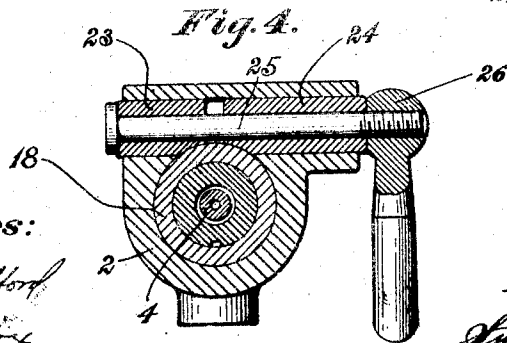
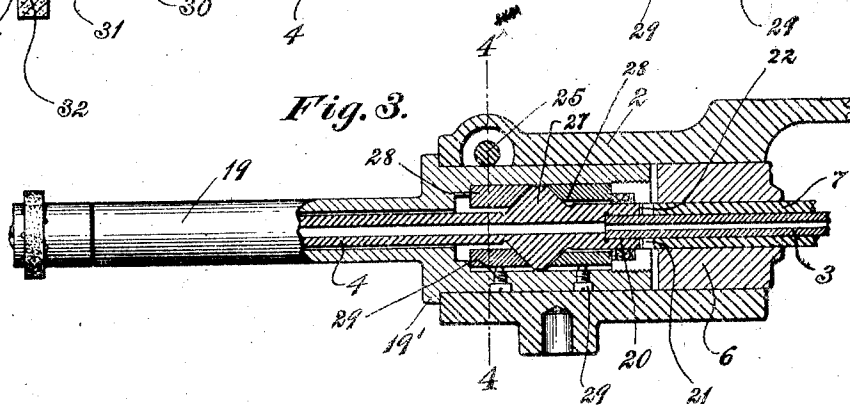
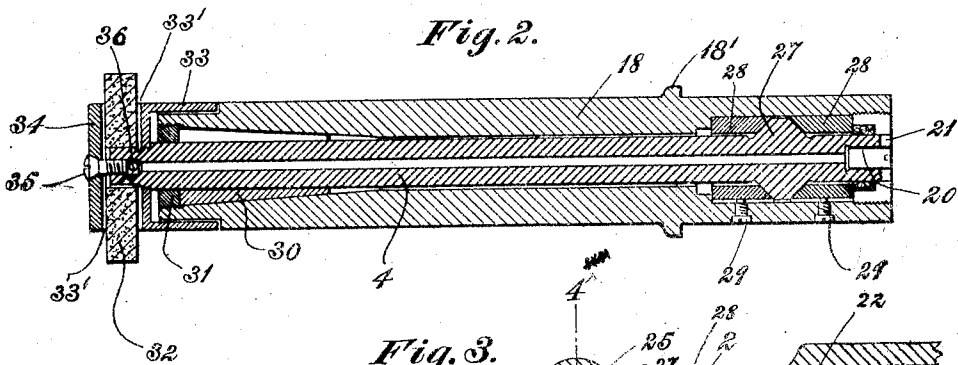
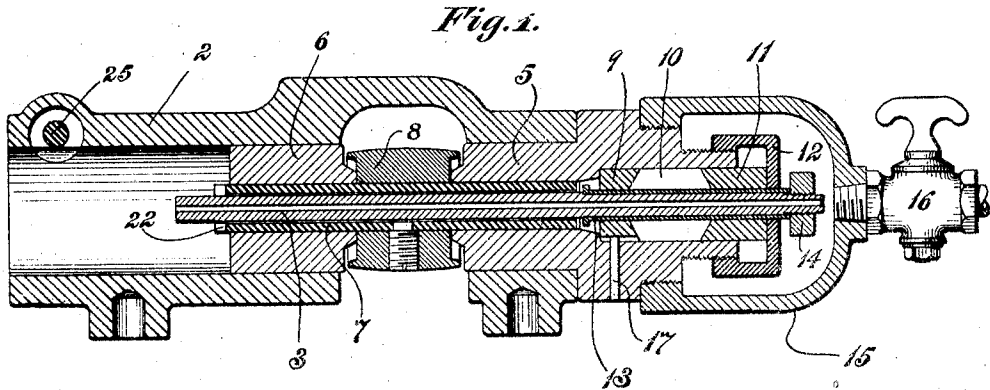


B. M. W. HANSON.
 QUILL.
 APPLICATION FILED MAY 5, 1908.

905,524.

