

No. 621,426.

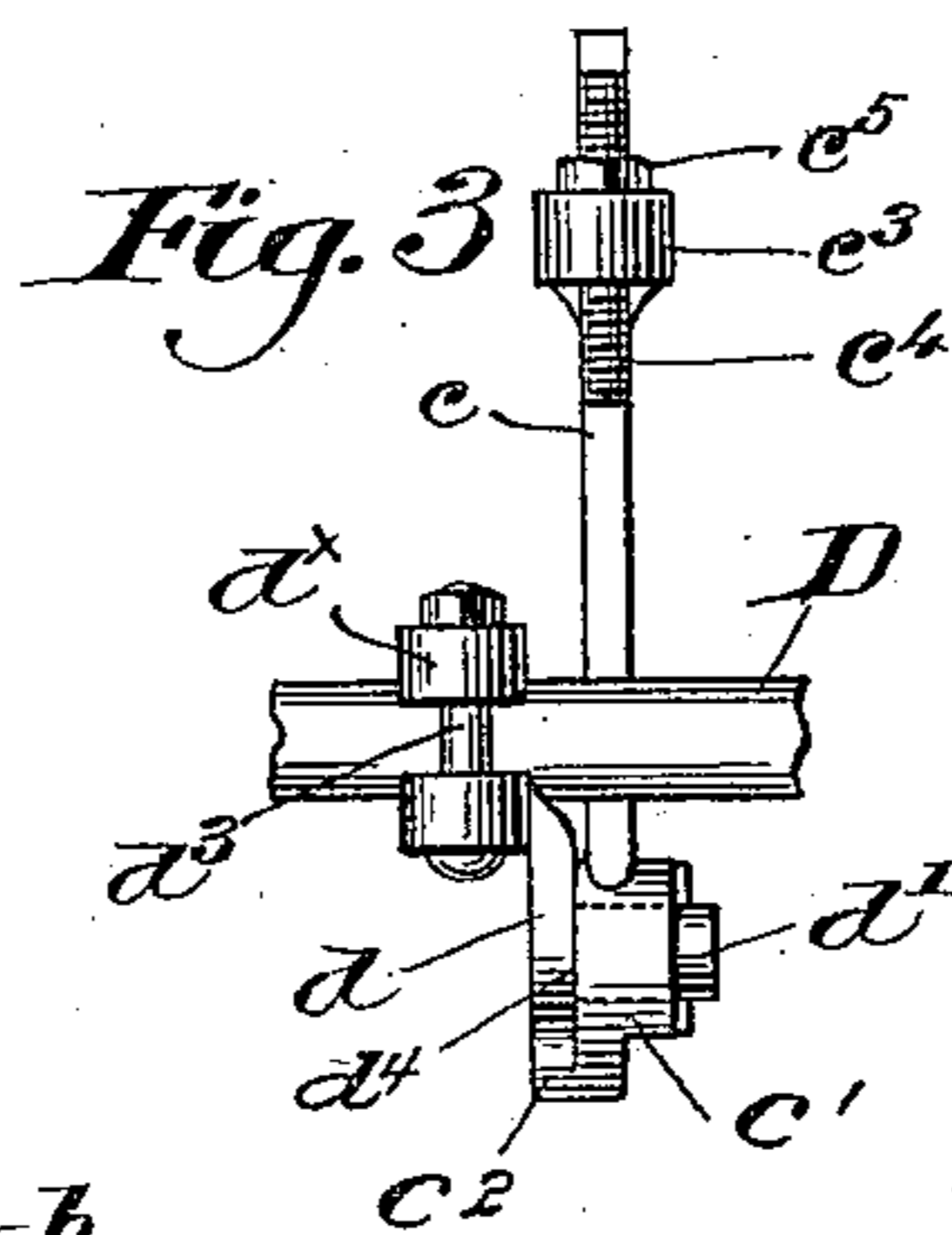
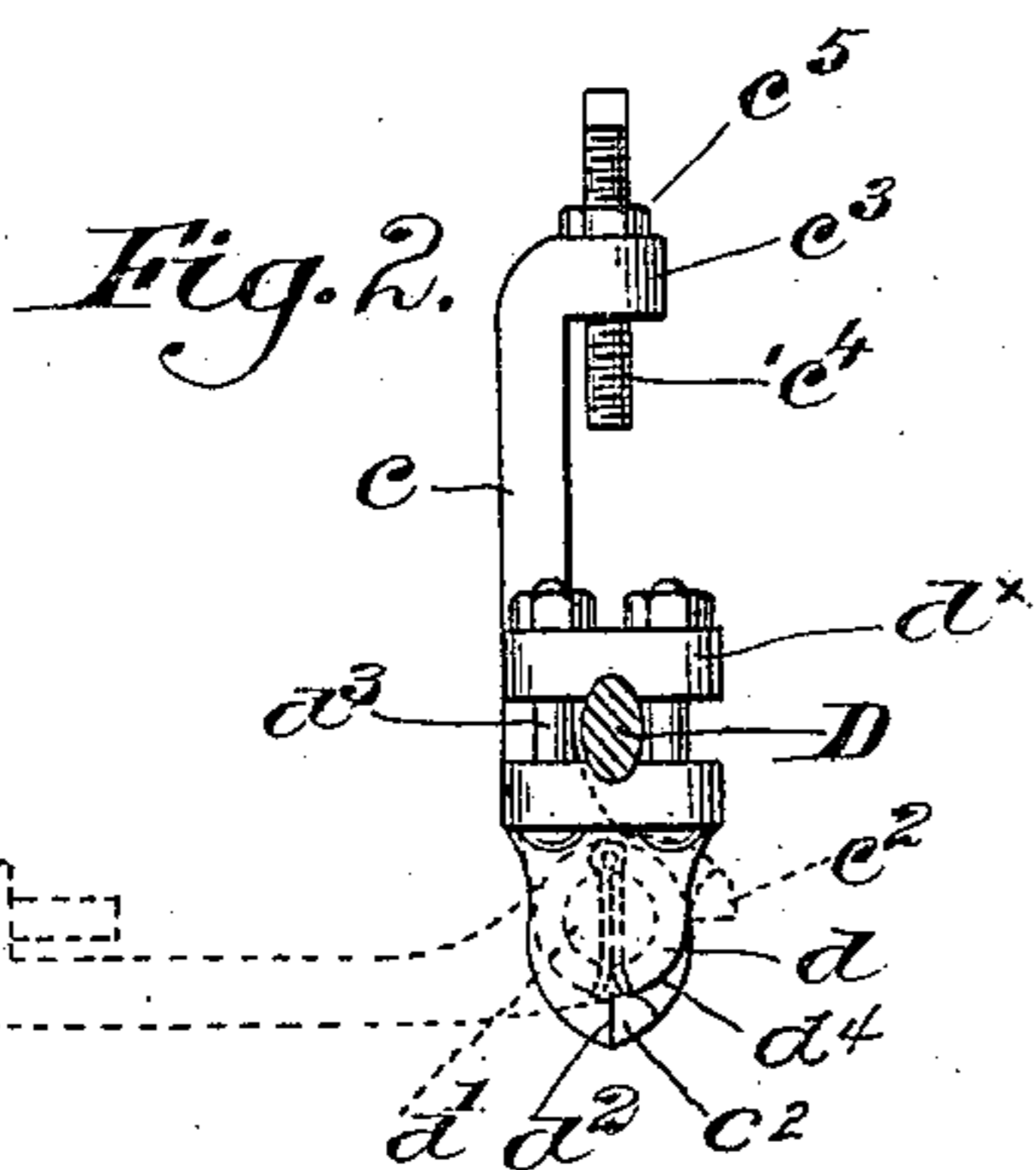
