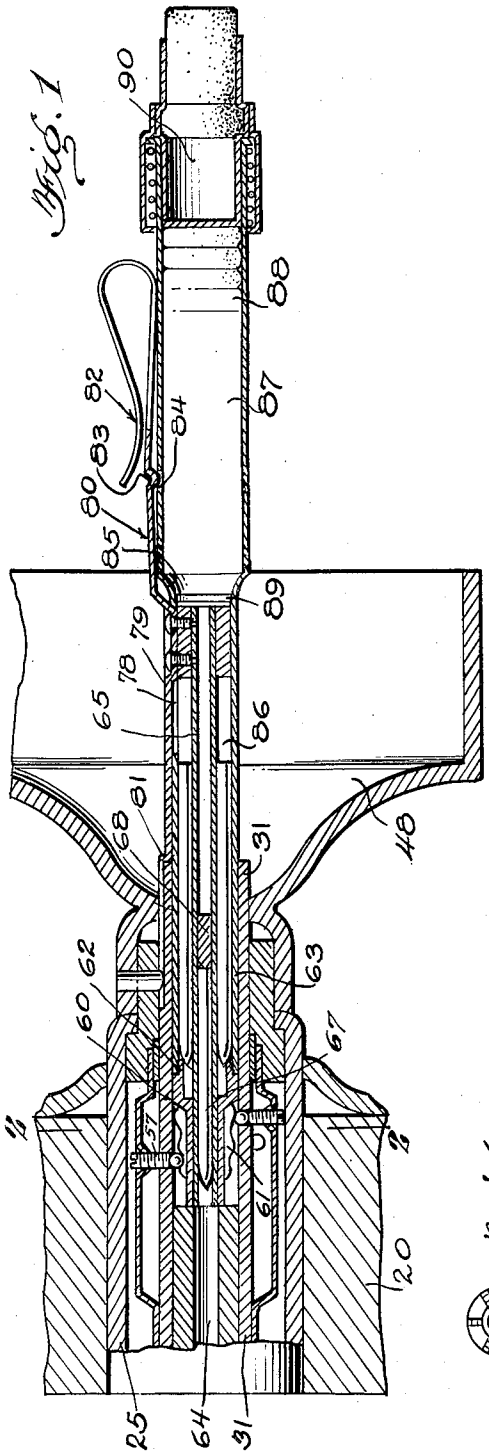
June 18, 1940. L. J. WHITNEY 2,204,740

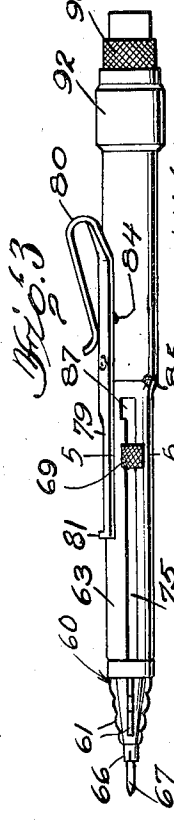
COMPOUND IMPLEMENT

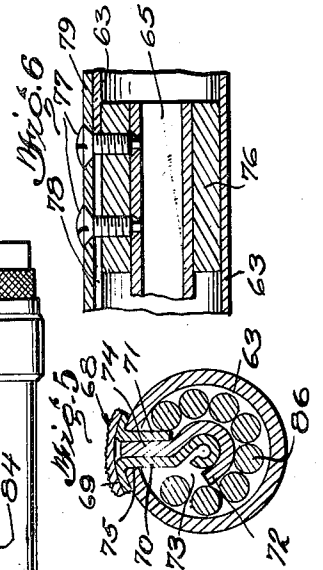
Filed Dec. 27, 1937










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Patented June 18, 1940

2,204,740

# UNITED STATES PATENT OFFICE

2,204,740

## COMPOUND IMPLEMENT

Lewis J. Whitney, Springville, Utah

Application December 27, 1937, Serial No. 181,962

3 Claims. (Cl. 120—9)

This invention relates to compound implements and more particularly to that class having several functions including cooperating parts serving the several functions.

More specifically, the present invention concerns itself with the cooperative combination in an implement which may serve as a key for effectively releasing a lock and which may alternately serve as a writing implement if desired, the key portion being part of the body of the writing implement and providing features usefully serving as a portion of the operative part of the implement as a writing implement while at the same time being effective as an aid to a user when employed in writing.

In conjunction with the primary function of the combined implement, it is contemplated to provide a ready mounting for a key part whereby the part is susceptible of readier accessibility when it is desired to effect release of a lock for which the key part is specially suited. This feature is preferably accomplished by associating the key part as an effective part of a readily portable implement such as a mechanical pencil of the type which may be readily carried in a pocket, purse, brief-case, or the like. Essentially, in carrying out this feature, it is desirable that the implement be simple, uncumbersome, practical and durable, yet retaining its special character without material alteration or detraction from its conventional practical attributes. Consequently, there is combined in one instrumentality the desirable features of several, each being independent upon the other in carrying out its individual function. In a more specific sense, the key portion assumes a dual role in that, while it is essentially a key, it is concurrently a vital portion of the writing implement. Preferably, the concomitant attributes are resultant primarily from the function of the effective lead protruding end of a mechanical pencil as a muzzle for a portion of the lead projecting mechanism and also serving as a key bit. In this, then, resides the primary object of this invention.

