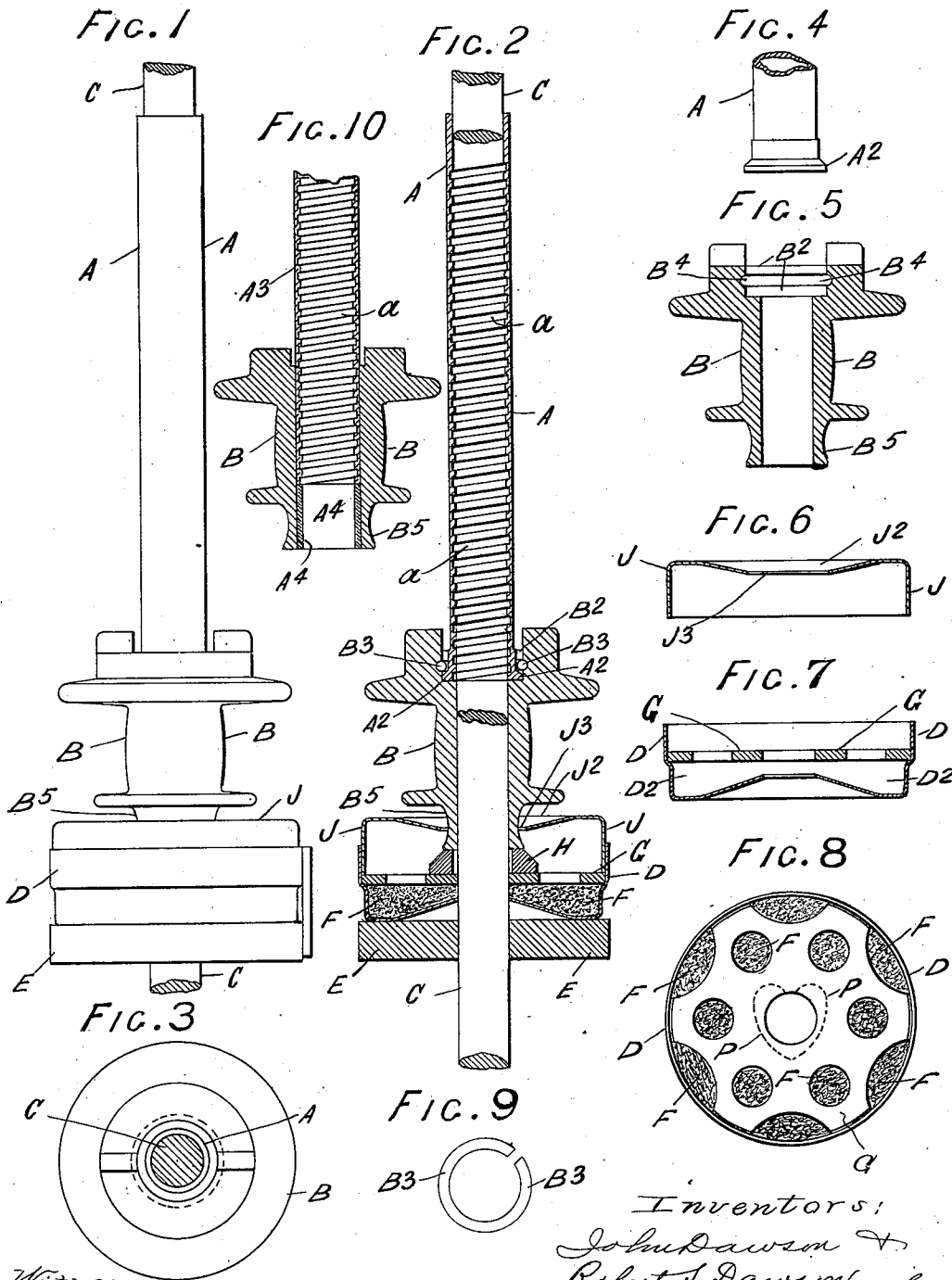


(No Model.)

J. & R. S. DAWSON.
DEVICE FOR LUBRICATING SPINNING SPINDLES.

No. 564,366.

Patented July 21, 1896.



Witnesses:
E. B. Smith
E. J. Hyde

Inventors:
John Dawson &
Robert S. Dawson
Navy P. Williams
attys.

UNITED STATES PATENT OFFICE.

JOHN DAWSON AND ROBERT S. DAWSON, OF BRADFORD, ENGLAND.

DEVICE FOR LUBRICATING SPINNING-SPINDLES.

SPECIFICATION forming part of Letters Patent No. 564,366, dated July 21, 1896.

Application filed January 10, 1895. Serial No. 534,445. (No model.)

To all whom it may concern:

Be it known that we, JOHN DAWSON and ROBERT SOUTHWORTH DAWSON, subjects of the Queen of England, residing at Bradford, England, have invented certain Improvements in Devices for Lubricating Spinning-Spindles, of which the following is a specification, in which—

This invention relates to improvements in the tubes and whirls of spinning, doubling, and twisting machinery and in the means of lubricating the same.

Reference is to be had to the accompanying sheet of drawings, forming a part of this specification, in which—

Figure 1 represents an elevation of our improved tube, whirl, and lubricating device mounted on a portion of a spindle. Fig. 2 represents a vertical section of the same with the central portion of the spindle broken away. Fig. 3 represents a plan of Fig. 1. Fig. 4 is a separate view of the lower end of the tube. Fig. 5 represents a separate diametrical section of the whirl, and Figs. 6 to 10 are views of details hereinafter referred to.

