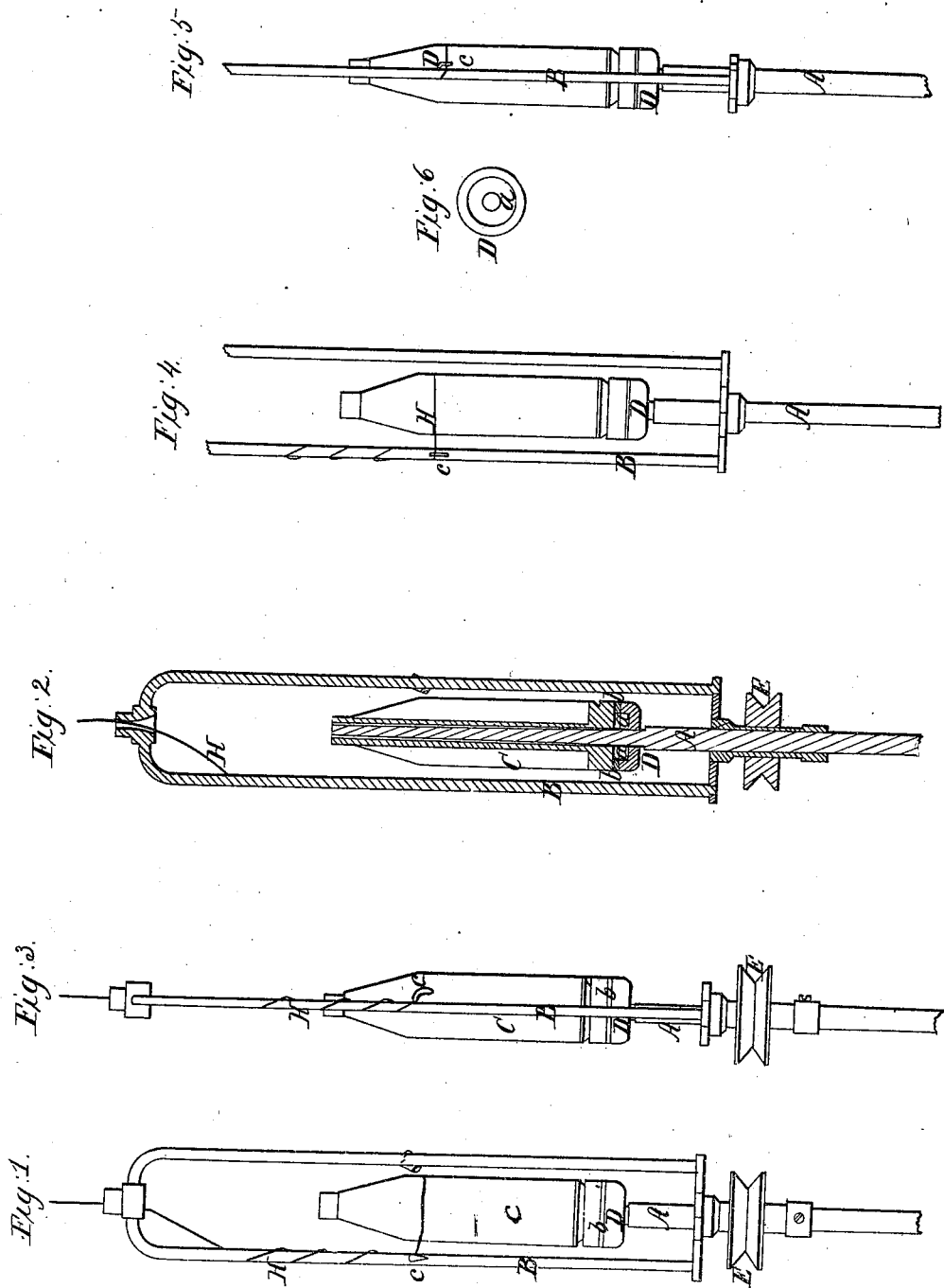


O. PEARL.
THROSTLE SPINNING MACHINERY.

No. 7,058.

Patented Jan. 29. 1850.



UNITED STATES PATENT OFFICE.

OLIVER PEARL, OF LAWRENCE, MASSACHUSETTS.

DRIVING BOBBINS UPON SPINDLES.

Specification of Letters Patent No. 7,058, dated January 29, 1850.

To all whom it may concern:

Be it known that I, OLIVER PEARL, of Lawrence, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Throstle Spinning Machinery whereby the amount of thread wound on a bobbin is greatly increased over that effected by mechanism as ordinarily constructed and used; and I do hereby declare that the nature of my invention and the manner in which it is constructed and made to operate are described and represented in the following specification and accompanying drawings, letters, figures, and references thereof.

My invention relates particularly not only to a peculiar formation of the friction button of the spindle, but to one of the thread guides of the flier, and it is applicable either to the warp, or filling, spinning mechanism.

