May 30, 1933. F. C. MENAMIN 1,911,916

NONREMOVABLE GRIP OR CLUTCH

Filed July 1, 1932 2 Sheets-Sheet 1

Fig. 1.

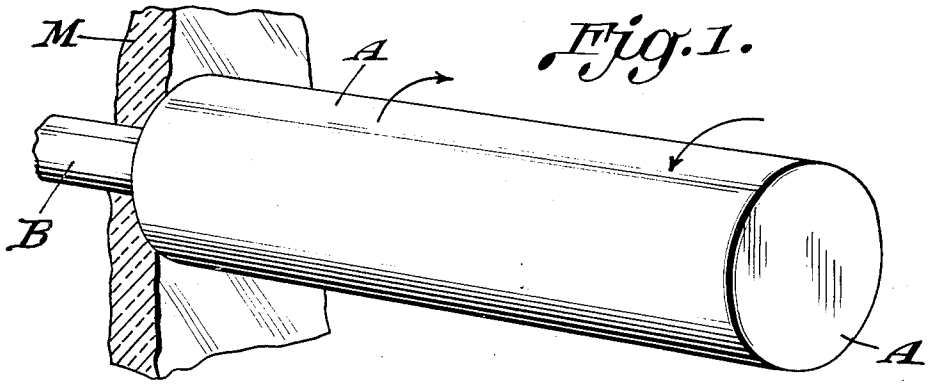


Fig. 2.

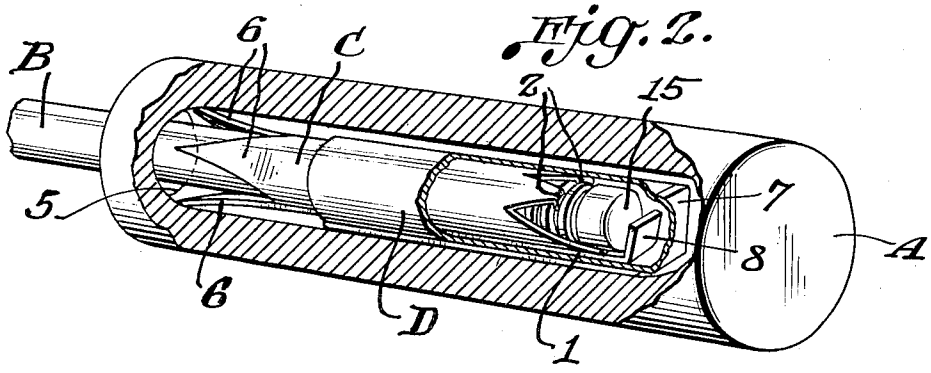
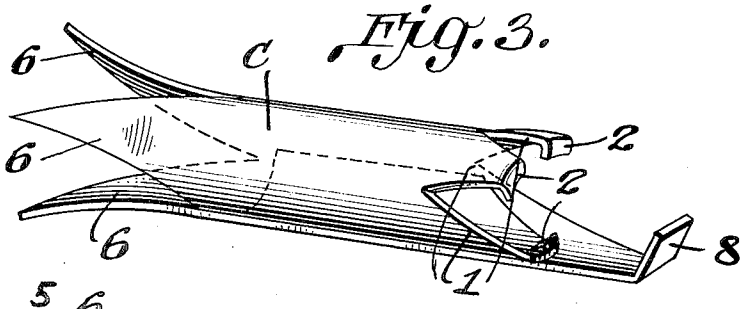


Fig. 3.



