No. 675,612. Patented June 4, 1901.

C. R. VAN HORN & F. A. LOSIE.

TOBACCO PIPE CLEANER.

(No Model.) (Application filed Mar. 26, 1900.)

Fig. 1.

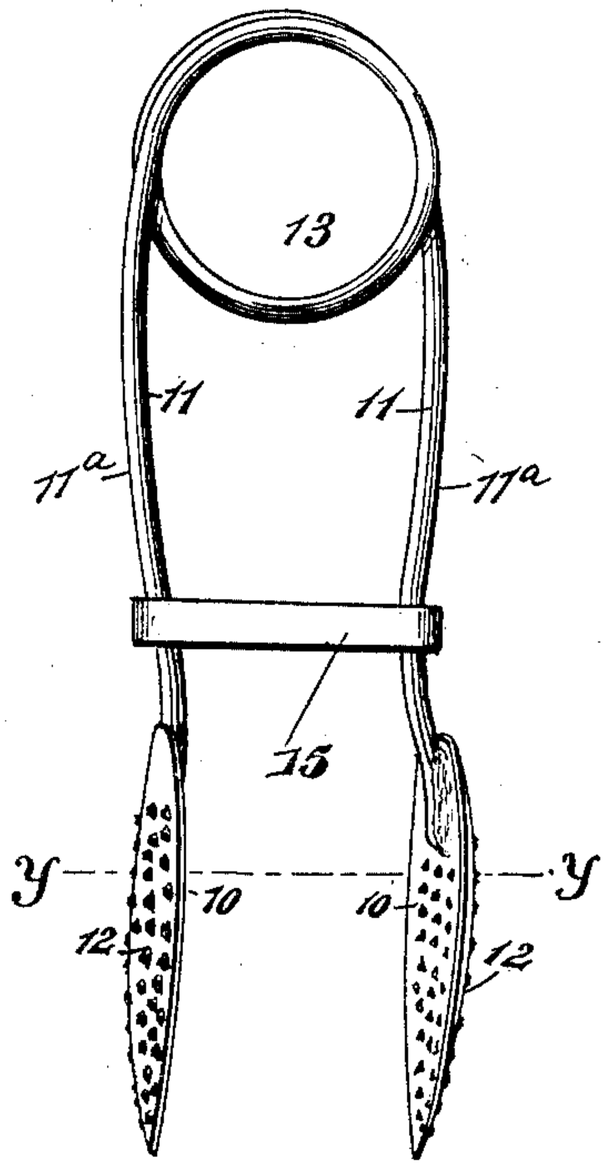


Fig. 2.

