

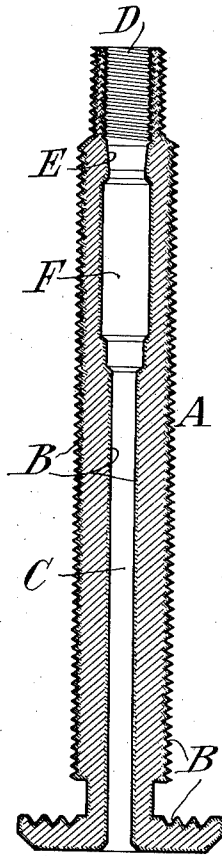
M. C. SCHWEINERT AND H. P. KRAFT.

TIRE VALVE.

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1,366,963.

Patented Feb. 1, 1921.



WITNESSES:

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UNITED STATES PATENT OFFICE.

MAXIMILIAN CHARLES SCHWEINERT, OF WEST HOBOKEN, AND HENRY P. KRAFT,
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TIRE-VALVE.

1,366,963.

Specification of Letters Patent.

Patented Feb. 1, 1921.

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To all whom it may concern:

Be it known that we, MAXIMILIAN CHARLES SCHWEINERT and HENRY P. KRAFT, citizens of the United States of America, residing in West Hoboken, in the county of Hudson and State of New Jersey, and Ridgewood, in the county of Bergen and State of New Jersey, respectively, have invented certain new and useful Improvements in Tire-Valves, of which the following is a specification.

This invention relates to tire valves or the like, and aims to provide certain improvements therein.

Tire and similar valves have heretofore been made with a long casing or stem which has been connected to the inner tube or other container which it is desired to inflate, such casing or stem being of very considerable length as compared with its diameter, and being designed to inclose the working parts of the valve. On account of limitations imposed by the wheel rim such casings have been of small external diameter approximating from one-half to three-quarters of an inch. Consequently the bore or passage through the casing has been very small, being in most cases not over one-quarter of an inch in diameter. It has been customary to form such valve casings of brass or other rust-resisting material for the reason that they are exposed to wet and moisture and speedily rust if formed of a material which easily oxidizes. This is particularly true with regard to the internal bore of the casing, since such bore cannot in practice be coated by any ordinary electrolytic process. When a casing is subjected, for instance, to an electro-deposition process the coating does not enter to any extent the bore of the valve, so that the internal walls of the bore are left unprotected. Furthermore, the external walls of the casing are usually threaded to engage nuts, caps, pump couplings, etc., and an electrically deposited coating is not sufficiently firm and durable to avoid wearing off under such conditions. These factors have prevented the use of cheaper metal, such as steel or iron, in the manufacture of such stems.

After careful experiments we have found that it is possible to produce a satisfactory coating not only on the exterior but on the interior bore of a steel or similar valve by the sherardizing method. We have found

that we can obtain a rust-proof condition on the walls of the long narrow bore by subjecting the casing to the vapors of zinc or other dust without necessarily packing the bore with such dust. Contrary to our experience with electro-depositing processes the coating on the interior of the bore is found to be substantially equal to the coating on the exterior of the casing, or at least sufficiently good to prevent rusting under ordinary service conditions. Furthermore, this is true not only with regard to the plane walls of the interior bore, but also with regard to the interior threads and tapered shoulder of the valve casing of common form. By electro-depositing processes it is difficult if not impossible to produce an adequate coating on threads even if they are on the exterior of the article being coated, while on the interior threads, as before stated, it is practically impossible.

In the drawings we have illustrated a common form of pneumatic tire valve in diametrical section, the body of the valve being indicated by the reference letter A, and the coating by the letter B. It will be observed that the bore which is lettered C is relatively very long in proportion to its diameter, and usually is formed with an interior thread D at its top which is designed to engage the seat member of the valve. The bore is usually formed with a tapered shoulder or seat E which is engaged by a packing carried upon the valve seat to make a tight joint between the latter and the casing. In the best constructions below the shoulder E there is located a valve chamber F which is of larger diameter than the shoulder, and which receives the actual working parts of the valve, such as the plunger, spring, etc.

In carrying the invention into practice the valve casings with the zinc dust or other metallic dust may be placed in a revolving barrel or receptacle which is heated to a point which is below the fusing temperature of the metal. As the barrel revolves the dust probably partly enters the bores of the casings, and the coating formed is found to be applied to the various crevices formed by the screw-threads, shoulders, etc., as well as the plain surfaces. It is probable that the zinc vapors enter the pores of the steel and produce something in the nature of an alloy extending to some considerable dis-

tance below the surface of the metal. In any event an even and desirable coating is provided.

What we claim is:—

- 5 1. The method of rust-proofing a pneumatic tire valve casing having a relatively small elongated bore and an internal screw-thread which consists in forming a sherardized coating on the interior of the casing.
- 10 2. A pneumatic valve casing or the like comprising an elongated structure of steel or similar oxidizing material having a com-

paratively small bore extending throughout the length thereof, and said casing having an internal coating of vapor-deposited rust- 15 proofing metal.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

MAXIMILIAN CHARLES SCHWEINERT.

HENRY P. KRAFT.

Witnesses:

GRACE GUNDERMAN,

THOMAS F. WALLACE.