

(No Model.)

G. B. SNOW.

SAFETY DEVICE FOR VULCANIZING APPARATUS.

No. 443,873.

Patented Dec. 30, 1890.

Fig. 1.

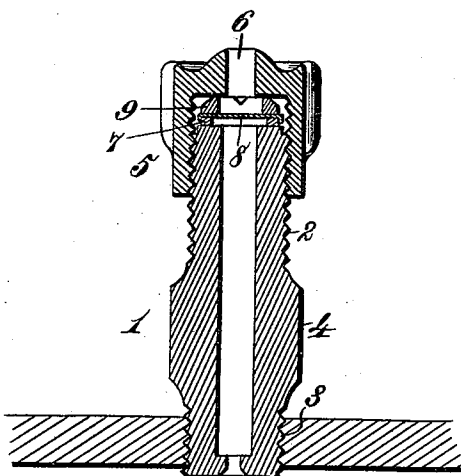


Fig. 2.



Witnesses:
Phet Everett.

J. A. Rutherford

Inventor:

George B. Snow.

By

James L. Norris.
Atty.

UNITED STATES PATENT OFFICE.

GEORGE B. SNOW, OF BUFFALO, NEW YORK.

SAFETY DEVICE FOR VULCANIZING APPARATUS.

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Application filed October 13, 1890. Serial No. 367,998. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. SNOW, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Safety Devices for Vulcanizing Apparatus, of which the following is a specification.

This invention relates to that type of safety devices for dental vulcanizing apparatus wherein a thin copper disk is secured on the end of a tubular stud by a screw-cap, a brass washer being placed between the screw-cap and the copper disk to determine the amount of exposure of the disk, the construction being such that when the tubular stud is attached to the vulcanizer the steam presses upon the lower side of the copper disk, and if the steam-pressure is allowed to become excessive the disk is ruptured or gives way and relieves the pressure. The prior construction is reliable if properly manipulated, but has been found objectionable, in that some dentists so operate the safety device that instead of the copper disk remaining intact until there is an excessive pressure of steam, such disk, by being injured in its application to the stud and screw-cap, is ruptured or gives way at or near the vulcanizing-point and sometimes below such point. The injury to the copper disk arises mainly from two causes: first, the dentist sometimes adjusts the screw-cap so tightly in place that the brass washer is forced slightly into the end of the stud, thereby forming a shoulder which, though almost imperceptible, is sufficient to partly shear or cut the thin copper disk, in consequence of which the latter is so weakened that it is incapable of withstanding the full steam-pressure required for vulcanization; second, the copper disk when subjected to steam-pressure is bulged upwardly or outwardly, thereby forming a cavity or chamber between it and the end of the stud, into which a deposit forms, which, if not removed when the disk is renewed, has the same effect as the shoulder above mentioned, in that it strains the disk, and hence the latter will not withstand the required steam-pressure. These objections are so annoying that dentists sometimes plug up the safety device, and consequently, if the vulcanizer is overheated there

is great danger of explosion. I have after many experiments found that the objection is overcome by the employment of a metallic ring, preferably of soft copper, placed on the face of the tubular stud beneath the disk and having a hole or orifice greater in diameter than the hole or orifice in the brass washer, which is placed above the copper disk, thereby preventing injury to such disk, as the latter is hard-rolled, while the copper ring is of soft metal and consequently yields to the pressure to protect the copper disk against injury.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 shows a vertical central sectional view of the safety device on an enlarged scale. Fig. 2 shows a detail perspective view of the brass washer, the hard-rolled copper disk, and the soft-copper ring.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates a tubular stud having externally-screw-threaded end portions 2 and 3 and an angular head 4 for the purpose of screwing the end portions 3 into the vulcanizing apparatus, as is the usual practice with this type of safety devices. The internally-screw-threaded cap or nut 5 is adapted to screw upon the end portion 2 of the stud, and is provided with a central orifice 6. The extremity of the end portion 2 is perfectly flat and upon the same is arranged a metallic ring 7, and upon this ring rests the thin copper disk 8, which is adapted to be ruptured or give way when the steam-pressure becomes excessive.

The brass washer 9 rests upon the upper side of the thin copper disk and the screw cap or nut presses upon such brass washer in such a manner that when the nut or cap is screwed into proper position it serves to clamp the brass washer, the thin copper disk, and the metallic ring over the flat extremity of the end portion 2 of the tubular stud. The thin copper disk is hard-rolled, and the ring, made of copper, is comparatively soft, and consequently in placing the parts together the soft copper ring yields to pressure and prevents any injury to the copper disk. The orifice or

hole through the copper ring is of greater diameter than the orifice or hole through the brass washer.

5 I have found in actual practice that the employment of the soft-copper ring effectually protects the copper disk from injury and entirely avoids the liability of the copper disk being ruptured or giving way at or below the
10 vulcanizing-point.

10 By inserting the metallic ring between the flat end of the tubular stud and the copper disk the two are kept from contact, and if the face of the stud should be untrue from any cause a steam-tight joint is produced without
15 injury to the disk. The ring, if of soft copper, is not likely to injure the face of either the stud or the brass washer, since it yields to the pressure of screwing on the screw-cap and insures a tight joint. To effect the best results
20 the hole or orifice of the ring should be greater in diameter than that of the brass washer, for if the two holes or orifices were of the same size or if that in the ring were smallest, the

ring in yielding to pressure would have its inner edge forced into the orifice in the brass washer, and therefore the interposed copper disk would be strained and sheared, thus rendering it incapable of withstanding the required steam-pressure.

Having thus described my invention, what I claim is—

A safety device for vulcanizing apparatus, consisting of a screw-threaded tubular stud, a metallic ring resting on the upper extremity of the stud, a disk resting on the ring, a metallic washer above the disk, and the retaining nut or cap, said ring having its orifice or hole of greater diameter than the orifice or hole in the metallic washer, substantially as and for the purpose described.

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

GEORGE B. SNOW.

Witnesses:

SAMUEL M. WELCH, Jr.,
JOHN E. ROBIE.