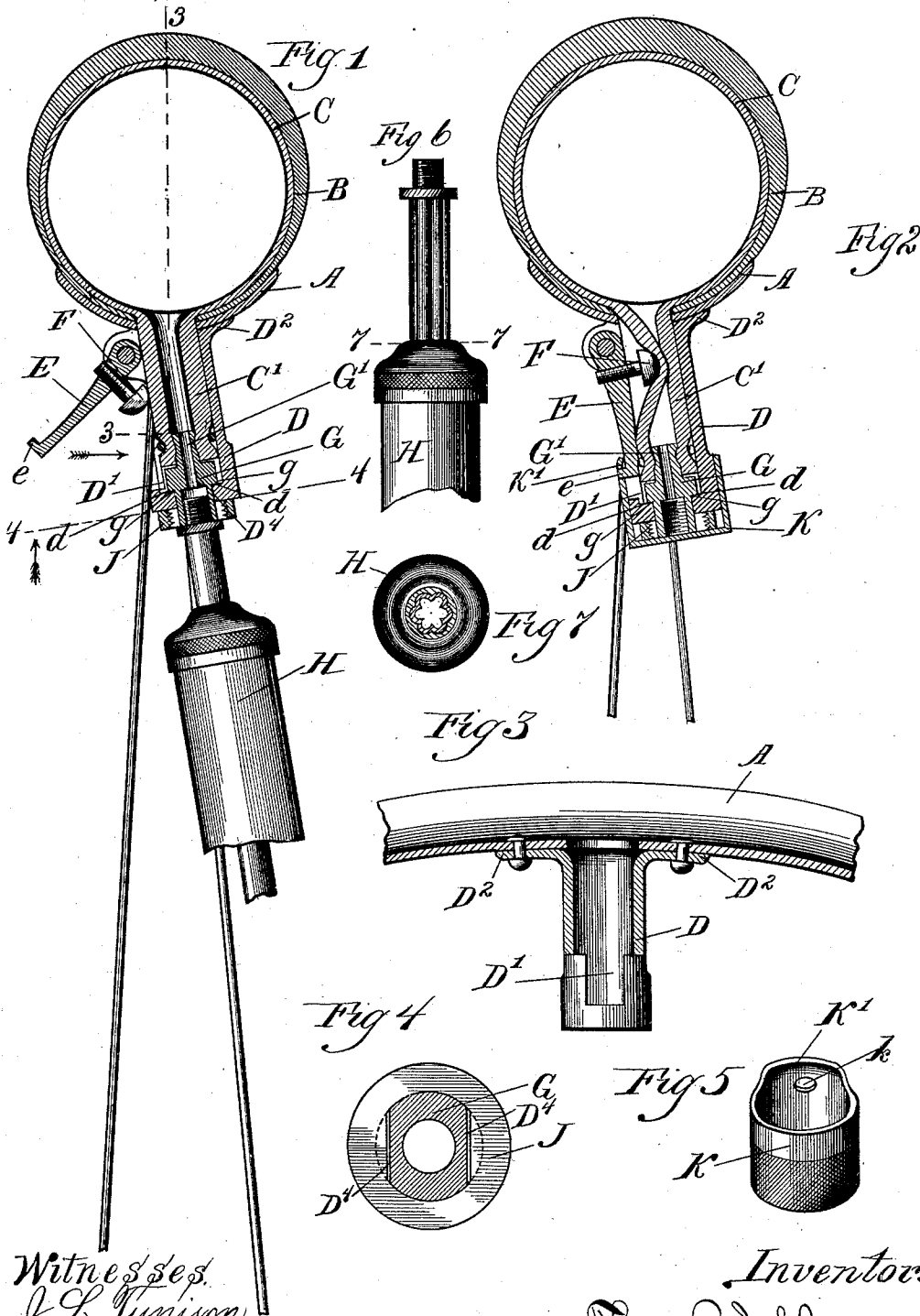


(No Model.)

T. B. JEFFERY.
TIRE INFLATING DEVICE.

No. 477,007.

Patented June 14, 1892.



