Oct. 27, 1931. O. S. HERSHEY 1,828,896

INDICATOR

Filed March 13, 1930

Fig. 1

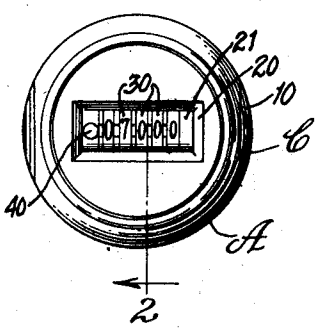


Fig. 6

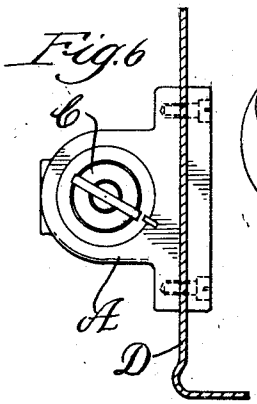


Fig. 7

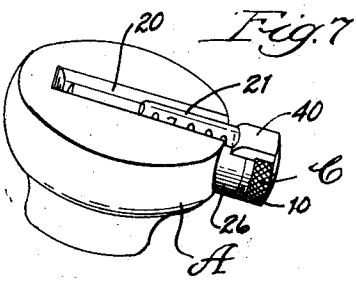


Fig. 2

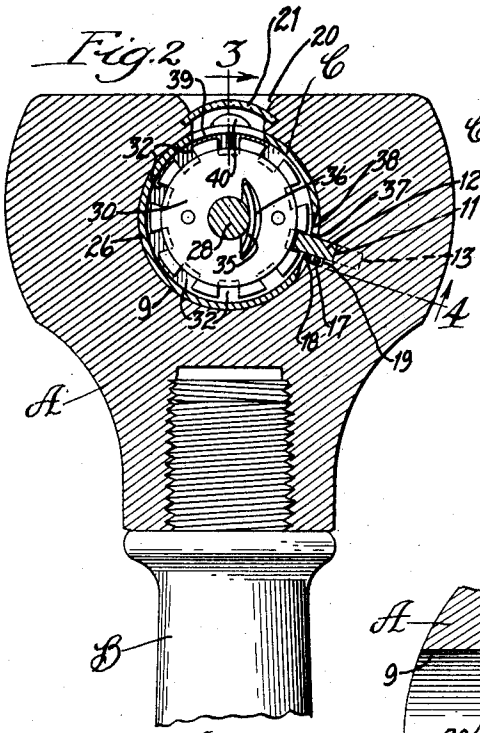


Fig. 3

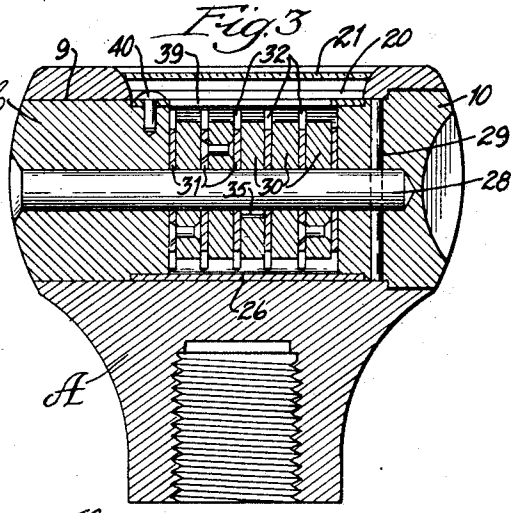


Fig. 4

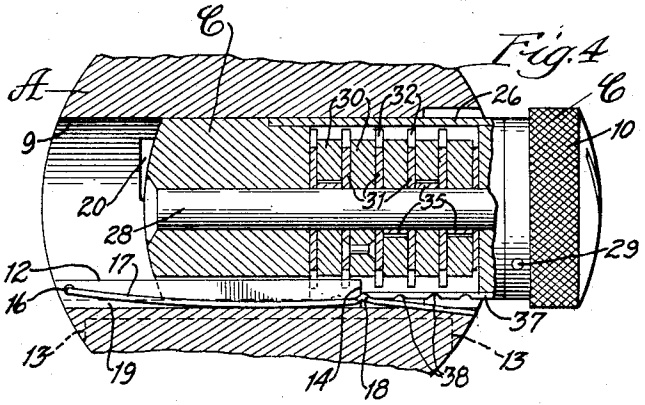
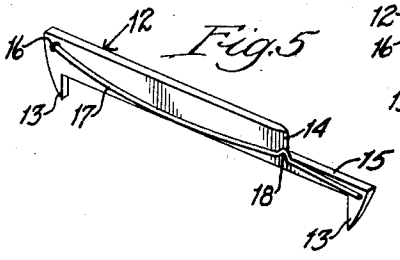


Fig. 5



Inventor:
Orville S. Hershey,
By Deming & Deming
Attys.