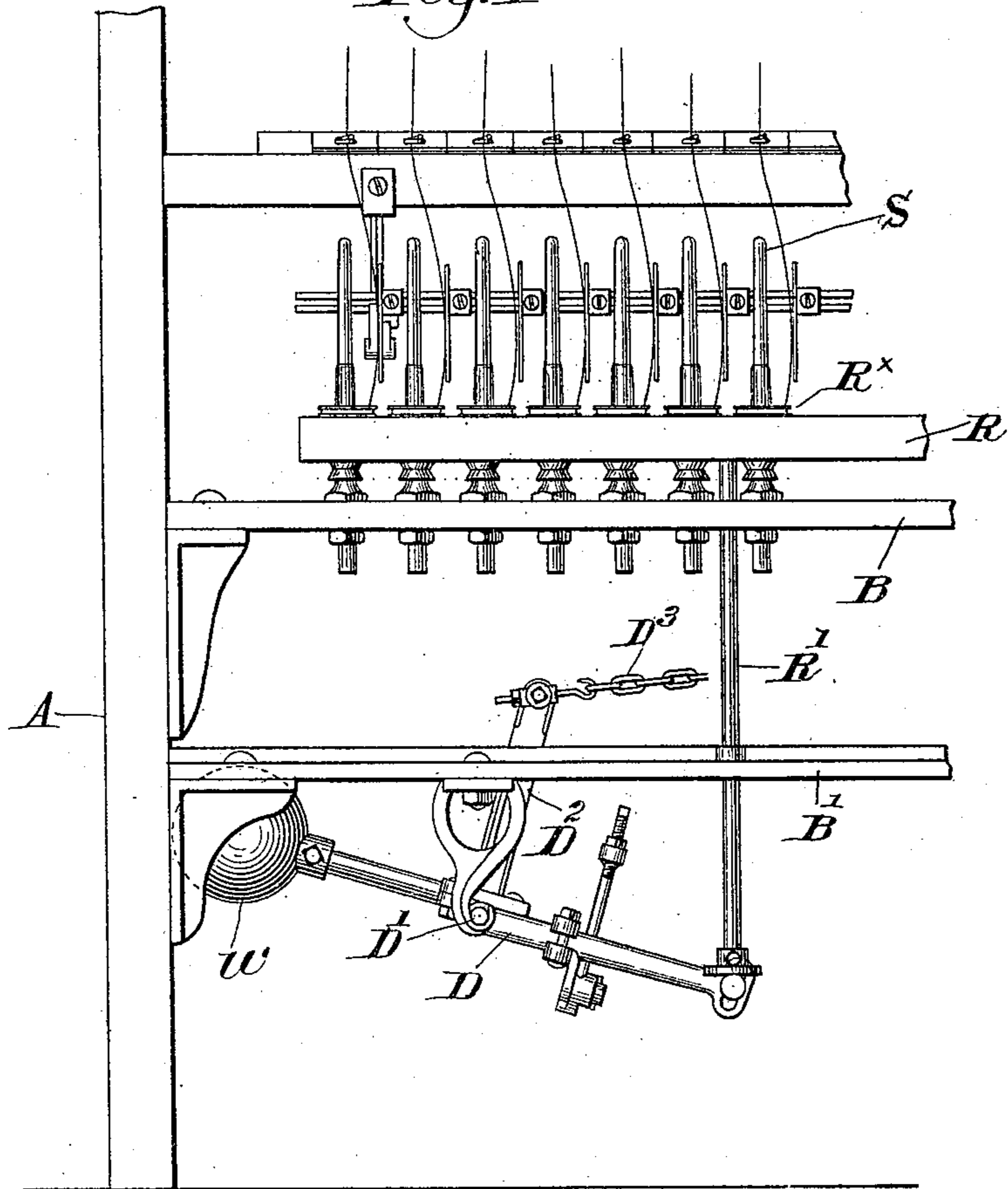
Patented Mar. 21, 1899.