Witnesses
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UNITED STATES PATENT OFFICE.

THOMAS B. JEFFERY, OF CHICAGO, ILLINOIS.

TIRE-INFLATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 477,007, dated June 14, 1892.

Application filed October 5, 1891. Serial No. 407,798. (No model.)

To all whom it may concern:

Be it known that I, THOMAS B. JEFFERY, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Tire-Inflating Devices, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part thereof.

In the drawings, Figure 1 is a section in a plane radial to the wheel through the tire and rim of a wheel containing my inflating device, with the inflating-pump attached and the parts in position for inflating. Fig. 2 is a similar section without the pump and showing the inlet-tube and pump-standard closed. Fig. 3 is a section at the line 3 3 on Fig. 1. Fig. 4 is a section at the line 4 4 on Fig. 1. Fig. 5 is a perspective of a cap employed to exclude dirt and for other purposes. Fig. 6 is a detail elevation of a preferred form of the piston-rod nozzle of the pump. Fig. 7 is a transverse section of the same.

A is the wheel-rim; B, the tire-sheath, including the tread, and C the inflatable core within such sheath, having the inlet-tube C' preferably, as illustrated, integral with it and protruding inwardly—that is, toward the axis of the wheel through both the sheath B and the rim A, which are apertured for that purpose.

D is a tubular standard rigid with the rim at the point at which the inlet-tube C' emerges through the latter and into which said inlet-tube is adapted to protrude. This standard is inclined to the plane of the wheel, so that it projects obliquely, laterally, and toward the axis. It is more oblique than the spokes, so that the pump attached rigidly to it entirely clears the spokes, and is adapted, therefore, to be operated without interference with or hinderance on account of the latter. The tubular standard D has the opening D' at one side, and at the same side there is hinged to said standard the lever E, provided with the button F, having a threaded stem, which is screwed into the lever from the inner side of the latter quite near to its pivot, the head of the button being adapted to project through the opening D' and to protrude far enough there-

through and into the cavity of the cylindrical standard, so that when the free end of the lever is rocked in toward the standard said button will be protruded against the inlet-tube within the standard and will pinch the latter sufficiently to completely close its duct, as seen in Fig. 2. The outer end of the stem of the button F is provided with means for screwing it in and out, preferably a cross-slot, so that it can be set to the proper depth to insure the complete closing of the duct of the inlet-tube when the lever is thrown inward for that purpose. The head of the button, being on the outside of the lever, effectually prevents the button from being unscrewed and lost while the wheel is in use. Preferably, for compactness, the aperture D' is extended the whole length of the lever E, so that the latter in swinging in toward the standard lies in such extended aperture; but this is a matter of preference, the essential extent of the aperture being only that which is necessary to admit the button. The rim A is necessarily somewhat weakened by the aperture made through it to permit the inlet-tube to protrude, and the standard D serves as a means for compensating for this loss of strength by being provided with the flange D² at its base, which is riveted firmly to the rim on opposite sides of the aperture through which the inlet-tube protrudes, and serving thus as a stiff arch, spanning the aperture and adding much more strength than was taken away by cutting the aperture.

G is a nipple, whose reduced terminal G' is of suitable size to fit tightly within the end of the inlet-tube C', while the larger end is interiorly threaded and adapted to have the nozzle of the inflation-pump H screwed into it, and is exteriorly flattened on two sides, and thereby adapted to pass through the similarly-shaped opening D' at the end of the standard D, and by reason of the non-circular form of said opening and the end of the nipple which fits within it the latter is made incapable of turning after it is in place, as seen in Figs. 1 and 2. The protruding and flattened end is exteriorly threaded also, and a jam-nut J is provided adapted to be screwed onto the said protruding end and bind against

the end of the standard, and thereby secure the nipple rigidly in place, the shoulders *g g*, formed by cutting away the end of the nipple to give it the flattened side described, stopping against the corresponding shoulders *d*,
 5 formed in the standard at the end adjacent to the straight sides of the opening. The non-circular form preventing the turning of the nipple removes the danger of twisting the inlet-tube, either while screwing on the jam-nut or while screwing in the pump, and the employment of the jam-nut *J* also prevents longitudinal pressure being put upon the inlet-tube in the process of pumping, which
 10 might buckle it and deteriorate it.

