Oct. 19, 1937. D. P. LAVIETES 2,095,988

SMOKING PIPE

Filed May 14, 1936

Fig. 1.

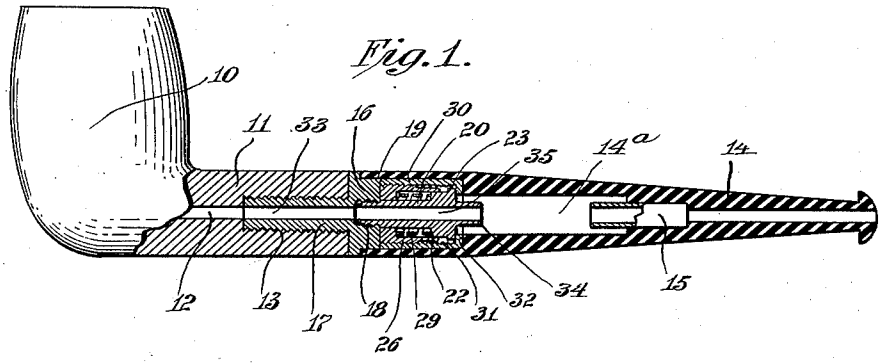


Fig. 2.

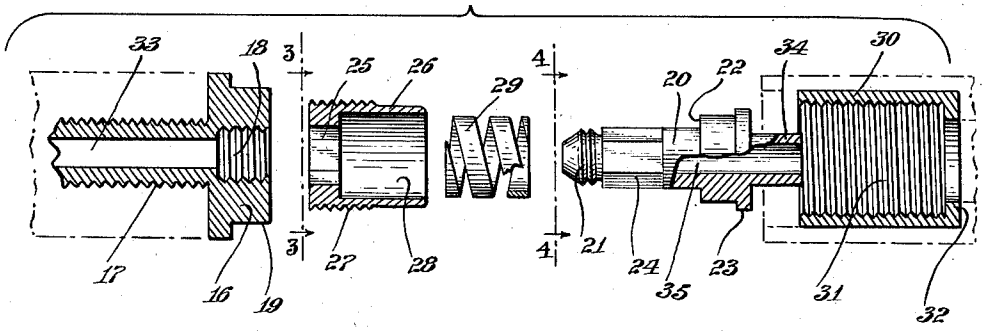


Fig. 3.

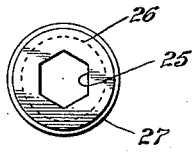
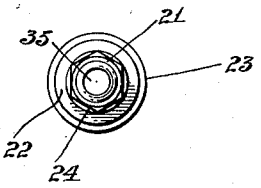


Fig. 4.



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SMOKING PIPE

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6 Claims. (Cl. 131—12)

The invention relates to smoking pipes, and more particularly to a pipe having a screw threaded connection between the bit and the shank.

In smoking pipes of the type to which the invention relates, considerable difficulty is encountered in securing a close abutment of the end of the bit with the end of the shank and still have the bit properly lined up with the bowl.

With shrinkage and expansion of the materials of a pipe, with wear in the threads of the connection between the bit and the shank, and with the application of too great strength in connecting the bit with the shank, there is a tendency for the bit to over turn to an extent to cause a tilting of the bowl when the pipe is held in the mouth. If it be attempted to readjust the bit so as to properly line it up with the bowl to avoid this condition, a looseness is developed in the connection between the bit and the shank which is objectionable to the user of a pipe.

In Letters Patent No. 1,888,462 granted to me under date of November 22nd 1932, I have provided a pipe in which tolerance is afforded between the bit and the shank, and in which a frusto-conical metal fitting is carried by the shank and a complementary hollow frusto-conical fitting is carried by the bit, so that a firm connection may be made between these parts after the bit has been properly lined up with the bowl.

The construction of the pipe of the aforesaid Letters Patent is sometimes found to be objectionable, because in providing the tolerance, a thin gap is left between the end of the shank and the end of the bit. While the presence of this gap does not impair the efficiency of the pipe, some pipe smokers object to the presence of the gap, and some smokers prefer a screw threaded connection between the bit and the shank.

With the above conditions in mind, I have, by my present invention, provided a smoking pipe structure wherein there is a screw threaded connection between the bit and the shank which may be used to adjust the bit so as to properly aline it with the bowl and yet have a tight and a close abutting connection between the bit and the shank, irrespective of the turning of the bit in securing the adjustment.

With this construction, overturning of the bit is permitted after it is brought into abutting relation with the end of the shank, the amount of overturning permissible being sufficiently great to allow a reverse turning movement of the bit without imparting any movement to the bit away from the shank. The amount of overturning allowance may be limited to less than one full turn of the bit, or 360° of movement, although I preferably allow for greater turning movement to compensate for wear or shrinkage of parts after long continued use of the pipe.

