J. E. PREST.

THREAD GUIDE FOR SPINNING OR TWISTING MACHINES.

APPLICATION FILED JAN. 27, 1909.

929,009. **Patented July 27, 1909.**

Fig. 1.

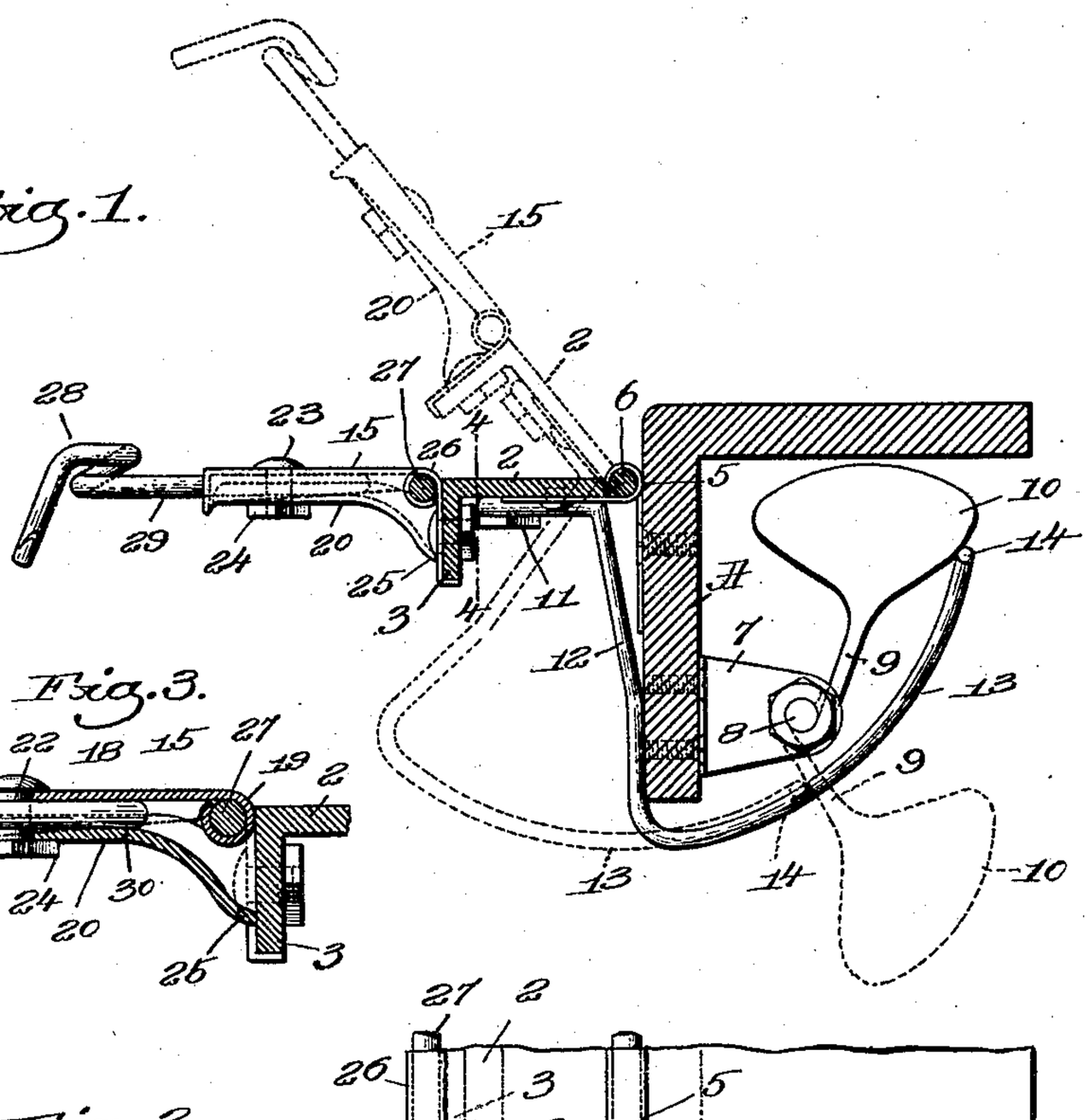


Fig. 3.