Patented Dec. 1, 1908.



Witnesses:

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UNITED STATES PATENT OFFICE.

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QUILL.

No. 905,524.

Specification of Letters Patent.

Patented Dec. 1, 1908.

Application filed May 5, 1908. Serial No. 431,049.

To all whom it may concern:

Be it known that I, BENGT M. W. HANSON, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Quills, of which the following is a specification.

This invention relates to quills, the object of the invention being to provide an effective article of the kind referred to which is of such construction as to secure an adequate flow of liquid therethrough without waste. The quill may be employed for various purposes for example as a support for a grinding or other tool and in this use the quill will act as a duct to convey water or like material to said tool. In the present case the quill is in sections the forward or front section carrying the tool and being removably mounted while the water supply or analogous means cooperates with the rear section by virtue of which tools of different sizes can be interchangeably related with the said rear section. The device includes other advantageous features which with the foregoing will be set forth at length in the following description wherein will be outlined that form of embodiment of the invention which I have selected for illustration in the drawings accompanying and forming part of the present specification.

Referring to said drawings, Figure 1 is a longitudinal section of a bearing, the rear section of the quill, the water supply means and certain other parts. Fig. 2 is a similar view of the front or forward portion of said quill. Fig. 3 is a side view partly in section showing the two parts of the quill as assembled. Fig. 4 is a cross-section on the line 4-4 of Fig. 3.

Like characters refer to like parts throughout the several figures.

The quill may be supported by a bearing as 2 and it may be composed of a rear or relatively stationary section as 3 and a front or removable section as 4 as illustrated in Figs. 1 and 2. The only difference between what is represented conjointly by Figs. 1 and 2 and what is illustrated by Fig. 3 is in the size of the tool and in a sleeve associated therewith as will hereinafter appear and this being the case the front quill section in Fig. 3 will naturally be designated by 4, and the

remainder of the parts which find their duplicates in Figs. 1 and 2 will bear similar characters.

The bearing 2 is shown as hollow and as containing a rear bushing as 5 which is externally shouldered to fit against one end of said bearing, and as also wholly inclosing a bushing as 6. The two bushings 5 and 6 receive and support a sleeve as 7 which as will hereinafter appear has a driving connection with the front quill section 4. The sleeve 7 may be rotated in any desirable manner, for example by means of a pulley as 8 pinned or otherwise fastened to said sleeve or hollow shaft 7.

Within the bushing 5 are tightly fitted the three members 9, 10 and 11 which present collectively a stuffing box, the intermediate member 10 being made of some substance from which packings are ordinarily made, the three members being jammed closely together and against the bottom of the counter-bore in which they are fitted by means of a nut as 12 threaded onto the outer reduced end of said bushing 5. The member 11 projects from the bushing 5 a distance sufficient to assure solid engagement of the same by said nut 12. I have represented as surrounding the rear quill section 3 a bearing sleeve as 13 which extends completely through the stuffing box to which allusion has been made and also projects through the central opening in the cap-nut 12, said sleeve 13 being caused to bind firmly against a peripheral shoulder on the quill section 3 by means of a nut as 14 threaded onto the extreme outer end of said quill-section 3.

As will be obvious both quill sections are tubular or hollow and when they are operatively assembled or united they present collectively a duct for the conveyance of water to a tool carried by the front quill section the water being received from a suitable source of supply and flowing initially through the rear quill section. It might be stated that any number of quill sections might be provided although I have only illustrated two.

I have shown as separately connected with the bushing 5 as for example by means of a screwthread joint, a cup-like part 15 which presents a water-distributing chamber or reservoir, such part 15 being connected to an

external part of the bushing 5 which is of greater diameter than that to which the nut 12 is connected. The chamber presented by said cup-like part 15 incloses the cap nut 12 and the locking nut 14. The cup-like part 15 has connected therewith a cock as 16 by opening the valve or equivalent part in which water will be caused to flow into said cup-like part and from thence into the open rear end of the quill-section 3. Owing to the presence of the nuts 12, and 14 and the parts associated therewith it is not possible for water to pass around said quill section 3. The stuffing box members 9, 10 and 11 may be held from rotation with the bearing sleeve 13 by means of a pin as 17 extending radially of the bushing 5 and engaging the member 9.