Patented Oct. 27, 1931 1,828,896

UNITED STATES PATENT OFFICE

ORVILLE S. HERSHEY, OF WAUKEGAN, ILLINOIS, ASSIGNOR TO OAKES PRODUCTS CORPORATION, OF NORTH CHICAGO, ILLINOIS, A CORPORATION OF MICHIGAN

INDICATOR

Application filed March 13, 1930. Serial No. 435,422.

This invention relates to an indicator in which is comprised a series of independently rotatable wheels carrying on their peripheries digits, any selected combination of which may be exposed to view through an aperture in the housing wherein the wheels are mounted. More particularly the invention relates to a means for locking the wheels against accidental or casual movement from a given position of adjustment, and to an operating means therefor. An instrument of this character may be used to advantage in connection with the oiling and greasing operations of an automobile, and it may be designed for convenient mounting therein, as within the ball of a gear shift lever or upon the dash board of a vehicle, whereby to apprise constantly the operator respecting mileages at which lubricating operations should be performed.

A suggestive embodiment of this invention is set forth in the accompanying drawings in the following manner:

Figure 1 is a plan view of a gear shift lever ball containing the indicator mechanism;

Fig. 2 is an enlarged vertical sectional view taken as indicated by the line 2 of Fig. 1;

Fig. 3 is a transverse section through Fig. 2 as indicated by the line 3;

Fig. 4 is a sectional view taken as indicated by the line 4 of Fig. 2;

Fig. 5 is a perspective view of the key and spring clip assembly;

Fig. 6 shows the indicator modified to the extent of being mounted on the dash board of an automobile; and

Fig. 7 shows a modified arrangement of the indicator in the ball.

The present indicator mechanism may be contained within a ball handle A such as is fitted upon the end of a gear shift lever B.

As shown, it includes an indicating barrel assembly C fitted in the ball in a manner to shift lengthwise therein. Through the ball is formed a transverse bore 9 enlarged at one end to accommodate a knurled head 10 forming part of the barrel assembly. A groove 11 may be formed in the handle parallel to the axis of the bore to receive a key 12 the ends of which are provided with transversely extended jaws 13 which engage opposite points on the ball to hold the key in place. The key is further provided with a shoulder 14 adjacent a neck 15, the purpose of which will be explained later. The key may be provided with a hole 16 to receive one end of a spring clip 17 having a detent 18 for holding the barrel assembly in a predetermined position. The spring clip lies in a recess 19 which is formed alongside the groove 11, as seen in Fig. 2. An opening 20 formed in the top of the ball is covered by a celluloid window 21 which is so mounted as to protect the indicator within the ball. Surrounding the barrel in its middle region which is countersunk is a sleeve 26 which lies flush with the remainder of the barrel surface. This sleeve which is locked in place forms a housing for the indicating mechanism. At the outer end of the sleeve is mounted the barrel head 10 which is held in place on a stem 28 by a transverse pin 29. The stem 28 is rotatably carried by the body of the barrel.

Rotatably mounted on the stem is a series of wheels 30, each provided with a disk 31 which is connected thereto upon one face. The disks which are of greater diameter than the wheels are notched at 32 to receive engagement from the key 12. Upon each wheel is carried, marked or impressed a series of digits, from 0 to 9, by preference, any one of which may be moved into register with the window opening 20. So that each wheel may tend to rotate with the stem, I provide for each a spring 35 set into an opening 36 in the wheel in position to engage with the stem.

The key is received in part within a groove 37 in the barrel, complementary to the handle groove 11. Transversely disposed to these grooves are sockets 38 adapted to receive the detent 18 on the spring clip 17 so as to hold the barrel releasably in the desired position for advancing certain of the wheels 30. In Fig. 3, the barrel is shown as in the normal position wherein the key engages each of the disks 31. From this position the barrel may be slid partly out of the ball in response to pressure applied to the end of its body, the head 10 being then in position for rotation, as

shown in Fig. 4. It will be noted that the key is released from contact with several of the disks when the barrel is as positioned. The key neck 15 is of such length that when the barrel is moved to the extreme position (the right as viewed in Fig. 4) all the disks are released from the key, so that the frictional contact obtaining between the stem and wheels will cause the wheels and disks to turn with rotation of the barrel head. An opening 39 in the sleeve 26 registers with the window 21 so that a single row of digits, one on each wheel, is exposed to view. A stop pin 40 is inserted in the barrel to limit its outward movement by contact with one end of the window opening.

A modified form of the housing for the present indicator is shown in Fig. 6 in which the barrel C and its operating mechanism are identical with that just described. In this construction the housing A is so shaped as to be attached to the dash board D of an automobile. This modification is suggestive of various places and conditions in which my indicator may be used with advantage.