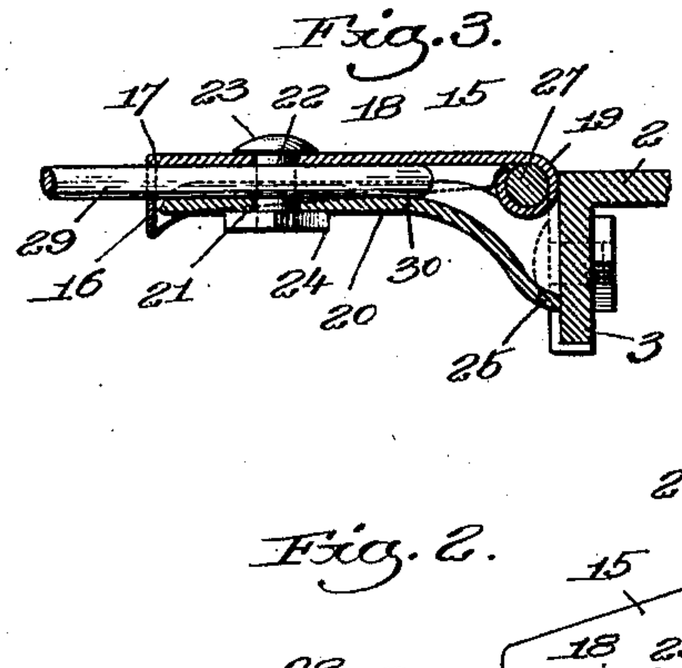
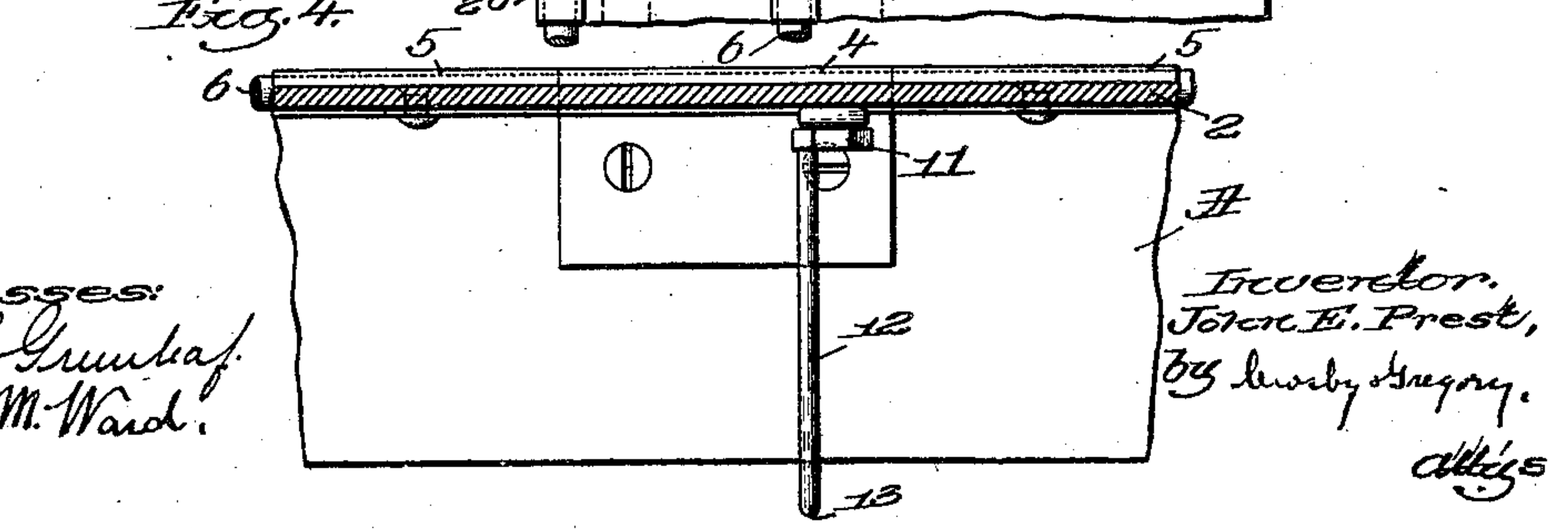


Fig. 2.

Fig. 4.



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UNITED STATES PATENT OFFICE.

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THREAD-GUIDE FOR SPINNING OR TWISTING MACHINES.

No. 929,009. Specification of Letters Patent. Patented July 27, 1909.

Application filed January 27, 1909. Serial No. 474,421.

To all whom it may concern:

Be it known that I, JOHN E. PREST, a citizen of the United States, and resident of Melrose, county of Middlesex, State of Massachusetts, have invented an Improvement in Thread-Guides for Spinning or Twisting Machines, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention has for its object the production of improved thread-guiding means for use in connection with spinning or twisting machines.

