Sept. 15, 1959 M. BRUNENGRABER 2,903,807

INDICATING DEVICE

Filed Nov. 9, 1953 2 Sheets-Sheet 1

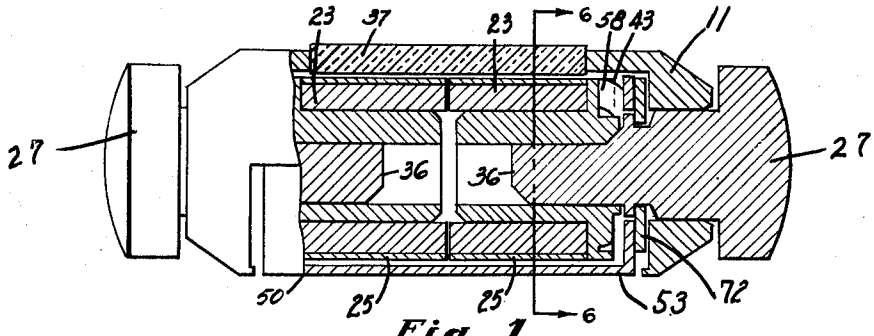


Fig. 1.

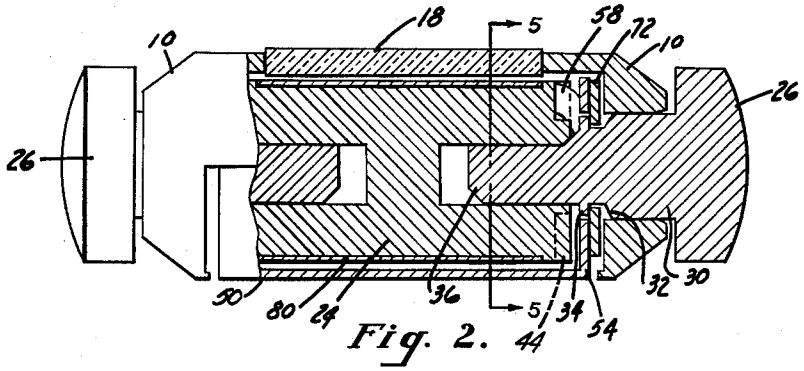


Fig. 2.

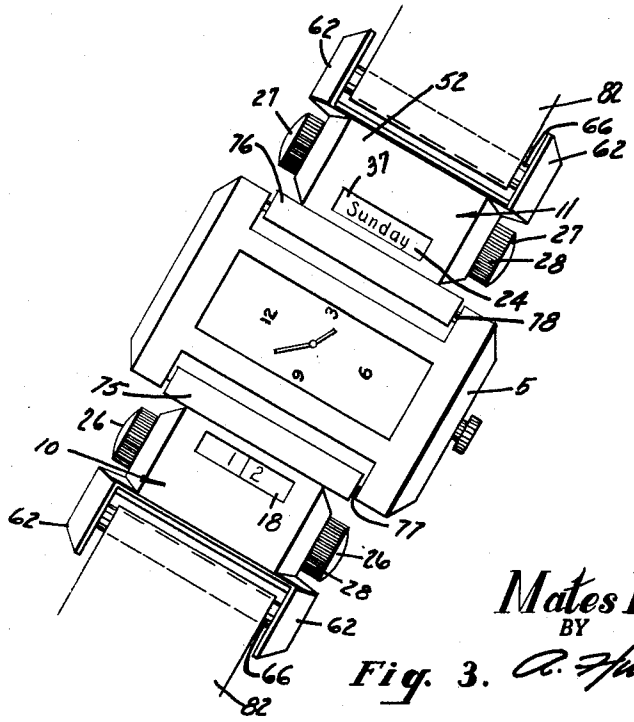


Fig. 3.