While it is conceivable that a device embodying the basic principles of this invention is capable of cooperative association with a vast number of locking mechanisms, it is preferably designed for use with a locking mechanism of the character disclosed in U. S. Letters Patent No. 2,077,728 granted me under the date of April 20, 1937. In such patented structure, release of the locking mechanism is effected by a simple longitudinal projection or insertion of a key in a key-way, such translation of the key causing proper displacement of tumblers. Of course, the applicability of the present improvement is not confined to the specific lock structure disclosed in the aforementioned patent as it may be readily embodied in lock-releasing implements of similarly releasable lock structures.

Since graphite lead normally projecting from a mechanical pencil, unless retracted, is readily subject to breakage due to its normally brittle character, and it is desirable, in the interest of reducing operating or use costs to the user, to conserve the lead as much as possible, at the same time allowing for the element of human error, namely resultant from carelessness or negligence, another important object of this invention concerns itself with the provision of mechanism automatically responsive to normal acts on the part of a user, that is, when the implement is employed in its primary function as a key or when it is stored and not in use, to cause retraction of the lead within the pencil barrel so that it will not be accidentally broken or sheared off under these conditions. This object is accomplished preferably by the provision of cooperative elements, one effective upon insertion of the implement in the key-way of a lock and the other upon insertion of the implement into a pocket where it is to be secured in stored position to the pocket wall or flap, or perhaps to a partition in a pocketbook or brief-case or the like.

Then too, since the implement is primarily designed for use as a key, and locks include various tumbler combinations to provide for security against accidental or unnecessary duplication, the present invention contemplates the provision of an arrangement permitting of ready interchangeability of key bits so that the barrel and protruding operating part may be of standard or uniform construction for production purposes, while the bitting combination for any particular lock may be readily accommodated. It is, therefore, a further object of this invention to provide a mechanism embodying this feature.

In carrying out the feature of key bitting, the invention also embraces another important aspect in that the characteristic bitting selected, also serves as an advantageous finger grip when the implement is employed as a writing tool. Consequently, this is another important object attributable to the present invention.

Other and further features of novelty and objects will more readily appear from the following detailed description of several preferred embodiments of the invention illustrated in the accompanying drawing in which:

Fig. 1 is a fragmentary sectional view through a lock embodying certain of the essential features shown in the above noted patent, showing a key of the character contemplated by this invention in applied position;

Fig. 2 is a somewhat enlarged section taken substantially along the line 2—2 of Fig. 1;

Fig. 3 is a reduced exterior view of the combined implement shown in Fig. 1;

Fig. 4 is an end elevation of a modification in which six ridges are used.

Fig. 5 is an enlarged section taken along the line 5—5 of Fig. 3; and

Fig. 6 is an enlarged fragmentary longitudinal section showing in greater detail, the connection between the clip and lead carrying guide for advancing or retracting the lead tip from and into the muzzle.

Referring more particularly to the details of the drawing and especially to Fig. 1, there is disclosed one application of the invention in its broader aspects in its employment for releasing the tumblers of a lock of the character more specifically described in the above referred to patent, only brief reference being here made to the lock feature details. The lock mechanism is shown applied to a door 20 and comprises a lock essentially like that shown in my prior patent No. 2,077,728, except for a slight modification of the tumbler control elements, the lock being shown in released condition. Since the particular lock structure is of no import as regards the essence of this invention, suffice it to say that the pins or pushers 45 have been replaced by screw 57 having associated therewith at their inner ends anti-friction balls 58. Otherwise, the structure is identical, and reference to the description relating to my aforesaid patent, will clearly indicate the operation of the lock.

The releasing instrumentality in this case comprises the muzzle end 60 of a mechanical pencil having certain novel attributes described hereinafter. This muzzle 60 comprises a body part tapering preferably though not necessarily, and having extending longitudinally radially therefrom a plurality of circumferentially spaced ridges 61 which are suitably elevated and depressed to be effective as bitting. The larger end of the muzzle 60 is formed with a reduced externally threaded part 62 which is adapted to be threaded into the end of a pencil barrel 63. The inner portion of the muzzle 60 is formed with an axial bore 64 in which is adapted to reciprocate a lead bearing sleeve or guide 65 having a suitably split and inwardly swaged outer end 66 (see Fig. 3) adapted to frictionally grip a lead 67 as it is advanced therethrough for retention in fixed relation as against normal, inexcessive pressures which may be applied to the effective end of the lead when the pencil is employed in writing. This gripping action is reinforced by the frictional engagement within the guide 65 of a manually operable pusher element 68 comprising a suitably externally serrated thumb-piece 69 formed into a T-shaped part by reversely bending a strip of strap material providing two legs 70 and 71, the former longer than the latter and terminating in a curled portion 72 axially shiftably carried in the guide 65 by accommodation of its contour thereto. Guide 65 is formed with an open side 73 and a radially outwardly directed baffle 74 which extends over a substantial part of the guide and normally is disposed substantially midway of a longitudinally extending slot 75 in the barrel 63. The legs 70, 71 of the thumb-piece 69 embrace the baffle 74 so that the latter serves as a track for the thumb-piece and since the thumb-piece fairly fills the slot 75, the guide is adequately reinforced against lateral shifting.

