I. E. PALMER.

THREAD GUIDE.

APPLICATION FILED APR. 21, 1908.

988,283. Patented Mar. 28, 1911.

Fig. 1

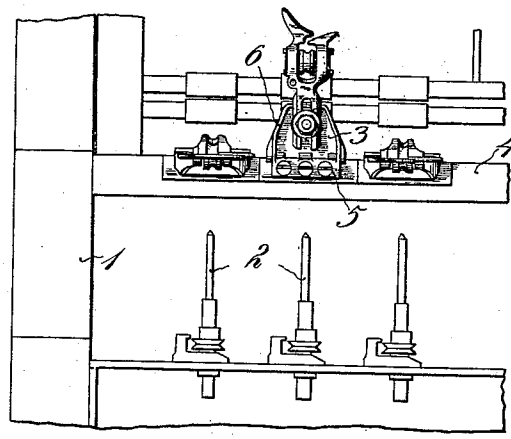


Fig. 2.

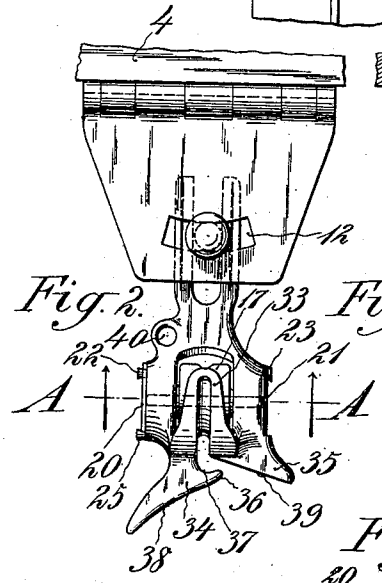


Fig. 3.

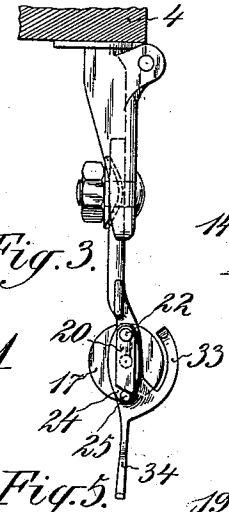


Fig. 4.

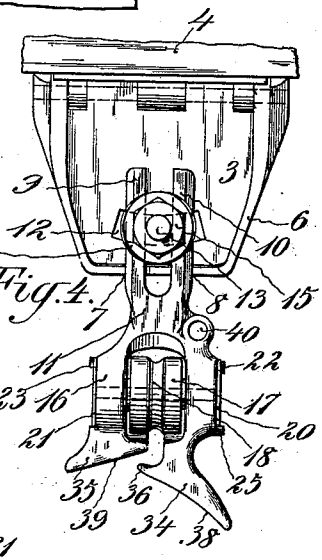


Fig. 5.

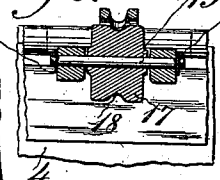


Fig. 6.

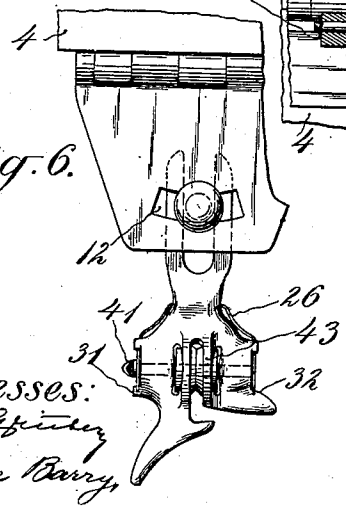
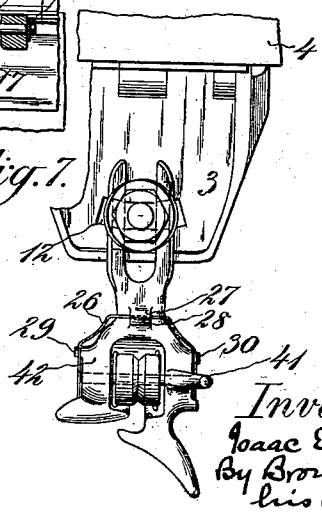


Fig. 7.



