

[54] **RIGID REAMER TYPE SMOKING PIPE CLEANER**

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Related U.S. Application Data

[63] Continuation-in-part of Ser. Nos. 152,190, June 11, 1971, abandoned, and Ser. No. 215,830, Jan. 6, 1972, abandoned.

[52] U.S. Cl. **131/243, 131/247**
[51] Int. Cl. **A24f 09/04**
[58] Field of Search 131/184, 243, 245, 247;
15/104.165

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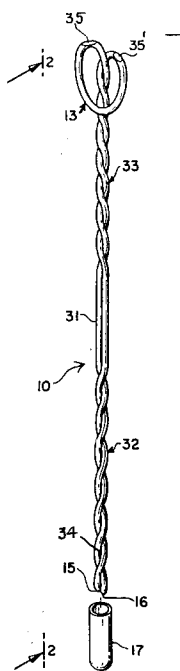
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[57] **ABSTRACT**

A rigid reamer-type smoking pipe cleaner is produced by securing twisted wires together preferably of substantially high strength such as spring steel wires. The wires are preferably of rounded cross-section and are twisted in turnbuckle fashion to provide an untwisted intermediate portion between opposite end portions thereof. The forward portion is twisted in the direction of normal turning of the cleaner in the smoke passage and the wire ends are shaped to have cutting edges for the reaming of the passage of the stem of a pipe or mouthpiece to clear it of caked hardened tar and gum. The wires are twisted to provide spiral elongated valleys along which the debris may move outwardly and dragged out of the passage as the cleaner is removed therefrom. A cap mountable on the working-end of the pipe cleaner provides for sanitation, to prevent injury to one, the soiling of a pocket or the cutting of its material. The opposite end of the cleaner is provided with a pocket clip handle and when the cleaner is turned, the wires outwardly of the intermediate portion will be twisted to tighten and render the reamer more rigid outwardly of the passage. The wires within the passage will tend to spread as the turning is effected to insure full cleaning of the passage up to its wall surface. The clip handle is also flattened on top to provide a tamping instrument for packing the hot burning tobacco in the pipe bowl.

7 Claims, 10 Drawing Figures



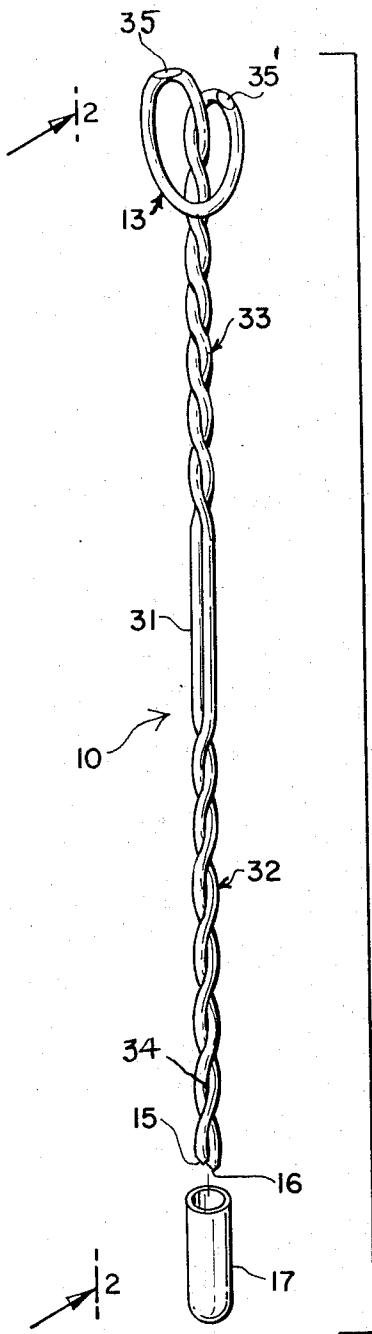


Fig. 1.

