

No. 619,822.

Patented Feb. 21, 1899.

W. P. COPASS & J. BILES.

VEHICLE AXLE.

(Application filed July 25, 1898.)

(No Model.)

Fig. 1.

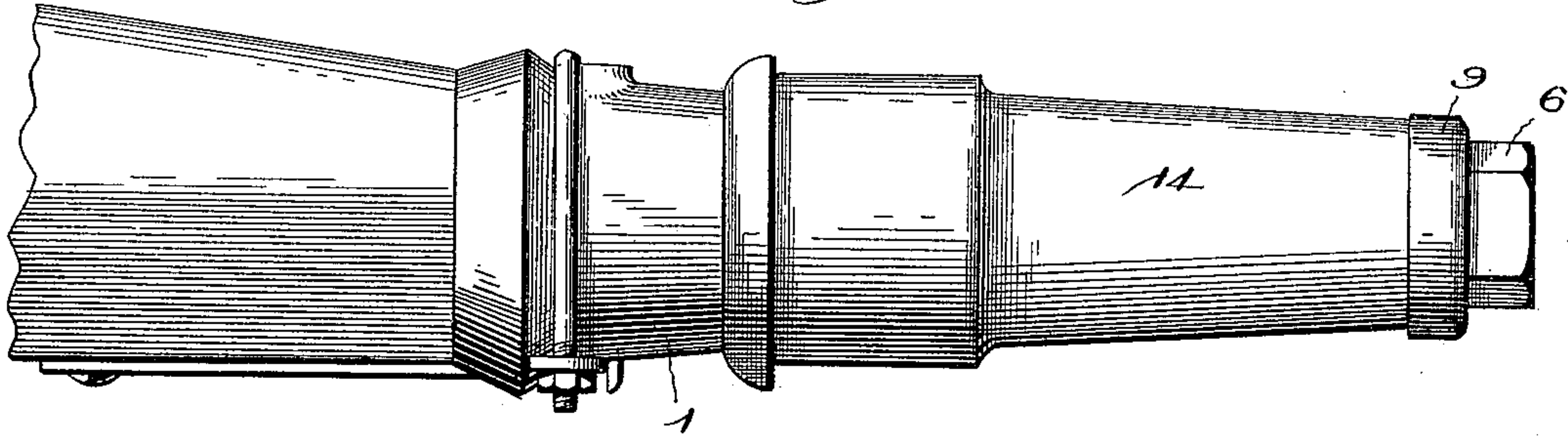


Fig. 2.