In a pipe embodying the invention, overturning of the bit occurs only after the end of the bit abuts against the end of the shank, and the position of the bit and the shank remains longitudinally relatively unchanged during the reverse turning movement to aline the bit with the bowl.

The mechanisms employed permit the bringing of the end of the bit into close abutting relation to the end of the shank by means of cooperating screw threads upon the parts of the connecting fitting carried by the shank and by the bit, and unless the bit is overturned to the greatest possible extent, the end thrust of the bit against the shank will be under a yielding pressure which will preclude the development of stresses sufficiently great to crack the shank. Furthermore, this yieldable pressure minimizes likelihood of the binding of the bit against the shank fitting, thus permitting great ease of movement of the bit when applying it to the shank or removing it therefrom.

It is generally recognized in the marketing of smoking pipes, that the pipe must not involve a structure which will require a pipe smoker to exercise any ingenuity or acquired skill in removing or replacing a bit in relation to a shank, there being a popular prejudice against any mechanisms or parts involving anything beyond a mere turning, of a bit, or the pushing or pulling of a bit when a tenon and socket joint is used, to connect the bit with the shank.

To meet the above conditions, I have provided a connecting mechanism between the bit and the shank which will secure the results above referred to by a mere turning of the bit, the parts employed being so constructed and combined that their mode of operation is not apparent to the user, and the working parts also being so constructed and combined as to conceal their structural characteristics.

In a pipe embodying the invention, so far as appearance and action are concerned, the bit and the shank have an ordinary screw threaded connection.

The connecting mechanism is so constructed as to subject the shank to no excessive stresses when applying the bit thereto, thus minimizing likelihood of the cracking of the shank which, when

a pipe is comparatively new, is a source of considerable trouble and expense to the manufacturer who, with a high grade pipe, is called upon to replace cracked shanks upon the theory that this is due to inherent defects in the material of the shank, although as a matter of fact it may have been from abuse of the pipe by a user.

In a pipe of the type in which a well is provided in the bit for the interception and accumulation of the fluid matter precipitated during the use of a pipe, and this type of pipe is shown in the accompanying drawing, the exteriorly screw threaded fitting is carried by and projects from the shank. It is essential, however, that the exteriorly screw threaded member shall be capable of movement toward and from the shank, but shall be automatically urged or biased toward the shank by a spring acting upon this member. While the exteriorly screw threaded member is thus capable of longitudinal movement, the construction must be such as to prevent any turning movement thereof when applying a bit to or removing it from, the shank.

The construction of the parts is such as to permit the inclusion in the connecting fitting of an elongated duct of small diameter, one end of which communicates with the smoke opening within the shank, and the other end of which projects into and communicates with a well in the bit, when the invention is applied to a smoking pipe of the type in which such a bit is employed.

The invention consists primarily in a smoking pipe embodying therein a bowl having a shank, a metal fitting carried by said shank embodying therein a member permanently attached to the shank, a guide member carried thereby, a screw threaded sleeve slidably mounted upon said guide member, co-operating means upon said sleeve and said guide member preventing turning of said sleeve, means yieldingly thrusting said sleeve toward said shank, a bit, and a screw threaded sleeve carried thereby co-operating with the screw threaded sleeve of said shank fitting; and in such other novel features of construction and combination of parts as are hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawing,

Fig. 1 is a side view, partly in longitudinal section and upon an enlarged scale, of a pipe embodying the invention;

Fig. 2 is an exploded view of the parts of the connecting fitting carried by the shank and the bit;

Fig. 3 is a view on the line 3—3 of Fig. 2; and

Fig. 4 is a view on the line 4—4 of Fig. 2.

Like numerals refer to like parts throughout the several views.

In the accompanying drawing, the invention is shown as applied to a type of pipe in which a well is formed in the bit for the accumulation of moisture precipitated while a pipe is in use.

In said drawing, the bowl of the pipe is shown at 10, this bowl having a shank 11 provided with the usual smoke opening 12. The shank 11 is countersunk as shown at 13.

The bit proper is shown at 14, this bit having adjacent one end thereof, an enlarged bore 14*a* forming a well. Carried by the bit is a metal tube 15, one end of which projects into the well in a manner to form a trap preventing the escape of fluid from the well.

Carried by the shank 11 is a metallic fitting consisting of a member 16 provided with a stem 17 adapted to enter the counterbore 13 and to be permanently attached to the shank. In the drawing, a screw threaded connection is shown between said stem and the shank, although other means of forming a permanent connection between these parts may be used.

The member 16 is provided with a screw threaded countersink 18 to facilitate the attachment of a guide member carrying a movable sleeve to the part 16. The edge of the member 16 may be rabbeted as shown at 19 to permit the end of the bit to have a sliding fit therewith and leave a narrow edge of the member 16 exposed to simulate a band or ferrule. This construction is not an essential part of, nor material to, a pipe embodying the invention.