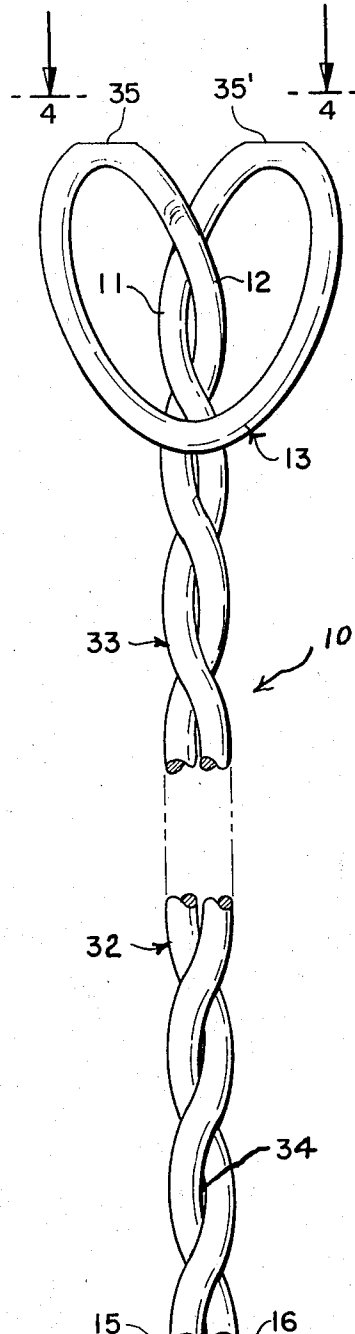


Fig. 2.

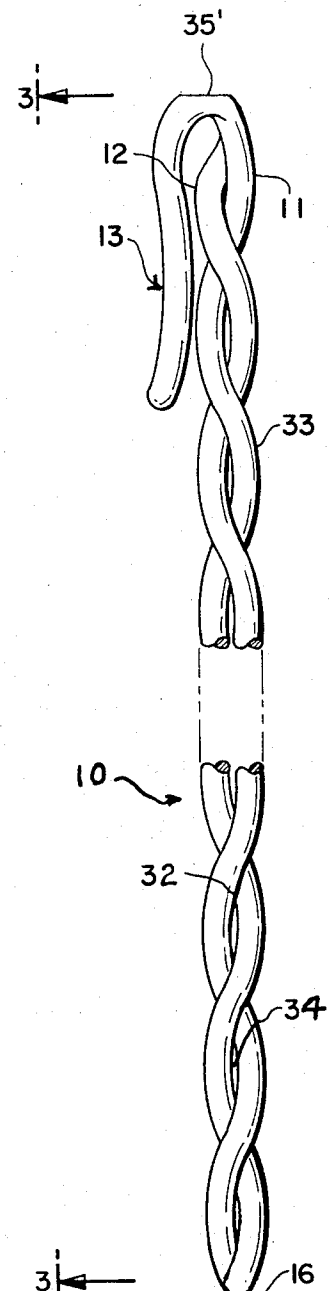


Fig. 3.

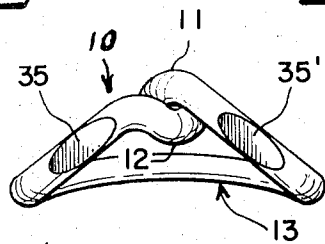


Fig. 4.