J. H. NORTHROP.
MACHINE FOR SPINNING YARN.

(Application filed July 2, 1898.)

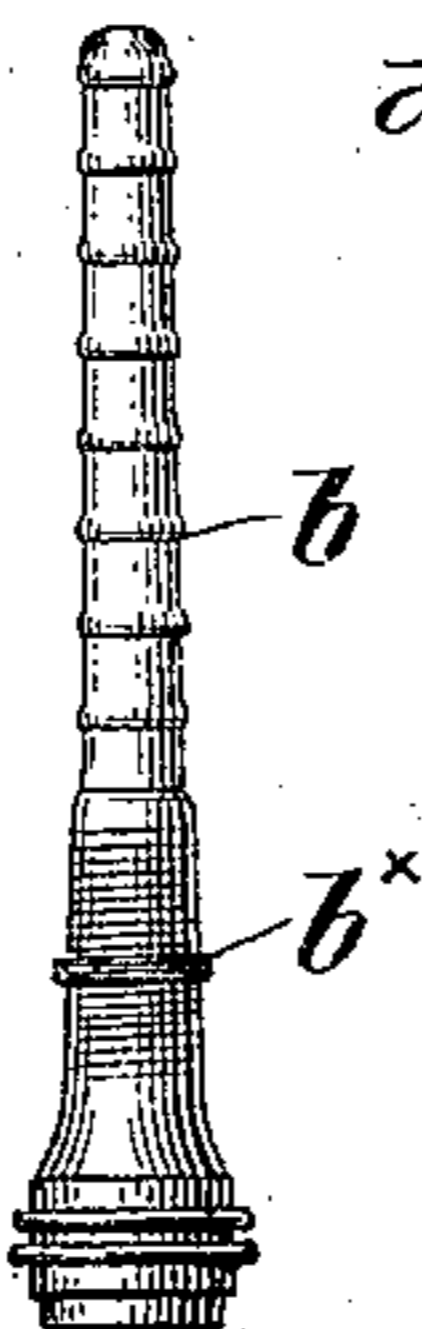
(No Model.)