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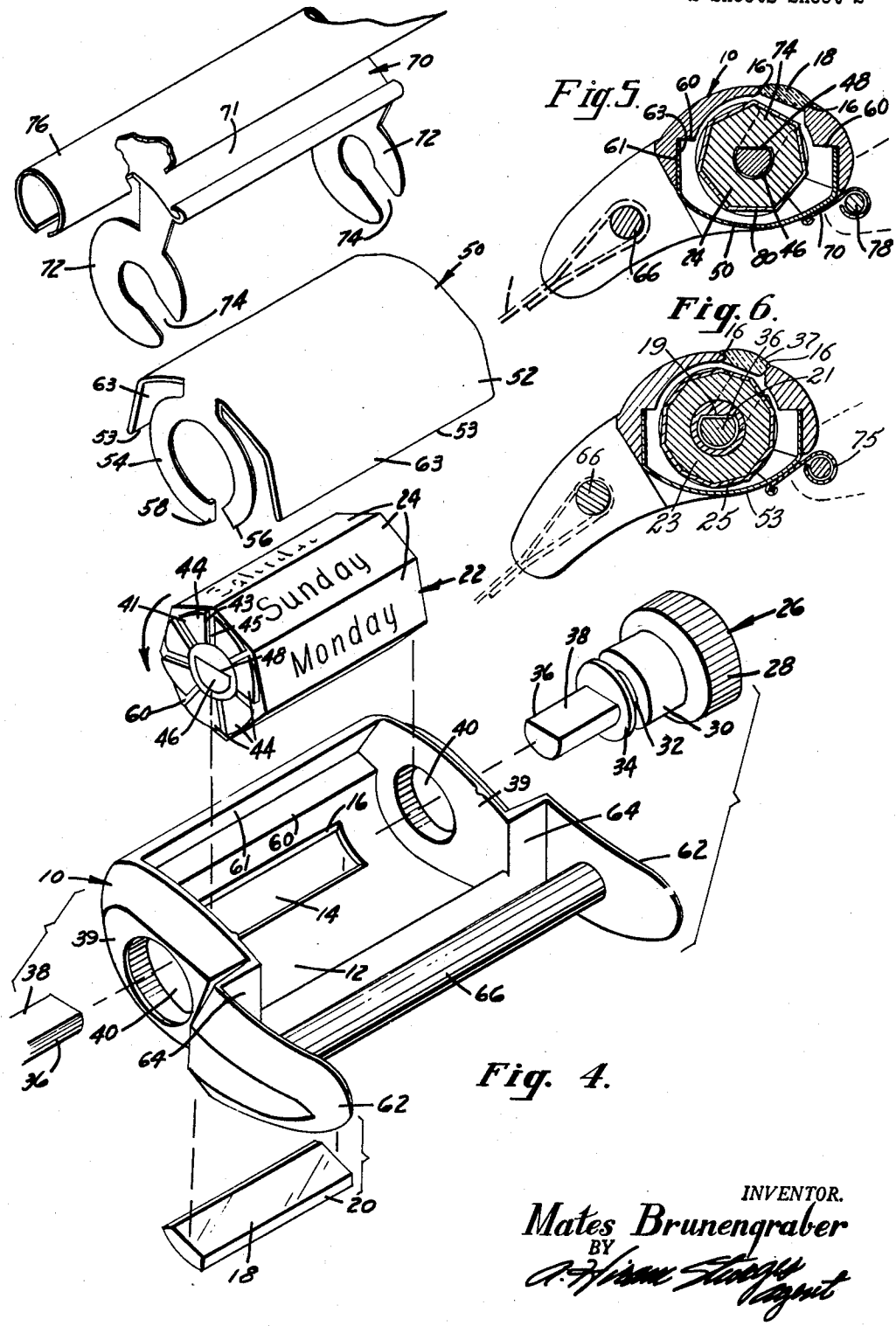


Fig. 4.

Fig. 5.

Fig. 6.

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2,903,807

INDICATING DEVICE

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6 Claims. (Cl. 40—114)

This invention relates to bracelet calendars of the type described in applicant's earlier United States patent application entitled "Bracelet Calendar," Serial Number 2,559,211, issued July 3, 1951.

It is an object of this invention to provide a calendar of this type which can be much more rapidly assembled than heretofore, as the screw portions of the earlier calendar which hold the crowns in place must be placed in assembly slowly and with many motions.

It is therefore an object to provide a calendar assembly including crowns which can be each inserted with a single motion and which become locked in place by the insertion into the assembly of a member having hook or yoke portions, the hook member forming an otherwise necessary part of the assembly in that it serves the further purpose of attaching a calendar unit to a bracelet attachment pin of a watch.