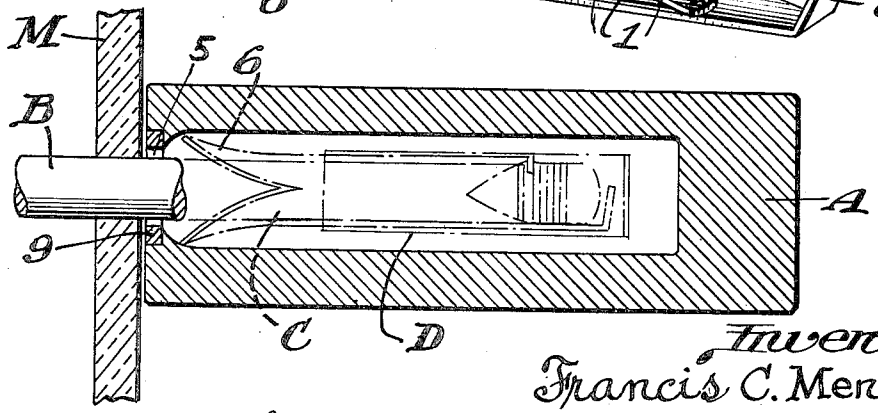


Fig. 4.

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NONREMOVABLE GRIP OR CLUTCH

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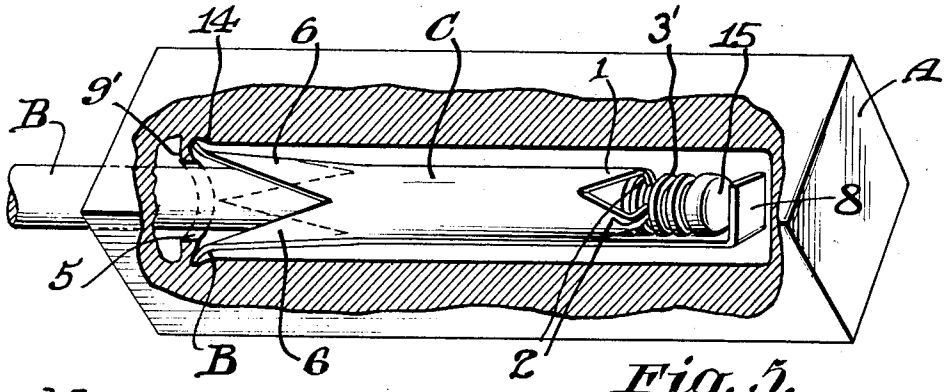


Fig. 5.

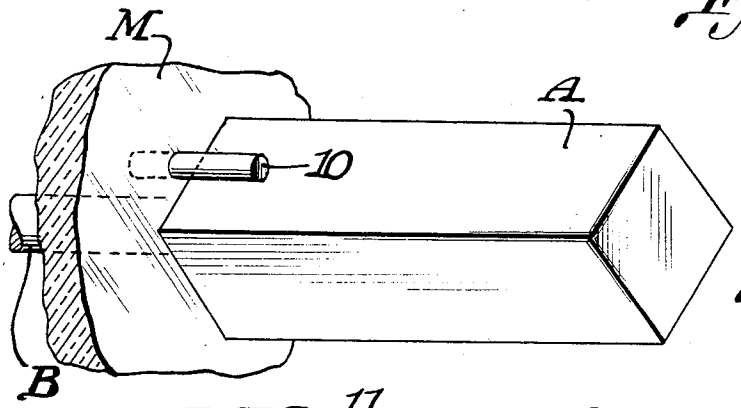


Fig. 6.

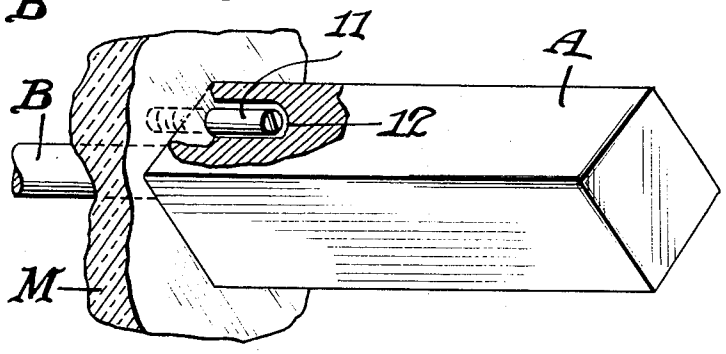


Fig. 7.