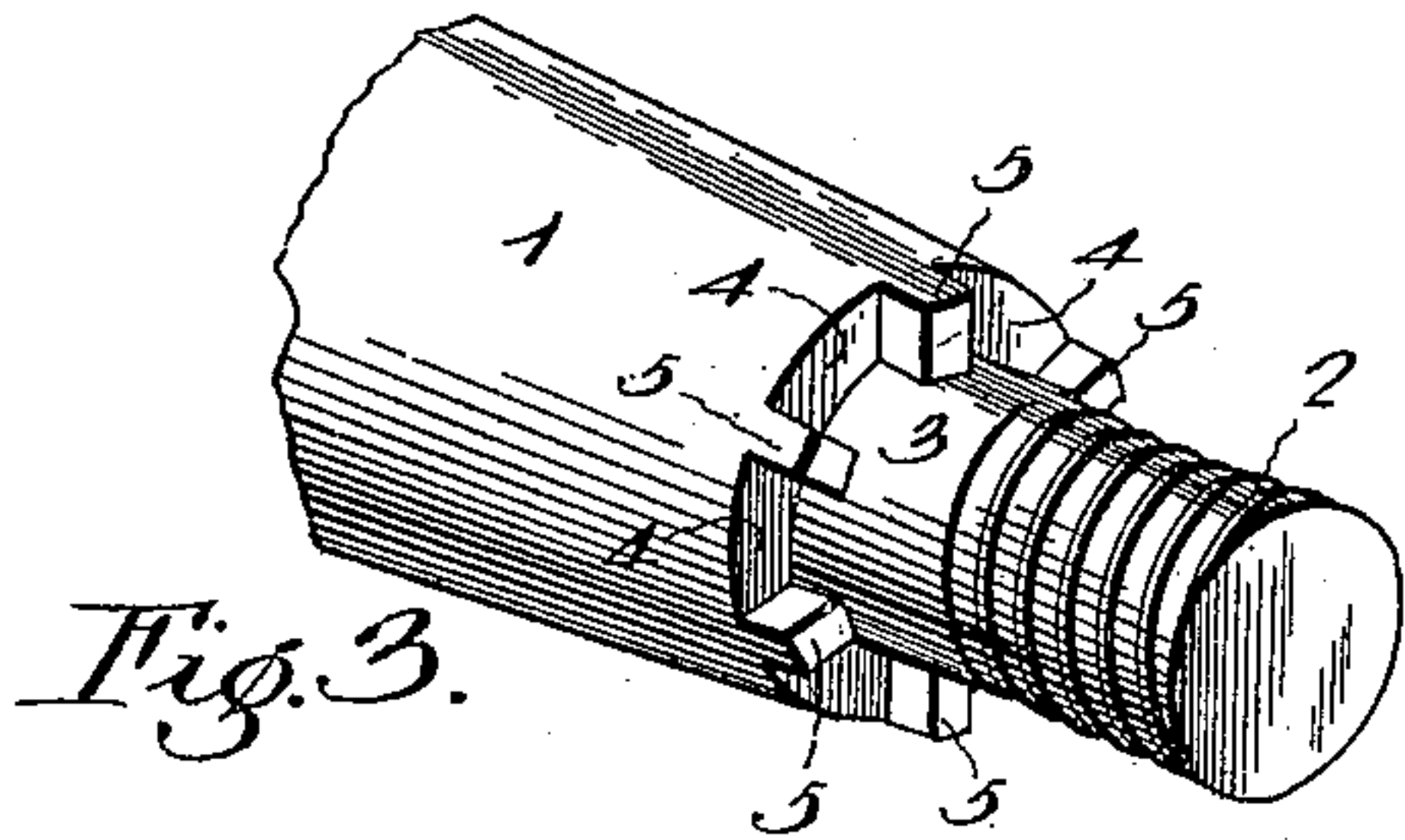
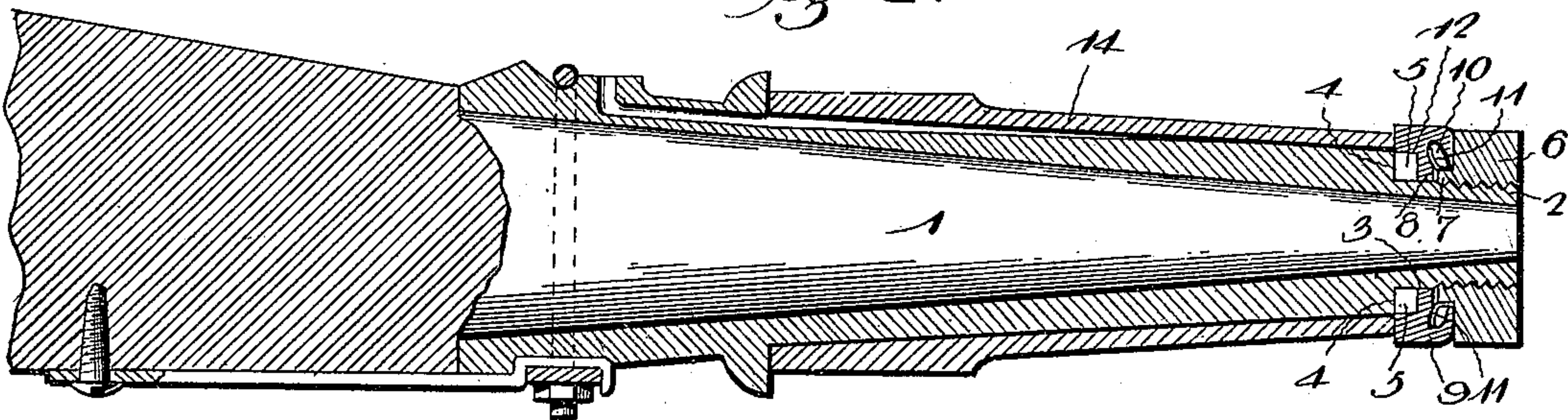


Fig. 3.