A still further object is to provide a calendar unit including a casing, a roller having the days of the week thereon, a roller cover member, two crowns, and a hook member as above described, the construction of all these parts being such that they are held in assembly by the insertion of the hook or yoke member which is placed in the assembly last.

A still further object is to provide an assembly as immediately above described which has two rollers disposed end to end, each roller bearing suitable numerals whereby together they indicate the day of the month.

A still further object is to provide an assembly as described having improved means for preventing the rollers from rotating in undesired directions and for holding said rollers from rotating at undesired times as might otherwise sometimes happen due to engagement of the crowns with the skin or with clothing.

Still another object is to provide the rotation arresting mechanism as described in the last paragraph in which one cooperative portion thereof is attached to a respective roller and the other cooperative portion thereof is attached to said cover member, whereby rapid assembly and durable construction is achieved.

A still further object resides in the provision of the roller having on its outer side many flat surfaces for more readability, displaying the days or the date numerals.

A still further object is to provide a calendar as described, each set of which has a lens in an opening therein through which the rollers can be seen; particularly, it is an object to provide a lens which magnifies for improved readability of a calendar.

Other and further objects and advantages of the present invention will be apparent from the following detailed description and claims and are illustrated in the accompanying drawings which, by way of illustration, show the principles of the invention and a mode in which I have contemplated applying those principles.

Other embodiments of the invention embodying the same or equivalent principles may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention and the purview of the appended claims.

Figure 1 is a view partly in cross section of the date indicating calendar unit.

Figure 2 is a view partly in cross section of the day indicating calendar unit.

Figure 3 is a top plan view of a watch and portions of a bracelet and showing the day and date indicating calendar units between the watch and the bracelet.

Figure 4 is an exploded view showing the various parts in a calendar unit assembly.

Figure 5 is a cross sectional view taken along the line 5—5 of Figure 2.

Figure 6 is a cross sectional view taken along the line 6—6 of Figure 1.

In Figure 3 is shown an over-all view of the calendar units of this invention showing their attachment to a watch 5. Attached to either side of the watch are housing or casing members 10 and 11.

The housing 11 is designed for displaying indicia indicating the days of the week through a magnifying lens 18. The assembly attached to the opposite side of the watch indicated generally at 10 also has a magnifying lens 18 through which are displayed numerical indicia for showing the day of the month. Each of these assembly units 10 and 11 has means for attachment to the bracelet pins of a watch and also means for attachment to a bracelet.

Referring to Figures 3 and 4 the casing member is shown in inverted position at 10. To this primary part each of the other parts are added one by one. A closed area is shown at 12. An open area through which most of the other parts of the unit are inserted as they are assembled is shown at the upper side of the casing 10 in Figure 4. As it is held in the hand for assembly, this open area will lie uppermost. However, as worn on the wrist and as shown in Figure 3, the closed area 12 is uppermost.

The surface 12 is provided with a window opening 14. The opening 14 has beveled surfaces or edges shown at 16 in Figures 4 and 5, which are so formed as to be complementary to beveled edges 20 of a magnifying lens 18.

It will be seen from the disclosure in the drawing that the lens 18 inserted into the window opening 16 is prevented from passing completely through the casing and is held in place by the elements and members of the device which are later added.

The casing member 10 is approximately cylindrical in shape and is provided at each of its ends 39 with a circular opening such as is shown at 40. The ends 39 are projected into a pair of shoulders 64 which extend at a substantially right angle to the plane of the ends 39. The shoulders 64 terminate each in an arm 62 which extend outwardly and at a substantial right angle to the shoulders 64. These arms 62 provide carrying means for a pin 66. This pin can be detachable by spring or any other desired means to and from the arms 62.

The functions of these elements will be described later as the parts of the unit are assembled. A roller member 22 is of prismatic formation its ends being seven sided polygons. Seven surfaces 24 are thus provided upon which indicia or legends may be written. These indicia are the seven days of the week, one day name inscribed on each side.

Instead of printing indicia directly upon the roller 22, the side surfaces of the prism may be covered with an aluminum or other foil 80 which may present a more desirable surface for printing.

