

No. 620,200.

Patented Feb. 28, 1899.

S. H. VAN TRUMP & F. D. ROWELL.

VEHICLE WHEEL.

(Application filed June 20, 1898.)

(No Model.)

Fig. 1.

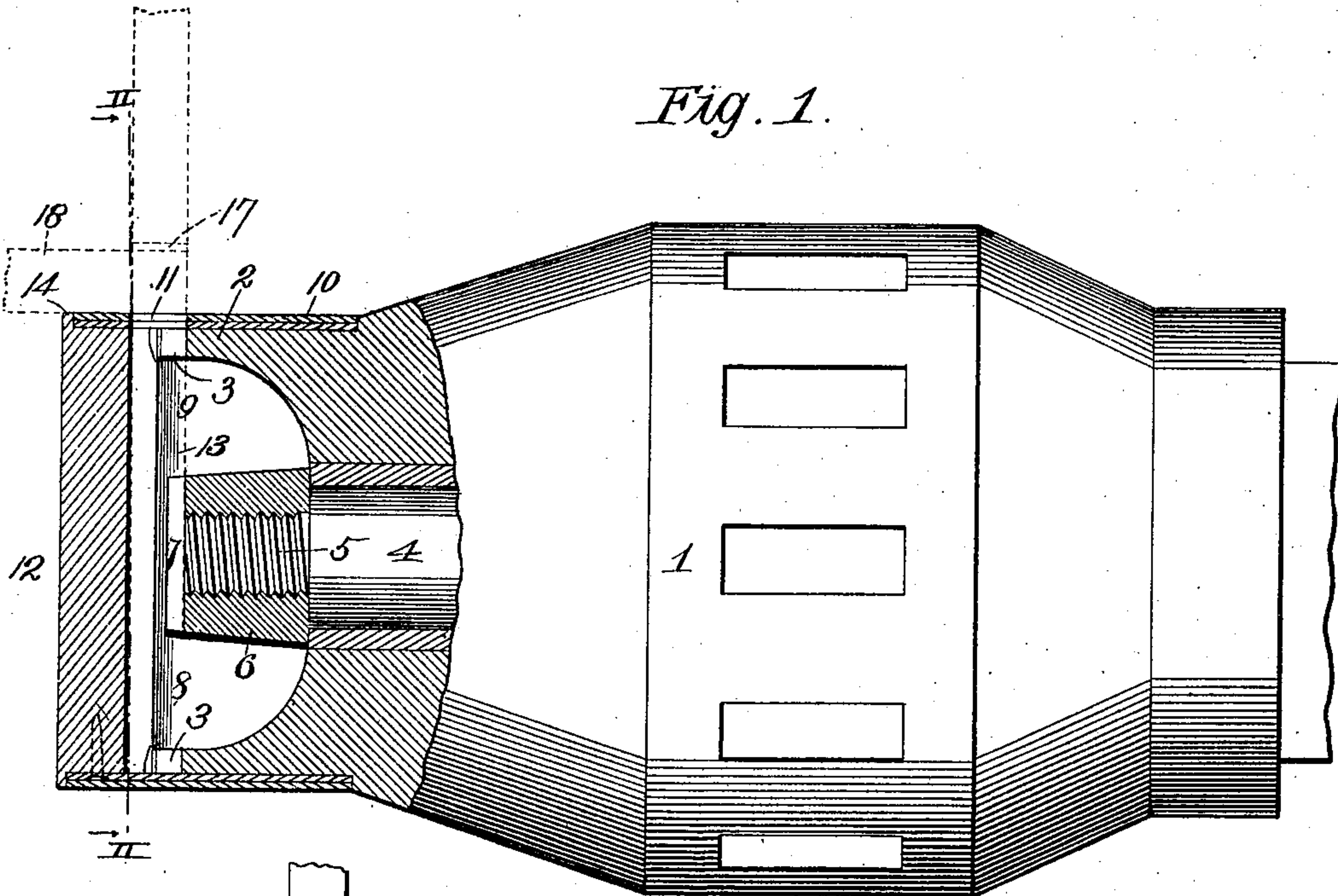


Fig. 2.

