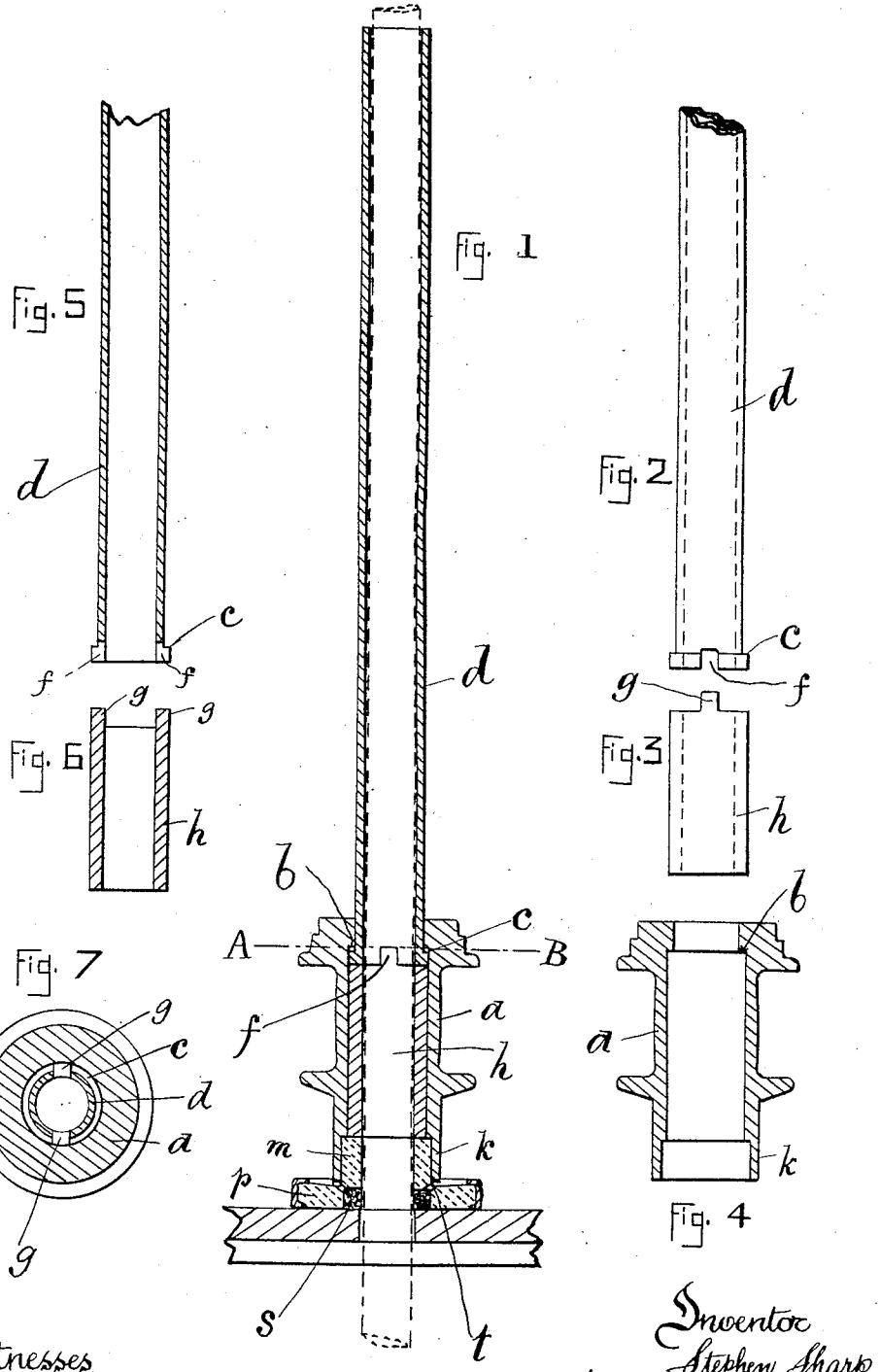
No. 803,929. PATENTED NOV. 7, 1905.

S. SHARP.

SPINDLE TUBE.

APPLICATION FILED MAR. 15, 1905.




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# UNITED STATES PATENT OFFICE.

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## SPINDLE-TUBE.

No. 803,929. Specification of Letters Patent. Patented Nov. 7, 1905.

Application filed March 15, 1905. Serial No. 250,163.

