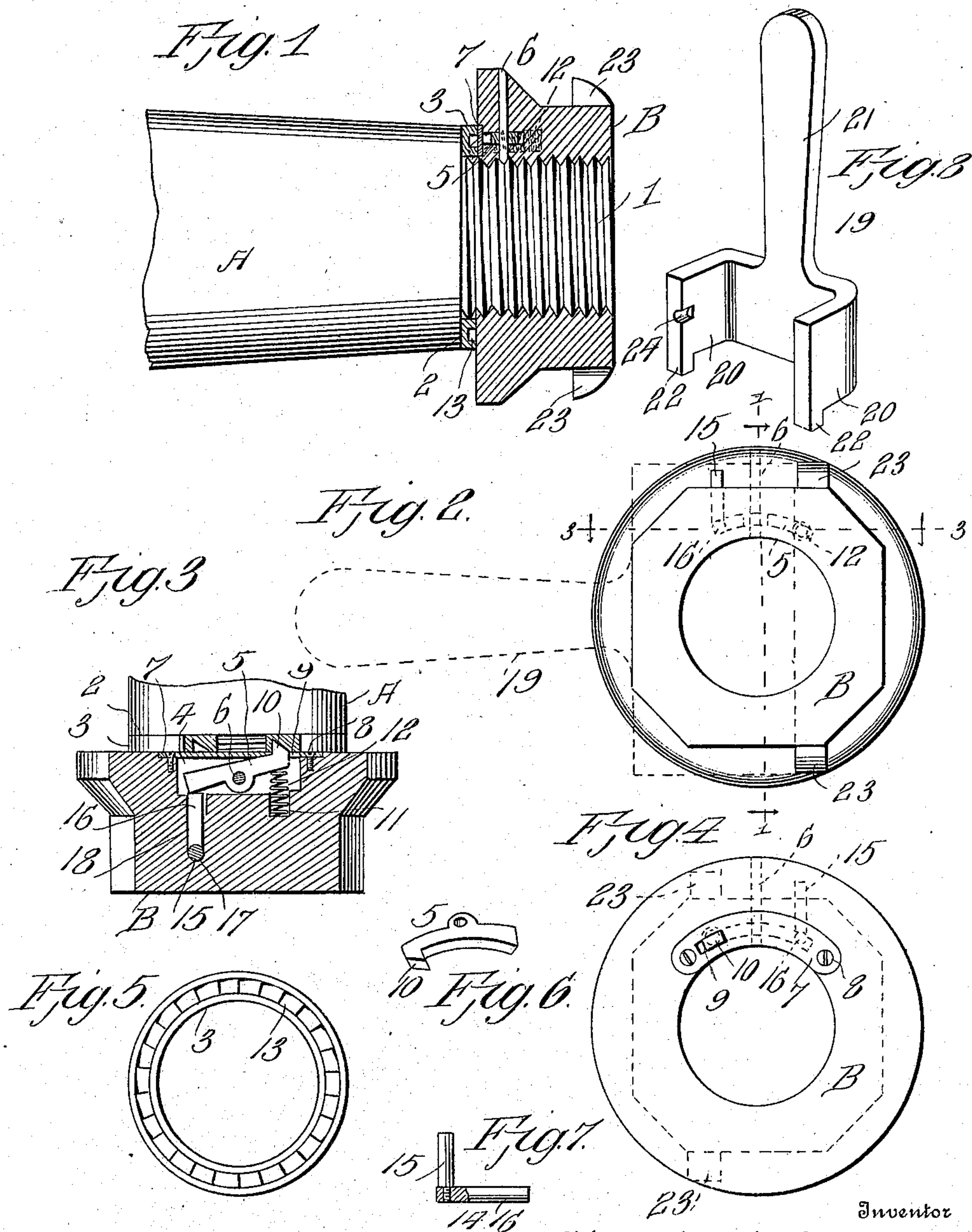


C. H. SOPER.
HUB ATTACHING DEVICE.
APPLICATION FILED MAR. 13, 1908.

899,346.

Patented Sept. 22, 1908.



Witnesses

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UNITED STATES PATENT OFFICE.

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HUB-ATTACHING DEVICE.

No. 899,346.

Specification of Letters Patent.

Patented Sept. 22, 1908.

Application filed March 13, 1908. Serial No. 420,839.

To all whom it may concern:

Be it known that I, CHARLES H. SOPER, a citizen of the United States, residing at Canton, in the county of Fulton and State of Illinois, have invented new and useful Improvements in Hub-Attaching Devices, of which the following is a specification.

This invention relates to hub attaching devices of that type wherein the cap nut of the axle is positively retained in place by a pawl on the nut arranged to engage ratchet teeth on the axle, the pawl being automatically released by the applying of a spanner or other wrench thereto.

The invention has for one of its objects to improve and simplify the construction of devices of this character so as to be comparatively easy and inexpensive to manufacture, reliable and efficient in use, and composed of comparatively few parts.

A further object of the invention is the provision of a device of this character which is in the nature of an attachment so designed as to be used on any ordinary axle, it being necessary merely to shrink or otherwise secure a ring having ratchet teeth to the axle.