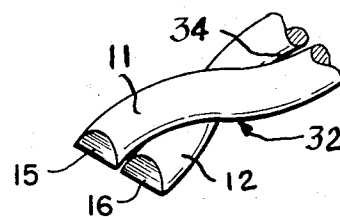
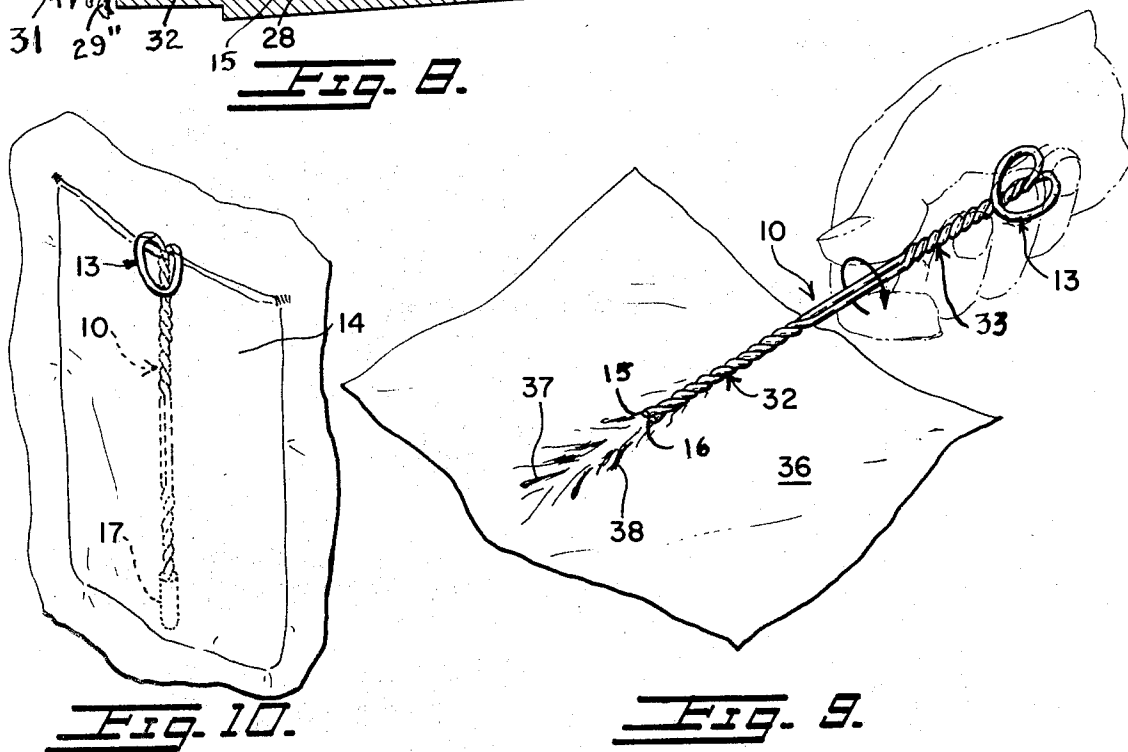
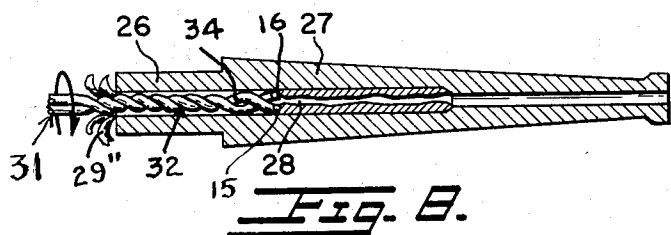
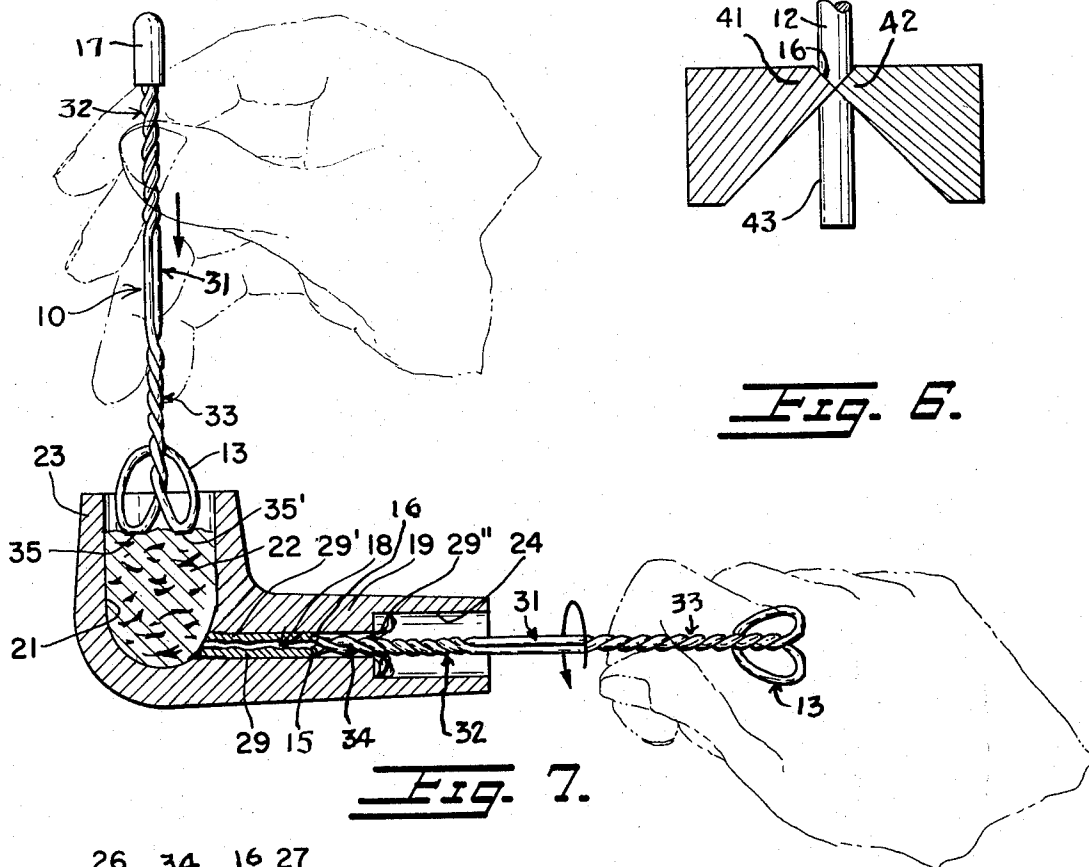