The roller 22 is so positioned that these indicia may be read through the lens 18 and may be very tiny when the lens 18 is a magnifying lens. Means hereinafter to

be described are provided for placing a selected day indicia so that it may be read through the lens **18** and for changing it at will.

The roller portion **22** is provided at each of its ends with a cylindrical orifice **46** which extends along its axis. This orifice **46** is circular in cross section with the exception of a flattened portion **48**. It may be of any non-circular formation. The importance of its form lies in the fact that it is complemental to a member later described which is inserted within it for rotation in unison and for the prevention of relative rotation between these two members.

The end portions of the member **24** are each provided with seven ratchet teeth **44**. These teeth each comprise a substantially triangular portion, raised from the level end surface of the cylinder. At one edge, as at **41**, the tooth is raised only slightly. At the opposite edge of the tooth, its thickness becomes appreciably greater.

These teeth are to be engaged successively by a later described pawl.

This cylinder member is now fitted into the casing **10**. A crown **26**, circular in cross section, has a knurled portion **28** for grasping with the fingers for effecting rotation.

Adjacent to the knurled portion **28** of the crown **26** is a reduced portion **30**, also circular in cross section. Adjacent the portion **30** is an annular groove **32** formed by a still further reduction in the circumference of the crown member **26**. This annular groove **32** is formed between the member **30** and a member **34**, the diameter of which is substantially that of the adjacent member **30**.

Adjacent the member **34** is a projection **36**. This projection is partially circular in cross section, there being a flattened side **38**.

The formation of the projection **38** is complemental to that of the orifice **46** in the roller member **24**. It was said above that the orifice **46** could be of any non-circular formation. The same is true of the projection **36**. The point of importance is that the configuration of the projection **36** conforms in a complementary manner to that of the orifice **46**, so that rotation and quiesence of the crown **26** will be in unison with the roller member **24**. The relationship of the crown member **26** to the roller will now be understood.

After the member **24** is inserted into the casing **10** the crown member is inserted through the circular opening **40** in the casing **10**, and the projection **36** is inserted into the orifice **46**. The function of the annular groove **32** and its relation to the whole assembly will later become evident, as will also the function of the teeth **44**.

After the placement of the crown **26**, the cover **50** is then snapped into place. This cover member **50** is comprised of covering apron **52** which shields the roller **24**, holding it in place and protecting it from undesirable contacts. This covering apron **52** is resilient in nature. The cover member **50** also is provided with a pair of members **54**, one at each end.

These members **54** may be stamped from the same piece of material and be integral with the cover member **50**. Then when members **54** are bent into place, members **50** and **54** may be considered as a portion of a cylinder with the members **54** lying in the plane of its ends.

When in place, the edges **53** of the cover **50** will abutt the shoulder **60** of the casing **10**, and the adjacent area **63** of the cover apron will resiliently press against the interior surface **61** of the arms **62**.

The device just described will be seen as the day denoting unit and is attached to the watch and to the bracelet in the relationship shown in Figure 3.

In Figures 1, 3 and 6 are shown the date denoting device which is attached to the bracelet pin on the side of the watch opposite the day denoting device.

The assembling of this mechanism is in many ways equivalent to that described for the day denoting device. A yoke member **11** carries a lens **37**. A roller **23** carries flat polygonal sides or surfaces **25**. In cross section this roller is polygonal having **10** sides for accommodating the numeral digits zero to nine. This roller is divided into two distinct sections, each operated from an opposite end of the device by means of the knurled stems **27**. This stem carries a flattened portion shown at **21** in Figure 6. This flat section is complemented by a flat surface **19** within the rollers **23** so that rotation of the stem **27** will cause a selected digit to appear in view through the lens member **37** and likewise on the opposite end a selected numeral digit can be made to appear.

The assembling and relationship of the stem **27**, the cover **53** and the snap **72** is identical with that shown in Figure 2. Ratchet teeth **43** are engaged by a pawl member **58** in identical fashion to that above described in connection with Figure 2. The difference lies in the number of ratchet teeth **43**.

There will be ten of these to correspond to the numeral digits zero to nine while in Figure 2, seven only were necessary for the accommodation of each one of seven days of the week.

