(No Model.)

J. KEATS.

HOLDER FOR THREAD.

No. 440,812. Patented Nov. 18, 1890.

Fig. 1.

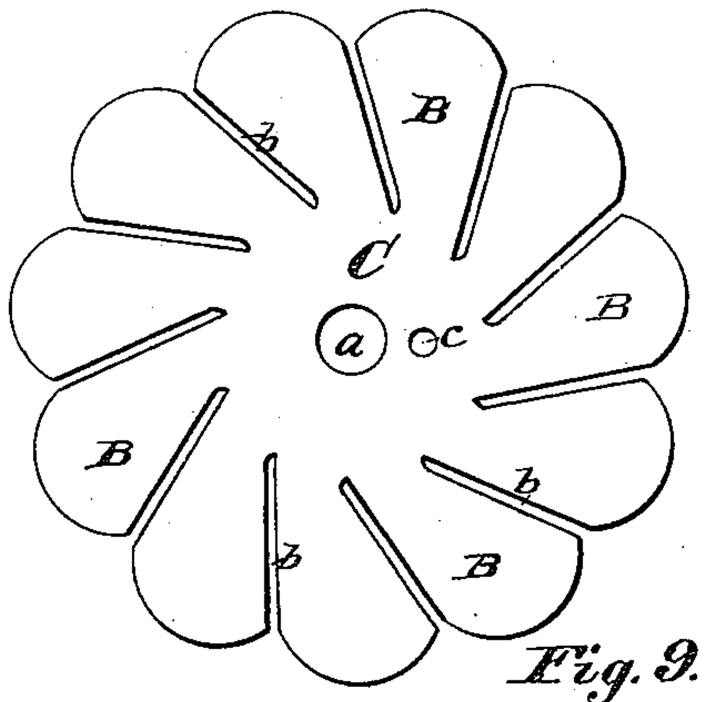


Fig. 2.

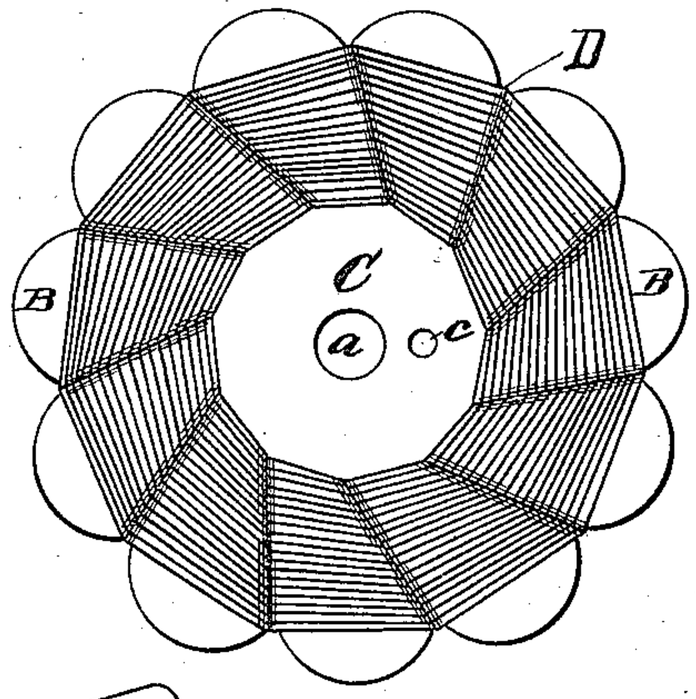


Fig. 3.

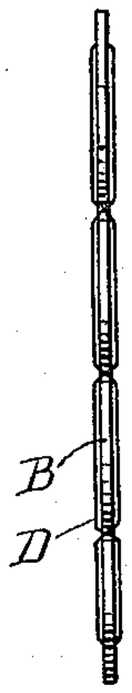


Fig. 9.