The front quill section 4 may be inclosed in a sleeve as 18 or a sleeve as 19 the only difference between the two sleeves being external to adapt the sleeve 18 for a larger tool than the sleeve 19, the latter for such purpose being made of two external diameters. I will now describe in detail the parts carried by the sleeve 18 such description applying exactly to the sleeve 19, and such parts of course include the quill section 4. The quill section 4 is of course bored to register with the bore in the quill section 3 when the two are coupled together or when they are in operative communication and is provided with a socket as 20 to closely receive the tip or outer end of the quill section 3. The two quill sections are shown as connected in Fig. 3.

The quill section 4 is provided at its inner end with clutch teeth as 21 to engage similar teeth as 22 on the sleeve or hollow shaft 7 at the time when the quill section 3 is fitted in the socket 20 of the quill section 4 as shown in Fig. 3. This provides for a water tight connection between the two quill sections and for a driving or power transferring connection between the sleeve or hollow shaft 7 and quill-section 4.

When the quill-sections 3 and 4 and when the quill-section 4 and the hollow shaft 7 are connected in the manner set forth the sleeve 18 is fitted in the hollow bearing 2, the relation being a removable one so that for example the sleeve with its attached parts can be dismantled and the sleeve 19 with its attached parts can be put in its place, this being for the purpose of changing tools. When this change is made the driving mechanism and the water supply are affected in nowise.

The means provided for removably holding the sleeves 18 or 19 in place is best shown in Fig. 4 and comprises cooperating jaws as 23 and 24 made in the form of tubes, fitted in a transverse opening in the bearing 2 and encircling a bolt as 25 headed at one end to

engage against the outside of one of said jaws as the jaw 23 and having a hand-operable nut as 26 to engage against the jaw 24. The working portions of the jaws 23 and 24 are made on arcs concentric with the periphery of the sleeve 18. It will be clear that when the nut 26 is turned in the proper direction the two jaws 23 and 24 are caused to relatively approach so as to bind firmly on the circumference of the sleeve 18 fitted in the bearing 2. By unscrewing the nut 26 the pressure on the sleeve 18 can be relieved to effect the withdrawal of said sleeve 18 and the introduction of the sleeve 19 or some other sleeve. Each of the sleeves is shouldered or peripherally flanged as at 18' and 19' respectively to bear solidly against the bearing 2 when the described connections are made.

Upon the quill section 4 externally and near the inner end thereof I have represented a double bearing cone 27 the cone-faces of which bear against the adjacent ends of bearing sleeves as 28 fitted in an enlarged hollow portion of the sleeve 18 or sleeve 19 and held in place by screws as 29 whereby adjustability of said sleeves 28 is provided for so that either or both of them can be caused to move inward, that is toward each other, to compensate for wear.

I may if desired set into a conical opening in the outer portion of the sleeve 18 (or 19) a split cone bearing as 30, the outer cone surface of said bearing resting against the correspondingly formed portion of the sleeve 18 (or 19) while the inner cylindrical part of which receives for rotation, the quill section 4. The cone bearing 30 is held in place in the sleeve 18 (or 19) by a nut as 31 therein and which may be readily manipulated to take up wear in said bearing 30.

The tool is denoted by 32 and it is represented as consisting of a grinding disk having a central opening to receive the extreme outer end of the quill-section 4. The disk 32 may be of different diameters, a disk of one diameter being associated with a sleeve as 18 while a disk of a different diameter will be associated with a sleeve as 19.

