Dec. 19, 1933. L. LEVIN 1,940,134

GOLF SCORE COUNTER

Filed Sept. 2, 1930

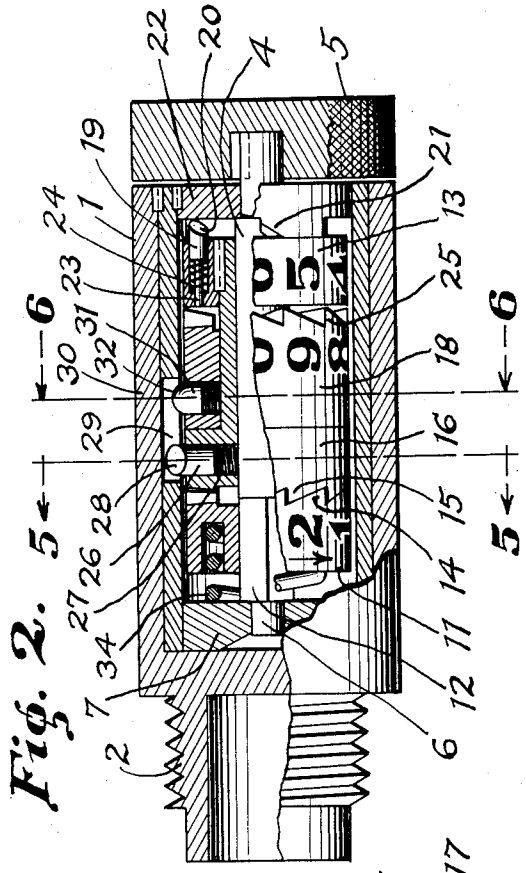


Fig. 2.

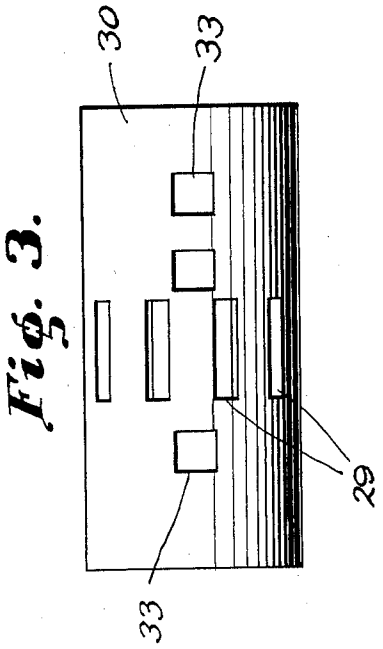


Fig. 3.

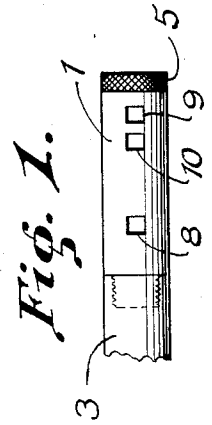


Fig. 1.

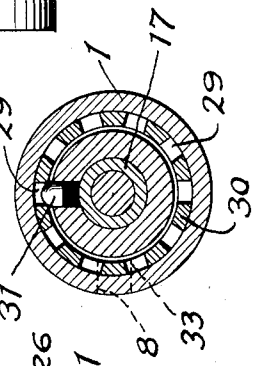


Fig. 6.

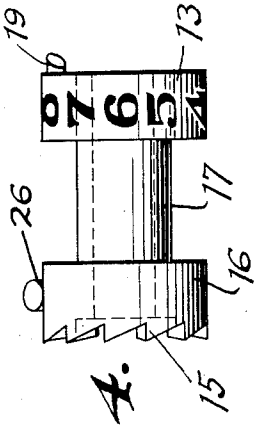


Fig. 4.

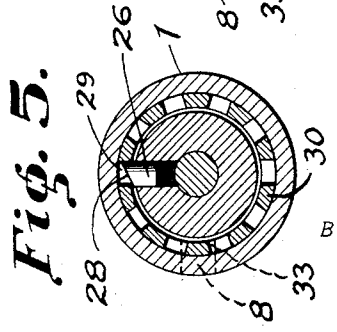


Fig. 5.

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GOLF SCORE COUNTER

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8 Claims. (Cl. 235—117)

This invention relates to a counter which can be used for scoring or counting, and while the improvements may be embodied in counters used for any purpose whatever, they are intended to be particularly useful when embodied in a small, compact counter which can be readily carried in one's hand. The general object of the invention is to produce a counter of simple construction, of few parts and very compact, and which can be constructed to be used as an attachment for the end of a pencil or fountain pen or the like, to be carried in one's pocket. The device is intended to be particularly useful when attached to the handle of a putter, and employed for counting putts or strokes in playing golf.

