

(No Model.)

S. H. ELLIS.  
INFLATOR FOR PNEUMATIC TIRES.

No. 490,620.

Patented Jan. 24, 1893.

Fig. 1.

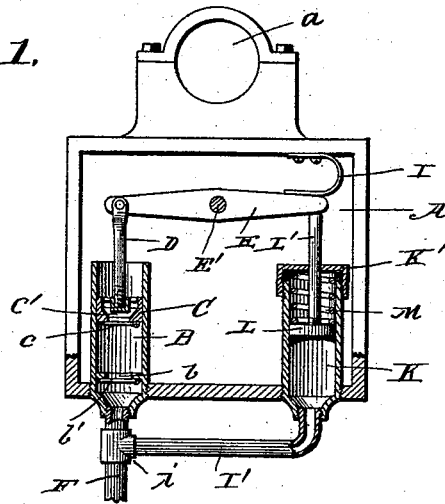


Fig. 3.

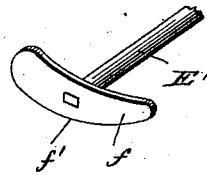


Fig. 2.

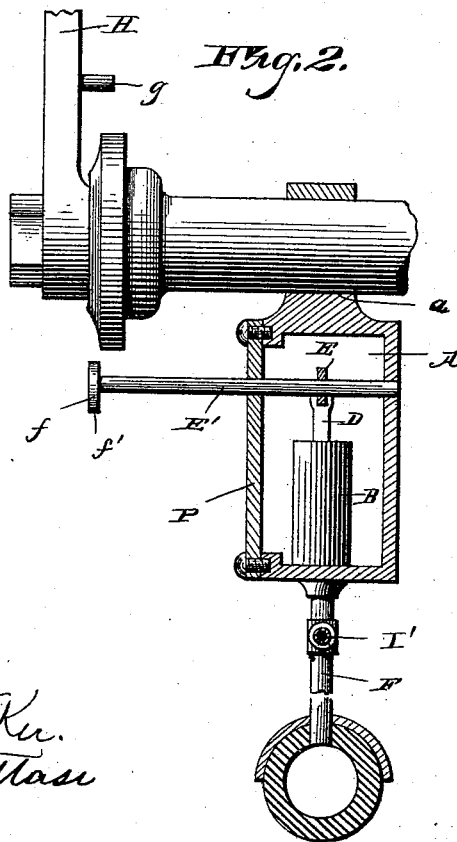


Fig. 4.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## INFLATER FOR PNEUMATIC TIRES.

SPECIFICATION forming part of Letters Patent No. 490,620, dated January 24, 1893.

Application filed May 29, 1891. Serial No. 394,536. (No model.)

### *To all whom it may concern:*

Be it known that I, SEELE H. ELLIS, a citizen of the United States, and a resident of Waverly, in the county of Tioga and State of New York, have invented certain new and useful Improvements in Inflaters for Pneumatic Tires; and I do 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a side view partly in section. Fig. 2 is an end view partly in section and Figs. 3 and 4 are detail views.

This invention relates to automatic inflaters, designed for attachment to cycles, for the purpose of inflating pneumatic tires; and the invention consists in the novel construction and combination of parts as hereinafter specified.

In the accompanying drawings, the letter A, designates a box or casing adapted to be rigidly hung upon the hub of a cycle at a.

B designates an air compressing cylinder placed in said casing, open at its upper end and provided at its lower portion with the aperture *b*, controlled by the upwardly seating clack-valve *b'*.

C is the piston working in said cylinder, and provided with the valve *c*, adapted to close the air ports *c'* in said piston upon the downward movement thereof.

D is the piston rod, which is connected at its upper portion to a beam, or lever E, hung centrally upon the oscillating shaft E', provided with bearings in said casing.