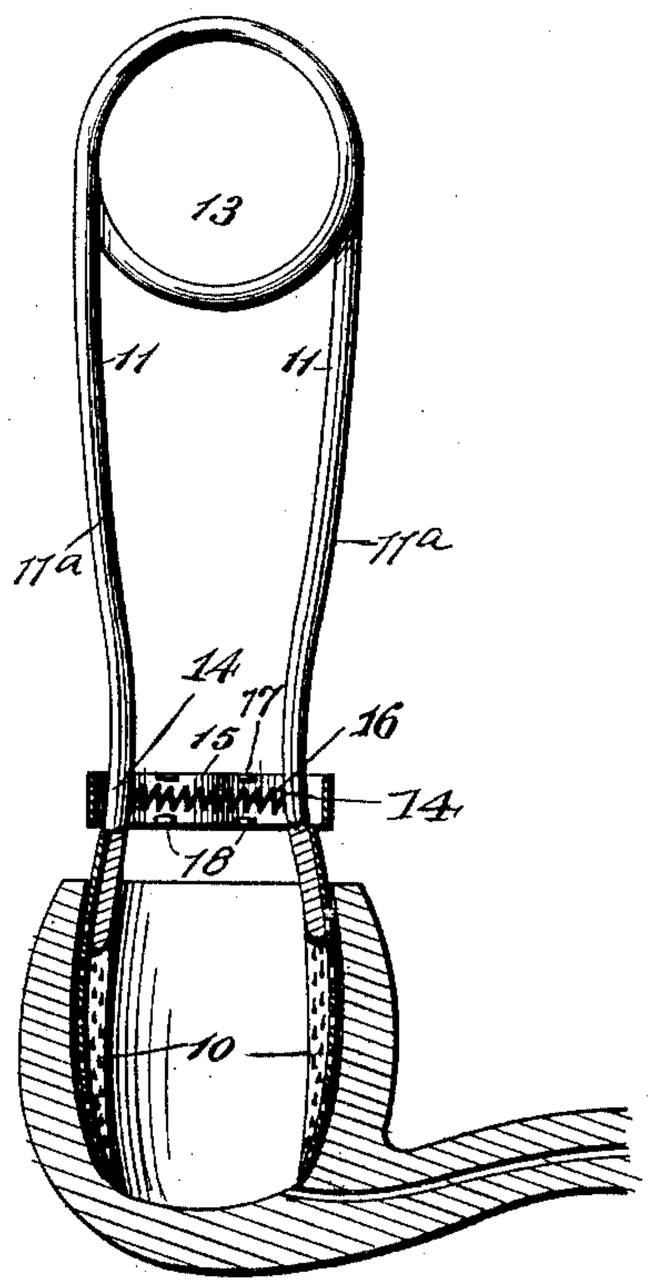


Fig. 3.

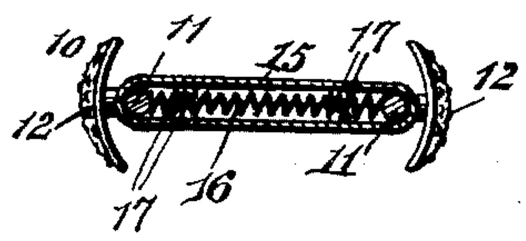
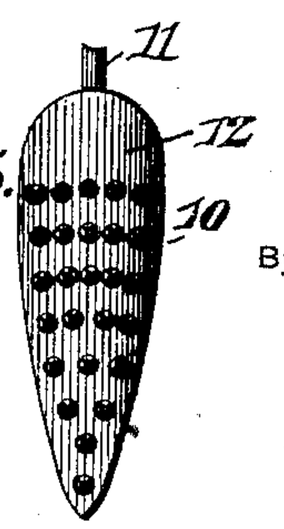


Fig. 4.

Fig. 5.



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES R. VAN HORN AND FREDERICK A. LOSIE, OF BAY MILLS, MICHIGAN.

TOBACCO-PIPE CLEANER.

SPECIFICATION forming part of Letters Patent No. 675,612, dated June 4, 1901.

Application filed March 26, 1900. Serial No. 10,259. (No model.)

To all whom it may concern:

Be it known that we, CHARLES R. VAN HORN, a citizen of the United States, and FREDERICK A. LOSIE, a subject of the Queen of Great Britain, both residing at Bay Mills, in the county of Chippewa and State of Michigan, have invented a new and useful Tobacco-Pipe Cleaner, of which the following is a specification.

This invention relates to a novel tobacco-pipe cleaner of that class distinguished by a pair of scrapers sustained in relatively-yielding relation at the ends of a pair of arms connected by a reactive device exerting a constant outward pressure tending to separate the scrapers for the purpose of urging the latter into such contact with the interior of a pipe-bowl as will serve to effectually remove nicotin or other crustaceous deposits. Devices of this character are intended to be employed for the cleaning of pipes of various sizes from the diminutive brier-wood to the ponderous Holland meerschaum, and it is therefore necessary to exert considerable separative force upon the arms in order that the scrapers will contact equally with the larger-sized pipe-bowls. In consequence of this necessity it will appear that in order to contract the arms sufficiently to introduce the scrapers into a very small pipe-bowl considerable force must necessarily be used, and when the cleaner is removed from the bowl the scrapers, if the arms are not held securely, will fly apart under the impulse of the separating-spring, and the nicotin adhering to the scrapers will be shaken off and deposited upon adjacent surfaces. The use of a cleaner embodying merely the spring-arms and scrapers is therefore objectionable because of the care which must be taken to avoid depositing the nicotin upon the floor or upon the hands of the user, and a further objection is the necessity for holding the arms to prevent undue pressure upon the wall of a very fragile pipe-bowl, as it is obvious that spring-arms of sufficient power to present the scrapers forcibly against the interior of a large pipe-bowl would exert a destructive force when drawn together to present the scrapers within a diminutive pipe-bowl of more or less fragile material.