Fig. 1



Witnesses:
A. C. Harmon.
Edward H. Allen.

Fig. 4



Inventor:
James H. Northrop.
by Crosby Gregory,
attys.

UNITED STATES PATENT OFFICE.

JAMES H. NORTHROP, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO THE
DRAPER COMPANY, OF SAME PLACE AND PORTLAND, MAINE.

MACHINE FOR SPINNING YARN.

SPECIFICATION forming part of Letters Patent No. 621,426, dated March 21, 1899.

Application filed July 2, 1898. Serial No. 684,999. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. NORTHROP, of Hopedale, county of Worcester, and State of Massachusetts, have invented an Improvement in Machines for Spinning Yarn, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In looms for weaving of the automatic type, wherein a fresh supply of filling is automatically inserted in the shuttle upon failure or exhaustion of the previous filling, it has been found very advantageous to control the operation of the filling-transferring means by a feeler, which periodically feels the supply of filling in the shuttle, and when that supply is exhausted to a predetermined point a fresh supply of filling is inserted in the shuttle. One loom of this type employing a feeler of the character specified forms the subject-matter of United States Patent No. 553,814, dated January 28, 1898, to which reference may be had. With such a loom it has been found very desirable to provide the filling-supply in the form of a bobbin, on which a bunch of the yarn is wound near the beginning of the spinning operation, the bunch forming a well-defined projection for the feeler to work against, thereby enabling the feeler to operate more closely or in a more delicate manner, for the bunch prevents the feeler from moving into operative position until it (the bunch) commences to wind off, insuring a very small percentage of waste on the ejected bobbin.

My present invention has for one of its objects the provision of means for forming the bunch of yarn on the bobbin in the operation of spinning the yarn thereupon, and I have herein shown one practical form of apparatus for effecting the desired result.

Figure 1 is a partial front elevation of a spinning-frame of well-known construction with one embodiment of my present invention applied thereto. Figs. 2 and 3 are enlarged detail views, in side and front elevation, respectively, of the device for temporarily stopping the traverse of the ring-rail; and Fig. 4 is a view in elevation of a bobbin

or "filling-carrier," as it is sometimes termed, with the initial bunch or annulus of yarn formed thereon.

It is well known that in ring-spinning frames the traverse of the ring-rail serves to lay the yarn in spirals upon the bobbin from base to point and back again, and if the ring-rail is maintained stationary at any point while spinning is continued a considerable portion of the yarn will be deposited on the bobbin at the same point, producing an annulus or bunch at such point. I utilize this fact in my invention by retaining the ring-rail stationary for a sufficient length of time near the first part of the spinning operation.

In Fig. 1 the frame A, the spindle-rail B, the spindle S, rotatably mounted thereon and driven in usual manner, the ring-rail R, carrying the rings R^x , the lifter-rods R' , one of which is shown, and the weighted levers D, pivoted at D' and each bearing at one end on the lower end of a lifter-rod, may be and are of usual or well-known construction, a rocker-arm D^2 , attached to each lever, being connected by a chain D^3 with the usual controlling-cam, (not shown,) which rocks the lever in opposition to its weight W.

A depending bracket d , having a laterally-projecting stud d' and a shoulder d^2 at its lower end, is clamped by a cap d^x and suitable bolts d^3 onto one of the controlling or traverse levers D between its fulcrum and the end which acts upon the lifter-rod. On the stud d' the hub c' of an arm c is pivotally mounted, the hub having an offset lug or projection c^2 , which travels over the circular part d^4 of the edge of the bracket d , and when resting against the shoulder d^2 thereof the arm c will be in upright position, as shown in Figs. 1 and 3 and in full lines, Fig. 2. When the arm is swung down into dotted-line position, Fig. 2, the lug c^2 engages the upper part of the bracket and limits further movement of said arm, its normal position being shown in dotted lines. The upper end of the arm c is bent over, as at c^3 , and threaded to receive a threaded rod or stud c^4 , which may be held in adjusted position by a suitable check-nut c^5 , the rod or stud when in operative position being located substantially above the lever D

and below the usual lower fixed rail B' of the frame.

