(Model.)

J. BASTOW & W. WOODHEAD.

SPINNING AND DOUBLING MACHINE.

No. 249,289. Patented Nov. 8, 1881.

Fig. 1

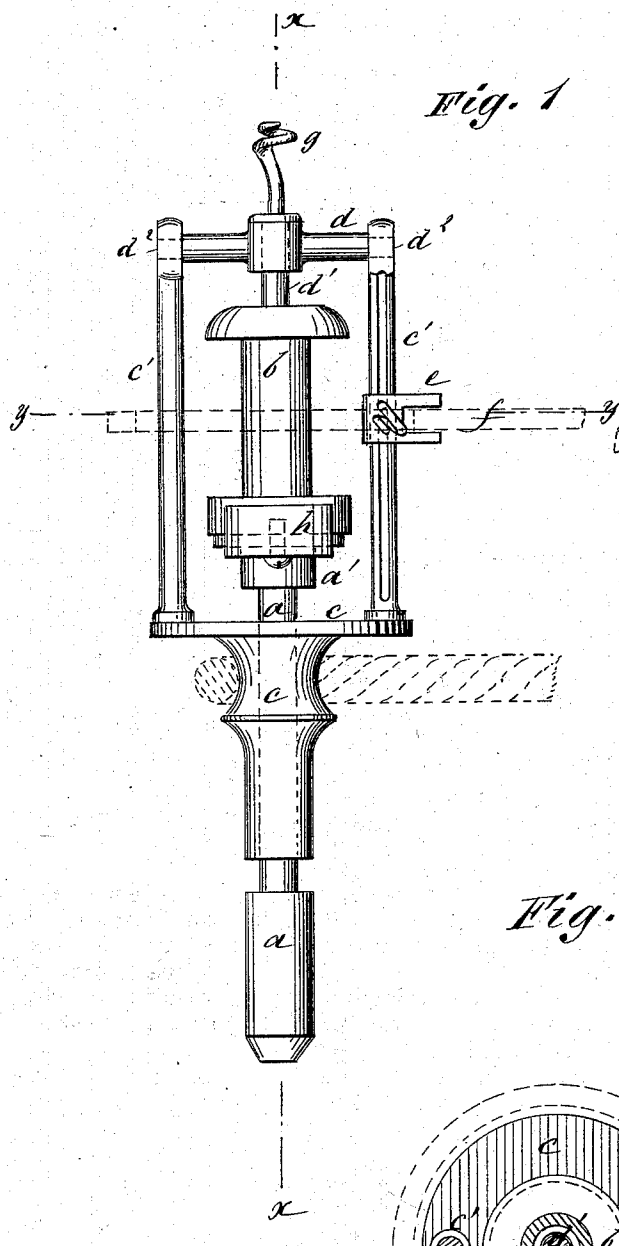


Fig. 2

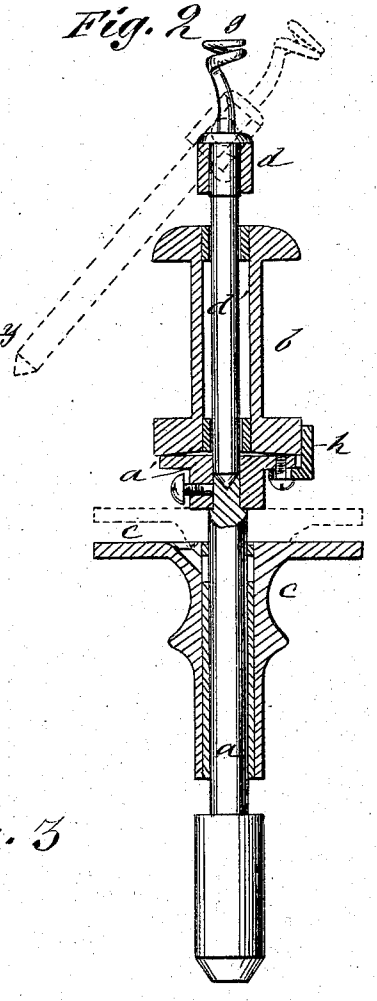
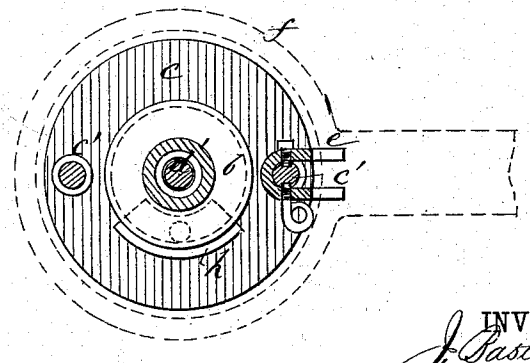


Fig. 3



WITNESSES:

C. Neveux

C. Sedgwick

INVENTOR:

J. Bastow

W. Woodhead.

BY Munn & Co

ATTORNEYS.

N. PETERS. Photo-Lithographer. Washington. D. C.

UNITED STATES PATENT OFFICE.

JOHN BASTOW AND WILLIAM WOODHEAD, OF HALIFAX, COUNTY OF YORK, ENGLAND.

SPINNING AND DOUBLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 249,289, dated November 8, 1881.

Application filed March 30, 1880. (Model.) Patented in England September 29, 1879.

To all whom it may concern:

Be it known that we, JOHN BASTOW and WILLIAM WOODHEAD, of Halifax, in the county of York, England, have invented a new and useful Improvement in Spinning and Doubling Machines, of which the following is a specification.

The invention consists in combining a flier having a bridge attachment adapted to turn, and provided with a downwardly-pointing spindle with a fixed stud or spindle and bobbin collar, as hereinafter described.

For a better understanding of the invention, we refer to the accompanying drawings, forming part of this specification, and wherein—

Figure 1 is an elevation of such portions of spinning and doubling machinery as contain our improvements. Fig. 2 is a vertical section on line *x x* of Fig. 1. Fig. 3 is a horizontal section on line *y y* of Fig. 1.

Similar letters of reference indicate corresponding parts.

a is the fixed stud or spindle; *a'*, the stationary collar attached to the same, upon which the spinning-bobbin *b* is held.

c is the loose-running pulley, forming, with the wings or rods *c c'*, the flier, which is fitted with the bridge attachment *d*, forming a part of or attached to which is the downward-pointing spindle *d'*, which is capable of being lifted and swung upon the axes d^2 d^2 for the purpose of doffing the bobbin when filled.

e is the traveler, and *f* the ring, attached in any suitable manner to the traversing bar.

g is the guide for the yarn coming from the feed-rollers.

h is the small curved tension-plate, which is capable of being slid toward or away from the collar of the bobbin, as more or less drag is required. In lieu of such tension-plate, a small spring may be used. Motion is given to the flier by means of a band passing around the grooved portion of the loose-running pulley, in the usual manner.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

In a spinning and doubling machine, the combination, with the fixed stud or spindle *a a* and the fixed collar *a'*, adapted to carry the bobbin, of the flier *c' c'*, having the bridge attachment *d*, carrying the downwardly-pointing spindle *d'*, and adapted to turn therein, all as described.

The above specification signed by us this 4th day of December, 1879.

JOHN BASTOW. [L. S.]
WILLIAM WOODHEAD. [L. S.]

In presence of—
GEORGE LAWTON,
Solicitor, 14 Carlton Street, Halifax, England, and a Housekeeper.
HENRY PARKER, Jr.,
Solicitor's Clerk, 66 St. Augustine's Terrace, Halifax, England, and a Housekeeper.