The tube A may be either loosely attached to the whirl B, as shown in Figs. 1, 2, and 3, or it may be rigidly fixed to it, as shown in Fig. 10. In the former case a lip or collar A² is formed around the lower end of the tube, and this collar is passed into a recess B² and is retained therein by the wire ring B³, Fig. 9, sprung into the annular groove B⁴, formed in this recess. This arrangement leaves the whirl in a great measure free to revolve without the tube. To carry the lubricant from the whirl B and spindle C up the tube, we cut a shallow helical groove or female screw-thread *a* from the bottom of the tube—that is to say, from the top of the whirl—approximately to the top of the tube, with the extremity of the spiral at the lower end pointing toward the direction of rotation. We find with the helical groove arranged in this way that the tube is perfectly lubricated without any tendency to flood the spindle and waste the lubricant, as is the case when the helical groove is carried right down to the bottom of the whirl. For this reason in case the tube is rigidly fixed to the whirl, as in Fig. 10, we prefer to leave a plain or ungrooved portion at the lower end of the whirl B. A conven-

ient way of doing this is to only pass the tube A³ a certain distance through the whirl and introduce a short plain piece of tube A⁴ into the lower end of the whirl, leaving more or less of an annular space between the upper end of A⁴ and the lower end of A³.

The lubricating device consists of a cup D, resting upon the lifter-plate E, concentric with the spindle C. The center of this cup is turned or raised up around the spindle so as to form an annular reservoir D², in which the usual felt wad or wads F are inserted. The wad or wads are covered by the perforated plate G, resting upon the shoulder D³, formed around the cup. The plate G carries a washer H, preferably of conical form, upon which the projection B⁵ at the bottom of the whirl revolves. A cap J, having a dished top J², through which a central hole J³ is made for the spindle, is fitted inside the top of the cup. The projection B⁵ is made slightly conical or bell-shaped, so that it is larger in diameter at the bottom than immediately above, and this larger part is placed well below the top of the cap J. Consequently centrifugal force prevents any tendency for the lubricant to flow up outside the projection B⁵, and any which may be thrown off at the bottom is collected by the cap J and falls back into the cup below.

Fig. 6 represents a separate diametrical section of the cap J. Fig. 7 represents a similar view of the cup D, plate G; and Fig. 8 represents a plan view of the same and the wad F also.

The cup is supplied with lubricant by pouring it into the dished cap, and it falls through the central opening onto the conical washer H and is distributed to the wad.

Instead of cutting the wad with a central hole approximately fitting the spindle we may cut it with a heart-shaped hole P, as shown in Fig. 8, or other suitably-shaped hole, adapted to only expose a comparatively small surface in direct contact with the spindle, as we find with the large reserve of lubricant the cup D is capable of retaining that it is quite possible to lubricate the spindle too freely if the wad is in contact with the spindle all round.

We claim—

1. The combination with a spindle of a spin-

ning or twisting machine, of a whirl, a tube
connected with the whirl, a non-rotary sheet-
metal lubricating-cup having a reëntrant bot-
tom with a central perforation for the passage
5 of the spindle, the said cup being located be-
low the whirl of which it is independent, an
absorbent packing for the cup, and a cap for
the cup having a central perforation for the
passage of the end of the whirl, said perfora-
10 tion being larger in diameter than the di-
ameter of the end of the whirl that passes
through it, substantially as specified.

2. The combination with a spindle of a spin-
ning or twisting machine, of a whirl, a tube
15 connected with the whirl, a lubricating-cup
having a reëntrant bottom with a perforation
for the passage of the spindle, a felt washer
located in the cup and having a central open-
ing of irregular outline so that it does not
20 tightly fit the spindle, a perforated plate sup-
ported by the cup above the felt washer, a
washer having a central perforation of larger
diameter than the diameter of the spindle so
that it does not make contact therewith
25 loosely placed between the top of the plate
and the bottom of the whirl, and a cap for
the cup with a perforation to receive the end
of the whirl, substantially as specified.

3. The combination with the spindle of a
30 spinning or twisting machine, of a whirl, a

tube connected with the whirl, a lubricating-
cup formed of sheet metal with a reëntrant
bottom with a central perforation, a fibrous
pad located within the cup and having a cen-
tral spindle perforation, a perforated plate 35
located within the cup above the pad, and a
cap having a reëntrant top with a central per-
foration for the passage of the lower end of
the whirl, the said walls of the cap fitting
into the side walls of the cup and resting upon 40
the top of the perforated plate, substantially
as specified.

4. The combination with the spindle of a
spinning or twisting machine, of a whirl hav-
ing a portion of its lower part smaller in di- 45
ameter than its lower end, a lubricating-cup
below the lower end of the whirl and a cap
with a reëntrant top and with its edges loosely
fitting into the upper end of the lubricating-
cup with a central perforation that encircles 50
the lower part of the whirl above the en-
larged end, substantially as specified.

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

JOHN DAWSON.

ROBERT S. DAWSON.

Witnesses:

SAMUEL A. DRACUP,

DAVID NOWELL.