A further difference between Figures 1 and 2 lies in the fact that the roller member **23** and its corresponding attached portion is adapted to slide into circular openings **40** provided one at each end **39** of the cylindrical portion of the casing **10**.

The roller **24** is provided at either end with a series of radially extending raised portions **44**. These portions **44** are comparatively thin in thickness at one edge and increase in thickness toward the opposite edge as shown at **43**.

The roller portion **22** is also provided at each end with a partially cylindrical opening **46**. These orifices **46** have flattened portions **48**. When the device is assembled the roller is inserted into the yoke **10** and then the reduced and protruding studs **36** of the crowns **26** are inserted through the openings **40** at the ends of the yoke. When this occurs, the protruding stud portions **36** insert themselves into the openings **46** within the roller **24**.

It will be seen that the non-circular stud portions **36** find their complements in the non-circular formation of the orifices **46**.

The cover portion **50** is now fixed into place. This cover portion is comprised of a shield **52** which encloses and protects the interior portions of the device; a pair of resilient flanges **63** and edge portions **53**. The cover member is provided at its ends with a pair of ring-like members **54**. These members are substantially circular in formation. However, the circular formation is broken as shown at **56** and the opposite broken portion **58** is curved inwardly to form a tooth or pawl.

When assembled, it can now be seen that the crown member engages the roller in such a way as to cause rotation of the roller when the crown is activated as with the fingers. The pawl **58** is adapted to ride over the surface **44** and drop into the grooves **45** which are formed therebetween in a ratchet and pawl relationship.

The members **54** are resilient in nature and are formed in the shape of a ring. The ring is cut at **56** and one end of the cut ring thus formed is bent inwardly at **58** to form a pawl. When assembled the pawl **58** is in a position to contact one of the teeth **44**. The pawl **58**, during the rotation of the cylinder, **22**, will ride up onto the lower edge **41** of a tooth **44** and upon further rotation will spring into the interstice **45** lying between a tooth **44** and the tooth adjacent.

Reverse rotation is then prevented because of the abutment of the pawl **58** against the abrupt surface **43** of the tooth just traversed. It will thus be seen that rotation in one direction is permitted because of the inclined surface provided on the tooth and reverse rotation is prevented as described.

It will of course be understood that the formation of the teeth **44** as described has its duplicate at the opposite

end of the roller 24. It will also be understood that the crown member 26 also has its duplicate for insertion at the opposite end of the casing 10. As a result, the roller member may be rotated to any indicia or day indicating legend as desired. This can be done from either end of the assembly or with either hand, since rotation of either crown produces rotation of the roller member.

It will, therefore, be appreciated that this invention provides a calendar device having many desirable features. The provision of the radially extending grooves 45 in the end face of the roller in combination with the pawl element urged axially into engagement therewith, is highly advantageous in that the position of the axis of the roller relative to the pawl element is not critical, as would be the case with a pawl element urged radially toward the roller. It is a further feature of the construction that the pawl elements 58 are carried by the cover member 50 through the portions of the ring members 54 which are formed integrally with the cover 50. A further feature of the construction is that after the ring-shaped members 54 are cut at 56, portions thereof serve as hook elements engaging over the shaft to limit displacement of the cover 50 relative to the casing 10.

Another feature of the invention is that the opposite side edges of the curved sheet metal cover 50 are sprung into engagement with internal surfaces of the casing 10 to lock the cover in position.

A still further feature of the construction is that the generally C-shaped elements 72 define spaced portions arranged to fit into the grooves 32 of the crowns on opposite sides of the axis of the crowns to lock the crowns against axial movement. The C-shaped elements 72 additionally define hooks which engage over the roller-journalling shaft means defined by the shanks of the crowns, to lock the connector 76 to the casing, as illustrated in Figure 5. It may here be noted that in the illustrated arrangement, the connector 76 is connected to the pin 78 of the watch, but it will be apparent that the connecting arrangement could be reversed with the connector 76 being secured to the end of the watch band.

It should further be noted that as will be apparent from the drawing, each of the C-shaped elements 72 forms a locking element of sheet material disposed in the plane of the corresponding groove 32 and having a cut-out portion 74 defining a recess for receiving the groove 32, the recess having a width substantially equal to the diameter of the groove and a rounded semi-circular base portion to thereby fit into the groove through an arcuate distance of at least 180 degrees.