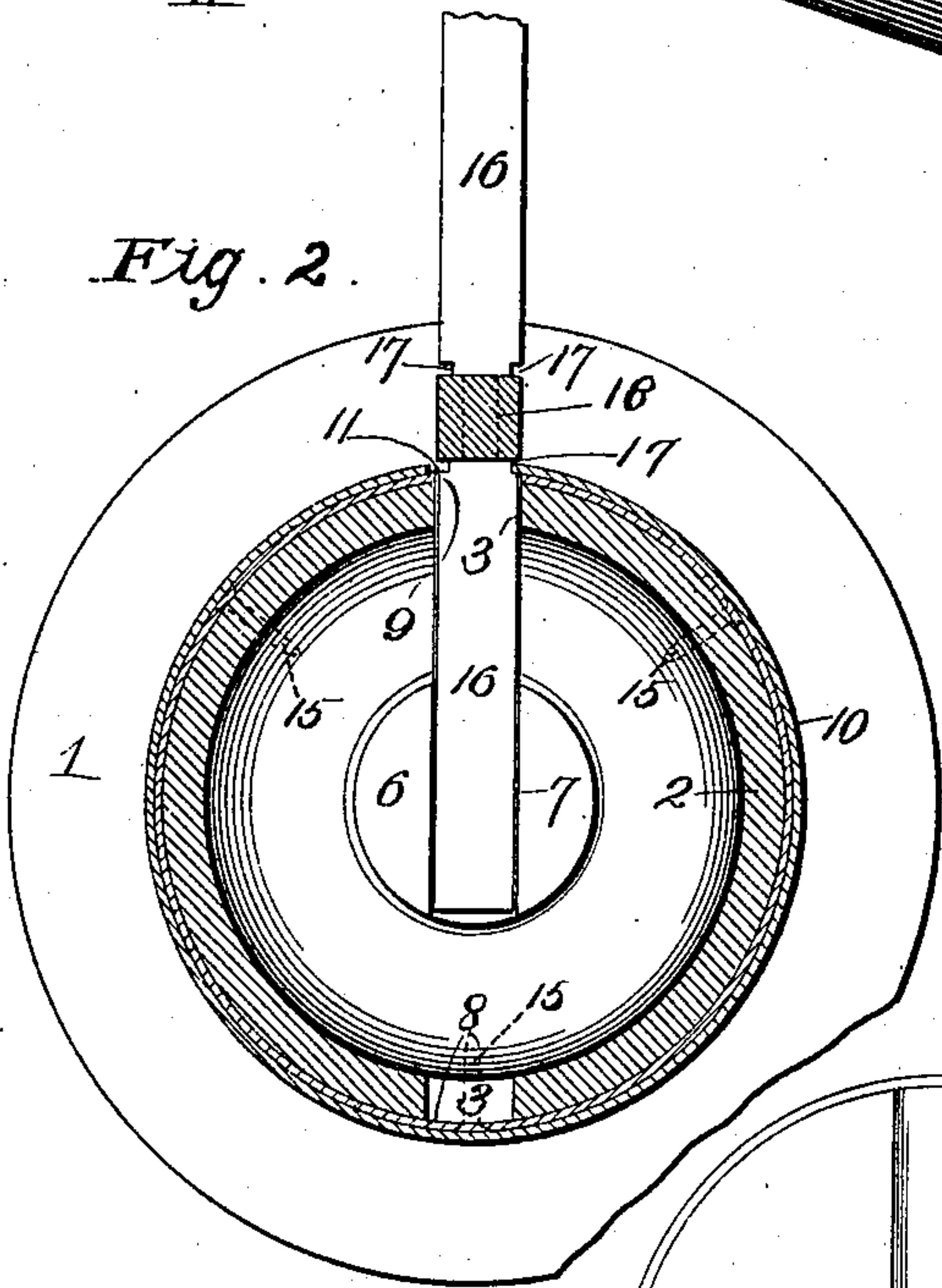


Fig. 3.