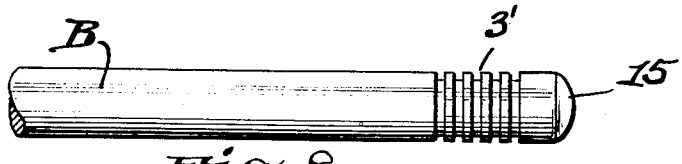


Fig. 8.

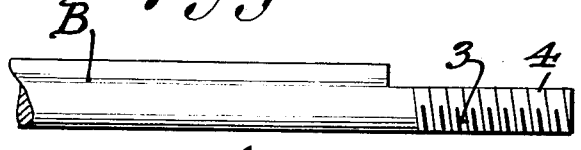


Fig. 9.

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Patented May 30, 1933 1,911,916

UNITED STATES PATENT OFFICE

FRANCIS C. MENAMIN, OF PHILADELPHIA, PENNSYLVANIA; MOLLIE A. MENAMIN, EXECUTRIX OF SAID FRANCIS C. MENAMIN, DECEASED, ASSIGNOR TO ADOLPH C. MOELLER, JOHN D. ASHLEY, JR., AND DAVID E. RATTIN, INDIVIDUALLY TRADING AS ELECTRIC METER LOCK COMPANY, OF PHILADELPHIA, PENNSYLVANIA

NONREMOVABLE GRIP OR CLUTCH

Application filed July 1, 1932. Serial No. 620,472.

The object of my invention is to provide an improved gripping or clutching device primarily intended for use on electric meter boxes, gas meters, or other devices, to prevent unauthorized opening of the box or casing without destruction of the clutch or grip and thereby disclosing the fact that the box has been opened or tampered with.

It is an especial object of this invention to provide a device which can be manufactured without the use of heat which it has been found damages the metal parts of the device to such an extent as to interfere with its proper operation by taking the temper out of the metal. It is also an object of my invention to provide a device which will also avoid the need of the application of pressure to the molten or fluid material while it is being forced or molded into assembled form as the member A of the device. It is also an object of my invention to provide novel spring teeth adapted to automatically lock the device in its locked position as will be hereinafter more fully described. I attain these and other objects of my invention by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the exterior of the device;

Fig. 2 is a similar view with portions broken away and shown in section to show the interior construction;

Fig. 3 is a detail perspective view of member C;

Fig. 4 is a longitudinal section through the member A with the parts C and D, and a portion of B, shown in dotted lines;

Fig. 5 is a perspective view of a modified form of the invention, portions of the modified member A being broken away and shown in section;

Fig. 6 is a detail perspective view of one means for securing member A in a fixed position;

Fig. 7 is a detail view of another means for securing member A in a fixed position;

Fig. 8 is a detail view of my preferred form of post or rod B having annular grooves 3′; and

Fig. 9 is a view of a modified form of the post or rod B having the flattened portion 4 on the screw-threaded end, this modification being used where the invention is applied to an old type of rod or post.

Referring to the accompanying drawings, I provide a molded or cast frangible or easily broken casing member A which preferably is made of plaster of Paris, glass, or some similar material and which may be either cylindrical, as shown in Figs. 1, 2 and 4, or angular as shown in Figs. 5, 6 and 7, as preferred. I provide a post or rod B which extends through the meter box and projects on the outside of the cover of the meter box or other container which is to be closed by my nonremovable clutch or grip. The end of this post or rod B is provided preferably with annular grooves 3′ as shown in Fig. 8.

Meter boxes at present are provided generally with posts or rods having a screw-threaded end. Where it is desired to use the device on meter boxes with this old equipment the threaded ends 3 are flattened as at 4, as shown in Fig. 9, to provide an interruption in the screw-threading for reasons hereinafter explained.

I provide a cylindrical locking shell C having spring locking fingers 1, said spring fingers having inturned ends 2, these two members constituting L-shaped fingers adapted to engage with either the annular grooves 3′ of the post B or with the flattened surface 4 and spiral grooves 3 of the modified post shown in Fig. 9 of the drawings.