In accordance with my present invention I have provided novel means for retaining the thread-board in elevated or raised position when "doffing", the construction and arrangement being such that when the thread-board is lowered to normal position it is relieved of any lifting tendency due to said means. I have also improved the construction of the finger-boards in certain details, to facilitate the more secure clamping therein of the thread-guide in the desired adjusted position, and I have pivotally connected the thread-board with the front of the roller beam in such manner that there is no open space between them, thus obviating the dropping down of lint or fluff between the thread-board and its support.

The various novel features of my invention will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a side elevation and part vertical section of a thread guide embodying one practical form of my invention, the thread-board and attached parts being shown by dotted lines in position for doffing. Fig. 2 is a top plan view of the device illustrated in Fig. 1, one of the finger-boards being broken out to show certain details of construction; Fig. 3 is a horizontal sectional view of a finger-board, on the line 3—3, Fig. 2; Fig. 4 is a vertical sectional detail on the line 4—4, Fig. 1, looking toward the right, to show more clearly the connection between the thread-board and its support.

Referring to the drawing, the usual roller-beam A provides a fixed support for the thread-board 2, preferably made of angle-iron and having a depending flange 3 at its front edge, said thread-board being pivotally connected with the roller-beam by a hinge connection, comprising tubular, laterally separated metallic eyes 4 secured to the front of the roller-beam and in axial alinement, and intervening tubular eyes, as 5, attached to the thread-board, the number of such eyes in each set depending upon the length of the thread-board. The thread-boards in practice may be from 10 to 12 feet in length, and as shown in Fig. 2 the adjacent ends of the tubular eyes are set as close together as possible without interfering with the free swinging movement of the thread-board, a connecting rod or pintle 6 being extended through the two sets of eyes to complete the pivotal connection. By reference to Figs. 1 and 2 it will be seen that the pivotal connection completely fills the space between the roller-beam and the adjacent rear edge of the thread-board, effectually preventing lint or fluff from dropping down at such point and onto the spindles or other part of the apparatus below, such closure being maintained at all times irrespective of the position of the thread-board.

In order to maintain the thread-board elevated in the position shown in dotted lines, Fig. 1, for doffing or for other purposes, I have provided simple and efficient means, so constructed that when the thread-board is lowered there is no tendency on the part of such means to elevate it. In the present embodiment of my invention I attach a bracket 7 to the back of the roller-beam A and fulcrum thereon at 8 a lever 9 having its free end enlarged or weighted, as at 10, the shape of the enlargement being such that at all times its center of gravity is at the right of a vertical line through the fulcrum 8, so that the weighted lever always tends to descend to dotted line position, Fig. 1. Upon the underside of the thread-board 2 I attach at 11 a depending arm 12, extended down below the roller-beam and rearwardly curved and prolonged beneath it at 13, so that such prolongation and its laterally bent free end 14 will always swing clear of the lower edge of the roller-beam. The laterally bent end 14 is beneath and in sliding engagement with the weighted lever 9, as shown, and I have also arranged the part 12 of the arm to normally rest against the front of the roller-beam and thereby form a stop to sustain the thread-board in operative, full-line position, Fig. 1.

I have herein shown only one of the controlling devices for the thread-board, but it

will be understood that two or more of such devices may be used for each thread-board, as may be found convenient.

When the thread-board is elevated the end 14 of the attached arm 12 moves in a circular path downward and frontward, sliding along the weighted lever and gradually approaching the fulcrum 8 thereof, such decrease in the distance between the fulcrum and the point of engagement of the lever 9 and end 14 of the arm increasing the effective action of the weight 10. The latter is so proportioned with relation to the weight of the thread-board and parts mounted thereon that when the lever 9 is in dotted line position, Fig. 1, it will act through the arm 12, 13 with just sufficient power to retain the thread-board elevated, and in stable equilibrium, but when the thread-board is down in normal position the point of engagement of the arm and the weighted lever is so far from the fulcrum 8, and above it, that the lifting tendency of the weighted lever upon the thread-board is eliminated. This is facilitated by the position of the weight or enlargement 10 so nearly above its fulcrum, as will be apparent, and it will be seen from Fig. 1 that the fulcrum 8 is located below the pivotal connection of the thread-board and roller-beam and between such connection and the path of movement of the free end 14 of the arm fixedly attached to the thread-board.

The controlling means described is very simple, is out of the way, the greater part of it being located behind the roller-beam, and while it is effective when needed it has practically no effect upon the thread-board under normal conditions.

