No. 682,105. Patented Sept. 3, 1901.

C. MILLER.

HUB ATTACHING DEVICE.

(Application filed May 15, 1900.)

(No Model.)

Fig. 1.

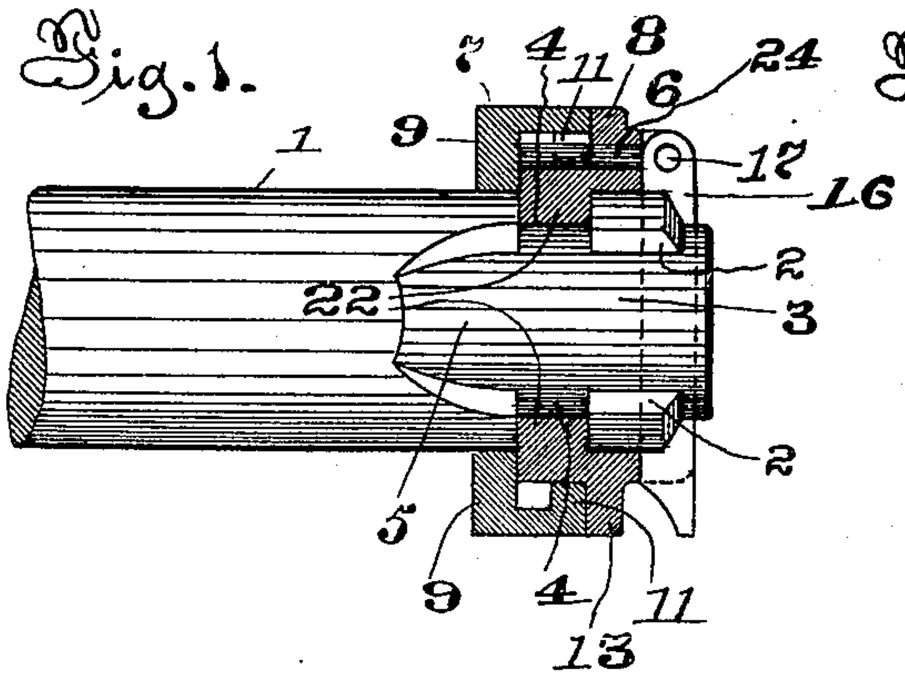


Fig. 2.

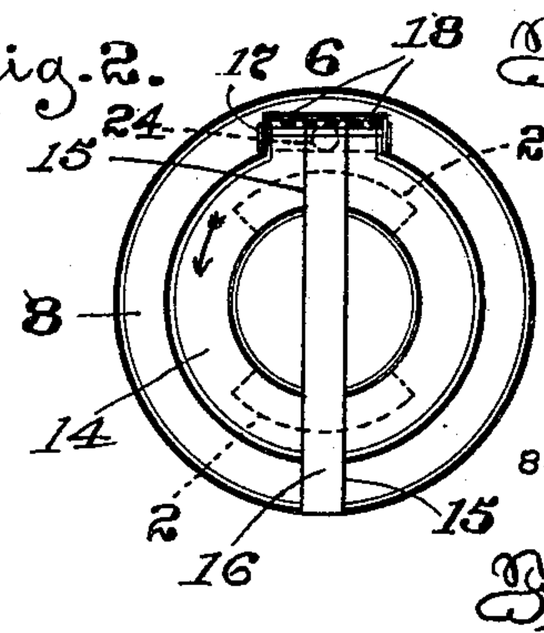


Fig. 7.

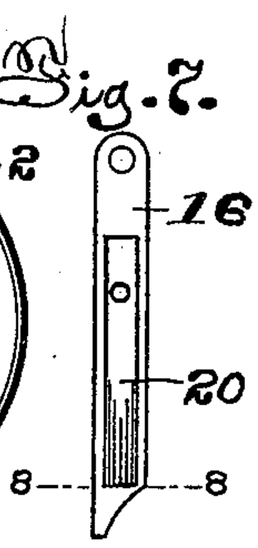


Fig. 8.

Fig. 3.