The inner end of the guide 65 is further reinforced by a bearing sleeve 76 which is maintained within the barrel for reciprocation by a pair of set-screws 77 extending through a slot 78 (see Figs. 1 and 6) whereby the guide may be projected from and retracted into the muzzle upon axial shift thereof. This shift is preferably accomplished by the set-screw heads seating firmly in holes provided for the reception thereof, in the shank 79 of a spring clip 80, the forward end of which is formed with a stop lug 81, the purpose of which will be presently explained, the other end being preferably reversely bent to provide a clamp 82. Intermediate the clamp and secured part of the clip, it is formed with a concave bead 83 adapted to cooperate with a recess 84 in the pencil barrel, whereby the clip is retained in fixed relation to the barrel when in the position shown. It will be evident that when the pencil muzzle is inserted into the key hole in the spindle 31, the stop lug 81 will engage the end of the spindle causing the clip and associated guide 65 to be axially shifted to the position shown in Fig. 1 whereupon the lead carrying end of the guide will have been withdrawn into the protective confines of the muzzle 60. Likewise, if the pencil be inserted in a pocket with the clip in engagement with a partition, continued push on the pencil will cause the clip to be shifted carrying the protruding end of the lead within the muzzle. To further aid in the retention of the guide, and therefore the lead, in projected position against pressure when used in writing, the bead 83 on the clamp 82 will engage the shoulder 85 formed at the juncture of the barrel and the magazine.

Additional leads 86 may be stored in the space between the guide 65 and inner wall of barrel 63 as best shown in Fig. 7 and access to this storage space for loading it may be had by removing the muzzle or by retracting thumb-piece 69 to its limit where it may be moved out of the main slot 75 into a lateral notch 87 whereupon the extra leads may be inserted through slot 75.

When it is desired to reload the guide 65 (assuming a previously used lead has been advanced to its limit through muzzle 60), thumb-piece 69 is withdrawn to its limit and the barrel is held horizontally and rotated about its axis until a new lead is dropped into the guide. Advance of the thumb-piece then advances the new lead to a position against the inner end of the previously used lead. Thus, a lead may be used until it is practically entirely worn away in writing because of its being followed by a succeeding lead as a pusher. In reloading the guide 65, the thumb-piece serves as an indicator as to the proper disposition of the opening 73, thereby assuring rotation of the barrel to proper position. Then too, at the time a new lead is dropped into the guide 65, the slot 75 faces upwardly so that no succeeding lead will be lost from the storage chamber therethrough. Obviously, when the thumb-piece is advanced along the slot 75, accidental passage of a succeeding lead therethrough is effectively blocked.

Thus far, it will be evident that the muzzle 60 serves a dual purpose, namely, that of a key, and a guide and protector for the lead-carrying guide of the pencil.

The illustrated embodiment is therefore not

intended to be construed as limiting the scope of the invention except as indicated by the appended claims.

The invention having been fully disclosed in conformity with the laws relating thereto, what is claimed and desired to be secured by Letters Patent is:

1. An implement of the character illustrated comprising a tubular body, a writing lead-carrying guide mounted for axial movement within said body towards one end thereof, means on the exterior of said body and connected to said guide whereby said guide may be axially shifted for projecting it from and retracting it into said body, and a muzzle associated with said body and serving as a bearing for said guide, said muzzle including exterior ribbing adapted to be employed as bitting for a lock, means associated with said exterior means adapted to cooperate with a lock when the implement is employed as a key and adapted to serve as a limit stop for the key upon insertion of the muzzle into the lock and responding to insertion of the muzzle into the lock to retract said guide whereby the lead carried by said guide is automatically withdrawn to safeguard the lead from damage.

2. A compound tool of the character described comprising a main body portion, a movable element projectable from said body portion to provide an operable implement, an attachment adapted to be associated with said body portion to constitute an extension thereof and a guide for said element, said attachment having means on its exterior which may be configurated to be employed as a key, means associated with said body portion providing an exterior stop limiting movement of said tool when inserted into a lock in its capacity as a key, and means so connecting said stop means and said element as to impose retracting movement thereto into said body portion prior to complete application of the attachment in its capacity as a key.

3. A compound tool of the character described comprising a main body portion, a movable element projectable from said body portion to provide an operable implement, an attachment adapted to be associated with said body portion to constitute an extension thereof and a guide for said element, said attachment having means on its exterior which may be configurated to be employed as a key, means associated with said body portion providing an exterior stop limiting movement of said tool when inserted into a lock in its capacity as a key, and means so connecting said stop means and said element as to impose retracting movement thereto into said body portion prior to complete application of the attachment in its capacity as a key, said exterior means on said attachment serving as a convenient finger grip when the tool is employed to effect use of said element in its independent capacity when the tool is not used as a key.

LEWIS J. WHITNEY.