

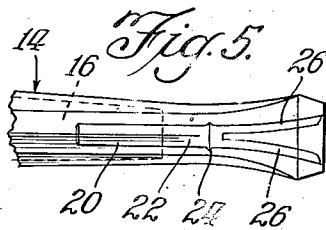
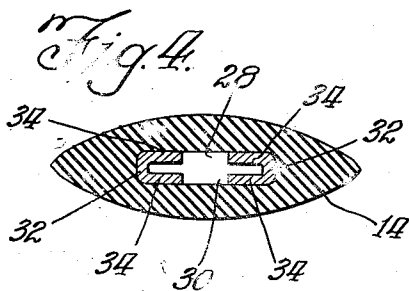
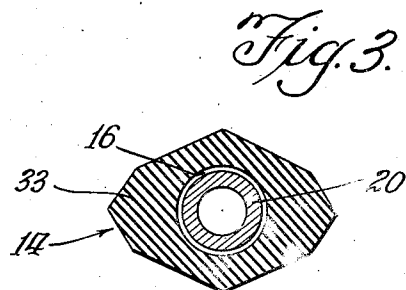
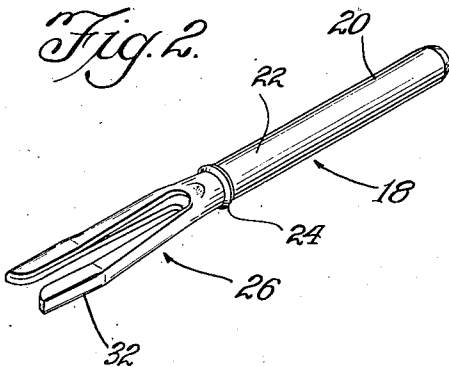
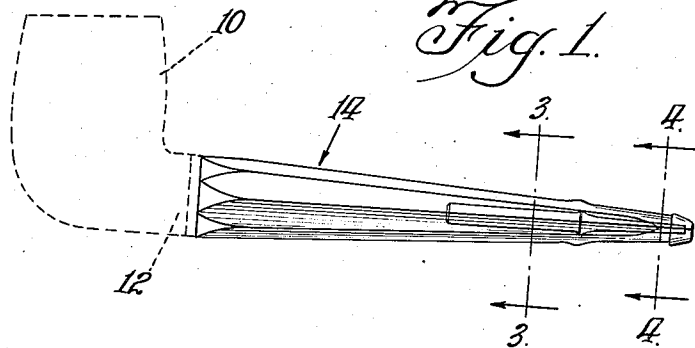
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2,357,239

SMOKING PIPE

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2,357,239

SMOKING PIPE

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5 Claims. (Cl. 131-227)

My invention relates to smoking pipes and includes among its objects and advantages a stem construction in which the bit, or portion held between the teeth of the user, may have a maximum softness at the surface so as not to wear or break on the teeth of the user, and at the same time resist deformation when the user happens to bite on it with considerable force.

In the accompanying drawing:

Figure 1 is a side elevation of a stem according to the invention indicated as part of a complete pipe which may include the inventions of my earlier patents, 2,230,872 of February 4, 1941, and 2,242,805 of May 20, 1941;

Figure 2 is a perspective view of the metal insert;

Figure 3 is a section on line 3-3 of Figure 1;

Figure 4 is a section on line 4-4 of Figure 1; and

Figure 5 is a fragmentary plan view of the bit end of the stem of Figure 1.

In the embodiment of the invention selected for illustration the conventional bowl 10 carries the conventional lateral shank 12 which is illustrated as quite short and which is detachably connected, as by the joint construction of my Patent 2,242,805, with the stem assembly indicated as a whole by the reference character 14. The stem illustrated has a uniform taper but is tapered just a trifle more in elevation as seen in Figure 1 than in plan view as seen in Figure 5, so that the section at 3-3 has greater horizontal than vertical dimensions as clearly illustrated in Figure 3. The entire stem assembly, except for the metallic insert illustrated in Figure 2, is a single integral one piece body of relatively soft plastic material. One suitable material for such uses is known to the trade as vinylite and is a polymerization product of vinyl chloride and vinyl acetate. However, other chemical compositions are known from which such plastic bodies may be formed.

The stem body has a thin wall defining a cooling and condensation chamber 16. The metallic insert 18 is a combined reinforcement and condensation trap in the sense that its inwardly projecting reach 22 projects into the chamber 16 far enough so that a substantial amount of condensed liquid may accumulate inside the stem without finding its way through the insert and into the user's mouth. In customary use, after the user has smoked a half dozen pipefuls, he separates the bowl and stem and flirts the accumulated liquid out of the stem and then replaces the parts.

Beyond the trap portion 20 the insert includes the central shank 22, the annular stop flange 24, and two prongs 26. The external surfaces of all these parts lie in close contact with the plastic material of the stem. The prongs are first formed, as indicated in Figure 2, by removing portions of the tube, as with a slotting tool to define opposed slots at 28 and 30. After the formation of the slots, and in a single die-forming operation, if desired, the remainder of the tube may be partly collapsed to change the cross section of the prongs from the original circular arc to the U-shaped construction clearly illustrated in Figures 2 and 4. The U-shaped portion of each prong includes a bight 32 and slightly spaced legs 34 separated from each other by a space of approximately the same order of magnitude as the thickness of the metal itself.