Figure 1, of the drawings is a front elevation of a spindle and flier, having my improvement or improvements applied to it. Fig. 2 is a vertical section of the same. Fig. 3 is a side view of them. Fig. 4 is a front elevation, and Fig. 5 is a side elevation of a spindle and flier, as ordinarily used both now, and previous to my invention being made. Fig. 6 is a top view of one of my improved countersunk or cup friction buttons.

The particular feature of my invention which relates to the friction button of the throstle spindle, consists in enlarging the diameter of it somewhat beyond that of the button in ordinary use, and in countersinking the upper surface of the same so as to make it somewhat like a cup, as well as to leave on the upper side or surface of the button, and its outer edge a narrow ring or annulus of surface on which a similar annulus of leather or other proper friction material, is to be connected, or otherwise properly fixed, the bobbin to rest directly upon the top surface of such leather, as it generally does upon the disk or washer in common use. The advantage of the enlarged and countersunk button, over the flat circular disk button, or that in common use, is that the friction for retarding the bobbin, in order to cause it to take or wind up the yarn as fast as it may be spun, is obtained on the narrow rim or upper surface of the ring or annulus of leather, which surface is kept very clean, owing to the cup or countersunk space encircled by it, into which all

or nearly all the particles of dirt, fibrous matter, or waste and oily substance, which generally collect on the circular disk button, congregate. The friction on the disk button in consequence of the accumulation of foreign matter upon it, is rendered very variable, whereas on the countersunk button it is very uniform.

In Figs. 1, 2, and 3, A denotes the spindle, B, the flier, C, the bobbin, D, the countersunk button, E, the whirl of the flier.

In Figs. 4 and 5, the flier is seen at B, the spindle at A, the disk or common kind of button at D. H, is the thread or yarn.

In Figs. 2, and 6, *a* exhibits the countersunk space in the buttons while *b*, denotes the friction annulus of leather, extending around the same, and into which the dirt or extraneous matter is deposited, as above mentioned.

In connection with the improved button, I employ an enlarged yarn guide *c*, upon the flier; that is to say a guide having an extent of surface against which the thread or yarn passes, much greater than that in ordinary use. The small wire hook seen at *c*, in Figs. 4, and 5, is seldom or never made (for a throstle spinning flier), of wire above one sixteenth of an inch in diameter; that generally termed number 17, being used therefor. As the thread in its passage from the flier arm, and against and within the hook, and to the bobbin is bent at right angles or thereabouts, it will be seen that when the ordinary yarn guide is employed, the bearing surface of the thread is only about one-twentieth of an inch in length. So short is it, that the increase of draft produced by my improved countersink button is very apt to cut, or produce breakage of the thread at the hook or guide. In order to obviate this, and for other reasons, I increase the length of such bearing surface of the thread on the guide, and this by making the guide very much larger in size, the said surface being about three sixteenths or a quarter of an inch in breadth, the thread guide being made of a larger size as seen in Figs. 1, and 3. By such means I am enabled to wind the thread on the bobbin with all the strain that the thread can endure, and without increasing that between the flier nose, and the front roll of the drawing rollers, the consequence being a wonderful increase of the amount of thread which can be wound on the bobbin, in comparison with that which

can be wound thereon by the mechanism as commonly used. Heretofore any material increase of friction or draft, for the purpose of winding the yarn hard upon the bobbin created such an increased draft between the flier nose, and the front drawing roll, as to produce so much breakage of the yarn at or near the front roll where the twist is the least, and the yarn the weakest, as to prevent the advantageous employment of such increase of friction. I attempted to obviate the difficulty of breakage near the front roll as above described, by winding the thread an increased number of times around the arm of the flier. The result of so doing was the breakage of the thread at or near the yarn guide. I next increased the size of the guide, or its bearing surface as above described, and found the danger of breakage, both at the guide and near the front roll, to be greatly if not entirely diminished.

It is evident that the bottom or lower end of the bobbin may be countersunk, and the friction annulus of leather applied to it, may be made to operate against or upon either a plane or countersunk disk. Such however is my improvement in another form. It is evident also that it will not be necessary to countersink either the disk or the bobbin head, as the space for the reception of the waste or foreign matter may be made within the leather alone, or partly within the leather, and partly within the

wood, comprising either the disk or the bobbin head.

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The practical results produced from my invention have been as follows: Whereby machinery as heretofore constructed, only about four hundred yards of thread could be wound upon a filling bobbin of a certain size, by my improved machinery such a bobbin has been made to receive five hundred and fifty yards, or an increase of thirty seven and one half per cent. The difference in warp bobbins has been, that where a bobbin could by the old machinery be made to receive seven hundred and fifty yards of thread and be filled, by my machinery it has been made to receive one thousand and fifty yards; the gain being about forty two per cent.

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What therefore I claim as my invention, is—

The countersunk friction button, made substantially as specified, or in other words the combination of the friction annulus, with the inclosed space for the reception of dirt and extraneous matter, when used in connection with the spindle and bobbin substantially as specified.

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I testify whereof I have hereto set my signature this thirtieth day of November, A. D. 1849.

OLIVER PEARL.

Witnesses:

H. K. OLIVER,
GEOR. P. BRIGGS.