In its construction, the device employs rotatable number dials such as are employed in counters and adding machines. In such machines, however, in order to carry from a unit's dial to a ten's dial, it is necessary to provide the number dials with gear wheels which mesh with pinions alongside of the dials for effecting the carrying movements. One of the objects of this invention is to provide an improved carrying mechanism which will avoid the necessity of employing gear wheels on the number dials and which will enable the mechanism to be readily used in a small tubular casing.

A further object of the invention is to provide a simple detent mechanism for holding the number dials in any position to which they have been advanced.

Further objects of the invention will appear hereinafter:

The invention consists in the novel parts and combinations of parts to be described hereinafter, all of which contribute to produce an efficient and compact counter.

A preferred embodiment of the invention is described in the following specification, while the broad scope of the invention is pointed out in the appended claims. In the drawing;

Fig. 1 is a side elevation of the device, full size and illustrating the same applied to the end of a fountain pen broken away.

Fig. 2 is a view showing the casing of the device partially in section and partially in elevation, certain parts being broken away and shown in section.

Fig. 3 is a side elevation of a liner sleeve which I prefer to employ as a part of the detent means for holding the dials in any position to which they have been advanced.

Fig. 4 is a side elevation showing the units dial together with a sleeve to which this dial is attached.

Fig. 5 is a cross-section through the device taken on the line 5—5 of Fig. 2.

Fig. 6 is a cross-section taken on the line 6—6 of Fig. 2.

Figs. 5 and 6 are upon a slightly reduced scale.

In practicing the invention, I provide a casing which is preferably of tubular form and in this casing I maintain a spindle on the axis of the casing. I also provide a counter dial mounted for rotation by the spindle, and this dial is employed for indicating the strokes or other events that are to be counted. In addition to this, I provide totaling dials which in a small device may be only two in number, including a unit's dial and a ten's dial which are freely rotatable on the axis of the spindle.

Between the counter dial and the unit's dial, I provide means including a one-way drive connection for advancing the unit's dial whenever the counter dial is advanced. As the unit's dial rotates, at each revolution it carries over to the ten's dial. This carrying is preferably effected through the agency of a carrying pawl or dog that is carried on the unit's dial and which is projected automatically; at each revolution it engages the ten's dial so as to advance it through one number space. The detent means for the number dials preferably include a common detent member which may be in the form of a liner sleeve placed in the tubular casing of the device.

Referring more particularly to the parts, 1 indicates the casing of the counter which is preferably of tubular form and if desired, this casing may be provided at one end with a threaded nipple 2 to enable it to be attached to the end of a pencil or a fountain pen as indicated at 3 in Fig. 1, or if desired, this threaded nipple could be screwed into the end of a golf club.

Mounted for rotation on the axis of the casing, I provide a spindle 4 which may be rotated at will in either direction by means of a thumb head 5 which is secured to its outer end. The inner end of the spindle may be provided with a neck 6 of reduced diameter which may be rotatably mounted on the inner end of the casing or, as illustrated, in an inner disc or washer 7 seating at the inner end of the casing.

The tubular casing 1 is provided with three windows 8, 9 and 10, the former of which is in line with a counter dial 11. This dial carries numbers on its face, as indicated, which run from 0 to 9. This dial is mounted on the spindle 4 so that it will rotate with the spindle but so that

it can slide longitudinally on the spindle. For this purpose the spindle may be provided with a square neck 12 received in a square opening in the hub of the dial 11. In using the counter, this dial is rotated in the direction indicated by the arrow by means of the thumb head 5. The rotation in this direction is imparted to a unit's dial 13 that is located near the outer end of the casing.

The drive from the dial 11 to the dial 13 is a one-way drive connection. Any suitable one-way drive connection may be employed but in the present instance, I have provided ratchet teeth 14 on the face of the dial 11 to engage with corresponding ratchet teeth 15 on the adjacent face of a cylindrical head 16 that is rigid with the dial 13, being connected to the same by a sleeve 17. When the head 16 and the dial 13 have been advanced by the movement of the dial 11, detent means operates to hold the dial 13 and sleeve 17 against further movement. This means will be described hereinafter.

Alongside of the unit's dial 13 I provide a ten's dial 18 which is freely rotatable on the sleeve 17 between the head 16 and the dial 13, and I provide carrying means for carrying to the ten's dial at each revolution of the unit's dial. For this purpose I provide a carrier dog in the form of a pin 19 that is mounted to slide longitudinally in the dial 13. This pin has a head at one end with an inclined face 20 which at each revolution comes in contact with a cam 21 which is relatively fixed, being carried on a head 22 fixed in the outer end of the casing.

The dog 19 has a stem 23 on its end towards the dial 18 but this stem is normally held in a retracted position (see Fig. 2) by means of a coil spring 24.