Permanently secured to the member 16 is a guide member 20, the attachment of this member to said part being by means of the screw threads 21. The guide member 20 is permanently secured to the member 16 in assembling the parts of the shank fitting, subsequent immovability of the guide member being a characteristic of the invention.

Adjacent one end of the guide member 20, a cylindrical bearing portion 22 is formed, the edge of this portion 22 forming a spring seat. Adjacent the bearing portion 22 is a stop ring or flange 23.

Intermediate the bearing portion 22 and the screw threaded end 21 of the guide member 20 is a portion 24 forming a slideway for a spring pressed sleeve effective in ensuring a tight fit between the bit and the shank, and readjustment of the bit to permit it to be properly alined with the bowl without disturbing the tight fit between the bit and the shank. This portion 24 may have a variety of different forms to prevent turning of the sleeve thereon. In the drawing, it is shown as being hexagonal in cross section, and while this is desirable, so far as eliminating wear is concerned, the exterior surface of the portion 24 may be given any desired form which will have the above effect.

The exterior form of the portion 24 must conform to an opening 25 in a hollow sleeve 26. Said sleeve has exterior screw threads 27 and a spring housing portion 28. The front wall of the sleeve 26 about the opening 25 forms a spring seat parallel with the spring seat formed by the shoulder of the bearing portion 22 of the guide member. Within the spring housing 28 and acting between the parallel spring seats within said housing and upon the bearing portion 22, is a coiled spring 29.

The available space for the connecting fitting requires the parts of the fitting to have small dimensions, and this is particularly true with pipes having small shanks. To conserve space, I preferably use a flat wire spring 29, as shown in the drawing, although this is immaterial so far as the operation of the parts is concerned.

Carried by the bit 14 is a sleeve 30 having interior screw threads 31 adapted to co-operate with the screw threaded sleeve 26 of the shank fitting. The sleeve 30 is provided at the end thereof inwardly of the bit, with an inturned flange 32 which, by engagement with the flange 23, limits longitudinal movement of the bit when the end thereof is in abutting relation with the shoulder adjacent the rabbeted portion 19. The stem 17 has a smoke opening 33 therethrough which is alined with the smoke opening 12 of the shank.

The guide member 29 has a rearwardly projecting nipple 34 adapted to project into the well 14a of the bit, the guide member and said nipple having a longitudinally extending bore 35 therethrough communicating with the bore 33 and with the well in the bit.

In assembling the device, the sleeve 26 is mounted upon the guide member with the bearing opening 25 therein engaging the portion 24, the spring 29 being seated in the spring chamber 28 and engaged with the spring seat formed by the shoulder upon the portion 22. The parts thus assembled are then permanently connected with the member 16 by means of the co-operating screw threads 18 and 21. The length of the spring 29 should be such as to place this spring under tension when thus assembling the parts of the shank fitting.

In use, when a bit is applied to the shank, the screw threads 31 of the bit sleeve are engaged with the screw threads 27 upon the slidable sleeve 26 and the bit turned in the usual manner. As the end of the bit is drawn against the end of the shank or of the narrow edge of the member 16 resembling a ferrule, the co-operating screw threads can no longer advance the bit, but by reason of the movability of the sleeve 26, the bit, in the form of the invention shown, may receive a full turn and a half after the end of the bit is in abutting relation with the end of the shank, or with a part of the connecting fitting carried thereby. During this overturning of the bit, the sleeve 26 is drawn toward the bit against the tension of the spring 29 until the edge of said sleeve engages the stop flange 23. Prior to this, the flange 32 will have engaged the opposite side of this stop flange, although this is not essential. When the end of the sleeve 26 engages the stop flange 23, the spring 29 will be under the maximum tension and no further turning movement can be given the bit.

If, under the above conditions, the bit is not properly lined up with the bowl, it is merely necessary for the user to impart a reverse turning movement to the bit to an extent to secure a proper alinement of these parts. During this reverse turning movement, the spring 29 acting upon the sleeve 26 will maintain a tight fit or close abutting relation between the end of the bit and the end of the shank, or of the shank fitting.

By permitting one to one and a half overturns of the bit, ample provision is made for the adjustment of the bit.

Any binding between the end of the bit and the end of the shank, or its fitting, is measured by the tension given to the spring 29, so that the bit may be turned freely in either direction. If, in applying the bit, it is not turned to the full extent of overturn permissible, even the resistance developed by the spring 29 between the end of the shank or its fitting and the bit may be relieved by slightly compressing the spring by a pull upon the bit. This, however, is not necessary.