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UNITED STATES PATENT OFFICE.

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THREAD-GUIDE.

988,283. Specification of Letters Patent. Patented Mar. 28, 1911.

Application filed April 21, 1908. Serial No. 428,332.

To all whom it may concern:

Be it known that I, ISAAC E. PALMER, a citizen of the United States, and resident of Middletown, in the county of Middlesex and State of Connecticut, have invented a new and useful Improvement in Thread-Guides, of which the following is a specification.

My invention relates to a thread guide for use in spinning and twisting machines, with the object in view of providing a guide which will permit the thread to pass over it freely and smoothly without any liability to chafe it or cut it; which may be readily threaded; which will retain the thread against liability of displacement on the face of the pulley, and which may be adjusted either laterally or longitudinally to bring the guide into alinement with the spindle.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 represents so much of a spinning machine as will suffice to show the practical application of the guide, the machine being shown in front elevation with one of the guides thrown up out of use and others to the right and left of it swung down into position for use, Fig. 2 is an enlarged top plan view of a finger piece and guide, Fig. 3 is an edge view of the same, Fig. 4 is a bottom plan view of the same, Fig. 5 is a transverse section in the plane of the line A—A of Fig. 2, Fig. 6 is a top plan view of a modified form, and Fig. 7 is a bottom plan view of the same.

The frame of the spinning machine is denoted by 1 and may be of any well known or approved form. The spindles are denoted by 2, the finger pieces to which the thread guides are attached are denoted by 3 and are here shown as fastened to the finger-board 4 by means of a hinge piece 5 screwed to the front edge of the board 4. The finger piece here represented is formed of metal and has a marginal downwardly turned flange 6 in the front of which are formed a plurality of notches, in the present instance two, denoted by 7 and 8, to receive the branches 9 and 10 of the bifurcated shank 11 of the guide when the latter is secured in position on the under side of the finger piece. The finger piece 3 is further provided with an elongated curved slot 12 through which the fastening bolt 13 extends to permit the lateral adjustment of the guide and a flanged washer or bearing plate 14 rests in contact with the branches 9 and 10 of the shank of the guide when it is forced home by the fastening nut 15 which screws onto the bolt 13.

While I have shown and described the metallic finger piece in connection with my improved guide, I do not wish to limit my guide structure to a use in connection with such a finger piece alone as it is obviously capable of use in connection with finger pieces of any well known or approved form.

The guide proper comprises a shank 11 already referred to and a bifurcated or slotted head 16 in the opening in which there is mounted a pulley 17 provided with a thread groove 18. The pulley is mounted on a spindle 19 which extends through the walls on the opposite sides of the slot or opening in which the pulley is located and which may be made fast to the pulley so as to rotate therewith, the spindle running freely in its bearings in the walls on the opposite sides of the pulley or the pulley may run freely on the spindle while the spindle is held against rotation in the walls of the head or the pulley may run freely on the spindle and the spindle at the same time rotate freely in the bearings in the walls on the opposite sides of the pulley just as may be found expedient or most desirable, the structure being substantially the same in each case, requiring only the additional frictional engagement of the spindle with the one or the other of the parts named. The pulley itself may be of any suitable material, wood, metal or glass as may be desired, it being desirable to use a material which will present a smooth, glossy surface, little liable of wear under the action of the thread and free from any unevenness or roughness which would tend to injure the thread in passing over it.

The spindle 19 is inserted through one of the walls and then through the pulley, the latter being held in position in the opening in the head 16 and then through the opposite wall. The spindle may be held against displacement in any suitable manner, the means employed in the present instance being, as shown in Figs. 1 to 5 inclusive, swinging keepers 20, 21, consisting of thin strips of metal fulcrumed at 22 and 23 and having their ends beveled as shown at 24, Fig. 3, to engage a stop 25 to arrest their swinging movement in position to cover the end of the

spindle. Instead of these thin strips there may be employed a spring wire 26 as shown in Figs. 6 and 7, formed in one piece, its bight being secured between the lips 27, 28, conveniently formed integral with the shank of the guide, and its opposite ends being sprung over bearings 29 and 30 on the head and under bearings 31 and 32 to hold the branches of the wire in position across the opposite ends of the spindle. The head 16 is further provided with a curved loop extension 33 spaced from and extending over a portion of the periphery of the pulley, in the present instance over about a quadrant's length of the periphery to hold the thread in position on the face of the pulley and prevent it from swinging over the ends of the pulley.