I further provide a plurality of novel outwardly flared resilient or spring teeth 6, preferably 3, as shown, which function as locking elements. I further provide an extended L-shaped arm 8 which functions to limit the extent to which the device can be inserted over the post B by contact of member 8 with the end of post B. I provide a cover member D of metal for the inner end of the locking shell C. The cover member D is provided with an end or cap member 7, as shown in Fig. 2.

Referring to Fig. 4, I provide a novel ring 9 which may be cemented or otherwise secured or fastened at the end of the outer casing A to reduce the size of the opening 5

to the chamber in casing A in which the locking shell 6 and cover D are contained whereby the spring teeth 6 will engage the ring and prevent withdrawal of the casing from the post B without breakage and consequent disclosure of tampering of the device.

It is within the contemplation of my invention to provide in lieu of the ring 9 an annular flange 9′ formed of the same material as the body of the casing A, as illustrated in Fig. 5 of the drawings. I may also outwardly taper or expand the end of the chamber as at 14 to make tampering with the device more difficult.

As shown in Figs. 5, 6 and 7, I may provide a casing A of rectangular or other angular shape instead of cylindrical shape and I may provide a pin 10 inserted in the meter box cover M adjacent the wall of the angular casing A to prevent rotation of that casing, or I may provide a cylindrical opening 12 in the end of the casing A to receive a pin 11 mounted in the meter box cover M as shown in Fig. 7. These pins are not necessary when the form of post shown in Fig. 8 is used, but are desirable when the clutch is applied to an old form of meter box post B having a threaded end without the flattened surface 4 shown in Fig. 9, and it may be desired in some cases to apply the device to the old form of post without the expense of flattening the end as shown in Fig. 9.

In manufacturing devices of this sort the difficulty has been found to devise a method of producing the device without overheating it when the glass casing A was made, and thereby drawing the temper of the clamping fingers 1 and 2 which must be resilient, to permit of their springing back while the device is being inserted over the grooved end 3′ or the threaded end 3 of the post B and which must engage in the grooves 3′ or thread 3 and flattened surface 4 to constitute the clutch of the device on the post or rod B which is rigidly fastened to the inner portion of the meter box or casing. By providing the new spring fingers 6 to engage the ring 9 or annular flange 9′, a securing means is provided which makes it possible to cast the device with the hollow chamber first and allow it to cool before either the locking shell C and cover member D are inserted into it. This result is very important as it permits of manufacturing the device without applying heat to the metal shells C and D and thus avoids injuring the temper of the spring fingers 1 and 6. It is however within the contemplation of my invention to make the casing A of glass in which event the interior position and relation of the parts may be seen through the transparency of the glass. In using the device the members C and D are inserted in the chamber in casing A, the spring teeth 6 engaging against either the annular flange 9′ or ring 9 to prevent withdrawal of these members without breaking of the casing and the device as a whole is then inserted over the end of the post or rod B until the rounded end 15 contacts with the member 8 which limits the inward or longitudinal movement of the post. The spring fingers 1 are readily passed over the curved end 15 of the post and engage in the annular grooves 3′ of the post B. Or if the form of post shown in Fig. 9 is employed, they will engage the flattened surface as well as the screw threads of said post and will function to prevent removal of the device without such breaking or damaging of the device that will disclose that it has been tampered with.

As there is a decided amount of resilience to the metal of which locking shell C is composed, there will of course be a tendency for the teeth 6 to fly back to the outwardly flared position when they are slipped past any projections such as the ring 9 or flange 9′ and consequently to engage their points on the inner side or surface of such projection and thereby prevent removal of the device from the post B inasmuch as the fingers 1 at the other end of the shell engage the grooves 3′ or threads 3 and flattened surface 4 of the post B, depending on which form of post is used. The construction hereinbefore described permits of first, making the outer casing A separately, then inserting and securing in place the retaining ring 9 and thereafter inserting the locking shell C with its cover member D in the chamber within the casing A. The entire device then is applied to the post to secure the cover M of the meter box in its normally closed position and prevent opening of it without such damage to the clutch device that it cannot be replaced and will disclose the unauthorized tampering with the meter box.