Fig. 5.

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RIGID REAMER TYPE SMOKING PIPE CLEANER

This application is a continuation-in-part of my prior applications, Ser. No. 152,190, filed June 11, 1971, entitled A Permanent Pipe Stem Cleaner and Serial No. 215,830, filed Jan. 6, 1972 and entitled Pipe Cleaner Reamer Improvement, both of which are now abandoned.

This invention relates to a rigid or stiff tobacco pipe cleaner for reaming and cutting the hardened encrusted tar, gum and the like.

Heretofore, smoking pipe cleaners have been made of easily bendable soft metal twisted wire with brush bristles, felt, fabric fibers or similar materials retained between the twisted wires or in some manner fixed to a solitary wire or shaft and which when inserted in the pipe bowl stem and mouth piece passages become mere sponges to absorb or pick-up a certain amount of loose tar, gum and moisture, condensation from of the smoke and the smoker's saliva, from the walls of the passages and when once used and made dirty they are thrown away. The disadvantage of such cleaner has been that the hardened tars and gums on the walls of the pipe passages are not removed completely, and the pipe is not actually cleaned. The brush or cotton fibers or fabric of the bendable wires or rods do not remove the hardened tars and gum caked to the bowl stem and mouth piece passage walls resulting in a poor cleaning action and do little more than remove the saliva from the pipe passages. By the soft type cleaners the passages are not reamed out and riddled of the hardened and caked tars and gums that have been built up on the passage wall surface. These brush and fabric flexible cleaners become quickly soiled, soggy and difficult to clean and are normally disposed of after one use. They are made of bendable wire, and too flexible and when they are bent due to any restriction in the pipe of the hardened tar and gum so the entire length of the passages will not be cleaned leaving the pipe virtually uncleaned. Further, a large number of these prior cleaners must be kept on hand in quantities, in a separate rack or carton as they are of a disposable nature and not reusable.

It is the principal object of the present invention to provide a permanent rigid pipe cleaner with sharpened cutting point edges which will cut, ream and hollow out the hardened tar and gum that clogs the pipe bowl stem and mouth piece passages and remove it by a turning action from the walls thereof to cause the broken away tar to pass rearwardly through spiral valleys or channels provided between the twisted hard steel cutting wires of the pipe cleaner in much the same manner that an ordinary drill action is performed in wood and other work materials.

It is another object of the invention to provide a rigid or stiff pipe passage hard metal reamer or cleaner of the type set forth in the above objects and to overcome the above-mentioned disadvantages of the prior flexible wire cleaners, which will be reusable, and which when twisted into the pipe stem and mouthpiece smoke passages will perform a cutting and reaming operation without bending and the passage being thereby easily cleared of the cut away tar and gum along with the moisture by travel along the valleys or channels between the twisted wires and when removed by a throw-away cloth or tissue paper and made quickly clean for further use or placed and carried in one's pocket without staining ones's clothing.