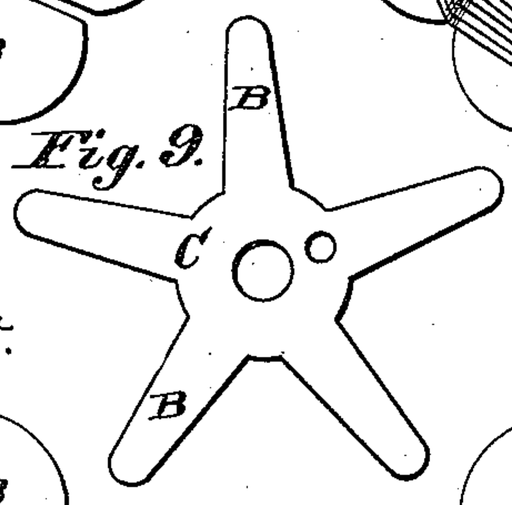


Fig. 4.

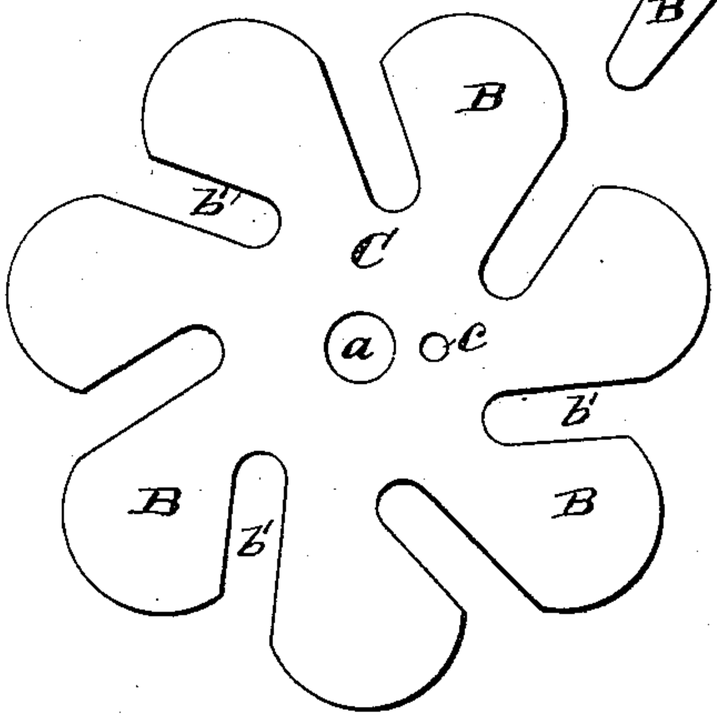


Fig. 5.

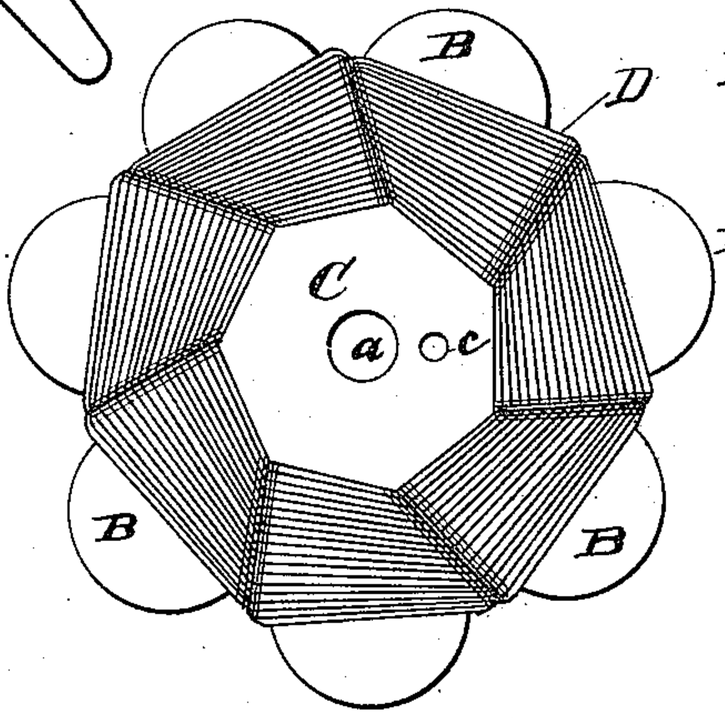


Fig. 6.