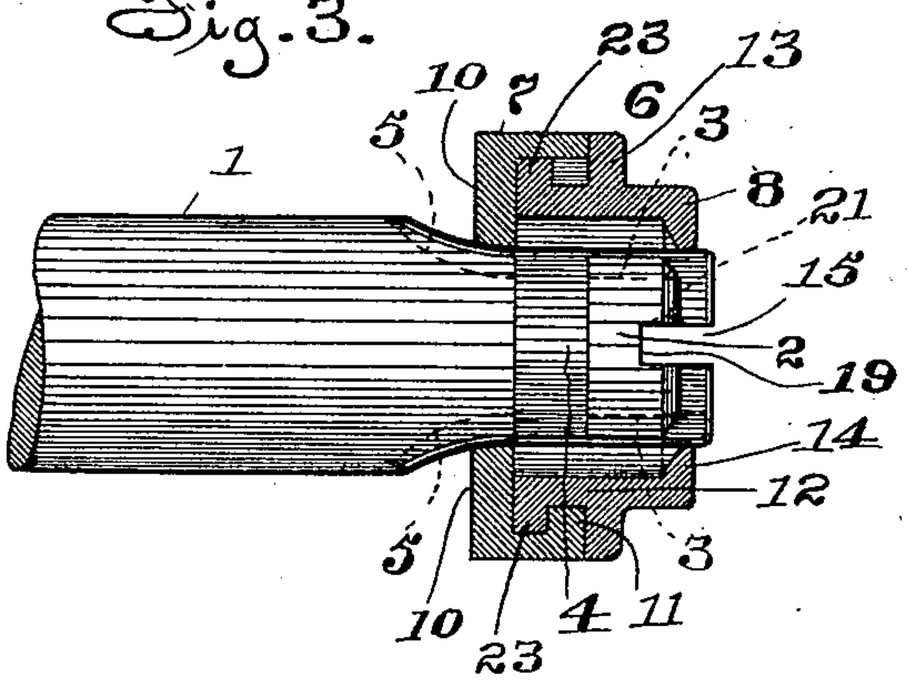


Fig. 5.

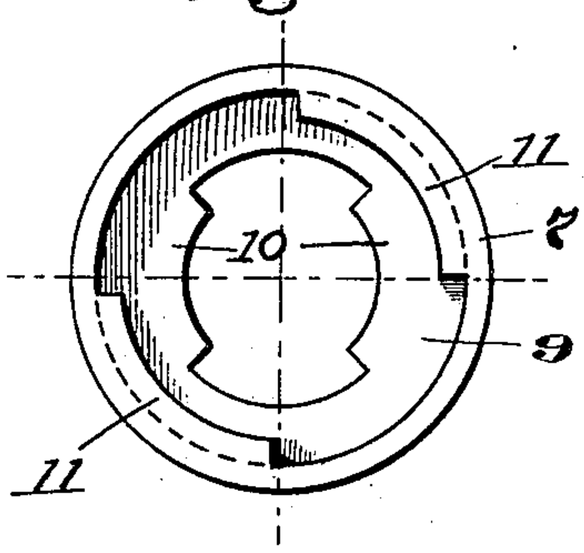


Fig. 4.

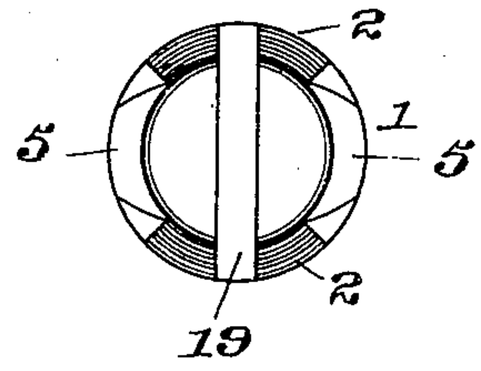
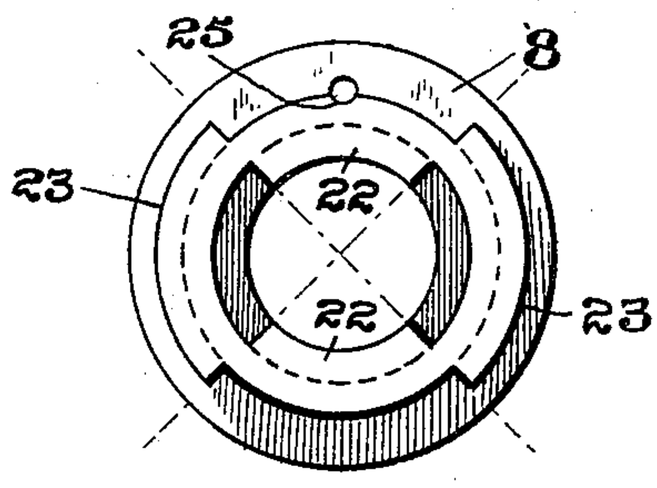


Fig. 6.