While a meter box has been specifically referred to in the foregoing description, it is to be understood that the device may be applied to any box or casing which is desired to secure in a closed position without the opening of same being possible except by leaving evidences of opening or tampering with the box or casing. Special attention is also called to the fact that the casing A is of frangible material which will readily be broken if any tampering with the device is attempted.

While frangibility of the casing A is claimed as important yet the enclosing body A need not necessarily be of glass or frangible material, although that is preferable, but it can be of bakelite, tin, iron, or any other metal or substance capable of having the inner edge of the material 9′ around the orifice 5 shaped to form an annular flange 9′ to engage the teeth 6 after they have been forced into the chamber within the casing A as the outward flare of the teeth 6 prevents withdrawal of the locking shell and conse-

quently of the entire device of the post B in view of the engagement of teeth 1 with the end of said post. While I have shown annular grooves 3′ it is within the contemplation of my invention to provide any suitable indentations to be engaged by the teeth 2.

In Fig. 5 there is shown a slight enlargement 14 of the end of the chamber in the casing A and this enlargement permits of even a greater flare of the teeth 6 to secure the locking shell in the casing. This shaping of the elements will further interfere with any possible attempt to tamper with the device through manipulation of instruments. It will be noted that the flange 9′ has a slight inward and downward slant as shown in Fig. 5 of the drawings. In consequence it would give a greater flare to the teeth 6 to try to withdraw members A, C and B by a straight pull. If the casing were pulled outwardly in an attempt to "beat the meter" the frangible substance or the casing A will break, thus showing the unauthorized interference with the device which has thereby accomplished its purpose of disclosing any tampering.

With reference to the form of the invention shown in Figs. 5, 6, and 7, it may be noted that it is required only that the bottom of the casing A be of angular or square shape, as the outer end of the casing could be of any desired shape although normally it would be made of the same shape throughout as shown in the drawings. The pin 10 functions to prevent rotation of the device, this form of the invention being used where the device is applied to posts of the old type now in use on meter boxes which have a threaded end. The function of the pin 10 or the pin 11 is to prevent rotation of the casing and thus an unscrewing of the device from a threaded post which did not have a flattened surface 4. The reason for using the old type of post would be to save the expense of installation of the new and improved form of post B shown in Fig. 8 which is preferred and which would be used where new meter boxes were being installed.

It may be noted that the rounded end 15 facilitates inserting the clutching device as the spring teeth 1 readily slide past the rounded top and into the grooves 3′.

It is within the contemplation of my invention to flatten or corrugate the members C and D if such construction is desired where the casing A is molded directly on those elements.

What I claim is:—

1. In a device of the type described, a locking shell having inturned spring fingers at one end and having outwardly flared spring fingers at the other end, a post having a grooved end with which the inturned spring fingers may engage, a chambered casing having a restricted opening into which the post may be inserted the outturned spring fingers of the locking shell being insertable through said opening but adapted to spring into engagement with the restricted end thereof to prevent removal of the device without breakage of the parts.

2. In a device of the type described, a locking shell having inturned spring fingers at one end and having outwardly flared spring fingers at the other end, a post having a threaded end with which the inturned spring fingers may engage, a chambered casing having a restricted opening into which the post may be inserted, the outturned spring fingers of the locking shell being insertable through said opening but adapted to spring into engagement with the restricted end thereof to prevent removal of the device without breakage of the parts, and means for preventing rotation of the casing to remove the device from the threaded end of the post.

3. In a device of the type described, a locking shell having inturned spring fingers at one end and having outwardly flared spring fingers at the other end, a post having a grooved end with which the inturned spring fingers may engage, an L-shaped arm on the locking shell extending beyond the spring fingers to limit the inward movement of the post, a chambered casing having a restricted opening into which the post may be inserted, the outturned spring fingers of the locking shell being insertable through said opening but adapted to spring into engagement with the restricted end thereof to prevent removal of the device without breakage of the parts.