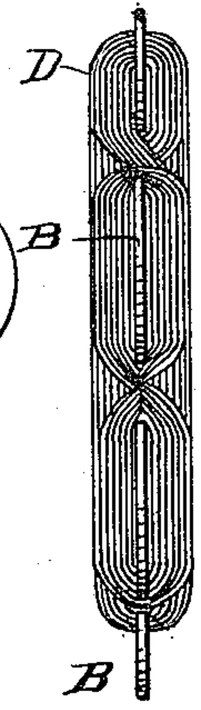


Fig. 7.

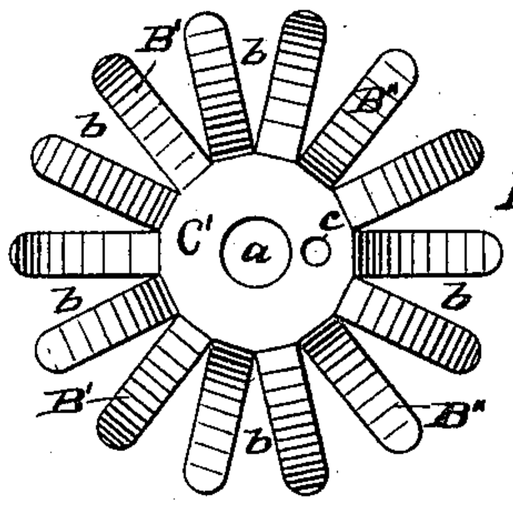
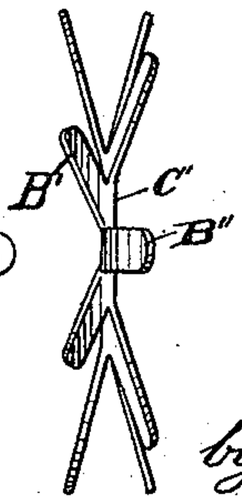


Fig. 8.



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UNITED STATES PATENT OFFICE.

JOHN KEATS, OF BAGNALL, NEAR STOKE-UPON-TRENT, ENGLAND.

HOLDER FOR THREAD.

SPECIFICATION forming part of Letters Patent No. 440,812, dated November 18, 1890.

Application filed March 12, 1890. Serial No. 343,620. (No model.) Patented in England January 12, 1887, No. 518; in France April 8, 1887, No. 182,743; in Germany April 24, 1887, No. 42,246, and in Austria-Hungary October 16, 1887, No. 17,986 and No. 37/2,093.

To all whom it may concern:

Be it known that I, JOHN KEATS, of Bagnall, near Stoke-upon-Trent, in the county of Stafford, England, have invented a new and useful Improvement in Holders for Thread, (for which I have obtained English Letters Patent No. 518, dated January 12, 1887; a French Brevet d'Invention, No. 182,743, dated April 8, 1887; a German patent, No. 42,246, dated April 24, 1887, and an Austrian patent, No. 17,986, and No. 37/2,093, dated October 16, 1887,) of which the following is a specification.

This improvement consists in a holder of novel construction, which will display the thread in a better manner than it has heretofore been displayed, and will present advantages in unwinding not hitherto possessed by thread-holders.

My improved holders take somewhat the form of stars, each with an odd number of spurs or arms. This odd number, I may remark, is important, as in presenting the holders to reciprocating thread-guides and rotating them in front of the same I thus lay the thread alternately on opposite sides of the projecting arms or spurs, causing the thread either to accumulate in an annular mass or to spread evenly over the opposite sides of the holder, according to the desire of the operator.

Paper, wood, or metal sheets will in general be employed in the formation of these thread winders or holders; but sheets of fancy materials may also be used from which to form the holders.

In the accompanying drawings I have shown single-thread holders and a double-thread holder of my invention. The form and number of the arms of these holders may vary, and experience has shown that the construction of the holders should vary according to the amount of thread they are intended to carry.