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UNITED STATES PATENT OFFICE.

CONRAD MILLER, OF LEADVILLE, COLORADO.

HUB-ATTACHING DEVICE.

SPECIFICATION forming part of Letters Patent No. 682,105, dated September 3, 1901.

Application filed May 15, 1900. Serial No. 16,778. (No model.)

To all whom it may concern:

Be it known that I, CONRAD MILLER, a citizen of the United States, residing at Leadville, in the county of Lake and State of Colorado, have invented certain new and useful Improvements in Hub-Attaching Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in hub-attaching devices, and is more particularly designed as an improvement in the form of such devices as covered by Patent No. 546,176, granted to me September 10, 1895.

The object of the present invention is to provide a hub-attaching device wherein the parts are so arranged as to secure a more positive and efficient attaching means than the device covered by the patent referred to, and, further, to provide a device of the character mentioned which may be easily and quickly manipulated, one which is strong and durable, and also one so constructed that the same may be readily manufactured with only a limited amount of machining.

With these and other objects in view, which will appear as the nature of the improvements is better understood, the invention consists, substantially, in the novel construction, combination, and arrangement of parts, as will be hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the appended claims.

In the drawings, Figure 1 is a side elevation of an axle provided with a hub-attaching device constructed in accordance with the present invention, the device being shown in section. Fig. 2 is an end elevation thereof. Fig. 3 is a top plan view of the axle and the device, the latter being in section on a line at right angles to that disclosed in Fig. 1. Fig. 4 is an end view of the axle. Fig. 5 is a front elevation of the bearing-ring. Fig. 6 is a rear elevation of the locking-ring. Fig. 7 is a detail elevation of the locking-latch. Fig. 8 is a transverse sectional view thereof on the line 8 8, Fig. 7.

Referring to the drawings, the numeral 1 designates an axle, which may be of any suitable material, and said axle is provided at its outer end, at the top and bottom thereof, with locking-lugs 2, the latter being arranged at diametrically opposite points. The lugs 2, as clearly shown, are located near the extremity of the axle, and formed between said lugs at the sides of the axle are spaces 3 for a purpose to be presently stated. In the rear of the lugs 2 is an annular groove 4, and arranged in the rear of the groove 4 at the sides of the axle 1 are notches 5, which are also diametrically opposite and in longitudinal alinement with the spaces 3. It will be observed that the notches 5 incline from their rear ends to the groove 4, and mounted upon the end of the axle 1 and surrounding the lugs 2 is a hub-attaching device 6. The latter comprises a bearing-ring 7 and a locking-ring 8, which rings are suitably secured together, and by referring to Figs. 5 and 6 of the drawings the detail construction thereof is clearly shown. The ring 7 is provided at its rear face with an inwardly-extending flange 9, having at its sides oppositely-disposed inwardly-extending segmental lugs 10, and said lugs are adapted to pass through the spaces 3 and fit within the notches 5 of the axle 1 to hold the bearing-ring 7 against rotation upon said axle. The inner ends of said lugs are beveled to conform to the incline of the notches 5, whereby said bearing-ring is retained in fixed position upon the axle 1 when placed thereon and the flange 9 so positioned as to lie flush with the inner end of the groove 4, as clearly seen in Figs. 1 and 3. At the front face of the ring 7 inwardly-extending oppositely-disposed segmental lugs 11 are arranged, and it will be observed that said lugs are in a plane which is diagonal to that occupied by the lugs 10. The purpose of these lugs 11 will be presently described.

As before stated, the bearing-ring 7 and the locking-ring 8 are suitably connected together, and said locking-ring 8 comprises a hub 12, provided at its exterior with an annular flange 13, arranged approximately midway its ends. The extreme forward end of said hub has an inwardly-extending annular flange 14, through which flange and the adjacent part of the hub a transverse groove 15 is formed, the latter receiving a locking-latch 16, which is pivoted through the medium of a pin 17, arranged transversely of the groove