When the pin 19 strikes the cam 21, this stem 23 is thrust towards the adjacent face of the dial 18 and engages with means on its face that cooperates with the pin to effect the advance of the dial 18 through one number space. Any suitable means may be employed for this purpose but in the present instance, I provide ratchet teeth 25 as shown, which correspond in number and position to the numbers on the face of the dial. These numbers, of course, run from 0 to 9 like the numbers on the other two dials.

Detent means is provided to cooperate with the head 16 and the dial 18 to hold these parts in any position. For this purpose I provide a detent pawl or dog 26 which projects radially from the side face of the head and this pin is forced outwardly by a coil spring 27 back of it. It is provided at its outer end with inclined face 28 which enables it to cooperate with detent means on the inner face of the bore of the barrel or casing 1. This detent means, to cooperate with the pawl, may be in the form of longitudinal grooves formed in the face of the barrel but I prefer to employ for this purpose longitudinal slots 29 formed in a liner sleeve 30 of metal that is slipped into the end of the barrel. These slots 29 also cooperate with a detent pawl or pin 31 which is mounted like the pin 26 but which has a rounded nose 32 so that while it will hold itself yieldingly in any of the slots, it permits the dial 18 to be moved in a forward direction.

It is unnecessary to use the same kind of a pawl at this point as the pawl 26 because there is no force tending to rotate this dial 18 in a backward direction, as there is in the case of the head 16.

In addition to the slots 29, the sleeve 30 should be provided with windows 33 that align with the windows 8, 9 and 10 (see Fig. 5).

The dial 11 is provided with a coil spring 34 that yieldingly holds its teeth 14 in engagement with the ratchet teeth 15 of the head 16.

In using the counter, it will be evident that by rotating the thumb head 5 in an anti-clockwise direction as indicated by the arrow, the inner end of the spindle 4 will rotate the counter dial 11. As this dial advances, its ratchet teeth advance the head 16 which is detained by the detent pawl 26 in the position to which it has been advanced, with one of the numbers on the face of dial 13 appearing in the unit's window 9. As successive strokes are counted, the dials 13 and 18 operate as totaling dials, that is to say, the ratchet teeth 14 and 15 permit the dial 11 to be set back to 0 whenever desired, without the dial 13 being set back. When this is done, the ratchet teeth 14 and 15 slip over each other at their inclined faces, the spring 34 being compressed to permit this.

At each revolution of the dial 13, the carrier pin 19 when it engages the cam 21, will be moved so that its stem 23 projects out and engages one of the teeth 25 of the ten's dial 18. The cam 21, however, circumferentially measured, is about the same length as the pitch of the teeth 25 so that as soon as the carrier dog 19 has advanced the dial 18 through one tooth space, it will have passed the cam 21 and will release the dial 18. When this occurs, the detent pawl 31 will be in engagement with one of the slots 29 and will hold the dial 18 in proper position to have one of the numbers on its face appearing in the window 10.

In setting the dials back to 0, the thumb head 5 should be rotated in a clockwise direction until the same number appears in the window 8 as is showing in the units window 9. After this occurs, then the thumb head should be rotated in an anti-clockwise direction, as indicated by the arrow, until a 0 appears in the window 10.

It is understood that the embodiment of the invention described herein is only one of the many embodiments this invention may take, and I do not wish to be limited in the practice of the invention, nor in the claims, to the particular embodiment set forth.

What I claim is:

1. In a counter of the kind described, the combination of a cylindrical casing, a spindle mounted for rotation coaxially in said casing, a counter dial mounted for rotation thereby, totaling dials including a unit's dial and a ten's dial freely rotatable on the axis of said spindle, means including a one-way drive connection for advancing the said unit's dial from the first named counter dial when rotated, detent means for holding the unit's dial in any position to which it is advanced, a carrying dog carried by the unit's dial and movable on the dial longitudinally with respect to the spindle, said ten's dial having teeth on its end face to correspond with the numbers on its circumferential face, and a head in the end of the cylindrical casing having a fixed cam to cooperate with the carrier dog to project the same once during each revolution to engage one of the said teeth for carrying to the ten's dial.

2. In a counter of the kind described, the combination of a cylindrical casing, a spindle mounted for rotation coaxially in said casing, a counter dial mounted for rotation thereby, totalling dials including a unit's dial and a ten's dial freely ro-

tatable on the axis of said spindle, means including a one-way drive connection for advancing the said unit's dial from the first named counter dial when rotated, detent means for holding the unit's dial in any position to which it is advanced, a carrier dog in the form of a sliding pin mounted in the unit dial to slide longitudinally of the same with respect to the axis of the spindle, said ten's dial having teeth corresponding to the numbers on the same and located on the face of the dial adjacent to the said unit dial, a spring associated with the pin for normally holding the same in a retracted position out of engagement with the teeth, and a head in the end of the cylindrical casing having a fixed cam in the path of the pin for projecting the same toward the ten's dial once in each revolution to engage one of the said teeth, and thereby carry to the ten's dial from the unit dial.