Figure 1 shows in side view a holder formed with eleven arms, the division between the arms being tangential. Fig. 2 shows the same form of holder charged with one layer of silk, and Fig. 3 is an edge view of this filled holder. Fig. 4 shows in side view a holder of the same diameter as in Fig. 1, but formed with seven arms, the tangential spaces between the arms being wider than in Fig. 1 to fit the holder for receiving a larger amount of thread. Fig. 5 shows this same form of holder as carrying a so-called "ball" of thread, and Fig. 6 is an edge view of the same. Figs. 7 and 8 show in side and edge view a double-thread holder formed out of one disk or thickness of material. Fig. 9 is a side view of a holder, illustrating another modification of my invention.

The holders I make by stamping them out from a thin sheet of some suitable stiff material, preferably glazed card-board, giving them an odd number of arms, except in the case of the double holder, the blank of which, for the reason hereinafter mentioned, is formed with an even number of spurs or arms divisible into two sets B′ B″, each containing an uneven number.

Referring to Figs. 1 to 4, it will be seen that the tangential arms B B of the holders C each terminate in a rounded end. This form of termination facilitates both the winding on and unwinding of the silk or other thread, as no angle is presented to the thread to retard its movement.

By preference I make the holder of thin pasteboard or toughened paper. The central part C of the holder, from which the spurs or arms B branch or radiate, is pierced, as shown at *a*, to permit of its being placed upon the spindle of the winding apparatus, and a second and smaller hole *c* is made in the disk to receive a rod which is carried round by the rotating spindle and serves to insure the rotation of a group of spaced thread-holders with their spindle. The arms B are made tangential, and either with narrow openings *b b* between them, as shown at Fig. 1, to insure the spread of the thread D, and thereby obtain the greatest display for the smallest amount of thread, or when this is not an object the holders may be formed with increased spaces *b′* between the arms, as shown at Fig. 4, or with radial arms, as shown in Fig. 9, to facilitate balling or the accumulation of a large quantity of thread D upon the holder.

The double-thread holder C′, Figs. 7 and 8,

is formed out of one thickness of material. It is made by stamping out a blank with an even number of arms or spurs, and then bending them alternately to the right and left. In this case the blank must contain such a number of arms or spurs as will, when divided up into two series B′ B″, provide for each series containing a suitable odd number of arms, as in the examples illustrated at Figs. 1 and 4. Holders of this form may conveniently receive two threads differing in kind, quality, or color, and they may be filled by subjecting them to two winding operations, or the winding apparatus may be provided with a double-thread guide, in which latter case the two threads may be simultaneously laid upon the holder.

The apparatus which I propose to use for filling the holders is fully described in my application for a patent filed on the 15th day of November, 1888, Serial No. 290,875; but the winding may be effected by more simple mechanism, or even by hand, although at a greatly lessened speed, if thought desirable.

An important peculiarity of my improved holder is that when in winding the thread upon it by its rotation the thread to be wound is caused to be passed through a laterally-reciprocating guide, as described in my hereinabove-mentioned application for patent. The said thread as it is taken up by the holder is laid alternately on opposite sides of the projecting arms, and thereby spread, as shown at D D in Figs. 2, 3, 5, and 6, to form a thin annular covering on opposite sides of the holder, as indicated at Figs. 2 and 3, or "balling" it, as indicated by Figs. 5 and 6. This balling is due to the accumulation of the thread upon itself in an annular form, the laying of the thread on both sides of each arm or spur being due to the uneven number of arms possessed by the holder. The winding, therefore, as it progresses, supposing the thread to be laid on the left side of the first arm (of the series) presented to the thread-guide during the first rotation of the holder will lay the thread on the right side of the same arm on the next succeeding rotation of the holder, and the like effect would be produced on all the other arms in succession, thus making an annular band of thread on both sides of the holder.

It will now be understood that in unwinding for use—say in a sewing-machine—the thread from a holder thus filled, the thread will run off in the plane of rotation of the holder, and that in a smooth and uniform manner, the only deviation from a straight line being due to the thickness of the material of which the arms of the holder are made.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be employed, I declare that what I claim is—

1. A thread-holder consisting of a central part pierced to receive a spindle, and a series of arms or spurs projecting outward from said central part, such arms or spurs being uneven in number, substantially as and for the purpose herein described.

2. For the reception of thread, a circular holder made from a disk cut from its periphery inward for any desired depth and width to form an uneven number of arms or spurs, as and for the purpose set forth.

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Witnesses:
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