It is still another object of the invention to provide a rigid, reusable, smoking pipe cleaner that can be cleaned with tissue paper for re-use, that has on its rear end a widened closed loop of sufficient strength that will serve as a handle for effecting the twisting of the cleaner into the tarred pipe stem or mouthpiece passage for effecting the cutting operation, which with the loop handle being bent over the twisted wires serves also as a pocket clip so that one may carry the cleaned instrument in a pen pocket in a suit, coat or shirt and which is flattened on its top adjacent curved loop portions to provide enlarged surfaces to render the handle to be better used as a tamping instrument of the tobacco in the pipe bowl when grasping the twisted cutting wires and vertically pressing the cleaner handle against the top of the burning tobacco therein to tamp and compact the tobacco.

It is a further object of the invention to provide a rigid smoking pipe passageway cleaner having cutting edges and adapted to be carried by a clip with a cover cap for the protection of the clothing and so as to maintain the sharpness of the cutting edges of the instrument and keep them from becoming dulled.

For a better understanding of the invention, reference may be had to the following description taken in connection with the accompanying drawing, in which

FIG. 1 is a collective perspective view of the rigid twisted wire pipe passage reamer or cleaner and a cap therefor.

FIG. 2 is an enlarged fragmentary front elevational view of the pipe cleaner looking generally in the direction of the arrows 2—2 of FIG. 1.

FIG. 3 is an enlarged fragmentary side elevational view of the pipe cleaner looking in the direction of the arrows 3—3 of FIG. 2.

FIG. 4 is an enlarged top plan view looking upon the clip handle and in the direction of the arrows 4—4 of FIG. 2.

FIG. 5 is an enlarged fragmentary cutting end perspective view of the pipe cleaner and its transversely joined double beveled tapered cutting edges.

FIG. 6 is a schematic sectional view through a cutting device illustrating the manner in which the entering end portion wire cutting edges of twisted wires are formed by cutting the same transversely with the cutting edges of a hand wire snip coming together centrally upon the twisted wires.

FIG. 7 is a longitudinal sectional view of a smoker's pipe bowl showing the reaming end of the tool of the present invention being used to clean the smoke duct and the handle end thereof being used as a tobacco tamper.

FIG. 8 is a longitudinal sectional view of the smoking pipe mouthpiece and illustration being made as to the manner in which the rigid metal pipe reamer or cleaner is used upon it.

FIG. 9 is a perspective view of the pipe reamer being wiped upon tissue that maybe held in the other hand, and

FIG. 10 is a perspective view of the present pipe cleaner and of a pocket in which it is carried by its clip handle, the end cap attached to the sharpened cutting and reaming end to protect the clothing.

Referring now particularly to FIGS. 1 to 6, 10, generally represents the full rigid pipe cleaner constructed according to this invention formed of hard, not easily

bendable metal wire lengths or portions 11 and 12 twisted upon one another and depending from closed enlarged loop handle 13 bent downwardly over the upper ends of the twisted wire portions to serve as turn handle to effect the reaming action and to further serve as a pocket clip when carrying the pipe cleaner in a garment pocket 14 as illustrated in FIG. 10. The work or reaming end of the twisted wire portion is provided with adjacent and transversely aligned cutting edges indicated generally at 15 and 16, formed in a manner to be later described in detail, that are covered by a tight fitting soft plastic or rubber cap 17 when the cleaner is not in use to protect the sharp cutting edges 15 and 16 and the clothing when being carried in the garment pocket 14 of FIG. 10.