15 and fitting within oppositely-disposed spaced ears 18. The normal position of the hub is such that the pin 17 is at the top, and when in this position the groove 15 registers with a groove 19, extending vertically across the outer end of the axle 1 and through the lugs 2. The locking-latch 16 is thereby adapted to be swung into said groove 19 for preventing rotation of the locking-ring 8, and in order that said latch may be held in said groove the same is provided at one of its sides with a spring 20, the lower end of which is free and adapted to engage a notch 21, formed in the adjacent side of the lower end of the groove 15. Located at the rear of the hub 12, but at the interior thereof, are oppositely-disposed inwardly-extending segmental lugs 22, which lugs are of substantially the same thickness as the width of the groove 4 of the axle 1, so as to snugly fit therein, and arranged at the exterior of said end of the hub and at right angles to the position of the lugs 22 are outwardly-extending lugs 23. It will be observed at this point that the length of the spaces between the lugs 11 is substantially the same as the length of the lugs 23, so that the latter may readily pass into said spaces when the rings 7 and 8 are being connected, and thereby be in a position to work in the rear of the lugs 11 during the rotation of the locking-ring upon the bearing-ring, as will appear more fully hereinafter. When in the position referred to, the lugs 23 lie and work between the flange 9 of the bearing-ring 7 and the lugs 11, while the lugs 11 lie and work between the lugs 23 and the flange 13 of the locking-ring 8. It is essential, however, that the rotation of the locking-ring 8 upon the bearing-ring 7 should be limited in order to prevent separation of said rings, and to this end a contact-pin 24 is passed through the flange 13, immediately in rear of the pivot-pin 17, said pin 24 fitting in a groove 25 in the hub 12, but extending sufficiently above the latter to abut against the lugs 11. By this construction the locking-ring 8 is capable of only one-fourth of a revolution upon the bearing-ring 7, and hence when moved in the direction of the arrow in Fig. 2, the latch 16 first having been swung outwardly from engagement with the groove 19, the lugs 23 are prevented moving entirely from in rear of the lugs 11, so that the rings 7 and 8 always remain interlocked, the lugs 11 and 23 serving this purpose.

The manner of manipulating the herein-described attaching device is as follows: To remove the device from the axle or from the positions shown in Figs. 1, 2, and 3, the latch 16 is first swung outwardly, and thereby disengaged from the groove 19, after which, using said latch as a handle, the locking-ring 8 is rotated in the direction of the arrow in Fig. 2 until the contact-pin 24 abuts against the upper end of the lowermost lug 11. When this has been accomplished, the lugs 22 will have been carried from their position in rear of the lugs 2 to a point opposite the spaces 3, and immediately upon outward pressure being applied to the ring 8 said lugs 22 will slide through said spaces and from the axle, the ring 7 following the ring 8. To replace the device, the lugs 10 of the ring 7 are slid through the spaces 3 to their seat in the notches 5 and the ring 8 rotated until the pin 24 contacts with the uppermost lug 11, at which time the groove 15 will have been caused to register with the groove 19, and by swinging the latch 16 into said grooves, the spring 20 taking into the notch 21, it will be seen that the locking-ring 8 is prevented from rotating. In this position it is also evident that the lugs 22 have entered the groove 4 and lie in rear of the lugs 2, whereby the device as an entirety is locked against longitudinal displacement.

While the form of the invention shown and described is what is believed to be a preferable embodiment thereof, it is obvious that the same is susceptible of changes in the form, proportion, and minor details of construction, and the right is therefore reserved to modify or vary the invention as falls within the spirit and scope thereof.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. A device of the class described, comprising a bearing-ring provided with inwardly-extending lugs, a locking-ring fitting therein and provided with outwardly-extending lugs, the lugs of said rings being adapted to interlock for securing the rings together, means for retaining the lugs interlocked, and means carried by the locking-ring and adapted to engage an axle for locking the rings thereon.

2. A device of the class described, comprising a bearing-ring provided with inwardly-extending lugs, a locking-ring fitting therein and provided with outwardly-extending lugs, the lugs of said rings being adapted to interlock for securing the rings together, means for retaining the lugs interlocked, and a latch carried by the locking-ring and adapted to engage an axle for locking the rings thereon.

3. A device of the class described, comprising a bearing-ring provided with inwardly-extending lugs, a locking-ring fitting therein and provided with outwardly-extending lugs, the lugs of said rings being adapted to interlock for securing the rings together, a pin carried by the locking-ring and adapted to contact with the lugs of the bearing-ring, whereby the locking-ring is limited in its movement upon the bearing-ring, and means for locking the rings in engagement with an axle.