Communicating with the valved opening *b*, in the lower portion of the cylinder B, is a pipe F, which at its opposite end communicates with the air space in the tire. Upon the outer end of the oscillating shaft E', which projects through the casing, is a transverse arm *f*, provided with a cam under surface *f'*, which, as said casing is carried around by the movement of the hub, is adapted to engage a pin or projection *g*, located on the fork H of the wheel in the path of said arm. This engagement, as will be seen will effect

the oscillation of the shaft E', forcing the piston C, downward in its cylinder, closing the valve *c*, thereon, compressing the air in said cylinder, opening the valve *b*, and forcing air into the tire. After the cam arm has passed from engagement with the projection *g*, the spring I interposed between the beam E and the casing, and which has been compressed by the downward movement of the piston, will return said piston to the limit of its upward movement, opening the valve therein to admit air, and closing the valve at the bottom; this operation being repeated with each revolution of the wheel until the tire becomes inflated.

To automatically regulate the inflation of the tire to the proper degree, I provide the governor now to be described. Communicating with the air conducting pipe F, at the point *i*, is a pipe I', which communicates with the lower portion of a cylinder K, located in the opposite side of the casing from cylinder B. This cylinder K is provided with the threaded adjustable cap K', and working in said cylinder is a piston L, the rod L' of which projects above the cap in position to engage the beam or lever E, when said piston is moved upwardly. A spring M, is interposed between the cap K', and the piston L, in order to limit the movement of said piston. It will be seen that as the tire becomes inflated to a nearly sufficient degree, the air will be forced back through the pipe I', into the cylinder K, raising the piston therein and throwing the oscillating beam or lever into such position, by means of the rod L', that the cam arm *f*, on its shaft will only slightly engage the projection *g*, and thereby operating the piston C to only a slight extent, compressing but a small amount of air with each operation. As the tire becomes sufficiently inflated, air will be forced back into the cylinder K to operate its piston sufficiently to throw its cam arm *f* entirely out of position to engage the pin *g*, thereby stopping the operation of the pump. When the tire again becomes only partially inflated by the loss of air therefrom, the piston will fall in cylinder K, again bringing the cam arm into position to engage the pin *g* and again setting the pump into operation.

One side P of the box or casing may be made

removable to permit access to the cylinder K, the tension of the spring in which cylinder may be adjusted by means of the screw cap K'.

It will be seen that by the above device the tire is automatically kept at all times at the proper degree of inflation.

Having described this invention, what I claim as new and desire to secure by Letters Patent is:

- 10 1. The inflater for pneumatic tires, which inflater is carried by the wheel hub and operated by the revolution thereof, and a governor automatically throwing said inflater into and out of operation, substantially as specified.
- 15 2. The inflater for pneumatic cycle tires comprising the box or casing carried by the wheel hub and having an air compressor therein operated by the revolution of said hub, and a governor operated by a surplus of pressure
- 20 to automatically throw said pump into and out of operation, substantially as specified.
3. The inflater for the purpose described, comprising the box or casing adapted to be rigidly secured to the wheel hub, an air compressing cylinder and piston in said casing, a
- 25 pipe communicating with said cylinder and with the tire, an arm connected with said piston adapted to engage a projection of the frame upon the revolution of the wheel, and
- 30 a governor for automatically throwing said arm into and out of position to engage said projection, substantially as specified.
4. The inflater comprising the box or casing adapted to be rigidly secured to a wheel
- 35 hub, an air compressing cylinder and piston in said casing, an oscillating beam or lever connected at one end to said piston, its shaft,

the cam arm thereon adapted to engage a projection on the frame when the wheel is revolved, whereby said piston is forced downwardly, the spring for returning said piston, the air conducting pipe, and a governor operated by back pressure from said pipe to throw the cam arm into and out of position to operate the pump, substantially as specified.

5. The combination with the compressing cylinder, its piston, the oscillating beam or lever, its shaft, the cam arm on said shaft, and the air conducting pipe, of the cylinder connected with said pipe, the piston therein, and the rod connected to said piston and operated thereby to throw the cam arm into and out of position to operate the pump, substantially as specified.

6. The combination with a wheel hub, of a box or casing carried thereby and revolved therewith, an air compressor in said casing, a connection between the piston rod of said compressor and an arm operated by a projection on the frame whereby said compressor is operated and a governor in said casing operated by back pressure to automatically throw said arm into and out of position to be operated by said projection, whereby the operation of said compressor and the inflation of the tire are automatically regulated, substantially as specified.

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

S. H. ELLIS.

Witnesses:

PHILIP C. MASI,  
GEO. H. PARMELEE.