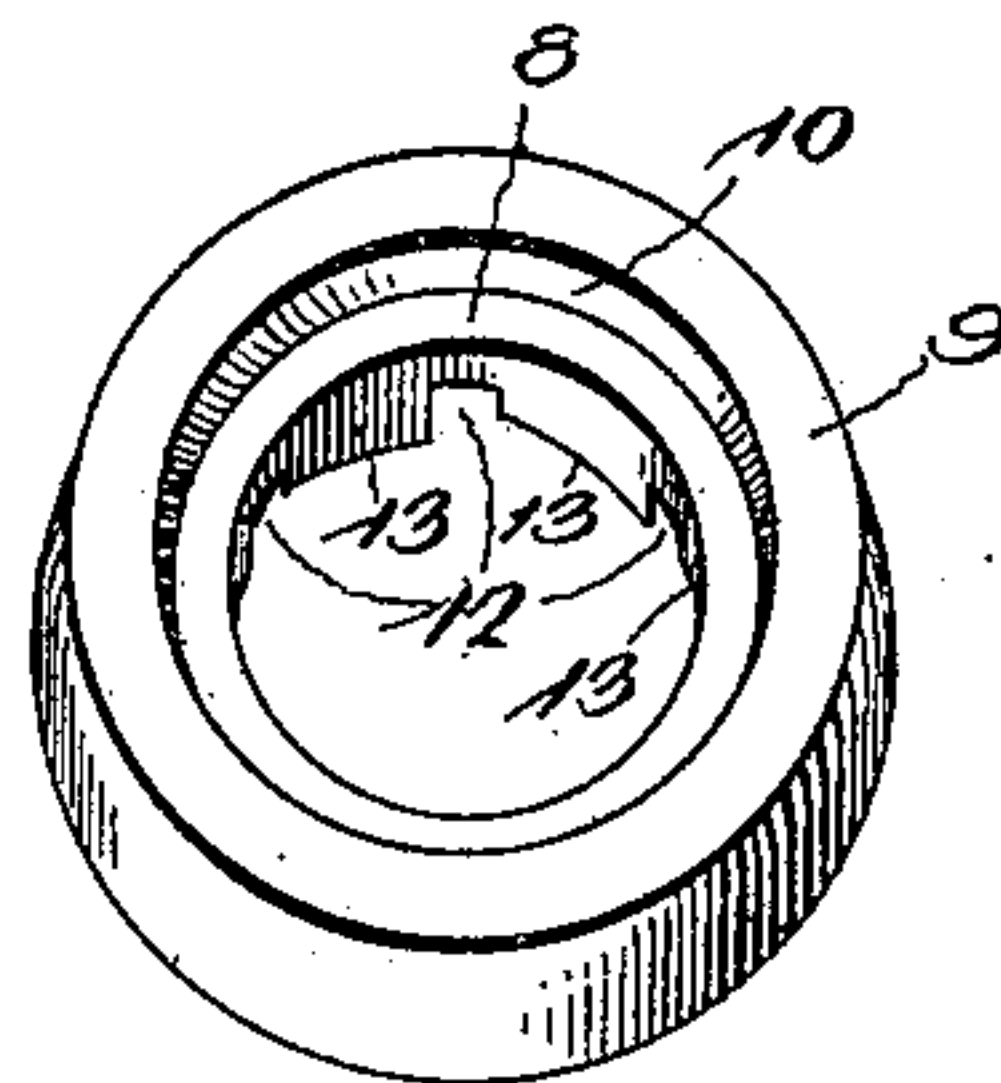


Fig. 4.