For the purpose of locking the lever *E* in a position in which its button *F* compresses and closes the inlet-tube *C'*, and simultaneously and by the same device closing the end aperture in the nipple *G*, into which the pump screws, and thereby excluding dirt when the pump is detached, I provide the cap-ring *K*, adapted to fit over the end of the standard,
 20 and having the lip *K'*, which reaches down past the end of the lever, so that when said cap is put onto the standard and the lever pressed in and the cap-ring turned until the lip overhangs the lever the latter is held in place. The end of the lever is provided with
 30 a little projecting tooth *e*, which enters the aperture *k* in the tongue *K'* of the cap-ring, and the elastic inlet-tube *C'*, reacting against the lever which has compressed it, operates as a spring, tending to hold the end of the lever outward from the standard sufficiently to
 35 cause this projecting tooth *e* to engage in the aperture *k*, and thereby, while the lever is by the cap-ring locked and prevented from swinging outward, the cap-ring is by the lever locked and prevented from rotating. It is
 40 only a matter of preference that the end of the standard is covered by the same device by which the lever is locked; but the employment of a cap-ring instead of a mere open ring adapts the device to both purposes, and
 45 is therefore desirable.

Since the pump-nozzle is the piston-stem and is comparatively small and does not by its size afford very good grasp for the hand
 50 in screwing it into the nipple *G*, I prefer to make it of a form which will afford a better grasp than would a smooth cylinder, and the most convenient form for this purpose is that illustrated in Figs. 6 and 7, which show it longi-
 55 tudinally ribbed or corrugated. The regularity or parallelism of the ribs or their parallelism to the axis is obviously not material for this mode of use; but they should be to an extent longitudinal, so as to afford resistance
 60 in the rotary movement of screwing the pump to the nipple. By making the opening through the head of the pump-cylinder also non-circular in the same manner as the piston, so that the piston cannot turn in the cylinder, the same purpose is subserved, because in
 65 that case the pump-cylinder itself constitutes

a handle of sufficient diameter to afford good grasp for the hand for the purpose of turning the piston stem or nozzle to screw it into the nipple.

I claim—

1. In combination with the wheel-rim, an inflatable tire seated therein, the tire-core having an inlet-tube and the rim having an aperture through which said tube protrudes toward the axis of the wheel, and a reinforcing-plate outside the rim extending across the aperture and rigidly secured to the rim on opposite sides of the aperture, substantially as set forth.

2. In combination with the rim, the inflatable tire seated therein, said tire having an inlet-tube and the rim having an aperture through which the inlet-tube protrudes toward the axis of the wheel, and the tubular standard constituting a support for the inlet-tube and extended across and rigidly secured to the rim on opposite sides of the aperture, whereby it constitutes a rigid reinforcement of the rim to compensate for its weakening by the formation of the aperture, substantially as set forth.

3. In combination with the rim, the inflatable tire seated therein, said tire having an inlet-tube and the rim having an aperture through which the inlet-tube protrudes toward the axis of the wheel, and a standard constituting a support for the inlet-tube, rigidly secured to the rim and extending therefrom toward the axis and diverging from the plane of rotation of the wheel, substantially as set forth.

4. In combination with the rim, the inflatable tire seated therein, said tire having an inlet-tube and the rim having an aperture through which such inlet-tube protrudes toward the axis of the wheel, and the standard rigid with the rim, adapted to give lateral support to the inlet-tube, the inlet-tube having a metallic terminal and the standard having a seat for said terminal, in which the latter is non-rotatable, said terminal being threaded to receive the inflating-pump, substantially as set forth.

5. In combination with the rim and the inflatable tire seated therein, the tire having an inlet-tube and the rim having an aperture through which such inlet-tube protrudes toward the wheel-axis, a standard rigid with the rim at said aperture, adapted to afford lateral support to the inlet-tube, a metallic terminal for the inlet-tube, and suitable means for binding the latter rigidly to the standard, said terminal being adapted to receive the nozzle of the inflating-pump, substantially as set forth.

