(No Model.)

J. F. IVES.

PNEUMATIC VALVE BASE.

No. 525,709. Patented Sept. 11, 1894.

Fig. 1.

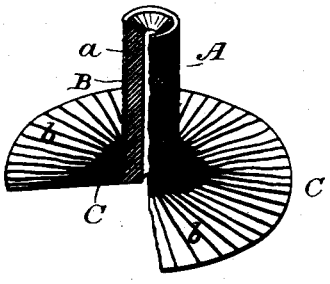


Fig. 2.

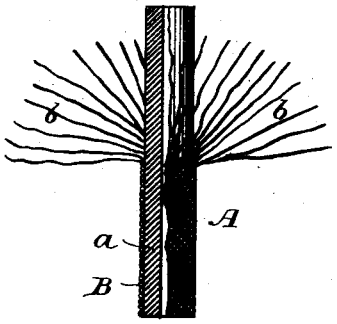


Fig. 4.

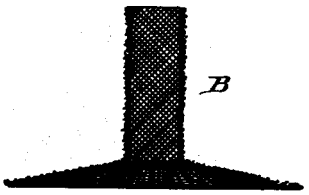
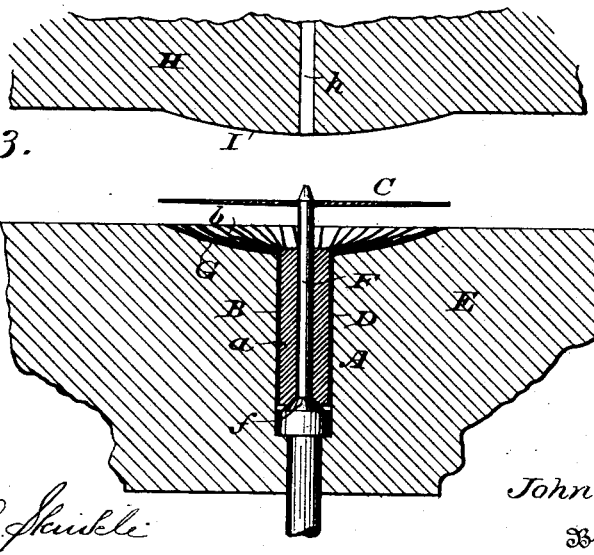


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

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PNEUMATIC VALVE-BASE.

SPECIFICATION forming part of Letters Patent No. 525,709, dated September 11, 1894.

Application filed January 26, 1894. Serial No. 498,137. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. IVES, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Pneumatic Valve-Bases, of which the following is a specification that will enable those skilled in the art to which my invention pertains to make and use the same.

My invention relates to rubber bases by means of which air valves may be attached to the tubes of pneumatic tires or other like contrivances formed of rubber and intended to retain air or fluids under pressure. Its objects are to strengthen the stem and flange of a valve base by a reinforcing fabric composed of fibrous threads and it consists of a valve base composed mainly of rubber, the stem of which is reinforced by a fabric which may be woven or plaited about it or constructed and applied in any desirable manner, the threads of which extend from the stem to and across the face of the flange thereby more strongly uniting the stem to the flange as well as reinforcing the latter.

The accompanying drawings show my invention in the best form now known to me but many changes in the details might be made within the skill of a good mechanic without departing from the spirit of my invention as set forth in the claims at the end of this specification.

Figure 1, is a perspective view, partly in elevation and partly in section, showing my valve base complete. Fig. 2, is a view partly in elevation and partly in section of a portion of the manufactured material from which the stem of the base is made. Fig. 3, is a diagrammatic view illustrating the process by which I manufacture my valve base as will be hereinafter more fully set forth. Fig. 4, is a perspective view of a modification.

It has been common practice heretofore to make a valve base having a rubber stem and flange similar to mine and to reinforce the stem of such a base by any suitable thread fabric which will enable it to resist the lateral pressure of the confined air which the valve holds in check. There has, however, so far as I am aware been no attempt to carry this reinforcing into the flange or across the point where the flange and stem are united. This is the point of greatest weakness in all such valve bases, the break, if any, invariably starting here. By my invention I seek to have the full force and strength of the reinforcing threads lie across the point of juncture of the stem with the flange so that separation of the parts at this point cannot be effected without first severing these threads which are stronger than the rubber and overcome the weakness of the structure at this point.

My valve base consists of a stem A, having a hollow core *a*, of rubber, surrounded and reinforced by a fabric B, knit, woven, braided or constructed and applied to the stem in any manner suitable to its purpose. At its lower end the stem is united to a rubber base or flange C, by means of which it may be attached by cement, vulcanization or otherwise to an air tube or other receptacle. This flange is reinforced by threads *b*, which extend radially on its outer face and are continuations or extensions of those composing the fabric which surrounds the stem, the fabric and threads being vulcanized onto the stem and flange respectively to form a complete whole in which the threads strongly reinforce the point of connection of the stem and flange.

I manufacture my valve bases as follows: I first take a long hollow cylinder or core A, of rubber which I inclose in a strong fibrous fabric which may be braided, woven or otherwise suitably made and fitted thereon. This cylinder and its inclosing fabric I cut into suitable lengths as shown in Fig. 2. Taking one of these lengths I partly ravel or unbraid the threads of the fabric from a portion of the cylinder or core A, which is then cut off leaving the portion which is to constitute the stem of the base perfectly inclosed by the fabric as shown in Fig. 2. This portion I insert in a socket D, of a suitable die or base plate E, of a vulcanizing press, the aperture through the rubber core fitting over a pin F, in the socket. A dished or saucer-like depression G, is formed in the face of the die round the mouth of the aperture D, and a plunger H, has a correspondingly shaped projection I, on its lower face and a hole or socket *h*, which fits over the projecting end of the pin F, when the plunger and die are brought together. After the core is properly inserted

in the socket D, the unbraided threads or ravelings *b*, are carefully spread out on the surface G, radiating as nearly as may be from the common center. A rubber flange or washer C, is then placed over the pin F, and forced by the plunger down into the recess G, against the threads lying therein and against the end of the core A, all of the parts in this situation being thoroughly united by the process of vulcanization which then takes place. It will be observed that the pin F, terminates in a conically faced flange or shoulder *f*, which imparts a corresponding shape to the opening at the end of the stem for the purpose of finish and also to facilitate the entrance of the metal parts of the air valve.

Instead of making valve bases in the manner hereinbefore described, that is, by unraveling the threads of fabric already woven about a rubber stem and spreading such threads on the flange, I might have a special fabric made complete of the required shape to fit the stem and flange as shown by Fig. 4, in which case the steps in the process of manufacture would be somewhat different from those described but so obvious as to require no extended description here.

Having thus described my invention, what I claim as new and useful, and desire to secure by Letters Patent, is—

1. As a new article of manufacture, a valve base composed of a rubber stem and flange, a thread fabric reinforcing the stem, the unbroken threads from which are incorporated into the face of the flange and all vulcanized together, substantially as hereinbefore set forth.

2. A valve base composed of a rubber stem and flange, a thread fabric reinforcement for the stem, the unbraided or raveled thread ends from which, are incorporated into the face of and reinforce the base, substantially as hereinbefore set forth.

3. A valve base composed of a rubber stem and flange with a reinforcing fabric for the stem which extends across the juncture of the stem and flange and reinforces the latter, substantially as hereinbefore set forth.

In testimony whereof I affix my signature, in the presence of two witnesses, this 8th day of November, 1893.

JOHN F. IVES.

Witnesses:
R. S. PIERCE,
G. E. LESLIE.