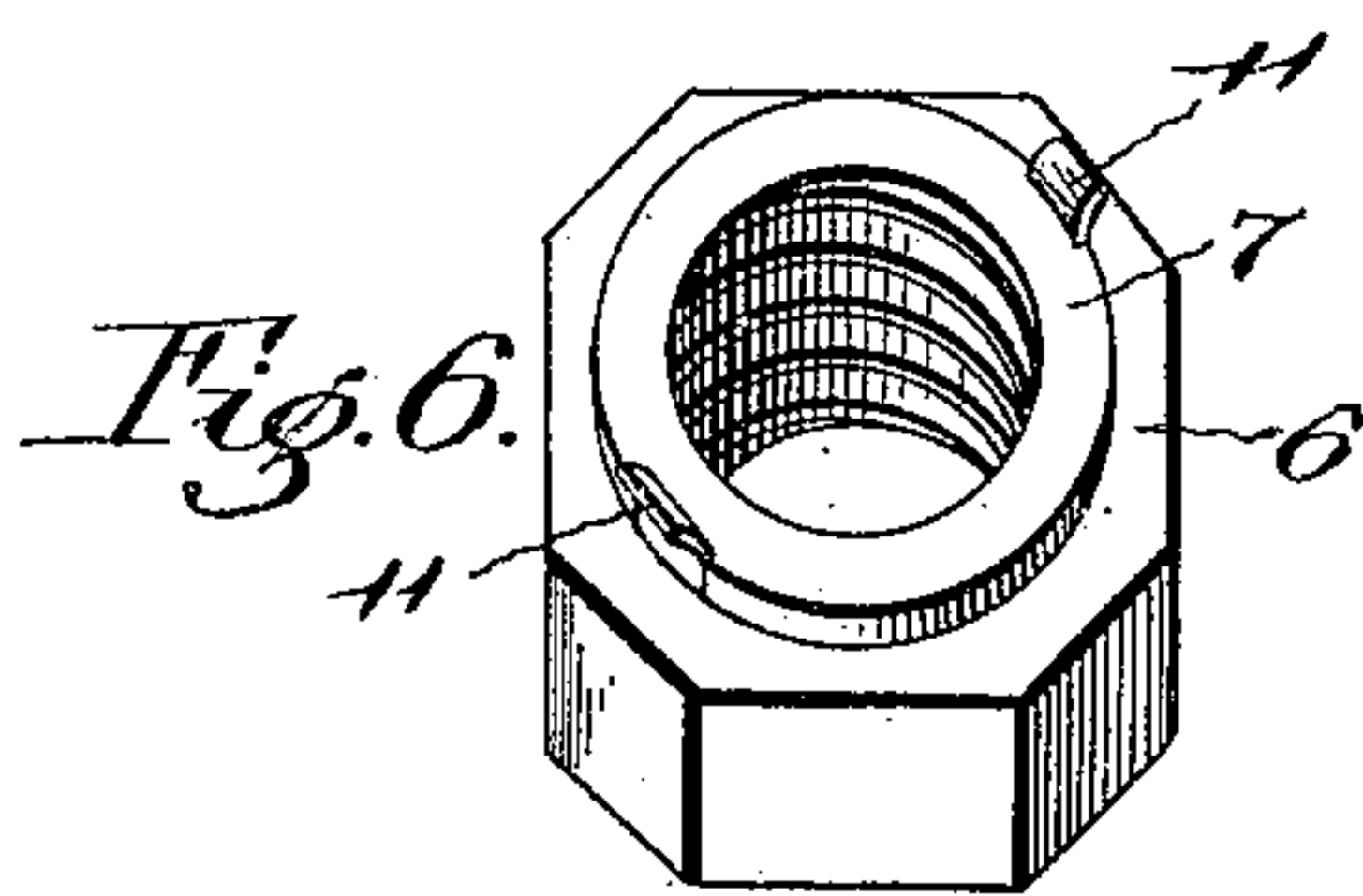


Fig. 6.