6. In combination with the rim and the inflatable tire seated therein, the tire having an inlet-tube and the rim having an aperture through which said tube protrudes, the inlet-tube-supporting standard rigid with the rim, and the lever hinged to said standard, pro-

vided with a button projecting from its inner side, substantially as and for the purpose set forth.

7. In combination with the rim, the inflatable tire seated therein, the tire having an inlet-tube and the rim having an aperture through which said inlet-tube protrudes, the lever hinged to the standard, and the button screwed into the lever near its pivot and adapted to compress the inlet-tube, whereby it is adjustable to vary the extent to which it protrudes toward the inlet-tube, substantially as set forth.

8. In combination with the rim, the inflatable tire seated therein, the tire having an inlet-tube and the rim having an aperture through which said tube protrudes, the inlet-tube-supporting standard, and the lever pivoted thereto, provided with a button screwed through it and having its outer end provided with means for turning it to adjust it in and out, substantially as set forth.

9. In combination with the rim, the inflatable tire seated therein and having an inlet-tube, the rim being provided with an aperture through which said tube protrudes, the inlet-tube-supporting standard, the lever pivoted thereto having a button adapted to compress the tube, the standard being laterally recessed to admit the free end of the lever, and a ring adapted to encircle the end of the lever and hold the latter in position to compress the tube, substantially as set forth.

10. In combination with the rim, the inflatable tire seated therein having an elastically-compressible inlet-tube, the rim being provided with an aperture through which said tube protrudes, the inlet-tube-supporting standard, the lever pivoted thereto and provided with an inwardly-extending projection which is adapted to compress the tube, a ring which is adapted to encircle the standard and the end of the lever when the latter is rocked over to position to compress the tube, the lever having the tooth *e*, and the ring having the aperture *k*, adapted to receive said tooth, whereby the elastic reaction of the compressible tube serves to force the tooth on the lever into engagement with the aperture in the ring, substantially as set forth.

11. In combination with the rim, the inflatable tire seated therein, the tire having an

inlet-tube and the rim having an aperture through which said tube protrudes, the inlet-tube-supporting standard, the lever pivoted thereto and provided with an inward projection adapted to compress the tube, and the cap-ring *K*, adapted to fit over the end of the standard and close its end aperture and lap over the end of the lever to lock it in position to compress the tube, substantially as set forth.

12. In combination with the rim, an inflatable tire seated therein, the tire having an elastically-compressible inlet-tube, the inlet-tube-supporting standard, a lever pivoted thereto and having a projection adapted to protrude into the standard to compress the inlet-tube when the free end of the lever is rocked toward the standard, a cap-ring *K*, adapted to cover the end of the standard and lap over the end of the lever, the lever being provided with a tooth *e* and the cap being provided with an aperture *k*, adapted to receive the tooth, whereby the elastic reaction of the inlet-tube serves to cause engagement of the tooth in the aperture, and thereby lock the cap onto the standard, substantially as set forth.

13. In combination with the rim, an inflatable tire seated therein having an elastically-compressible inlet-tube, the inlet-tube-supporting standard, the lever pivoted thereto having an inward projection adapted to compress the tube when the lever is rocked toward the standard, the cap-ring *K*, adapted to cover the end of the standard and close its aperture, having the tongue *K'*, adapted to lap over the end of the lever, the lever having the tooth *e*, and the tongue provided with the aperture *k*, adapted to receive the tooth, substantially as set forth.

14. In combination with the inlet-tube, its nipple, and the pump-nozzle adapted to be screwed together, the pump-nozzle being longitudinally ribbed or corrugated, substantially as set forth.

In testimony whereof I have hereunto set my hand, at Chicago, Illinois, in the presence of two witnesses, this 2d day of October, 1891.

THOS. B. JEFFERY.

Witnesses:

CHAS. S. BURTON,
JEAN ELLIOTT.