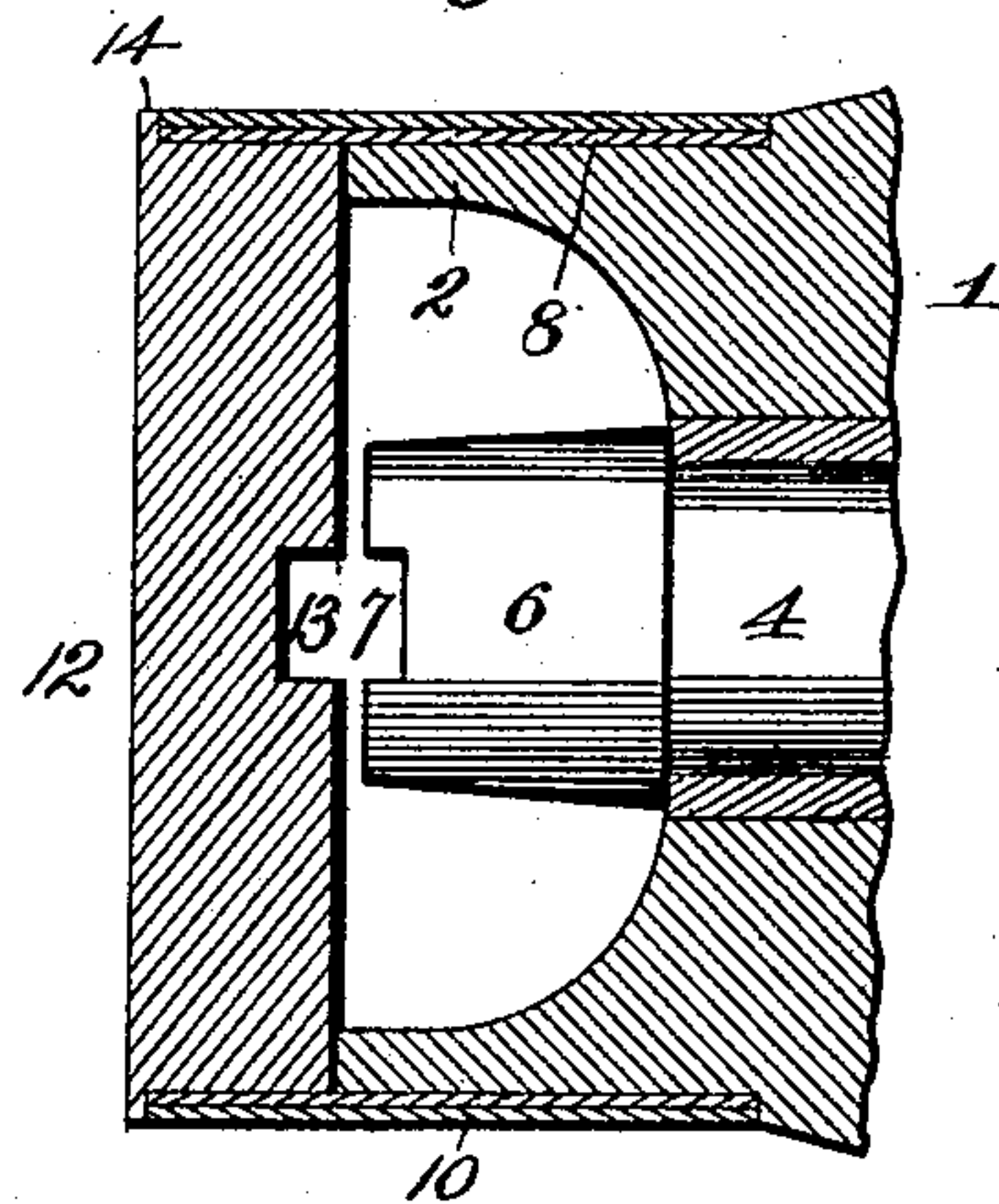