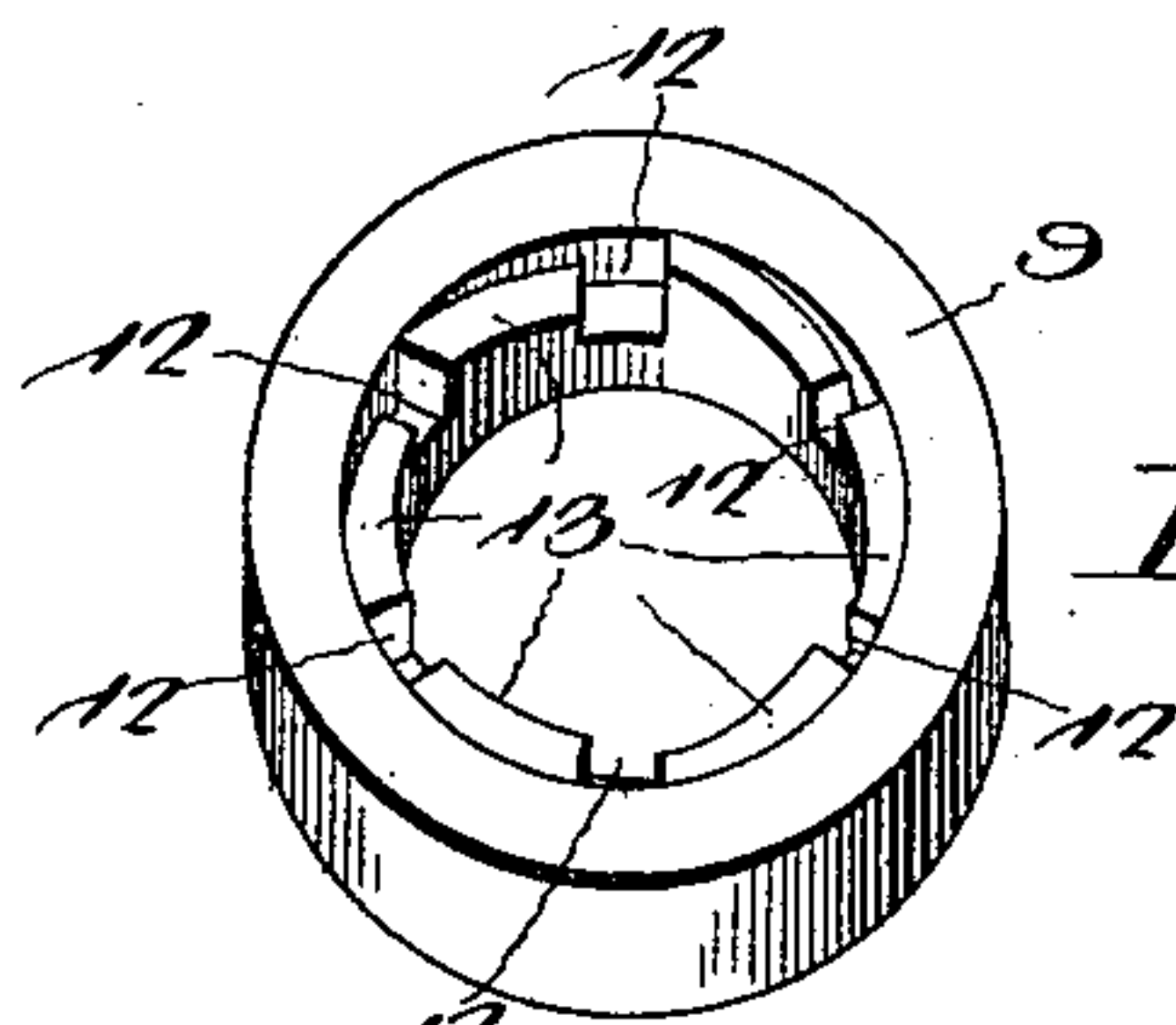


Fig. 5.

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Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM P. COPASS AND JAMES BILES, OF SPIVEY, TENNESSEE.

VEHICLE-AXLE.

SPECIFICATION forming part of Letters Patent No. 619,822, dated February 21, 1899.

Application filed July 25, 1898. Serial No. 686,828. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM P. COPASS and JAMES BILES, citizens of the United States, residing at Spivey, in the county of Clay and State of Tennessee, have invented a new and useful Vehicle-Axle, of which the following is a specification.

