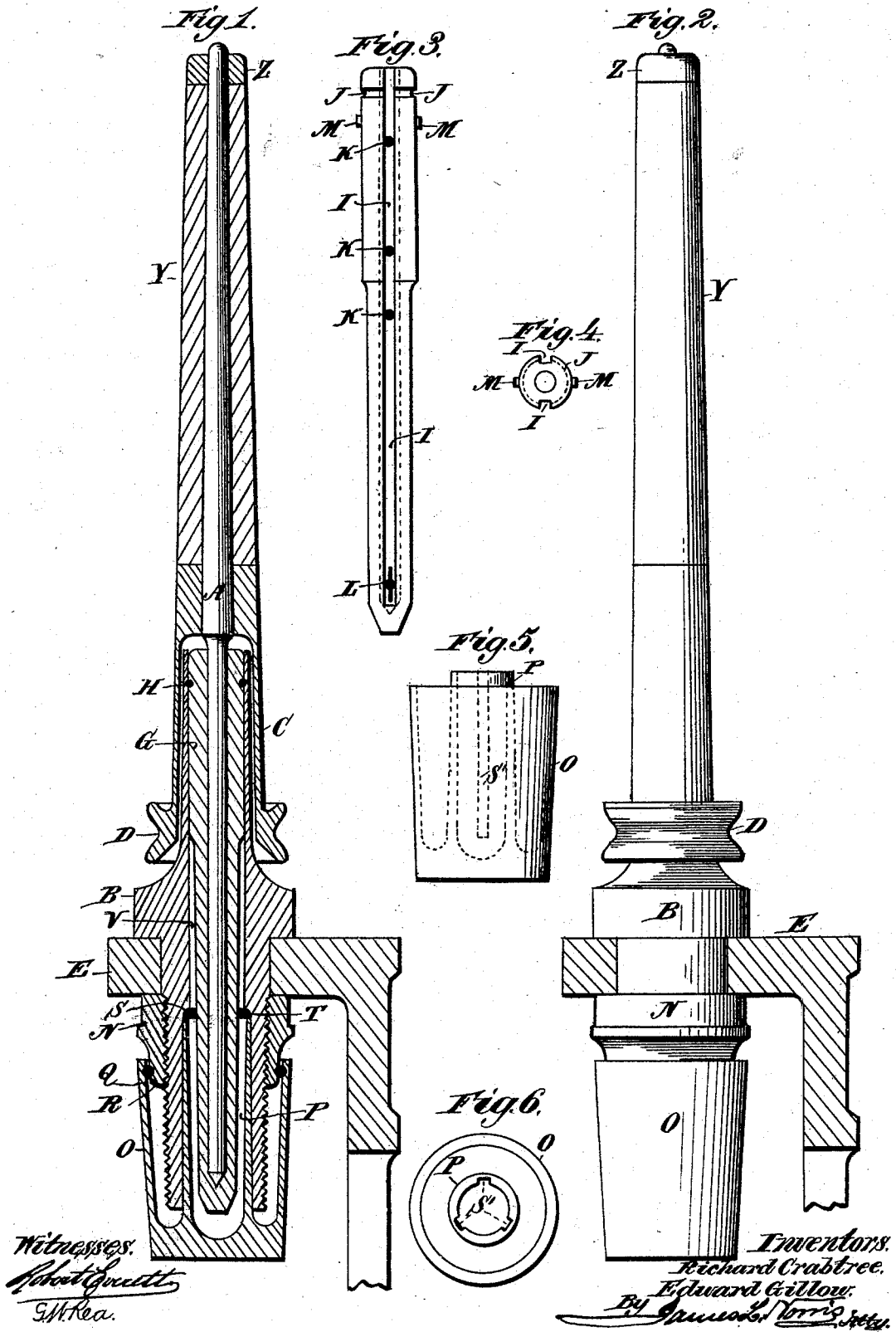


R. CRABTREE & E. GILLOW.
SPINNING AND DOUBLING SPINDLE.

No. 500,857.

Patented July 4, 1893.



(No Model.)

2 Sheets—Sheet 2.

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Fig. 7.