The walls of the curved loop extension 33 terminate at the front in horns 34, 35, one of the horns 34, 35, overlapping the other, in the present instance the horn 34 overlapping the horn 35 by a projection 36, the inner face of which is curved as shown at 37 to form a wall opposite the end wall of the loop in the curved loop section 33 to prevent the thread from unintentional displacement from within the loop, the end of the extension 36 being spaced from the face of the horn 35 to permit the thread to be readily slid along the face of the horns into the loop and into engagement with the face of the pulley guide. To facilitate the drawing of the thread, the front faces of the horns 34 and 35 are beveled as shown at 38, 39, tending to direct the thread to the opening at the side of the loop formed by the horn 34 and the curved loop extension 33.

The guide is further provided, in the present instance, at or near the juncture of the shank 11 and head 16 with a socket or perforation 40 for the reception of a kink arrester not shown which may be formed in such shape as desired and made fast to the guide in said hole or socket. In the form shown in Figs. 6 and 7, the kink arrester 41 is shown formed integral with the head, the modified head here shown being denoted by 42 and in this form, the loop extension denoted by 43 and performing the function of the loop extension 33 in the forms shown in Figs. 1 to 5, inclusive, has its free end merged into the head instead of left free and spaced therefrom as in the former instance.

The frame of the guide, including the shank, head, horns and retaining loop as hereinabove described, may be cast in a single piece and the pulley with its spindle and spindle keepers may be readily attached thereto, the kink arrester being either cast integral to the frame or attached thereto as may be desired.

The structure as a whole is eminently simple and by leaving the rear of the pulley guide exposed it may be kept from accumulation of waste.

It is obvious that changes might be resorted to in the form and arrangement of the several parts without departing from the spirit and scope of my invention; hence I do not wish to limit myself strictly to the structure herein shown and described, but

What I claim is:—

1. A thread guide comprising a pulley for receiving the thread on its face and a support for the pulley provided with a curved loop spaced from and extending along the periphery of the pulley, the said loop being provided with a thread receiving opening through its wall.

2. A thread guide comprising a pulley for receiving a thread on its face and a support provided with overlapping lips spaced from the pulley for retaining the thread on the face of the pulley.

3. A thread guide comprising a pulley for receiving the thread on its face and a support for the pulley provided with horns projecting from the support for directing the thread to the pulley, a horn being provided with an extension overlapping another horn for retaining the thread on the face of the pulley.

4. A thread guide comprising a pulley for receiving a thread on its face, and a support for the pulley provided with overlapping, slanting-faced horns projecting from the support for directing the thread to and retaining it on the face of the pulley.

5. A thread guide comprising a shank, a head, thread directing horns and thread retaining loop formed integral and a pulley mounted to rotate in an opening in the head.

6. A thread guide comprising a shank, a head, thread guiding horns and thread retaining loop formed integral, a pulley located in an opening in the head, a pulley retaining spindle extending through the walls of the head and means for retaining the spindle.

7. The combination with a thread guide provided with an elongated loop, of a metallic finger piece provided with a depending flange at its front and with notches in said flange, said finger piece being further provided with a laterally elongated slot and a fastening bolt passing through said slot and the loop and provided with a nut for forcing the branches of the loop into engagement with the under side of the finger piece.

8. The combination with a thread guide provided with an elongated loop, of a metallic finger piece provided with a depending flange at its front, the said flange having notches formed therein and the finger piece having a laterally elongated slot formed therethrough, a washer provided

with flanges at its opposite sides for partially embracing the loop on the guide and a fastening bolt extending through the finger piece, loop and washer and provided with a nut for clamping the washer to the loop and the loop to the face of the guide in the desired adjustment.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two witnesses, this 18th day of April 1908.

ISAAC E. PALMER.

Witnesses:
FRED E. FOWLER,
ALFRED J. BAIER.