The disk 32 is caused to bind solidly against a thimble as 33 by means of a washer as 34 and screw 35, the screw being tapped into the outer end of the quill-section 3 and forcing the washer 35 firmly against the disk or wheel 32 and the latter against the thimble 31. The latter serves as an effective guard to prevent dust, particles ground off the work, and other foreign matter entering the sleeve 18 (or 19). The body of the thimble 33 incloses the outer portion of the sleeve 18 (or 19) for the purpose indicated. The opposite faces of the head of the thimble 33 and the washer 34 are provided with channels or gutters as 33' for the escape of

water used in grinding while the quill-section 4 has a discharge port or outlet as 36 to supply the water from the quill directly to the grinding wheel 32 by way of said channels.

It will be apparent that it is a simple matter to remove a sleeve as 18 and its adjuncts from its supporting member and to put the sleeve 19 in its place. When either of said sleeves is in position there will be supplied to the grinding tool an adequate amount of water without waste or without injurious effect to any of the bearing parts. The quill-section 4 next the grinding tool is thoroughly protected from floating particles of all kinds so that wear from this cause is eliminated.

What I claim is:

1. A quill comprising separately connected sections having a liquid-tight connection, combined with means for driving one of said sections, and means for supplying liquid to the other section.

2. A quill comprising separately connected sections having a liquid-tight connection, combined with a shaft surrounding the quill and having a driving connection with one of the sections thereof, and means for supplying liquid to the other quill section.

3. A quill comprising separately connected sections having a liquid-tight connection, combined with a shaft surrounding the quill and having a driving connection with one of the sections thereof.

4. A quill in sections one having a socket to removably receive the other in a liquid-tight maner, combined with a rotary shaft surrounding the quill, having a removable clutch connection with one of the sections thereof.

5. The combination of a bearing, a quill supported by said bearing, and a liquid reservoir inclosing the liquid-inlet end of the quill.

6. The combination of a bearing, bushing means fitted in said bearing, a quill supported by said bushing means, and a liquid-containing cup-like part connected with the bushing means and inclosing the liquid-inlet end of the quill.

7. The combination of a bearing, separated bushings fitted in said bearing, a sleeve supported rotatively by the bushings, a quill inclosed by the sleeve, and a liquid-containing cup-like part connected with one of the bushings and inclosing the liquid-inlet end of the quill.

8. A quill comprising separately connected sections, one of the sections having means for supporting a tool, and means for supplying liquid to the other quill-section.

9. The combination of a sleeve, a quill-member inclosed by said sleeve, and a thim-

ble through which said quill-member passes, inclosing the adjacent end of said sleeve the thimble having a liquid-conducting channel in communication with the interior of said quill-member.

10. The combination of a sleeve, a quill member inclosed by said sleeve and extending beyond one end of the same, a tool carried by the extended end of said quill-member, a thimble inclosing the adjacent end of said sleeve, and means for jamming the tool against said thimble the jamming means and thimble having liquid-conducting channels in communication with the interior of said quill-member.

11. The combination of a sleeve, a quill-member inclosed by said sleeve and extending beyond one end of the same, a tool carried by the extended end of said quill-member, a thimble between the tool and the sleeve and inclosing one end of the latter, and a washer connected with the quill-member, the washer and thimble having coöperating water supply channels and the quill member having a water discharge port for supplying water to such channels.

12. The combination of a bearing, a quill-member supported by said bearing, a sleeve adapted to be movably supported by said bearing, and a quill member carried by said sleeve and removably-connected in a liquid-tight manner with the other quill member.

13. The combination of a bearing, a quill member carried by said bearing, a second quill-member removably connected by a liquid-tight connection with the other quill-member, a sleeve carrying the second quill member, the bearing having an opening to removably receive said sleeve, and means for clamping the sleeve in place.

14. The combination of a bearing, a quill-member carried thereby, a second quill-member removably connected by a liquid-tight connection with the first quill member, and driving means for the second quill member carried by said bearing.

15. The combination of a bearing, a quill-member carried by said bearing, a sleeve removably fitted in said bearing, a quill member carried by the sleeve and removably connected by a liquid-tight connection with the other quill member, a bolt extending transversely of the bearing and provided with a manually-operable nut, and clamping jaws of tubular form on the bolt, provided with arcuate faces for engaging said sleeve.

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

BENGT M. W. HANSON.

Witnesses:

H. C. WOGLOM,

RICHARD F. DOW.