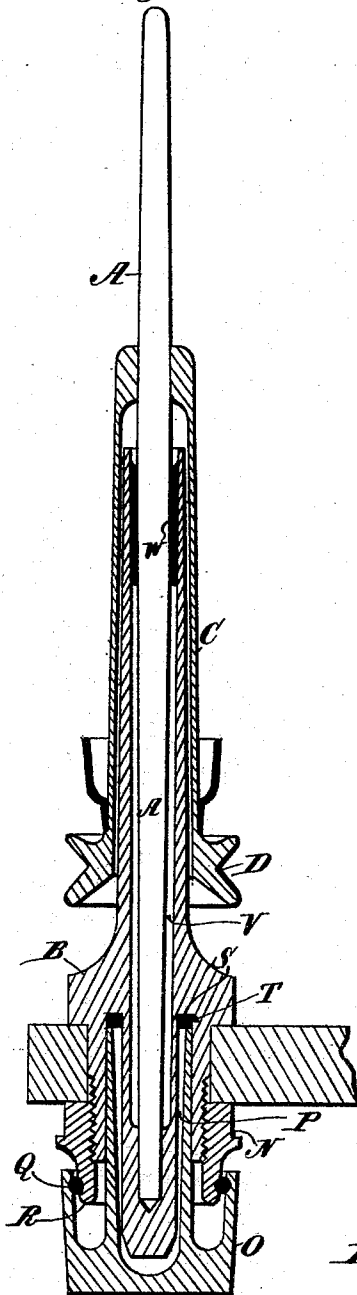


Fig. 8.

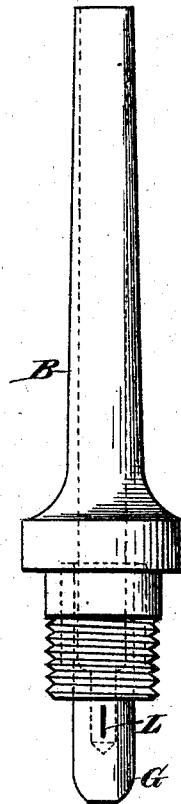


Fig. 9.

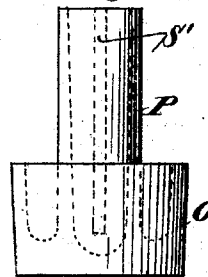
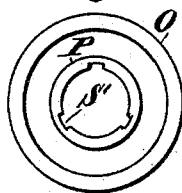


Fig. 10.



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Richard Crabtree
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UNITED STATES PATENT OFFICE.

RICHARD CRABTREE AND EDWARD GILLOW, OF BOLTON, ENGLAND.

SPINNING AND DOUBLING SPINDLE.

SPECIFICATION forming part of Letters Patent No. 500,857, dated July 4, 1893.

Application filed February 2, 1893. Serial No. 460,642. (No model.) Patented in England April 2, 1892, No. 6,387.

To all whom it may concern:

Be it known that we, RICHARD CRABTREE, foreman spindle-maker, of 51 Lena Terrace, and EDWARD GILLOW, foreman fitter, of 1 Raby Street, Bolton, in the county of Lancaster, England, have invented new and useful Improvements in or Relating to Spinning and Doubling Spindles, (for which we have obtained British Patent No. 6,387, dated April 2, 1892,) of which the following is a specification.

This invention relates to improvements in spinning and doubling spindles having loose or movable inside bearings, also to spindles with fixed bearings.

Figure 1 is a sectional elevation of our invention with loose or movable bearings and a loosely mounted wood or other pirn. Fig. 2 is an outside elevation of same. Fig. 3 is an outside elevation of the loose or movable bearing. Fig. 4 is a plan of same. Fig. 5 is an outside elevation of the oil or lubricant cup. Fig. 6 is a plan of the same. Fig. 7 is a sectional elevation of our invention with fixed bearings. Fig. 8 is an outside elevation of the bolster case in Fig. 7. Fig. 9 is an outside elevation of oil or lubricant cup, and Fig. 10 is a plan of Fig. 9.

In all the figures the same letters are employed to indicate corresponding parts.

A is the spindle; B the bolster case; C the spindle sleeve; D the wharve, and E the spindle rail. The upper end of the loose or movable inside bearing or bolster G is provided with the groove J in which is mounted the metallic wire or other suitable elastic ring H or its equivalent as shown in Fig. 1. The ring H also fits in a corresponding groove in the upper end of the bolster case B, by which the loose or movable inside bearing or bolster G is secured in position to prevent the same being displaced when removing the spindle A therefrom. The loose or movable inside bearing or bolster G is provided with the longitudinal slots I, holes K, and passage L for oil or lubricant. To insure the loose or movable bearing or bolster G maintaining or assuming its correct position in the bolster case B and to prevent the same rotating with the spindle A it is provided with the pins M fitting in vertical slots in the upper end of the bolster case B. The latter is secured to