4. A device of the class described, comprising a bearing-ring provided with inwardly-extending lugs, a locking-ring fitting therein and provided with outwardly-extending lugs, the lugs of said rings being adapted to interlock for securing the rings together, a pin carried by the locking-ring and adapted to

contact with the lugs of the bearing-ring, whereby the locking-ring is limited in its movement upon the bearing-ring, and a latch for locking the rings in engagement with an axle.

5. A device of the class described, comprising a bearing-ring provided at one of its faces with an annular flange, means carried by said flange for engaging an axle to prevent rotation of said ring thereon, inwardly-extending diametrically opposite lugs also carried by said ring, a locking-ring, outwardly-extending diametrically opposite lugs carried by said locking-ring and adapted to interlock with the inwardly-extending lugs of the bearing-ring, whereby said rings are secured together, the lugs of said rings lying in different vertical planes and means for locking said rings in engagement with an axle.

6. A device of the class described, comprising a bearing-ring provided at one of its faces with an annular flange, means carried by said flange for engaging an axle to prevent rotation of said ring thereon, inwardly-extending diametrically opposite lugs also carried by said ring, a locking-ring, outwardly-extending diametrically opposite lugs carried by said locking-ring and adapted to interlock with the inwardly-extending lugs of the bearing-ring, whereby said rings are secured together, the lugs of said rings lying in different vertical planes and a latch for locking said rings in engagement with an axle.

7. The combination with an axle provided with oppositely-arranged lugs and an annular groove, said axle being also provided with a transversely-extending groove, of a hub-attaching device provided with inwardly-extending lugs adapted to fit in said groove and interlock with the lugs of the axle, a latch adapted to enter the transversely-extending groove of the axle for locking the device in engagement with the latter, and a spring carried by said latch for locking the latch in said groove.

8. The combination with an axle provided with oppositely-arranged lugs and an annular groove, said axle being also provided with a transversely-extending groove, of a hub-attaching device comprising a bearing-ring, and a locking-ring, said locking-ring being provided with inwardly-extending lugs adapted to fit in said annular groove and interlock with the lugs of the axle, a latch carried by the locking-ring and adapted to enter the transversely-extending groove of the axle for locking the device in engagement with the latter, and a spring carried by said latch for locking the latch in said groove.

9. A device of the class described, comprising a bearing-ring provided with inwardly-extending lugs, a locking-ring comprising a hub having an annular flange and provided with outwardly-extending lugs, the lugs of said rings lying in different vertical planes, whereby the same are adapted to interlock for securing the rings together, and a pin carried by said flange and adapted to contact with the lugs of the bearing-ring, whereby the locking-ring is limited in its movement upon the bearing-ring, and the lugs of said rings retained in interlocked relation.

10. A device of the class described, comprising a bearing-ring provided with inwardly-extending lugs, a locking-ring comprising a hub having an annular flange and provided with outwardly-extending lugs, the lugs of said rings lying in different vertical planes, whereby the same are adapted to interlock for securing the rings together, a pin carried by said flange and adapted to contact with the lugs of the bearing-ring, whereby the locking-ring is limited in its movement upon the bearing-ring, and the lugs of said rings retained in interlocked relation, and means carried by said rings and adapted to engage an axle for locking the device thereon.

11. A device of the class described, comprising a bearing-ring provided with inwardly-extending lugs, a locking-ring comprising a hub having an annular flange and provided with outwardly-extending lugs, the lugs of said rings lying in different vertical planes, whereby the same are adapted to interlock for securing the rings together, a pin carried by said flange and adapted to contact with the lugs of the bearing-ring, whereby the locking-ring is limited in its movement upon the bearing-ring, and the lugs of said rings retained in interlocked relation, and a latch carried by said rings and adapted to engage an axle for locking the device thereon.

12. A device of the class described, comprising a bearing-ring provided with inwardly-extending lugs, a locking-ring comprising a hub having an annular flange and provided with outwardly-extending lugs, the lugs of said rings lying in different vertical planes, whereby the same are adapted to interlock for securing the rings together, a pin carried by said flange and adapted to contact with the lugs of the bearing-ring, whereby the locking-ring is limited in its movement upon the bearing-ring, and the lugs of said rings retained in interlocked relation, and a latch pivoted to the locking-ring and adapted to engage an axle for locking the device thereon.

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

CONRAD MILLER.

Witnesses:
KNUD RASMUSSEN,
JOHN LAW.