3. In a counter of the kind described, the combination of a substantially tubular casing, a spindle mounted for rotation coaxially in said casing, a counter dial mounted on the spindle for rotation thereby, a sleeve rotatably mounted on the spindle and having a one-way drive connection with the counter dial so as to be advanced when the counter dial is rotated in a forward direction, totalling dials including a unit dial rigid with said sleeve and a ten's dial rotatably mounted on said sleeve, a detent pawl carried by the sleeve, and a detent pawl carried by the ten's dial, means cooperating with both of said detent pawls for holding the sleeve and the counter dial in any position in which the same are left, and carrying means for carrying from the unit dial to the ten's dial.

4. In a counter of the kind described, the combination of a substantially tubular casing, a spindle mounted for rotation coaxially in said casing, a counter dial rigidly mounted on the spindle for rotation thereby, a sleeve rotatably mounted on the spindle and having a one-way drive connection with the counter dial so as to be advanced when the counter dial is rotated in a forward direction, totalling dials including a unit dial rigid with said sleeve and a ten's dial rotatably mounted on said sleeve, a detent pawl carried by the sleeve, and a detent pawl carried by the ten's dial, a fixed sleeve within the casing and having a plurality of circumferentially spaced slots therein, each slot cooperating with both of said detent pawls for holding the first named sleeve and the counter dial in any position in which the same are left, and carrying means for carrying from the unit dial to the ten's dial.

5. In a counter of the kind described, the combination of a substantially tubular casing, a spindle mounted for rotation coaxially in said casing, a counter dial mounted on the said spindle for rotation by the spindle but capable of longitudinal movement along the spindle, a sleeve rotatably mounted on the spindle and having ratchet-teeth on the face thereof adjacent the counter dial, said counter dial having corresponding ratchet means for engaging the teeth of the sleeve, cooperating therewith to form a one-way drive connection from the counter dial to the sleeve, a spring yieldingly pressing the counter dial against the sleeve to maintain the said teeth and ratchet means in engagement with each other, totalling dials including a unit dial rigidly mounted on said sleeve, and a ten's dial rotatably mounted on said sleeve, detent means for holding said sleeve and unit's dial in any position to which the same are advanced by the counter dial, detent means for holding the ten's dial in any position to which it is advanced by the unit dial, and means for carrying from the unit's dial to the ten's dial.

6. In a counter of the kind described, the combination of a tubular casing, a liner-sleeve secured within the casing and having a plurality of longitudinal slots in the wall thereof, a fixed head mounted at the outer end of the liner sleeve, a spindle rotatably mounted coaxially in said casing and having a shank passing through said head, a thumb-head attached to said shank for rotating the spindle, a counter dial mounted to slide on the inner end of the spindle and mounted so as to be rotated by the spindle, a loose sleeve rotatably mounted on the spindle between the counter dial and the said fixed head, a one-way drive connection between the counter dial and said sleeve for advancing the sleeve when the counter dial is advanced and including ratchet teeth on the adjacent faces of the counter dial and sleeve with a spring pressing the counter dial toward the sleeve, totalling dials including a unit's dial rigidly mounted on the sleeve and a ten's dial freely rotatable on the sleeve, a one-way detent pawl carried by the loose sleeve for engaging said slots to hold the same in any position to which it is advanced by the counter dial, and a detent pawl carried by the said ten's dial and cooperating with the said slots to hold the ten's dial in any position to which it is advanced, and carrying means including a relatively fixed cam for carrying from the unit dial to the ten's dial at each revolution.

7. In a counter of the kind described, the combination of a cylindrical casing, dials with numbers on their circumferential faces within the casing, detent pawls carried by the dials, and a sleeve enveloping the dials having slots at intermediate points on its length to cooperate with the detent pawls, in holding the dials in their set positions, said sleeve having windows through which the numbers of the dials may be seen.

8. In a counter of the kind described, the combination of an outer cylindrical casing closed at one end, a spindle mounted coaxially in the outer casing having a reduced neck at its inner end, a washer at the closed end of the casing and forming a bearing for the said neck, dials mounted coaxially on the spindle with numbers on their circumferential faces, detent pawls carried by the dials, a liner sleeve enveloping the dials having slots at intermediate points on its length to cooperate with the detent pawls, and having windows through which the numbers of the dials may be seen, said cylindrical casing having windows registering with the first-named windows, an outer head at the outer end of the sleeve and fixed within the sleeve, said outer head forming a bearing for the outer end of the spindle, and a thumb head secured to the outer end of the spindle for rotating the dials.

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