the spindle rail E by the nut N screwed on the lower end of the bolster case B. For the purpose of oiling or lubricating the spindle A without taking the same out of the loose or movable bearing or bolster G and without removing the driving band from the wharve D the bottom end of the bolster case B is bored large enough to receive the inside cup P of the oil or lubricant cup, the outside diameter of the same being equal to the diameter of the bored portion of the bolster case B. The oil or lubricant cup consists of the inside cup P and the outside casing or bearing O combined. The inside cup P is made tapering and is larger in diameter at its upper end than at its lower end, and is provided internally with the grooves S', as shown in Figs. 5 and 6, to allow the oil or lubricant therein more space to expand and prevent flush and to cause an even or steady upward flow of the same in the cavity V when the loose or movable inside spindle bearing or bolster G and spindle A are placed in position therein. The internal upper end of the outer casing O is grooved and fitted with the spring ring Q or its equivalent, by which it is secured in position on the shoulder R on the lower end of the nut N said casing forming the outside cover or cap, and thus securely inclosing the oil or lubricant cup and protecting its contents from "fly," "fluff," and other imperfections met with in spinning rooms. Between the upper end of the inside cup P and the shoulder S in the bolster case B is disposed the ring T composed of cork or other suitable material or substance to form a joint. After the oil cup has been secured in position on the shoulder R of the nut N by the spring ring Q the inside cup P is supplied with oil or lubricant, which on the insertion of the loose or movable inside spindle bearing or bolster G and spindle A forces a portion of the oil or lubricant therefrom, according to the amount of displacement by the said bearing or bolster G, from whence the oil or lubricant rises up the space or cavity V between the outside of the bearing or bolster G and the inside of the bolster case B, also up the longitudinal slots I on the outside of the bearing or bolster G, thus entirely preventing the exposure and escape of oil or lubricant. The latter is supplied from the space or cavity V to the spin-

dle A as required by means of the holes K in the slots I and the passage L in close proximity to the step in the bottom end of the loose or movable inside spindle bearing or bolster G.

5 In case oil or lubricant is raised by capillary attraction by the spindle A until it runs over the top end of the loose or movable inside bearing or bolster G it will flow back down the slots I to the level of the oil or lubricant

10 in the space or cavity V or in the inside cup P.

In adapting our improvements to spindles with fixed bearings or bolsters the outside bottom end of the bolster case B is threaded to receive the nut N; the lower end of the latter being provided with the shoulder R for the purpose of carrying the oil or lubricant

15 cup by means of the spring ring Q in the upper end of the outer casing O as shown in Fig. 7. The lower end of the bolster case B is provided with a central projection or fixed bearing or bolster G having a chamber or cavity between its external diameter and the internal diameter of the outside bottom end of the bolster case B. The inside cup P of the

25 oil box fits in the said chamber or cavity leaving a space for oil or lubricant. The inside cup P in this case also is made tapering and is larger at its upper end than at its lower end, and is provided with the grooves S',

30 as shown in Figs. 9 and 10, to allow the oil or lubricant therein more space to expand and to effect an even upward flow of the same in the cavity V when the fixed bearing or bolster G and spindle A are inserted therein.

35 The central projection or fixed bearing or bolster G forms the step for the spindle A; the latter being held vertically by the bush W in the upper end of the bolster case B. In the bottom end of the central projection or fixed bearing or bolster G are disposed the passages

40 L to admit oil or lubricant from the inside cup P. Between the step and the bush or bearing W in the bolster case B is formed the chamber or cavity V up which is forced the oil or lubricant when the bearing or bolster G and spindle A are placed in the inside cup P.

45

Where spinning is to be effected on paper tubes, the latter should be capable of ready

removal without damaging the spindle, and 50 to accomplish this we provide a tapered wood or other tubular piece Y adapted to hold the paper tubes and loosely mounted on the spindle between the spindle sleeve C and an iron or metallic cap or piece Z, fixed to the upper 55 end of the spindle.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is— 60

1. The combination with a bolster case, a bearing or bolster, and a spindle, of an outside cover arranged at the lower end portion of the bolster case and bearing or bolster and having an inside lubricant cup extending vertically into the bolster case and provided with internal grooves, and a pliable substance interposed between the upper end of the lubricant cup and an internal part of the bolster case, substantially as described. 65 70

2. The combination with a bolster case having a recess in its lower end and provided with an internal shoulder, a bearing or bolster, and a spindle, of an outside cover having an inside tapering lubricant cup extending vertically into the recess in the bolster case and provided with internal grooves, and a pliable substance interposed between the upper end of the tapering lubricant cup and the internal shoulder of the bolster case, substantially 75 80 as described.

3. The combination with a bolster case, and a bearing or bolster, of a spindle sleeve C, a spindle provided at its upper end with an attached piece Z, and a tapering piece Y loosely 85 mounted on the upper end of the spindle between the spindle sleeve and the piece at the upper end of the spindle, substantially as described.

In testimony whereof we have hereunto set 90 our hands and affixed our seals in presence of two subscribing witnesses.

RICHARD CRABTREE. [L. S.]
EDWARD GILLOW. [L. S.]

Witnesses:

JAS. E. BOND,
EDMUND CHADWICK.