The spring 29 not only ensures ease in the attachment and removal of a bit from the shank, ensures a close fit between the bit and the shank, and facilitates the adjustment of the bit in lining it up with the bowl, but avoids all looseness of the bit.

The construction described also permits the taking up of any wear of the abutting surfaces of the bit and the shank or its fitting, and any looseness which may occur by reason of wear upon the screw threads 27 and 31.

In the accompanying drawing, the showing of the pipe in Fig. 1 is upon a slightly enlarged scale. The various parts shown in Figs. 2 to 4 are, however, shown upon a greatly enlarged scale.

The construction of the various parts, as shown in the drawing, is such as to adapt them to a type of pipe having a well in the bit. The detailed construction of the pipe, however, aside from the connecting fitting, is immaterial to the present invention, and the form of the various parts of the connecting fitting may be varied to adapt them for use with different pipe constructions.

It is not my intention to limit the invention to the precise details of construction shown in the accompanying drawing, it being apparent that such may be varied without departing from the spirit and scope of the invention.

Having described the invention, what I claim as new and desire to have protected by Letters Patent, is:—

1. A smoking pipe embodying therein a bowl having a shank, a metal fitting carried by said shank embodying therein a member permanently attached to the shank, a guide member carried thereby, a screw threaded sleeve slidably mounted upon said guide member, co-operating means upon said sleeve and said guide member preventing turning of said sleeve, means yieldingly thrusting said sleeve toward said shank, a bit, and a screw threaded sleeve carried thereby co-operating with the screw threaded sleeve of said shank fitting.

2. A smoking pipe embodying therein a bowl having a shank, a metal fitting carried by said shank embodying therein a member having a screw threaded counterbore at one end thereof permanently attached to the shank, a guide member having screw threads adapted to co-operate with the screw threads in said counterbore, whereby said guide member is permanently connected with said first named member, a screw threaded sleeve slidably mounted upon said guide member, co-operating means upon said sleeve and said guide member preventing turning of said sleeve, means yieldingly thrusting said sleeve toward said shank, a bit, and a screw threaded sleeve carried thereby co-operating with the screw threaded sleeve of said shank fitting.

3. A smoking pipe embodying therein a bowl having a shank, a metal fitting carried by said shank embodying therein a member permanently attached to the shank, an exteriorly screw threaded sleeve having a polygonal opening through one end thereof, a guide member having a portion thereof conforming to and engageable by the opening in said sleeve, whereby said sleeve is slidably mounted upon said guide member, means whereby said guide member is permanently connected with said first named member, resilient means acting between said guide member and said sleeve, a bit, and a screw threaded sleeve co-operating with the screw threaded sleeve of said shank fitting.

4. A smoking pipe embodying therein a bowl having a shank, a metal fitting carried by said shank embodying therein a member permanently attached to the shank, a guide member having a spring seat adjacent one end thereof and means adjacent the other end thereof, whereby said guide member is permanently connected with said first named member, a screw threaded sleeve having a spring seat within the same slidably mount-

ed upon said guide member, co-operating means upon said sleeve and said guide member preventing turning of said sleeve, a coiled spring within said sleeve and acting between said spring seats, whereby said sleeve is yieldingly thrust toward said shank, a bit, and a screw threaded sleeve carried thereby co-operating with the screw threaded sleeve of said shank fitting.

5. A smoking pipe embodying therein a bowl having a shank, a metal fitting carried by said shank embodying therein a member having a screw threaded counterbore at one end thereof permanently attached to the shank, a guide member having a spring seat adjacent one end thereof and screw threads adjacent the other end thereof adapted to co-operate with the screw threads in said counterbore, whereby said guide member is permanently connected with said first named member, a screw threaded sleeve having a spring seat within the same, said sleeve being slidably mounted upon said guide member, co-operating means upon said sleeve and said guide member preventing turning of said sleeve, a coiled spring within said sleeve and acting between said spring seats, whereby said sleeve is yieldingly thrust toward said shank, a bit, and a screw threaded sleeve carried thereby co-operating with the screw threaded sleeve of said shank fitting.

6. A smoking pipe embodying therein a bowl having a shank, a metal fitting carried by said shank embodying therein a member permanently attached to the shank, an exteriorly screw threaded sleeve having a polygonal opening through one end thereof and a spring seat about said opening within the same, a guide member having adjacent one end thereof a spring seat, and adjacent the other end thereof a portion conforming to and engageable by the opening in said sleeve, whereby said sleeve is slidably mounted upon said guide member, means whereby said guide member is permanently connected with said first named member, a coiled spring within said sleeve and acting between said spring seats, whereby said sleeve is yieldingly thrust toward said shank, a bit, and a screw threaded sleeve co-operating with the screw threaded sleeve of said shank fitting.

DAVID P. LAVIETES.