

(No Model)

W. COTTRELL & J. DIXON.  
VALVE.

No. 582,460.

Patented May 11, 1897.

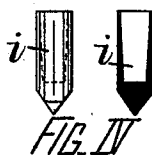
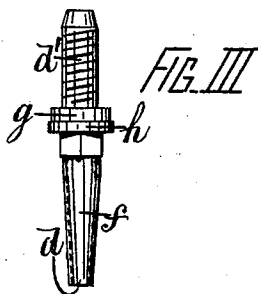
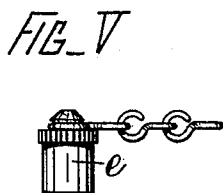
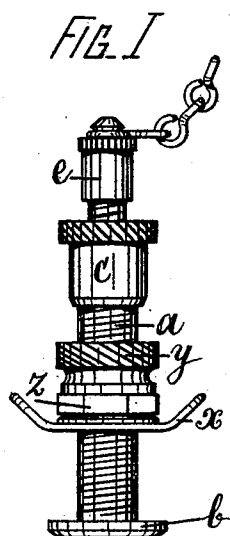


FIG. VI



FIG. VII



FIG. VIII

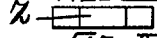


FIG. IX

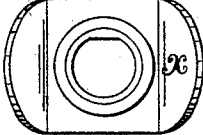
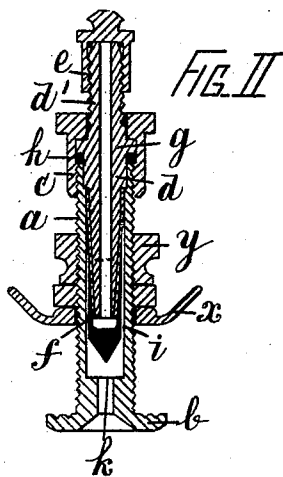
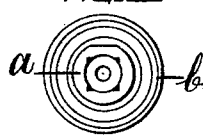


FIG. X



Witnesses:  
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Ray C. Bowen

Inventors:  
William Cottrell &  
James Dixon,  
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Attys.

# UNITED STATES PATENT OFFICE.

WILLIAM COTTRELL AND JAMES DIXON, OF LONDON, ENGLAND.

## VALVE.

SPECIFICATION forming part of Letters Patent No. 582,460, dated May 11, 1897.

Application filed November 13, 1896. Serial No. 612,015. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM COTTRELL and JAMES DIXON, subjects of the Queen of Great Britain, residing in London, England, have invented a new and useful Improvement in Valves, of which the following is a specification.

Our invention relates to an improved valve to be used for the purpose of inflating the pneumatic wheel-tires of bicycles and other velocipedes or vehicles.

The objects of our improvement are, first, to provide a large bearing-surface for the valve itself and the seat against which it fits; second, to insure an absolutely air-tight fit of the valve upon its said seat, and, third, to prevent the possibility of the valve not taking its exact position upon the seat when closed and to insure its always closing at the proper time. We attain these objects by the devices illustrated in the accompanying drawings, in which—

Figure 1 is a side view; Fig. 2, a vertical section; Fig. 3, a side view of the inner inlet-pipe; Fig. 4, a side view and section of the cap or valve; Fig. 5, a side view of screw-cap covering the outer end of the inlet-pipe; Fig. 6, a side view of the inner nut; Figs. 7, 8, and 9, side views of the nuts and plate by which the device is fixed to a tire, and Fig. 10 a view from above of the outer case.

Similar letters refer to similar parts throughout the several views.

*a* is a tube or case fitted and fixed at *b* into the tire or other article to be inflated in the usual way by a plate *x* and nuts *y* and *z*, but open at its outer end, upon which is screwed a cap *c*, which holds in position the inner valve or inlet-pipe itself, *d*, the outer end of which, *d'*, projects through the cap and is screwed to receive the force-pump by which air is forced in and also a cap *e* when the pump is not in use.