The cleaner is formed of spring steel wire of about one sixteenth of an inch in diameter and when the wire portions are twisted over one another in a manner to be described may provide for a cleaner having a general diameter of about one eighth of an inch in diameter and substantially the size of passage or hole 18 of a smoker's pipe bowl stem 19 that extends from large tobacco containing space 21, bearing tamped tobacco 22 of the main pipe bowl 23. The pipe stem passage 18 is considerably enlarged at its outer end at 24 to receive in a tight fitting manner a reduced shouldered end diameter 26 of a detachable mouthpiece 27. This mouthpiece has a smoke passage 28 of the size of the pipe stem passage 18 and which may also become caked with hardened tar and gum that can be removed by detachment of the mouthpiece from the pipe bowl stem and with the use of this pipe cleaner 10 used in the same manner as to be described in connection with cleaning of passage 18 of the pipe stem 19 be cleaned illustrated in FIG. 8.

Since the bowl stem passage 18 is enlarged at 24 and its internal surface is covered by the reduced diameter end 26 of the mouthpiece 27, there is little opportunity for the caking of its surface so as to need a cutting or reaming action to remove the caked hardened tar or gum 29 partially closing passage 18 and being cleared by the present cleaner as being illustrated in FIG. 7 by turning the cleaner 10 in the passage 18 to cut away with sharp cutting end edges 15 and 16 of the twisted wires 11 and 12.

Each of the twisted wires 11 and 12 is of circular cross-section and when twisted, the joined diameter is substantially the internal diameter size of the pipe stem and mouthpiece passages 18 and 28 and about three-sixteenths of an inch in diameter. The wire portions 11 and 12 are twisted together in a turn buckle like manner from midway their length and an intermediate portion 31 is provided having parallel parts of wire portions 11 and 12 closed upon one another and with forward and rearward reverse and somewhat loosely twisted portions 32 and 33 of the cleaner 10 extending from the opposite ends of the intermediate portion 31.

The wire parts of the forward portion 32 bear the cutting edges of 15 and 16 that will cut and ream the caked tar and gum 29 from the pipe stem and mouthpiece passages while the cleaner is turned clockwise in the manner illustrated in FIGS. 7 and 8. The wire parts are so twisted to lead and cut into the caked tar surrounding the smoke passage 29' therein when the cleaner is turned by its handle 13 in a clockwise manner and these wire cutting ends when turned in this manner will

tend to separate or open slightly to ensure cutting up to the hole wall surface of the bowl stem material and make for maximum clearing of the full passage or hole 29 of the pipe bowl stem. The separating of the wires will be limited by the hole wall surface but when separated will allow for easy entry of the cut caked tar pieces to pass and cup into spiral valleys or channels afforded between the twisted round wires along which as the reaming action continues the loose cut pieces of the tar will be forced to travel rearwardly along the valleys or channels 34 as illustrated at 29', FIG. 7 and may fill in between the wires of the intermediate portion 31. The cut tar pieces will thus lodge in the cleaner for withdrawal from the pipe stem with the cleaner. These lodged or collected tar pieces when taken from the pipe parts can be easily dislodged by the reverse unwinding of the forward cutting portion 32 upon tissue paper or cloth 36 leaving blotches 37 and 38 in the manner illustrated in FIG. 9 and wiping the tissue and cloth along the cleaner. This pipe cleaner thus reams out the tobacco smoke passages to their original size. Any of the debris that remains in the large end opening 24 can be removed by wobbling the intermediate portion 31 of the reamer therein and thereby cupping up the debris therefrom.

As the wire cleaner is used to cut the pipe tar and gum from the pipe parts the reverse twisted wires of the rear portion 33 of the cleaner will tend to wrap themselves tight to make for rigidity of the unconfined rear portion 33 of the cleaner as the reaming of the smoke passages of the pipe parts is effected. Again wiping of the cleaner with the tissue or cloth can be done and these inserting and wiping operations continued until the pipe passages have been thoroughly cleaned and no showing made of the tar pieces noted on the tissue or cloth. The pipe cleaner can be used in this manner time and time again and when cleaned by the tissue, and the cap 17 tightly fitted on the cutting end, the cleaner can be safely inserted in a garment pocket as illustrated in FIG. 10. It will be held in place by its turned over clip handle loop 13 extending outwardly and downwardly in a tight fitting manner over the top edge of the pocket, tobacco pouch pocket case or the like. The cap 17 will keep one from being injured with the sharpened wire ends 15 and 16 and as well, protect the garment from being cut. The loop 13 may have a decorative plate extended over its front face displaying advertising or fanciful matter.