Another object is to provide means on the nut which serves to automatically release the pawl by the application of a wrench to the nut, the pawl being pressed by a spring which serves to restore the said means in normal position when the wrench is removed.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawing, which illustrates one of the embodiments of the invention, Figure 1 is a central sectional view of the hub retaining device applied to an axle. Fig. 2 is an end view of the device. Fig. 3 is a sectional view on line 3—3, Fig. 2. Fig. 4 is a rear view of the cap nut. Fig. 5 is a front view of the ratchet ring. Fig. 6 is a perspective view of the locking pawl. Fig. 7 is a detail view of the pawl-releasing element or actuator. Fig. 8 is a perspective view of the spanner wrench adapted for use with the present device.

Similar reference characters are employed to designate corresponding parts throughout the several views.

Referring to the drawing, A designates a portion of an ordinary axle having its outer end provided with threads 1 and on which is screwed the cap or other nut B. Bearing against the shoulder 2 of the axle A is a ring 3 which is of malleable metal and is adapted to be heated and shrunk on the threaded portion 1 of the axle or, if preferred, it can be secured in any other suitable manner. The nut B is recessed in its inner face to provide a chamber 4 in which is mounted a pawl 5 that swings on a pivot 6 suitably secured in the nut. The open side of the chamber 4 is covered by a plate 7 that is set into the inner face of the nut and secured in place by screws or other fastenings 8, the said plate having an opening 9 for receiving the nose 10 of the pawl. The chamber 4 has its inner wall provided with a depression 11 in which is seated a helical compression spring 12 that bears against the pawl to hold the nose thereof in engagement with any one of the ratchet teeth 13 of the ring 3. The pawl is unlocked by a releasing element 14 consisting of two right-angularly disposed arms 15 and 16 arranged respectively, in the passages 17 and 18 in the nut B, the arms being detachably connected so as to facilitate the assembling of the parts. The extremity of the member 16 bears on the pawl 5 and is adapted to tilt the latter when the nut is to be released, while the member 15 projects out of the nut B at one side thereof so as to be engaged by a wrench for the purpose of automatically releasing the pawl.

In Fig. 8, a spanner wrench 19 of special form is shown, the same consisting of jaws 20 formed on the handle 21 and provided with lugs 22 for engaging lugs 23 projecting from two opposite sides of the nut B. The inner face of one of the jaws of the wrench has a notch 24 for receiving the outer extremity of the member 15 when the wrench is applied to the nut.

Normally, the parts are in the position shown in Fig. 3, and when it is desired to remove the nut, the wrench 19 is applied to the nut in such a manner that the jaws 20 will be presented to the sides of the nut having the lugs 23, and the lugs of the wrench are engaged under those of the nut. During the act of applying the wrench, the member 14 will be pressed inwardly by the notch 24 engaging the arm 15. By pressing the member 14 inwardly, the pawl 5 is retracted and held

in this position while the nut is unscrewed. Also in applying the nut, the pawl is held retracted by the wrench and as soon as the wrench is removed, the pawl will be moved into engagement with one of the ratchet teeth and so held by the spring 12.

From the foregoing description, taken in connection with the accompanying drawing, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the device which I now consider to be the best embodiment thereof, I desire to have it understood that the device shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims.

Having thus described the invention, what I claim is:—

1. The combination of a threaded member having ratchet teeth, a nut on the member and provided with a chamber, a pawl pivoted in the chamber and arranged to engage the ratchet teeth, a spring for holding the pawl in locking position, and a releasing device on the nut having angularly-disposed members arranged one in engagement with the pawl and the other normally projecting from one side of the nut.

2. The combination of a threaded member having ratchet teeth, a nut on the member and provided with a chamber open at its rear, a cover plate having an aperture, a pawl pivoted in the chamber with its nose adapted to extend through the aperture to engage the ratchet teeth, and a releasing device having

one end engaging the pawl and the other end projecting from one side of the nut.

3. The combination of a member having a reduced threaded extremity and provided with an annular shoulder, a ring shrunk over the threads of said extremity and bearing on the said shoulder and having ratchet teeth in its side face, a nut on the member and bearing on the ring, a spring-pressed pawl on the nut for engaging the ratchet teeth, and means for automatically releasing the pawl by the application of a wrench to the nut.

4. The combination of a threaded member provided with ratchet teeth, a nut on the member provided with a chamber open at its rear and with passages extending at an angle to each other from the chamber to one side of the nut, a pawl in the chamber for engaging the ratchet teeth, a releasing device composed of detachable members arranged in the passages and one engaging the pawl and the other projecting from one side of the nut, and a spring bearing on the pawl and serving to hold the latter in locking position.

5. A threaded member carrying ratchet teeth, a nut provided with lugs extending from oppositely-disposed sides, a pawl on the nut for engaging the ratchet teeth, a member for releasing the pawl and having one extremity projecting from one of the said sides of the nut, and means for holding the pawl in locking position.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES H. SOPER.

Witnesses:

B. A. SHEPARD,
N. K. JOHNS.