Having these considerations in mind, the object of our invention is to equip the cleaner with a gage or link encircling the arms and designed to be moved longitudinally with respect thereto for the purpose of contracting or of permitting the expansion of the arms to locate the scrapers at any desired distance apart, in accordance with the diameter of one pipe-bowl.

A further object is to provide means for retaining the ring at any desired point in order to compel the latter to gage the degree of separation of the scrapers without becoming dislocated when the scrapers are introduced into the pipe-bowl and are forced together sufficiently to bring the arms out of contact with the link.

To the accomplishment of these objects the invention consists in forming the arms of the scrapers with compound curvatures, which serves to effect a substantial parallelism between the scrapers and produce inwardly-curved portions or seats, which the link surrounds, to permit maximum expansion of the scrapers, and outwardly-curved portions or swells, the extreme distance between which is considerably in excess of the length of the link, so that as the link is urged away from the scrapers the arms will be urged together to reduce the distance between the scrapers—as, for instance, when it is desired to employ the device in connection with a small and perhaps fragile pipe-bowl.

The invention further consists in providing link-retaining means in the form of a spring, bearing at its opposite ends against the arms and housed coöperatively within the link to be moved along the arms with the latter and to prevent the link from slipping toward the scrapers when the latter are introduced into the pipe and contracted sufficiently to withdraw the arms from contact with the ends of the link.

The invention consists in certain other details of construction and arrangement, all as will hereinafter more fully appear.

In the accompanying drawings, which serve to illustrate what is at this time considered a preferred embodiment of our invention, Figure 1 is a perspective view of our cleaner, showing the link adjusted to present its ends opposite the inwardly-curved portions or seats

of the arms to permit the maximum separation of the scrapers. Fig. 2 is a sectional view, partly in elevation, showing the device applied in a bowl of maximum diameter. Fig. 3 is a sectional view on the line $x\,x$ of Fig. 1. Fig. 4 is a similar view on the line $y\,y$ of Fig. 1, and Fig. 5 is an elevation of one of the scraper-blades.

Referring to the numerals employed to designate corresponding parts throughout the views, 10 10 indicate a pair of scraping-blades mounted in yielding relation and in approximate parallelism upon the ends of a pair of arms 11. The blades 10 or scrapers taper toward their lower ends, are preferably of concavo-convex form in cross-sectional contour, and have their outer surfaces 12 roughened in any desired manner to constitute abrasive or scraping faces. The scrapers may be, and preferably are, curved longitudinally in substantial conformity to the contour of the interior face of the pipe-bowl, which latter they are designed to clear of incrustations formed by the continuous deposit of nicotin and other products of the combustion of tobacco. At their ends opposite the scrapers the arms 11 are connected by a spring-coil 13, and between the coil and the scrapers said arms are formed with a compound curvature to define outwardly-curved portions or swells 11^a, disposed between the spring and the inwardly-curved portions or seats 14. Surrounding the arms and designed to limit their separation or expansion is a "gage-link" 15, so called because by reason of the peculiar form of the arms the movement of the link toward or from the coil will effect the approach or contraction of the scrapers or the separation or expansion thereof for the purpose of having the distance between the outer surfaces of the scrapers approximate the interior diameter of the pipe-bowl designed to be cleaned. Thus if the link is located opposite the seats or inwardly-curved portions of the arms the maximum separation of the scrapers will be permitted to approximate the size of the maximum pipe-bowl for the cleaning of which my device is adapted. By urging the link up the swells 11^a the scrapers will be urged together to approximate the diameter of smaller bowls.