The outer double ends of the loop 13 are respectively provided with flat or blunted surface areas 35 and 35' to render the loop 13 effective when using the same to tamp, pack or force the hot burning tobacco 22 downwardly into the pipe bowl and in the manner illustrated in FIG. 7, thereby affording a packing instrument for packing hot tobacco and thus provide a further use for the pipe cleaner. It should be apparent that the pipe cleaner is formed from but a single piece of spring wire and twisted in such a manner as to make for a substantially solid-one-piece cleaner with just enough springiness of the portions of the wires to assist in the reaming, tobacco collecting, and pocket clipping use of the cleaner.

It should be noted that the wires 11 and 12 are wound not too close together such that there is adequate room in the valleys between the adjacent wires for the tar pieces and debris taken from passage walls and removed with the pipe cleaner as it is withdrawn from the

reamed passage. Where the pipe is of the push-in mouthpiece type as shown, the wall of the reduced diameter portion 26 of the mouthpiece and the internal wall 24 of the pipe bowl stem 19 are tightly fitted when the pipe is in use and will not be caked since the smoke traverses only the joined passages 18 and 28 of the pipe bowl stem and mouthpiece.

In FIG. 6, illustration is made of how the caked tar and gum reaming and cutting edges are formed upon the ends of the twisted wire portions 11 and 12. The wire portions lay beside one another at any point therealong to measure off the full diameter of the twisted wires. If each wire is one sixteenth of an inch in diameter, the width of the two wires at any point will be one eighth of an inch, which is generally the internal diameter of a smoke pipe passage. This diameter can vary for different pipes more or less but it should be understood that the wires for the cleaner can be made of any diameter to have a desirable size cleaner. Upon twisting the cleaner into the passage in the direction of the twist the sharpened ends can spread to accommodate any enlarged diameter of the passage. Thus, the one eighth inch diameter with a continued sharp edge of the two wires, or a full one eighth inch cutting edge provide an adequate reaming tool or cleaner for the standard diameter passage of smoking pipes. The cutting edges of the respective wires thus lie adjacent to and in linear transverse alignment with one another.

To have this continuous sharp edge of the wires the forming of the edges are provided at the same time by tapered jaw type wire cutters having opposed wedge-shaped cutting blades 41 and 42 as shown in section in FIG. 6 that come together along the cutting edge line of the wires at their respective maximum diameters, from top and bottom directions to locate at the center the widest possible cutting edge that will span the full maximum diameter of the pipe and mouthpiece passages. The cutting tool can be used at any point along the twisted wires and get the maximum diameter cutting edge provided from the joined and aligned cutting edges 15 and 16 of the respective wires 11 and 12. While sharp cutting edges are formed from these wire cutter blades 41 and 42 they can if desired have them made sharper by filing or grinding their opposite tapering faces. The excess wire pieces 43 can be bent off and dropped.

This sharp cutting edge works in the fashion of an ordinary steel drill with the valleys formed by the twisted wires acting as the spiral grooves of the drill. The blocked-up smoke passage of the pipe or mouthpiece will be reamed out to provide a clean hole through these parts. The cleaner is rigid except for some slight springiness of the individual wires and is re-usable after being cleaned upon the tissue paper 36. The wires will at their cutting edges expand when turning the forward portion in the direction of twist to accommodate the slight large pipe hole or smoke passage and the effective cutting diameter may expand up to three-sixteenths of an inch always tending to open the valleys 34 to gather tar and debris. The winding or twisting of wire should be slightly loose to provide for good valleys running generally coextensively with an imaginary common linear cleaner axis. The pipe cleaner is rigid and non-bendable and has no absorbing material as have the prior pipe cleaners. This pipe cleaner is a reaming tool made from twisted wires and provided with spiral valleys to accommodate the caked tar pieces

and debris so that they can be bodily removed from the passages when the cleaner is extracted.

While various changes may be made in the detail construction it shall be understood that such changes shall be within the spirit and scope of the present invention as defined by the appended claims.