The prongs 26 may be spread apart before insertion to substantially the configuration they have in the finished assembly as best illustrated in Fig. 5. Then the insert is pushed in forcibly from the right hand end of the bit as seen in Figure 5, having a fairly tight friction fit along the central reach 22. This pushing movement is continued until the flange 24 abuts the slight shoulder previously formed in the plastic for that purpose. During this insertion, the portion of the bit to the right of the flange 24 is forced to yield into an approximately circular shape, but with parts of the proportions indicated in the drawing, this can be done without distorting the plastic beyond its limit of endurance. After the flange has passed on in, the contact between the prongs 26 and the plastic body will assist the bit portion of the plastic in assuming its original and final shape. And if the prongs 26 have been bent slightly inward toward each other during insertion, or were originally formed before insertion in a slightly less divergent condition than the final condition illustrated in Figure 5, a tapered tool shaped to fit the interior of the final passage can be pushed into the bit end of the assembly to expand the prongs to the final position of Figure 5.

In the final assembly, and with particular reference to Figure 4, it will be noted that the portion of each prong adjacent the bight 32 is of very great structural strength, and vertical compression exerted by the teeth of the user is never sufficient to collapse the top of the bit and reduce the cross section of the remaining passage sufficiently to impair the utility of the device. One construction substantially according to the drawing has been tested for experimental pur-

pose by placing the tip of the bit between the molars of a man with strong jaws, and it was quite possible for him to bend in the legs 34 until their free ends were substantially in contact, but even in that condition, after the force of the bite was relaxed, the passageway remaining was adequate for practical use of the device in smoking.

It is possible to make plastic stems of substantially the shape shown in the drawing that have enough structural strength in the plastic material itself to resist the pressure of the teeth of the user, but such compositions have an external surface that is usually substantially as hard as hard rubber and is slightly uncomfortable in its contact with the user's teeth. And an occasional tightening of the user's teeth is likely to chip or crack the material slightly, especially at the outer surface, so that after a few months of use the outside of the bit is "chewed up" and unsightly.

The material employed according to the present invention is capable of plastic yielding in the nature of surface deformation at the point where the teeth of the user impinge on it to a sufficient degree so that the teeth can be imbedded in the material deeply enough to hold the pipe comfortably firm and still not chip or abrade either the bit or the enamel of the teeth.

It is also possible to form stem bodies as illustrated in the drawing, of plastic having the optimum degree of softness at the surface where the teeth of the user engage the bit, but such stems have two disadvantages: first, a strong bite is apt to result in permanent deformation at the tip of the bit sufficient to restrict the smoke passage and interfere with the draw; and second, the flexibility of the stem from one end to the other acting as a beam is such that the entire stem tends to assume a slightly curved configuration which is unsightly and distasteful to the user. By the use of the reinforcement disclosed, the beam strength of the bit against flexure is very high up to the inner end of the reach 22, and the vertical dimensions and enlarged cross section from that point on are sufficient to substantially eliminate any undesirable bending of the stem as a whole. And the reinforcement of the inner wall of the passage by the prongs 26 effectively eliminates any danger of collapsing the tip of the bit.

The plastic material forming the body of the bit is preferably, but not necessarily, transparent. In Figures 1 and 5 of the drawing I have indicated the transparent material by showing the metal insert in full lines.

The insert is of metal chemically inert to the action of the smoke and condensation products.

Aluminum is one metal that is substantially inert and satisfactory from the chemical point of view, and ordinary commercial aluminum, even though its structural strength is relatively low, has sufficient structural strength for the use indicated.

Without further elaboration, the foregoing will so fully explain my invention that others may, by applying knowledge current at the time of such later application, readily adapt the same for use under various conditions of service. For instance, it will be obvious that reinforced plastic stem bodies substantially as disclosed herein, are equally suitable for cigar and cigarette holders.

I claim:

1. A bit for smokers comprising, in combination: a tubular body capable of slight plastic yielding under the bite of the user's teeth and substantially incapable of resisting collapse at the point of bite; and a metallic reinforcement inside the body at the point of bite; said reinforcement comprising metal members of U-shaped cross section, with substantially plane surfaces along the outer legs of each U; said plane surfaces being arranged to present relatively large flat metal thrust areas facing in both directions to receive the force of the bite and prevent collapse of the body.

2. A bit according to claim 1 in which said members are spaced apart in the direction of the plane of the metal thrust areas, thereby defining a central passage of maximum height, spanned at the top and bottom by straight reaches of plastic wall, which plastic wall is supported at both ends by said metal thrust areas.

3. A bit according to claim 1 in which a circular metal tube extends axially along said bit beyond the point of bite; said members of U-shaped cross section being integral prongs projecting from one end of said tube.

4. A bit for smokers comprising, in combination: a tubular body capable of slight plastic yielding under the bite of the user's teeth and substantially incapable of resisting collapse at the point of bite; and a metallic reinforcement inside the body at the point of bite; said reinforcement comprising metal members of U-shaped cross section; the legs of each U section presenting thrust areas facing in opposite directions to receive the force of the bite and prevent collapse of the body.

5. A bit according to claim 4 in which a circular metal tube extends axially along said bit beyond the point of bite; said members of U-shaped cross section being integral prongs projecting from the end of said tube.

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