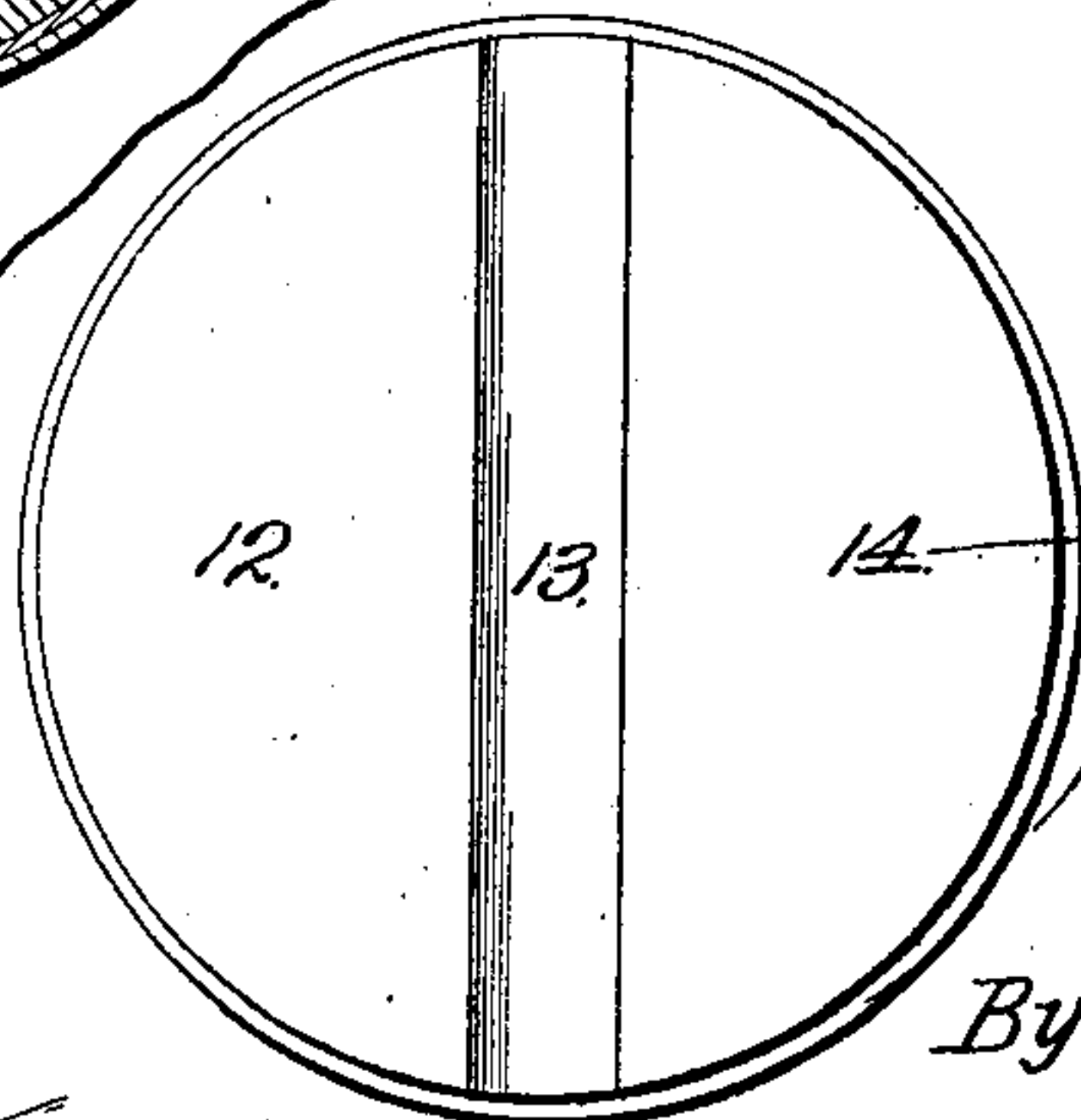