I claim:

1. A rigid reamer-type smoking pipe cleaner comprising two substantially rigid spring metal wires of round section twisted slightly loosely upon one another along an imaginary common linear axis, said twisted wires having a forward reaming portion with sharpened reaming and cutting end edges, respectively provided on the respective wire ends and adjacent to one another, said cleaner being usable by extending the forward reaming portion into a tar caked smoke passage of a smoking pipe bowl stem or mouthpiece and turning the cleaner to cut into pieces the caked tar and gum on the wall surfaces of the smoke passages, the twisted wires being wound over one another to provide spiral-shaped valleys or channels running coextensively with the common linear axis to accommodate the cut caked tar pieces and gum and permit their travel rearwardly from the point of reaming of the caked tar along the smoke passages, said twisted spring metal wires being adapted to laterally expand at their cutting edges when the cleaner is turned into the passages in the direction of twist of the wires upon the reamer portion thereby to cause the cutting edges to span the full internal diameter of the smoke passage up to the wall surface of the passage so that a full clearing of the passages will be effected and a handle end provided at the rear of the cleaner for turning the cleaner into the caked passage, said handle end being formed of the twisted wires spaced from one another and folded in a common plane to provide a pocket clip formation upon the cleaner.

2. A rigid reamer-type smoking pipe cleaner as defined in claim 1 in which the folded handle end wire portions include sides extending transversely to the linear axis and having blunted sides facing away from the twisted wire axis and providing a pipe bowl tobacco packing instrument.

3. A rigid reamer type smoking pipe cleaner as defined in claim 2 said spring metal wires being twisted in turnbuckle fashion providing an intermediate portion of untwisted wire parts and with the wires on the reaming end being thereby twisted in one direction and the wires on the handle end being twisted in the opposite direction and remaining generally out of the passage, the handle end wires being tightened as the cleaner is used with the reaming end wire tending to be spread while effecting the reaming action thereby to tend to rigidify the wire handle end wire external of smoking passage being reamed.

4. A rigid reamer type smoking pipe cleaner as defined in claim 3 in which the folded handle end wire portions include sides extending transversely to the linear axis and having blunted sides facing away from the twisted wire and providing a pipe bowl tobacco packing instrument.

5. A rigid reamer-type smoke pipe cleaner comprising two substantially rigid spring metal wires of round section twisted slightly loosely and oppositely upon one another along a central common imaginary linear axis, said twisted wires having a forward reaming portion with sharpened reaming and cutting end edges of the

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wire respectively extending fully across their respective full diameters and the opposite sides faces of the cutting edges of each wire being tapered up to and terminating at a long diameter cutting edge, said cutting edges of the wires normally lying transversely of said axis and adjacent to and in linear alignment with one another, the adjacent cutting edges being of less diameter than the internal diameters of a pipe bowl stem or mouthpiece passage but separable to span the same, said cleaner being usable by extending the forward reaming portion into a smoke passage and turning the cleaner to cut into pieces of caked tar and gum on the wall surfaces of the smoke passages, the twisted wires providing free spiral-shaped valleys or channels running coextensively with the common linear axis to accommodate the cut caked tar pieces and gum and permit their travel rearwardly from the point of reaming of the caked tar along the smoke passages, said twisted spring metal wires and cutting edges being adapted to laterally spread as the cleaner is twined in the direction of twist of the wires thereby to cause the cutting edges to span the full internal diameter of the smoke passage

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up to wall surface of the passage so that a full cleaning of the passages will be effected and a loop handle formed of the twisted wires and adapted to be grasped to turn the cleaner in the tar and gum caked passages of the pipe bowl stem and mouthpiece.

6. A rigid reamer-type smoking pipe cleaner as defined in claim 5 and said spring metal wires being twisted in turnbuckle-like fashion providing an intermediate portion of untwisted wire parts with the forward reaming portion being twisted in one direction and a rear portion having the loop handle with the wire parts thereof being twisted in the opposite direction, the wire parts of the rear portion being tightened as the cleaner is turned in the smoke passage by its handle thereby to stiffen the rear portion externally of the smoke passage being reamed.

7. A rigid reamer type smoking pipe cleaner as defined in claim 6 in which the handle end is formed of the twisted wires spaced from one another and folded in a common plane to provide a pocket clip formation upon the cleaner.

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