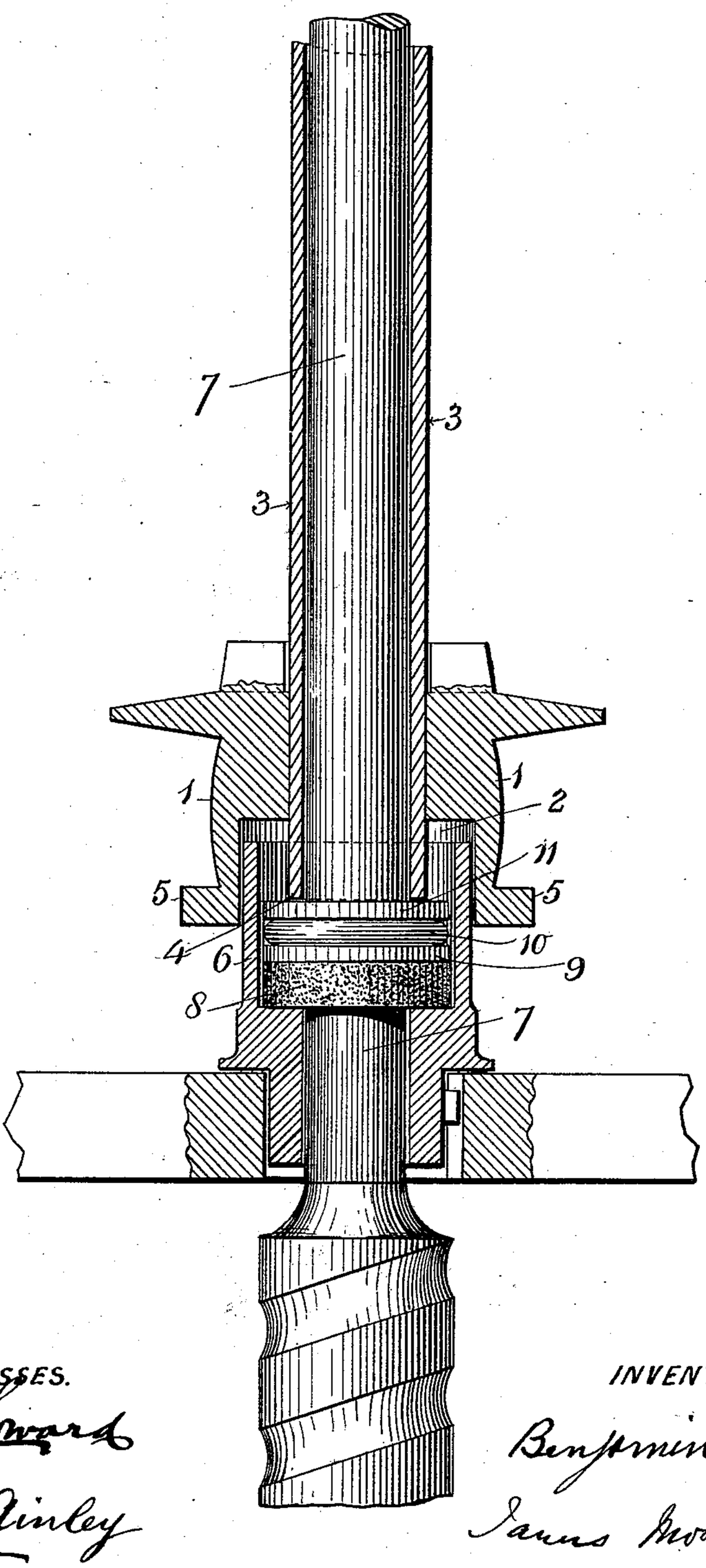
(No Model.)

B. SMITH & J. M. HOWSON.

SPINDLE FOR SPINNING MACHINERY.

No. 517,772. Patented Apr. 3, 1894.



WITNESSES.

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BENJAMIN SMITH AND JAMES MOSS HOWSON, OF HALIFAX, ENGLAND.

SPINDLE FOR SPINNING MACHINERY.

SPECIFICATION forming part of Letters Patent No. 517,772, dated April 3, 1894.

Application filed November 28, 1893. Serial No. 492,308. (No model.)

To all whom it may concern:

Be it known that we, BENJAMIN SMITH and JAMES MOSS HOWSON, subjects of Her Majesty the Queen of Great Britain, residing at Halifax, in the county of York, England, have invented a certain new and useful Improvement in or Connected with Spindles for Spinning Machinery, of which the following is a specification.

This invention relates to improvements in spindles for spinning machinery such improvements being particularly applicable to the spindles of cop spinning and twisting frames, the improvements being directed to lubricating and reducing the friction between the whirl and tube, and spindle and between the spindle and the oil cup the effect being to prevent vibration and heating of the spindle and so to allow of the tube being driven with greater ease and rapidity than heretofore.

The accompanying drawing is an elevation partly in section of a spindle fitted with our improvements.

We form the whirl 1, cap or cover 2, and tube 3 practically as one piece, the tube 3 which is of soft metal such as brass or gun metal being forced through a hole drilled in the whirl 1 so as to be a fixture therein. The lower end 4 of the tube 3 extends some little distance through the whirl and cap or cover 2 and forms therein an inner concentric ring, the lower edge 5 of the whirl forming the outer concentric ring of the cap or cover 2. The oil cup 6 which is of suitable metal is made so that its upper edge passes between the inner concentric ring or end 4 of the tube 3 and the cap or cover 2 which forms part of the ring or whirl 1. The spindle 7 passes through the rail and through a hole in the bottom of the oil cup 6 and in such oil cup and loose on the spindle 7 we place a felt washer 8 as usual while on the washer 8 we place one, two or more loose metal rings or washers but preferably a hard metal washer 9, a ring of metal 10 and a washer 11 as shown. On the top washer 11 the end 4 of the tube 3 rests so that the whirl and tube are supported by and revolve on the lubricated rings and washers, which are protected from dust and fluff by the cap or cover. By the use of the above described appliances the tube can be driven with less friction and vibration and consequently at a higher speed. The lubricant in the oil cup 6 being protected by the cap or cover 2 is prevented from flying out, and does not require replenishing so often thus effecting a saving.

What we claim is—

1. The combination with the spindle 7 and tube 3 inclosing said spindle, of the whirl 1 rigidly attached to said tube and hollowed out at its base as at 2 to form a cap inclosing the lower end of said tube; an oil cup 6 projecting up into said cap and inclosing said spindle, a loose washer 8 of felt or similar material placed in said oil cup and surrounding said spindle, a superimposed metal washer 9, a metal ring 10, and a metal washer 11, placed on said ring and forming a bearing for the lower end of said tube, substantially as and for the purposes described.

2. In combination, the spindle, a whirl hollowed out to form a cap, a tube surrounding said spindle, fast to the whirl and carried down into the cap an oil cup surrounded by the cap a loose felt or like washer in the oil cup and a superposed metal washer surrounding the spindle and forming a bearing for the end of the tube substantially as described.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

BENJAMIN SMITH.
JAMES MOSS HOWSON.

Witnesses:
J. BRIERLEY HOWARD,
CHARLES AINLEY.