The inlet-pipe *d* is made tapering outside, its inner end being the smaller, and upon it we stretch and fit a piece of suitable tube *f*, of india-rubber, which is fixed to the tapered pipe *d*, upon which it is fitted by means of india-rubber solution or other suitable cement or means. The outer part of the india-rubber-covered inlet-pipe *d* fits into the outer end of the outer case *a*, which may have a corre-

sponding taper or may be parallel, and against which it is forced by the hollow nut *c* described, an air-tight joint being made by the collar *g* and india-rubber washer *h*. The part below the collar *g* is shown square, a recess in the top of *a* being also slightly squared, as shown in Fig. 10, to prevent the pipe *d* from turning around. Upon the smaller end of this tapered and india-rubber-covered air-inlet pipe *d* we fit freely a cap *i*, of metal or other suitable material, the inside of which is made tapering to fit for a sufficient distance down more or less accurately the india-rubber covering *f* of the inlet-tube *d* described.

The outer end of the cap *i* when the device is in its place is at a short distance from the inner end of the opening which receives it in the tube or case *a*, which is fixed in the tire, this opening being too small at *k* to allow the cap to pass into it, so that it acts as a stop when the valve is raised from its india-rubber seat, a sufficient number of small notches being made around its edge to allow the air to be delivered through it into the tire, even when the cap is in contact with it, or the end of the cap *i* is made conical, as shown, the side of the cone being flattened to allow the air to pass.

The outside of the cap *i* fits in the outer case or tube *a* sufficiently freely to allow the air forced in to pass between them when the cap is raised from its seat.

The action of the device described is as follows: The force-pump being attached to the screwed end at *e* of the tapering india-rubber-covered valve-seat *d*, which projects, as described, through the hollow nut *c*, by which it is held in position, the pump is worked, and the air forced in raises the cap *i* from the tapered india-rubber-covered inlet-pipe upon which it fits and passes into the tire. When the piston of the pump is withdrawn for a fresh stroke, the cap *i* is returned to its india-rubber seat by the pressure of the air in the tire, and the greater the pressure the more tightly the cap is held down.

In order to deflate the tire, the outer hollow nut *c*, by which the india-rubber-covered inlet-tube *d* is held in position, is unscrewed, which allows the air to escape through the valve-case *a*.

The different parts of the apparatus may

be made of brass or other suitable metal or material, and we do not confine ourselves to the precise details and proportions of the parts, which may be varied more or less to suit varying circumstances.

Our improved air-valve is applicable to the inflation of pneumatic tires of bicycles or other cycles or vehicles, to footballs, and other purposes of the like kind.

What we claim as our invention, and desire to secure by Letters Patent, is—

In a valve of the character described, the combination with an outer casing *a* screw-threaded on its outside and provided with a flattened head *b*, the walls of said tube thickened near said head and provided with an aperture *k*; an inlet-tube *d* screw-threaded at *d'* and provided with the collar *g*, the said tube being square in cross-section for a short distance below the said collar and round and tapering from the square portion to the end; a rubber covering *f* over the tapering portion

of said tube, a cap *e* adapted to fit over the top of the tube, and the square and tapered portions of said tube carried within said casing; a washer *h* between the upper end of said casing and said collar; a hollow nut *c* engaging the upper portion of the casing and the inlet-tube above the said collar; a valve *i* made in one piece having its lower end solid and pointed and its body made tubular from said end toward the opposite end, the said tubular portions adapted to fit over the tapered portion of the said inlet-tube, a plate *x* surrounding the said casing and nuts on the valve-casing for holding the same in position, substantially as described.

In testimony whereof we have hereunto set our hands in the presence of two witnesses.

WILLIAM COTTRELL.

JAMES DIXON.

Witnesses:

ARTHUR E. EDWARDS,  
W. E. SYKES.