Fig. 4.



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UNITED STATES PATENT OFFICE.

SAMUEL H. VAN TRUMP, OF ELMIRA, AND FRANK D. ROWELL, OF LIBERTY,
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VEHICLE-WHEEL.

SPECIFICATION forming part of Letters Patent No. 620,200, dated February 28, 1899.

Application filed June 20, 1898. Serial No. 683,941. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL H. VAN TRUMP, of Elmira, Ray county, and FRANK D. ROWELL, of Liberty, Clay county, Missouri, have invented certain new and useful Improvements in Vehicle-Wheels, of which the following is a specification.

Our invention relates to wheeled vehicles; and our object is to produce a vehicle-wheel which may be secured in or removed from operative position upon an axle by simply spinning or turning the wheel in the proper direction, thereby obviating the necessity of handling the greasy nut by which it is secured in position.

A further object of the invention is to provide wheels of this character at a cost but slightly exceeding a similar grade of wheel of the type in general use and of simple, strong, and durable construction.

To these ends the invention consists in certain novel and peculiar features of construction and combinations of parts, as will be hereinafter described and claimed, and in order that it may be fully understood we will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 represents, partly in elevation and partly in section, a wheel-hub embodying our invention. Fig. 2 is a sectional view taken on the line II II of Fig. 1. Fig. 3 is a section taken at right angles to the section shown in Fig. 2. Fig. 4 is an inner face view of the slotted or grooved disk forming the end of our improved wheel-hub.

In the said drawings, 1 designates a wheel-hub which is preferably recessed at its outer end in order to provide the annular outwardly-projecting flange 2, and said flange is provided in its outer end with one or more slots or notches 3.

4 designates the axle of customary construction, and 5 its threaded outer end.

6 designates a nut, preferably of conical form and tapering outwardly, which screws upon the threaded extension 5 of the axle and is provided at its outer end with a diametric groove or slot 7, which is adapted to register with the slot or slots 3 in the hub-flange 2.

8 designates the usual metallic band surrounding the outer end of the wheel-hub and

shrunk or otherwise secured thereon, and said band is provided with an opening 9 to register with slot 3, or openings 9, if desired, to register with slots 3.

10 designates a rotatable band mounted upon band 8 and provided with one or more openings 11, adapted to register with the opening or openings 9 when the wheel is being secured upon or removed from the axle. When the wheel occupies its operative position and it is not desired to remove it, said band 10 is properly adjusted to completely cover the opening or openings 9 in order to prevent dust and other foreign particles entering the hub.

12 designates a disk which is fitted snugly in the outer end of band 8 and bears against the flange of the hub, and said disk is provided with a diametric groove or slot 13, extending clear across its inner face and registering with the groove or slot 7 of the nut, slot or slots 3 of the hub, and opening 9 of band 8. The disk is prevented from working inwardly by means of an annular external flange 14, which bears against the outer edges of bands 8 and 10 and serves to prevent the latter from moving outwardly and is prevented from working outwardly by means of one or more screws 15, extending radially through band 8 and into said disk.

In order to conveniently and quickly secure the wheel in or remove it from position, we employ a notched pin 16, said pin having the notches 17 in opposite edges, and for convenience this pin is provided with a central stem 18, provided with rectangular cavities (not shown) in order to serve as a wrench, and thus obviate the necessity of carrying a separate wrench in the vehicle. This stem portion 18 of the pin also serves as a guide in the proper insertion of the pin into the hub by striking the periphery of the hub, or rather the band 10 thereof, and arresting the downward movement of the pin at the instant a pair of its notches 11 register with the opposing edges of the opening 11 in the rotatable band 10, as shown in Fig. 2 most clearly.

