A further object of the present invention is the provision of a lighter of this type in which a spark producing material is used with an abrading member, one of said parts being movable relatively to the other, and said parts being so supported that sparks will be produced only when the valve is actuated to permit the flow of gas to the burner and not when the valve is actuated to cut off the flow of gas from the burner.

Other objects of the invention will be apparent from the detailed description hereinafter, when read in connection with the accompanying drawings forming a part hereof, wherein a convenient embodiment of the invention is illustrated, and wherein like characters of reference refer to similar parts in the several views.

In the drawings: Figure 1 is a side elevation of a gas burner provided with the improved lighter, the parts being shown in the positions occupied thereby just after the abrading member has been actuated to effect the ignition of the gas; Fig. 2 is a similar view with the parts of the device in the positions occupied thereby when the abrading member is passing over the spark producing pencil:—Fig. 3 is a top plan view of the device in the position shown in Fig. 1:—and Fig. 4 is a detailed view showing the manner of supporting the abrading member.

Referring now more particularly to the drawings, A designates a gas burner of any well known type, the flow of gas to which is controlled by a valve or cock B which may be of any well known construction. In the embodiment of the invention illustrated in the accompanying drawings, a rotary plug

valve is utilized for this purpose, one end of which is provided with a cross bar *b*, from the opposite extremities of which depend chains *b' b'* which enable the valve to be shifted to a position to either permit the gas to flow to the burner or to cut off the flow of gas thereto.

Secured to the burner A adjacent the upper portion thereof, is a pencil C of any suitable spark producing material, the upper end of which pencil is positioned alongside of the burner A and extends in proximity to the top thereof. Any suitable means may be employed for supporting the spark producing pencil, and in the embodiment of the invention illustrated in the drawings, the pencil C is supported in a sleeve C' which is adapted to be clamped by a suitable set screw in a socket formed in a collar C² which encircles the burner. If desired, the pencil C may be supported in the sleeve C' in such a manner that it can be adjusted therein.

Secured to the valve B so as to oscillate therewith, is an upwardly extending arm E, which arm carries an abrading member which is adapted, when the valve B is manipulated to permit gas to flow to the burner A, to pass over the top of the spark producing pencil C, and produce a shower of sparks which will cause the ignition of the gas at the burner, the construction of the abrading member being such that it will not make a spark producing contact with the pencil C when the valve B is manipulated to cut off the flow of gas to the burner. In the embodiment of the invention illustrated in the accompanying drawings, the abrading member comprises a curved plate F which is pivotally connected to the upper end of the arm C which projects upwardly from the valve B. In the embodiment of the invention illustrated in the drawings, the arm E is provided at its upper end with an inwardly extending portion *e*, and the upper end of the abrading member F is provided with an opening which is adapted to loosely engage said projection. The abrading member F is pivoted to the upper end of the arm E, in such a manner that the spark producing pencil will lie in the path of movement of said abrading member when the valve B is manipulated. The abrading member F normally hangs loosely from the upper end of the arm E, and when the valve B is manipulated to permit gas to pass to

the burner the roughened underface of said plate will be caused to engage the upper end of the pencil C, and as the opening movement of the valve is continued, the plate F will be moved upwardly and drawn across the top of said spark producing pencil. Means is employed for resisting such upward movement of the plate and causing the same to engage the top of the spark producing pencil with sufficient friction to produce a shower of sparks as the abrading member is drawn across the spark producing element. To this end, a member G is pivotally connected to the laterally extending portion *e* of the arm E so that it is free to move loosely thereon, to which member is secured a leaf spring G' which is adapted to overlie the upper surface of the abrading member F. The member G and the projecting portion *e* of the arm E are provided with cooperating lugs *g* and *g'*, which are adapted to limit the pivotal movement of the member G or the laterally projecting portion *e* of the arm E.

In the use of the device, when the valve B is manipulated to permit the gas to flow to the burner, the arm E will be shifted and the roughened underside of the abrading member F will be caused to engage the upper end of the spark producing pencil C. As the opening movement of the valve B is continued, the roughened face of the abrading member will be drawn across the top of the spark producing pencil. During this movement, the abrading member will be moved upwardly on its pivot which will cause the stop lug *g* of the member G to engage the stop lug *g'* on the laterally projecting portion *e* of the arm E, and thus holding the member G against pivotal movement. During the remainder of the opening movement of the valve, the abrading member F will be moved upwardly against the tension of the spring so that sufficient friction will be produced to cause the emission of a shower of sparks as the abrading member is drawn across the spark producing pencil, and thus effecting the ignition of the gas at the burner. As soon as the valve has been moved to its final open position, the abrading member will be drawn from off the top of the spark producing pencil, and will instantly assume its normal position, that is to say, it will depend loosely from the upper portion of the arm E. With the abrading member in this position, when the valve B is manipulated to cut off the flow of gas to the burner, the back portion of the abrading member will be drawn across the top of the spark producing pencil, but as there is no resistance to the movement of the abrading member in this direction, it will be seen that no sparks will be produced when the valve is manipulated to cut off the flow of gas to the burner, so that with this construction,

the life of the spark producing pencil is materially prolonged.