When starting up the spinning on a new set of bobbins after the ring-rail has made, say, one traverse, the doffer-boy raises the arm *c* into operative position until the movement of the lever brings the stud *c*⁴ into engagement with the lower rail B', and thereby stops the movement of the lever, and consequently that of the ring-rail, until the traverse-cam turns back or reverses. This reversal of the cam acts through the intervening connections to reverse the movement of the lever D, depressing its free end and moving it away from the fixed rail B', the arm *c* automatically dropping back into normal inoperative position, as it is so constructed that it will not remain upright unless held in such position. While the ring-rail was held stationary, as described, the yarn was wound upon the bobbin *b*, Fig. 4, at the same portion thereof, accumulating to form an annular bunch or ring *b*^x, and after the retardation of the traverse the spinning proceeds in usual manner. The traverse-stopping device is thus only brought into operation or requires attention at the early part of the spinning operation.

By adjusting the stud *c*⁴ the location of the bunch of yarn *b*^x is regulated, so that it may be wound nearer to or farther away from the base of the bobbin, according to circumstances.

When the bobbin is in the shuttle, the greater part of the yarn will be drawn off before the annulus *b*^x is encroached upon, and when that decreases the feeler will move into operative position to effect a change of filling.

My invention is not restricted to the precise construction and arrangement herein shown, for, so far as I am aware, it is broadly new in winding bobbins to form upon the bobbin an annular projecting yarn mass near the beginning of the spinning and to thereafter complete the spinning in usual manner.

I also consider it to be broadly new to provide means in a spinning-frame to stop an early traverse of the ring-rail to thereby effect the winding of the yarn at one point upon the bobbin and produce primarily or previous to the regular spinning an annular projecting yarn mass.

I prefer to wind at least one layer of yarn on the bobbin before forming the bunch, as in my preferred construction of loom the feeler device is at the opposite side of the loom from the hopper, and therefore after the feeler action there must be enough yarn left on the bobbin to enable the shuttle to lay a full thread in the shed on its return for a fresh supply of filling.

Having described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

1. In a spinning-machine, reciprocating traverse mechanism to lay yarn on a yarn-receiver, and means to temporarily stop its traverse movement at a point between the limits thereof to thereby form an annular projecting yarn mass on the yarn-receiver during such stoppage.

2. In a spinning-frame, the reciprocating ring-rail, traverse mechanism therefor, and normally-inoperative means adapted to be moved manually into position to temporarily stop the traverse of the ring-rail, to thereby form an annular yarn mass on the bobbin.

3. In a spinning-frame, the reciprocating ring-rail, traverse mechanism therefor, normally-inoperative means to temporarily stop the traverse of the ring-rail, to thereby form an annular yarn mass on the bobbin, and an adjusting device for said means, to regulate the point of formation of such yarn mass on the bobbin.

4. In a spinning-frame, the reciprocating ring-rail, traverse mechanism therefor including a controlling-lever, and means to temporarily stop the lifting movement of said lever, to thereby retain the ring-rail stationary during such stoppage.

5. In a spinning-frame, the reciprocating ring-rail, traverse mechanism therefor including a controlling-lever, and adjustable, normally-inoperative means adapted to be moved manually into operative position to temporarily stop the lifting movement of said lever and thereby maintain the ring-rail stationary at a predetermined height.

6. In a spinning-frame, the reciprocating ring-rail, traverse mechanism therefor including a controlling-lever, a normally-inoperative arm mounted thereupon adapted to be swung into operative position to meet a fixed stop and hold the lever from lifting movement, reverse movement of said lever permitting the arm to automatically resume its inoperative position.

7. In a spinning-frame, the reciprocating ring-rail, a controlling-lever to elevate it, normally-inoperative means adapted to be moved manually into position to stop the lifting movement of said lever, and an adjusting device to determine the point at which the lever shall be stopped.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES H. NORTHROP.

Witnesses:

GEO. OTIS DRAPER,
ALBERT H. COUSINS.