*To all whom it may concern:*

Be it known that I, STEPHEN SHARP, a subject of the King of Great Britain, and a resident of Micklethwaite, near Bingley, in the county of York, England, have invented certain new and useful Improvements in Tubes for Spinning-Machine Spindles, of which the following description, together with the accompanying sheet of drawings, is a specification.

In cap and ring spinning machines wherein tubes are employed for supporting and carrying the bobbins or spools upon which the yarns or threads are or have to be wound it is found desirable to have said tubes somewhat loosely connected to their grooved driving-pulleys or whirls in order that their axes will keep more nearly in alinement with those of their supporting-spindles which through varying temperature and other causes are liable to slightly bend or move out of the straight line, by which loose attachment these tubes are enabled to rotate more freely and with less vibration on their spindles.

My invention consists in constructing these tubes and their driving-pulleys in such a form or manner as to attain the object desired and yet have a substantial and efficient jointing of the one to the other produced, while I further form bearings for the grooved driving-pulleys on said tubes that will insure thorough lubrication of the parts and prevent stray fibers or other matter from accumulating thereon.

In the accompanying sheet of drawings, which are illustrative of my said invention, Figure 1 is a sectional elevation of a tube, its grooved driving-pulley, and parts in connection therewith constructed in accordance with my invention. Figs. 2 and 3 are elevations of the tube and its coupling-bush, respectively, shown in detail. Fig. 4 is a sectional view of the tube's driving-pulley shown apart from said tube. Figs. 5 and 6 are sectional elevations of the parts shown by Figs. 2 and 3, respectively. Fig. 7 is a sectional end view on line A B of the tube and its driving-pulley.

In carrying my invention into effect I construct the grooved driving-pulley *a* so that within its axial opening a shoulder or annular flange *b* is formed for a corresponding shoulder or flange *c* on the tube *d*, which takes within said opening to fit against said flange *b*. In the end of the tube *d* which remains within the opening in the pulley *a* notches *f* are made to receive prongs or projections *g*, which extend longitudinally from a bush *h*, which is made to fit so that it may be driven tightly into the opening in the pulley *a* beneath the flange *b*. The notches *f* in the tube *d* are a little deeper and the projections *g* on the bush *h* are a little longer than the width of the flange *c* on the tube *d* in order that on the tube being inserted into the opening in the pulley *a* when the bush *h* is driven home therein the outer ends of the projections *g* will come firmly into contact with the flange *b* within the pulley *a* without tightening up the flange *c* against the flange *b*, but leaving sufficient space for said flange *c* to be moved slightly vertically as any swaying of its tube *d* from side to side may require when in use. From this it will be seen that the coupling of the tube *d* to the pulley *a* to enable this latter to transmit all its rotary movements thereto is efficiently carried out, while sufficient freedom is allowed said tube *d* for any slight lateral play that the conditions under which it operates may require.

In connection with my invention I preferably form the lower end *k* of the pulley *a* to extend to take over the upwardly-extending part *m* of the washer *p*, (which is preferably of hardwood, such as boxwood,) which has a recess *s*, containing felt or some such absorbent material for receiving a lubricant. This lubricant is fed thereto through openings *t* and is supplied from the felt to the spindle within the tube as this latter rises and falls thereon, as is well understood. By this formation of the part *p* and the ends *k* of the pulley *a* thorough lubrication of the bearing parts is effected, while the parts are protected against the accumulation of dirt or undesirable matter.

Such being the nature and object of my invention, what I claim is—

1. A device of the character described comprising a driving-pulley having a bore provided with an overhanging flange, a bush fitting within said bore and having projections contacting with said flange, and a tube provided with an annular flange interposed between said bush and said overhanging flange and engaging said projections.

2. A device of the character described comprising a driving-pulley having a bore provided with an overhanging flange, a bush fitting within said bore and having projections contacting with said flange, and a tube provided with an annular flange interposed between said bush and said overhanging flange, and engaging said projections, the flange of said tube being of a thickness less than the

length of said projections, whereby vertical play of said tube is permitted.

3. A spinning-machine tube having an annular flange at its lower end, a bush with longitudinal projections to fit into notches in said tube, a driving-pulley provided with an opening to receive said tube and bush said driving-pulley having its lower edge formed to overhang its bearings, bearings for said driving-pulley formed to take into the lower end of the driving-pulley and to have a cavity for the reception of an absorbent material and lubricant in combination substantially as specified.

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

STEPHEN SHARP.

Witnesses:
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