4. In a device of the type described, a locking shell having inturned spring fingers at one end and having outwardly flared spring fingers at the other end, a post having a threaded end with which the inturned spring fingers may engage, an L-shaped arm on the locking shell extending beyond the spring fingers to limit the inward movement of the post, a chambered casing having a restricted opening into which the post may be inserted, the outturned spring fingers of the locking shell being insertable through said opening but adapted to spring into engagement with the restricted end thereof to prevent removal of the device without breakage of the parts, and means for preventing rotation of the casing to remove the device from the threaded end of the post.

5. In a device of the type described, a locking shell having inturned spring fingers at one end and having outwardly flared spring fingers at the other end, a post having a grooved end with which the inturned spring fingers may engage, an L-shaped arm on the locking shell extending beyond the spring fingers to limit the inward movement of the post, a chambered casing having a restricted opening into which the post may be in-

serted, the outturned spring fingers of the locking shell being insertable through said opening but adapted to spring into engagement with the restricted end thereof to prevent removal of the device without breakage of the parts, and a cover shell mounted over the end of the locking shell having the L-shaped arm.

6. In a device of the type described, a locking shell having inturned spring fingers at one end and having outwardly flared spring fingers at the other end, a post having a threaded end with which the inturned spring fingers may engage, an L-shaped arm on the locking shell extending beyond the spring fingers to limit the inward movement of the post, a chambered casing having a restricted opening into which the post may be inserted, the outturned spring fingers of the locking shell being insertable through said opening but adapted to spring into engagement with the restricted end thereof to prevent removal of the device without breakage of the parts, and means for preventing rotation of the casing to remove the device from the threaded end of the post, and a cover shell mounted over the end of the locking shell having the L-shaped arm.

7. In a nonremovable clutch, the combination of an outer casing of molded material angular in cross section at its base portion, a pin mounted in the meter box cover and engaging said casing to prevent rotation thereof, a post having a threaded end, a locking shell having inturned fingers adapted to engage the threaded end of the post, the locking shell also having outturned fingers to prevent removal of the shell from the chambered portion of the casing, said casing having a restricted opening into which the locking shell may be inserted but may not be withdrawn without breakage of the device.

8. In a nonremovable clutch, the combination of an outer casing of molded material angular in cross section at its base portion, a pin mounted in the meter box cover and engaging said casing to prevent rotation thereof, a post having a threaded end, a locking shell having inturned fingers adapted to engage the threaded end of the post, the locking shell also having outturned fingers to prevent removal of the shell from the chambered portion of the casing, said casing having a restricted opening into which the locking shell may be inserted but may not be withdrawn without breakage of the device, and a cover member enclosing the end of the locking shell to permit of molding the casing member directly on the cover and locking shell.

9. In a nonremovable clutch, the combination of an outer casing of molded material angular in cross section at its base portion, a pin mounted in the meter box cover and engaging said casing to prevent rotation thereof, a post having a grooved end, said post being rounded at the end to facilitate its insertion into the locking shell, a locking shell having inturned fingers adapted to engage the grooved end of the post, the locking shell also having outturned fingers to prevent removal of the shell from the chambered portion of the casing, said casing having a restricted opening into which the locking shell may be inserted but may not be withdrawn without breakage of the device.

10. In a nonremovable clutch, a hollow member having spring gripping teeth, another hollow member covering the first hollow member, a third cover member of frangible material, a post adapted to be held in a fixed position by the spring gripping teeth of the aforesaid members when assembled, and means for preventing the whole device from being rotated for withdrawal from the post.

11. In a hollow nonremovable clutch, a casing having a restricted opening in one end, a clutch device within said casing engaging the portion of the casing adjacent the restricted end to prevent removal without breakage, and a post having recessed portions engageable by said clutch device when inserted whereby to prevent removal of the clutch device from the post without breakage or other evidences of tampering.

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