From the foregoing description, it is thought to be obvious that a watch bracelet calendar constructed in accordance with my invention is particularly well adapted for use, by reason of the convenience and facility with which it may be assembled and operated, and it will also be obvious that my invention is susceptible of some change and modification without departing from the principles and spirit thereof, and for this reason I do not wish to be understood as limiting myself to the precise arrangement and formation of the several parts herein shown in carrying out my invention in practice, except as claimed.

I claim:

1. A bracelet indicating unit comprising a roller having calendar indicia thereon, said roller having openings extending into each end thereof in parallelism with and adjacent to the axis of the roller; and upper casing adapted to protect the upper side of the roller at a time when the watch attachment is placed on the wrist of the user, said casing having an opening therethrough whereby a user can see certain of said indicia, said casing having an open center for receiving said roller beneath said opening, said casing having end walls disposed at each end of said roller, said end walls having aligned holes therethrough disposed in alignment with the axis of said roller, said holes being circular in end view, and two crowns, each crown being disposed extending through a respective different one of said holes, each crown having an outer portion adapted to be turned by the fingers of an operator and having an innermost portion adapted to fit into the opening in a respective end of said roller, each crown having an annular slot in the outer side thereof disposed in portion of said crown outside of said roller and inside of the respective casing and wall, means for causing crowns and said roller to rotate in unison; means attached to said casing on one side of said roller for securing said casing to an end of a bracelet; a bottom cover disposed under said roller and secured to said casing, said cover being spaced away from each of said end walls slightly; means attached to each end of said cover for securing the respective ends of said cover to the respective ones of said crowns; and a yoke member having outwardly extending spaced apart hook portions extending respectively into the respective spaces between said cover and said casing ends, said hook portions being hooked about respective crowns in said annular slots to prevent said crowns from moving outwardly and becoming disconnected from said casing, said yoke member having means attached to said yoke member for securing said yoke member to the bracelet pin of a watch.

2. An indicating unit described in claim 1 in which said roller is of polygonal shape having a plurality of flat sides around its circumference for bearing said indicia.

3. An indicating unit as described in claim 1 in which a magnifying lens is disposed in said opening and fixed to the walls thereof.

4. An indicating unit as described in claim 1 in which said cover member is formed of resilient material and is arcuate having a concave upper side and a convex lower side, the uppermost end edges of said cover member being movable toward each other for convenience in assembling, and said casing is provided with shoulders disposed spaced upwardly of its underside edges, respectively, said shoulders being for receiving innermost portions of said cover member.

5. In an indicating device, a roller having a plurality of indicia around the periphery thereof and a bore extending axially inwardly from one end face thereof, a casing having an open side for receiving said roller and having an end wall adjacent said end face of said roller, said end wall having an opening aligned with said bore, a crown having a head portion outside said casing and a shank portion extending through said opening into said bore, said shank portion having an annular groove therein outside said end face of said roller and inside said end wall of said casing, a locking element of sheet material disposed in the plane of said groove and having a cut-out portion defining a recess for receiving said groove, said recess having a width substantially equal to the diameter of said groove and a rounded semi-circular base portion to fit into said groove through an arcuate distance of at least 180 degrees, and a cover arranged to close said open side of said casing and hold said roller and locking element therewithin.

6. In an indicating device, a roller having a plurality of indicia around the periphery thereof and a bore extending axially inwardly from one end face thereof, a casing having an open side for receiving said roller and having an end wall adjacent said end face of said roller, said end wall having an opening aligned with said bore, a crown having a head portion outside said casing and a shank portion extending through said opening into said bore, said shank portion having an annular groove therein outside said end face of said roller and inside said end wall of said casing, a locking element of sheet material disposed in the plane of said groove and having a cut-out portion defining a recess for receiving said groove, said recess having a width substantially equal to the diameter of said groove and a rounded semi-circular base portion to fit into said groove through an arcuate distance of at least 180 degrees, and a curved cover of resilient

sheet material arranged to close said open side of said casing and hold said roller and elements therewithin, said cover having opposite side edge portions sprung into engagement with internal surface portions of said casing to lock said cover and casing in assembly.

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