Suppose, for instance, that the link is located as shown in Fig. 1 and that it is desired to clean a bowl much smaller than that shown in Fig. 2. The link is then urged along the arms toward the coil 13, and as its ends ride up the swells 11^a or outwardly-curved portions of the arms the scrapers are brought together sufficiently to permit their lower ends to pass into the pipe-bowl. It will now be observed that by reason of the longitudinal curvature of the scrapers if they are forced into the pipe-bowl they will be contracted slightly, and this contraction draws the arms out of contact with the ends of the link, so that as the incrustation within the bowl is gradually removed the scrapers may be permitted to move outwardly under the impulse of the spring until this outward movement or expansion is prevented by the arms again contacting with the ends of the link. It is evident, however, that unless means for retaining the link is provided the latter will drop down upon the upper ends of the scrapers, as shown in Fig. 2, as soon as the introduction of the device into the bowl of the pipe has contracted the arms out of contact with the link. It is therefore necessary to provide link-retaining means which will be shiftable with the link, but which will be effective to sustain the latter regardless of the relative positions of the arms. One embodiment of this means is comprehended by a coil or spiral spring 16, housed longitudinally within the link 15 and bearing at its opposite ends against the arms 11. Above and below the spring the link is provided with inwardly-extending lugs 17 and 18, which compel the spring and link to be shifted together. For instance, if, as in the case just recited, the link should be urged toward the coil 13 the arms will be contracted by the engagement of the link ends with the swells, and as the link is moved the lugs 18 will engage the spring and cause it to be shifted with the link. If, now, the scrapers are forced into a pipe-bowl the size of which they have been caused to approximate the arms will be drawn together slightly and will recede from contact with the ends of the link. Were it not for the spring 16 the link would not drop back to the seats 14; but instead of this the lugs 17 will engage the spring and will maintain the position of the link in order to definitely limit the separation of the scrapers, thereby preventing the grinding away of the bowl and the sudden springing apart of the scrapers upon their removal from the pipe laden with the accumulations scraped from the walls of the bowl. In addition to the function stated the spring 16 will obviously augment the action of the spring 13 to effect the separation of the arms and insure effective contact of the scrapers with the wall of the pipe-bowl.

From the foregoing it will appear that we have produced a simple and efficient pipe-cleaner embodying a pair of yieldingly-retained scrapers combined with an adjustable gage for adjusting the scrapers to approximate the diameter of the pipe to be cleaned and to prevent the sudden springing of the scrapers when drawn from the pipe-bowl and the consequent detachment of the deposit removed from the pipe-bowl, and also embodying means for retaining the adjustable gage regardless of the positions of the scrapers; but while the present embodiment of our invention appears at this time to be preferable we desire to reserve the right to effect such changes, modifications, and variations as may be comprehended within the scope of the protection prayed.

What we claim is—

1. A pipe-bowl cleaner comprising a pair of spring-urged arms, scrapers carried by the

arms, a link embracing the arms, and adjustable thereon, and means other than the arms for retaining the link in its adjusted position.

2. A pipe-bowl cleaner comprising a pair of outwardly-urged arms provided with terminal longitudinally-curved scrapers and having a compound curvature defining outwardly-curved swells and inwardly-curved seats located intermediate of the swells and scrapers, a link embracing the arms and of less longitudinal extent than the distance between the swells thereof to effect the adjustment of the scrapers through the adjustment of the link, and means other than the arms for retaining the link in its adjusted positions.

3. A pipe-bowl cleaner comprising a pair of outwardly-urged arms provided with terminal scrapers and having a compound curvature defining outwardly-curved swells and inwardly-curved seats, a link embracing the arms and of less longitudinal extent than the distance between the swells thereof to effect the adjustment of the scrapers through the adjustment of the link, a spring bearing against the arms and housed within the link, and means for retaining the link in its adjusted positions through the medium of the spring.

4. A pipe-bowl cleaner comprising a pair of outwardly-urged arms provided with terminal scrapers and having a compound curvature defining outwardly-curved swells and inwardly-curved seats, a link embracing the arms and of less longitudinal extent than the distance between the swells thereof to effect the adjustment of the scrapers through the adjustment of the link, a spring bearing against the arms and housed within the link, and projections extending inwardly from the link and arranged to engage the spring to shift the latter with the link and to cause said spring to support the link when the arms are urged out of contact with the latter.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

CHARLES R. VAN HORN.
FREDERICK A. LOSIE.

Witnesses:
LAFE. W. JOHNSON,
CHARLIE MAYNARD.