While a convenient embodiment of the invention is illustrated in the accompanying drawings, it will be understood that many changes may be made to the particular form and construction therein shown without departing from the spirit and scope of the invention as defined in the appended claims.

I claim:—

1. In a gas lighter, the combination with a gas burner, a spark producing member supported adjacent the burner, a swinging arm, an abrading member provided with a roughened portion, and means for supporting said abrading member on said swinging arm whereby the roughened portion thereof will engage the spark producing pencil when the arm is shifted in one direction only.

2. In a gas lighter, the combination with a gas burner, a spark producing member fixedly supported adjacent the top of the burner, a swinging arm pivotally supported beneath said spark producing material, and an abrading member yieldably secured to the upper portion of said arm and provided with a roughened portion adapted to engage said spark producing member when the arm is shifted in one direction.

3. In a gas lighter, the combination with a gas burner, of a spark producing member fixedly supported adjacent the top of the burner, a swinging arm pivotally supported beneath said spark producing member, an abrading plate provided with a roughened under surface pivotally connected to the upper portion of said arm, and a spring for positioning said abrading plate to engage said spark producing member when the swinging arm is shifted.

4. In a gas lighter, the combination with a gas burner, of a spark producing member fixedly supported adjacent the top of the burner, a swinging arm pivotally supported beneath said spark producing member, an abrading member pivotally connected to the upper portion of said swinging arm and depending therefrom, said abrading member being positioned so as to engage the spark producing member when the swinging arm is shifted, and yieldable means for resisting movement of said pivoted abrading member in one direction.

5. In a gas lighter, the combination with a gas burner, of a spark producing member fixedly supported adjacent the top of the burner, a swinging arm pivotally supported beneath said spark producing member, the upper end of said member extending upwardly above the spark producing member and being provided with a laterally projecting portion, an abrading member having its upper end loosely mounted upon the laterally projecting portion of

said swinging arm, and a spring for resisting the pivotal movement of said abrading member in one direction.

6. In a gas lighter, the combination with
 5 a gas burner, of a spark producing member fixedly supported adjacent the top of the burner, a swinging arm pivotally supported beneath said spark producing member, the upper end of said arm extending
 10 above the top of said spark producing member and being provided with an inwardly extending portion, an abrading member having its upper end pivoted to the inwardly extending portion of said swinging arm, a spring loosely mounted upon the
 15 inwardly extending portion of said arm, and overlying said abrading member, and means for limiting the pivotal movement of said spring upon the inwardly extending
 20 portion of said arm.

7. In a gas lighter, the combination with a burner, of a spark producing pencil fixedly supported adjacent the top of the burner, a yieldable swinging arm pivotally
 25 supported below said spark producing pencil, an abrading member pivotally connected to the upper portion of said swinging arm, and provided with a roughened under surface, said abrading member being positioned so that the roughened surface there-
 30 of will traverse the top of the spark producing pencil when the swinging arm is moved in one direction, and a spring for holding the abrading member in frictional engagement with said pencil when said arm
 35 is swung in one direction.

8. In a gas lighter, the combination with a gas burner, of a spark producing pencil fixedly supported adjacent the burner, a
 40 valve for the burner positioned below said

spark producing pencil, a swinging arm movable with said valve, and a yieldably supported abrading member carried by the upper portion of said arm and adapted to engage the upper end of the spark pro-
 45 ducing pencil when the arm is moved in one direction.

9. In a gas lighter, the combination with a gas burner, of a spark producing pencil fixedly supported adjacent the burner, a
 50 valve for the burner positioned below said spark producing pencil, a swinging arm movable with said valve, an abrading member pivotally connected to the upper portion of said arm above said spark produc-
 55 ing pencil and depending therefrom, and means for resisting the movement of said abrading member about its pivot in one direction.

10. In an automatic gas lighter, a gas
 60 burner, a spark producing member, and a pivotally supported abrading member, one of said members being positioned adjacent the burner and the other of said members being carried by an arm pivotally support-
 65 ed at its lower end, said abrading member lying in the path of said spark producing pencil so as to move thereacross when the swinging arm is actuated, and yieldable
 70 means for resisting movement of said abrading member on its pivot in one direction only, said abrading member being freely movable on its pivot in the other direction.

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

JOHN A. NELSON.

Witnesses:

CARL H. LAMBACH,
 G. E. LAU.