A further modified form is shown in Fig. 7 which is similar to the construction first described except that the window opening 20 extends through to one edge of the ball housing A, and a block 40 is formed upon the sleeve 26 to occupy the open space at the end of the window opening when the barrel is returned to its normal position. The celluloid window 21 is attached to and moves with the barrel in its shifting movements. In this form, the various digits in a single row will at all times be exposed to view.

The present construction is such that the numbered wheels, when set to a desired position, may not be accidentally moved therefrom. Changing the position of these wheels may be accomplished only when the barrel has been moved to extend beyond the confines of the housing. The extent to which the barrel is projected from its normal position will determine which, or how many, of the numbered wheels will turn with the barrel head, as those wheels to the left of the key shoulder 14 (as viewed in Fig. 4) are locked against turning in the manner already explained.

From the preceding description, it will be manifest that the present invention is advantageous, because of the compact construction of its part, the simplicity of their operation, and the positive character of the means for holding the numbered wheels in a predetermined position. I desire in accordance with the terms of the claims following to be protected in this invention, whether or not the embodiment thereof be as illustrated and described, or modified therefrom, without sacrifice of the features which impart novelty thereto.

I claim:

1. In an indicator, the combination of a body having a through opening communicating with a second opening in one face of the body, a wheel with peripheral numbers mounted for axial movement in the through opening and adapted in one axial position to expose a single number through the second opening, means engaging the wheel, when in the position noted, to lock the same against rotation, the wheel being freed for rotative adjustment only when shifted to another position, and operating means in yielding frictional connection with the wheel and protruding exteriorly of the through opening for manipulation to adjust the wheel when the wheel is shifted to adjusting position.

2. In an indicator, the combination of a mounting, a plurality of co-axial independently movable numbered wheels disposed within the mounting and movable axially therein, means connecting the several wheels in unitary relation, manipulating means for the several wheels located beyond one end of an outermost wheel, and locking means co-acting with all of the wheels only when the latter are in one axial position, permitting rotation of one or more wheels only when the latter are shifted axially to a position free of said locking means.

3. An indicating mechanism comprising a mounting with two communicating openings in one of which is contained a barrel having indicating wheels, the barrel being axially movable to one position in which the wheels are adjustable and to a second position in which the wheels are locked, a portion of each wheel being visible through the remaining opening when the barrel is in one position.

4. An indicating mechanism comprising a grooved mounting movably supporting a grooved barrel having adjustable indicating units, a key disposed in the two grooves to lock the barrel units against rotation when the barrel is in one position, and means at one end of the barrel in connection with the several units adapted to adjust the same when the barrel is in a second position.

5. In combination, a body having a bore and a groove, a barrel mounted for axial movement within the bore, indicating wheels associated with the barrel, means for rotating the indicating wheels, and means co-acting with one or more of the wheels depending upon the longitudinal position of the barrel for locking the wheels against rotation.

6. In an indicator, the combination of a body having a passageway and a sight opening communicating therewith, a rotatable supporting member shiftable axially in said passageway, an indicating wheel mounted on said supporting member to move axially therewith and adapted in one axial position to be exposed through said sight opening, means within said passageway for engaging

said wheel to prevent rotation thereof when said supporting member is in an inner position in said passageway, and a frictional connection between said supporting member and wheel whereby said wheel may be rotated by said supporting member after said supporting member has been shifted outwardly to release said wheel from said rotation preventing means.

7. In an indicator, the combination of a housing having a passageway, a rotatable operating member shiftable axially in said passageway, a row of indicating wheels mounted on said operating member and having frictional driving connection with said member, stop means within said passageway engaging with said wheels when said operating member is in its inner position to thereby prevent rotation of said wheels with said member, said wheels being successively released from said stop means for rotation with said member when said member is shifted outwardly.

8. In an indicator, the combination of a body having a passageway, a rotatable operating member shiftable axially in said passageway and having an operating head, said member and its head being normally entirely within said passageway, a row of indicating wheels mounted on said member and each having frictional driving connection therewith, and a stop engaging said wheels to prevent rotation thereof with said member when said member is in its inner position within said passageway, there being a sight opening in said body communicating with said passageway through which the indications on said wheels may be read, outward movement of said member progressively releasing the wheels from said stop for rotation with said member.

9. In indicating mechanism, the combination of a housing having a passageway therethrough, a rotatable operating member having an operating head, said member with its head being normally entirely within said passageway to form a closure for the ends thereof, a row of indicating wheels on said member each having frictional drive connection therewith, and stop means engaging with said wheels when said member is in its normal position within said passageway whereby said wheels are stopped from rotating with said member, said wheels being progressively released from said stop means when said member is shifted outwardly to be then free to rotate with said member, said housing having a sight opening through which the indication on said wheels may be read.

In testimony whereof, I have hereunto set my hand this 18th day of December, 1929.

ORVILLE S. HERSHEY.