Supposing it be desired to remove the wheel from the axle, it is necessary to adjust band 10 until its opening 11 registers with the opening 9 of the band 8. One end or the other of the pin is then slipped into the hub and, fit-

ting squarely in the rectangular opening formed by the opposing grooves or slots 7 and 13 of the nut and disk, respectively, locks them reliably together, and therefore to the hub, because the disk is secured to the latter through the medium of the band 8 and screws 15 or their equivalents. The pin being fitted in said opening, the rotatable band 10 is adjusted to cause one row of openings 11 to fit in the opposing notch 17 of said pin, and thus secure it from accidental dislocation. The wheel is then spun around in the proper direction by the operator (being first elevated from the ground in any suitable manner) until the nut is disengaged from the threaded extension 5 of the axle. The wheel of course can then be lifted off the axle in the customary manner and the latter greased, if necessary.

To replace the wheel without handling the nut, the former should be slipped upon the axle while the pin occupies a horizontal position, so that the nut will not slip off the same. Immediately, however, the nut comes into engagement with the threaded end of the axle the wheel may be spun around in the proper direction and the nut thereby screwed into position. When secured properly, the pin is removed and the band 10 turned until the opening 9 is completely covered, as hereinbefore explained.

By reference to the drawings it will be noticed that the disk bears or shoulders squarely up against the flange of the hub, but that some little space is left between the disk and the nut. The former arrangement adds to the rigidity and strength of the structure, while the space left between the disk and the nut is provided in order that the vibratory end movement of the axle shall not cause the nut to pound against the disk, and thus possibly knock it out of the band to which it is secured. There is always some independent movement of the axle, and with wear this movement of course becomes greater, and consequently it is necessary or desirable at least to make provision for it.

From the above description it will be apparent that we have produced means whereby a wheel may be easily and quickly secured in or removed from operative position without necessitating the handling of the nut, and it is to be understood, of course, that changes in the form, proportion, arrangement, or detail construction of the parts—such, for instance, as the provision of an angular socket in the outer end of the nut and a registering opening in the outer end of the disk for the introduction of the pin—will not be considered a departure from the spirit and scope or sacrifice any of the advantages of the invention. Such changes, therefore, we reserve the right to make.

Having thus described the invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a wheeled vehicle, an axle, a nut screwed thereon having an angular socket,

and a disk secured to the hub and provided with a registering angular socket, substantially as described.

2. In a wheeled vehicle, an axle, a nut screwed thereon having an angular socket, a disk secured to the hub and provided with a registering angular socket, and a pin to engage said registering sockets and lock said disk and nut together, substantially as described.

3. In a wheeled vehicle, an axle, a nut screwed thereon, and provided with an angular socket, a disk carried by the wheel-hub and provided with a registering angular socket, and a rotatable band mounted upon the hub and provided with an opening which is adapted to register with said sockets, substantially as described.

4. In a wheeled vehicle, an axle, a nut screwed thereon, and provided with an angular socket, a disk carried by the wheel-hub and provided with a registering angular socket, a rotatable band mounted upon the hub and provided with an opening which is adapted to register with said sockets, and a pin, which is adapted to extend through the opening of said band and into said registering sockets, and provided with notches adapted to be engaged by the band, at one edge or the other of the opening, substantially as described.

5. In a wheeled vehicle, a hub formed with an outwardly-projecting flange having a radial notch or groove, an axle, a nut screwed thereon and provided with a socket registering with the notch of the hub, a disk carried by the hub and bearing against the outer end of its flange, and provided with a socket registering with the socket of the notch and the notch of the hub, and a rotatable band upon the hub, provided with an opening adapted to register with said sockets and notch, substantially as described.

6. In a wheeled vehicle, an axle, a wheel mounted thereon and having its hub recessed at its outer end to provide an outwardly-projecting flange provided with a notch, a nut screwed upon the axle and provided with a diametric socket or slot which registers with said notch, a band secured upon the hub and provided with an opening registering with said notch, a disk secured to said band and provided at its inner side with a diametric slot registering with said opening and the slot of said nut, and a rotatable band mounted upon the first-named band and provided with an opening adapted to register with the opening of said first-named band, substantially as described.

In testimony whereof we affix our signatures in the presence of two witnesses.

SAMUEL H. VAN TRUMP.
FRANK D. ROWELL.

Witnesses:

M. R. REMLEY,
F. S. THRASHER.