The invention relates to improvements in vehicle-axles.

10 The object of the present invention is to improve the construction of vehicle-axles, more especially the axle-skein, and the means for locking an axle-nut on the same to prevent the said nut from accidentally unscrewing.

15 A further object of the invention is to enable an axle-nut to be permanently connected with a locking-washer and to carry the same into and out of engagement with the axle skein or spindle as it is screwed on and off the same, whereby the nut and the locking-washer may be simultaneously placed on and removed from an axle.

25 The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

30 In the drawings, Figure 1 is an elevation of a portion of an axle provided with our improvements. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a detail perspective view of the outer portion of the axle-skein. Figs. 4 and 5 are detail perspective views of the locking-washer. Fig. 6 is a detail perspective view of the nut.

35 Like numerals of reference designate corresponding parts in all the figures of the drawings.

40 1 designates an axle-skein having a reduced outer threaded portion 2 and provided at the inner terminal of the same with a smooth portion 3, which is arranged adjacent to the shoulder formed by reducing the outer end of the skein. The axle-skein is provided at its shoulder 4 with an annular series of lugs 5, arranged at intervals and extending outward on the smooth portion 3 and terminating short of the outer end thereof. Although the lugs are shown applied to an axle-skein, yet 50 it will be readily understood that they may be provided on a spindle.

The threaded portion 2 of the axle-skein receives an axle-nut 6, which has its inner face reduced to provide an annular flange or extension 7, which fits in an annular chamber 55 or recess 8 of a locking-washer 9. The annular recess or chamber 8 is formed in the outer face of the locking-washer 9, and the wall of the recess is grooved or undercut at 10 to receive a pair of oppositely-disposed projections 60 or arms 11 of the nut, whereby the latter and the washer are connected and caused to remain together in applying them and removing them from the spindle. The arms or projections 11, which may be constructed in any 65 suitable manner, are preferably formed integral with the nut, and they may be readily expanded into the annular groove of the locking-washer by a slight blow on the face of the nut.

The locking-washer is provided at its inner 70 face with an annular series of interiorly-arranged recesses 12, adapted to receive the lugs 5 of the axle-skein, and the solid portions 13 between the recesses 12 have beveled outer faces to assist in directing the lugs 75 into engagement with the recesses. The arms or projections of the nut have a slight longitudinal play in the chamber of the locking-washer to enable the nut to be jammed tightly against the locking-washer and to permit it to rotate freely. 80

The axle-skein may be of any desired construction, and it is adapted to receive an axle-box 14 of the usual form, which in rotating does not bear against the nut, and the locking-washer when worn may be readily discarded and replaced by a new washer. 85

The invention has the following advantages: The device, which is simple and comparatively inexpensive in construction, is applicable to both axle-skeins and solid axles, and it is capable of securely locking an axle against accidental unscrewing. The device is easy to operate, and the locking-washer is removed simultaneously with the nut and is 95 manipulated simply by rotating the latter. It will also be apparent that by arranging the lugs on the axle-skein the latter is strengthened and is not weakened, as would be the case were it recessed and the locking-washer 100 provided with lugs.

Changes in the form, proportion, and minor

details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

What we claim is—

- 5 1. A device of the class described comprising an axle provided at its shoulder, adjacent to its threaded end with an annular series of lugs, a locking-washer provided with an interiorly-arranged annular series of recesses
10 arranged to receive the lugs whereby the locking-washer is interlocked with the axle, and a nut engaging the threads of the axle and swiveled to the locking-washer whereby it is adapted to carry the latter into and out of en-
15 gagement with the said lug automatically, substantially as described.

2. A device of the class described comprising an axle provided at its outer end with a

shoulder and having an annular series of lugs extending therefrom, a locking-washer pro- 20
vided at its engaging face with an annular series of interiorly-arranged recesses adapted to receive the said lugs, said washer being provided at its opposite face with an interior
annular groove, and a nut engaging the axle 25
and provided with arms interlocked with the said groove, substantially as described.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

WILLIAM P. COPASS.
JAMES BILES.

Witnesses:

D. W. BILES,
A. V. LONG.