I have herein shown the finger-boards as composed of two metallic members or parts, the upper member 15 having its front and side edges downturned, the front edge 16 having an aperture 17 therein, and a laterally elongated slot 18 is made in the flat body portion of the member, the latter being bent to form a tubular eye 19 at its inner end. The lower member 20 fits in between the downturned edges of member 15 and has a laterally elongated slot 21 registering with the slot 18, to receive a clamping bolt 22, headed at 23 and set up by a nut 24 bearing against the bottom of the member 20, the latter being bent down to form a stop 25, adapted to abut against the flange 3 of the thread-board and maintain the finger-board in horizontal position. Tubular eyes 26 attached to the flange 3 of the thread-board are interposed between the eyes 19 of adjacent finger-boards, in alinement therewith, and a pintle 27 connects such parts so that each finger-board is individually hinged to the thread-board and pivotally movable relatively thereto, as is usual.

The thread-guide proper is made of stout wire, bent to form a guide-eye or pig-tail 28 of any desired form, at the outer end of the straight shank 29, extended rearward through the aperture 17 in the front of the finger-board, the inner end of the shank being bent back upon itself at 30 between the upper and lower members 15 and 20 of the finger-board. As shown in Fig. 2 the sides of the bend 30 closely embrace the clamping bolt 22, so that the latter has a better control over the thread-guide, and by loosening nut 24 the bolt can be moved laterally in the slots 18 and 21 to change the lateral adjustment of the eye 28, and at such time the shank can be moved in or out for purposes of adjustment. When the nut 24 is set up the bend 30 of the shank is tightly and securely clamped between the upper and lower members of the finger-board, the close relationship between the clamping bolt and the sides of the bend 30 serving to increase the security of the clamp when set up.

All the parts of the mechanism herein shown are made of metal, possessing great strength and rigidity and of relatively light weight, and the smooth metal surfaces can be readily kept clean, the heads of the clamping bolts substantially covering the slots in the top of the finger-boards.

Various changes or modifications may be made by those skilled in the art without departing from the spirit and scope of my invention as set forth in the claims appended hereto.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. The combination, with a roller-beam and a thread-board hinged thereto, of an arm fixedly attached to and depending from the thread-board and extended under the roller-beam, and a lever fulcrumed back of the roller-beam, in sliding engagement with the free end of said arm and provided with means to swing the lever downward when the thread-board is raised, movement of the free end of the arm toward the lever-fulcrum causing said means to act with increasing force and hold the thread-board lifted.

2. The combination, with a roller-beam and a thread-board hinged thereto, of a swinging weight, and means intermediate the weight and the thread-board, and cooperating with each to cause the weight to maintain the thread-board elevated when raised and when lowered to relieve it of substantially all the lifting influence of the weight.

3. The combination, with a roller-beam and a thread-board hinged thereto, of a weighted lever fulcrumed on the roller-beam, and an arm fixedly attached to the thread-board and having its free end in sliding engagement with and movable along said lever toward and from its fulcrum as the thread-

board is raised and lowered, decrease of the leverage rendering the weighted lever effective to hold the thread-board raised.

4. A thread-board, a fixed support on which it is pivoted, and an arm fixedly attached to and depending from the thread-board and extended under the support, combined with a weighted lever, and a fixed fulcrum on which it rocks in a vertical plane, said lever having a sliding connection with the free end of the arm below and behind the pivot of the thread-board, lifting of the latter moving the free end of the arm toward the lever fulcrum to thereby render the weight effective to hold the thread-board lifted.

5. A roller-beam, and a thread-board pivotally mounted on the front thereof, combined with an arm fixedly attached to and depending from the thread-board and normally resting against the roller-beam to form a stop for the thread-board, said arm being curved rearwardly under said roller-beam, and a weighted lever fulcrumed on the back of the latter below the pivot of the thread-board and between such pivot and the path of movement of the free end of the arm, the lever resting upon and slidably engaging such free end, upward movement of the thread-board moving the free end of the arm toward the lever fulcrum to thereby render the weight effective to maintain the thread-board lifted.

6. A thread-board, a roller-beam, and a pivotal connection between it and the thread-board and comprising two sets of tubular eyes arranged in alinement and the eyes of one set alternating with the eyes of the other set and individually attached to the thread-board and roller-beam, respectively, and a pintle extended through all of said eyes, whereby the connection is substantially continuous throughout the length of the thread-board and at all times closes completely the space between the roller-beam and the adjacent edge of the thread-board.

7. A thread-board, a series of laterally-separated hinge members attached to its rear edge and each provided with a single tubular eye extending the length of the hinge member, a roller-beam, hinge members attached thereto each provided with a single tubular eye extending the length of the hinge member, the eyes of one set of hinge members alternating and alining with the eyes of the other set, and a pintle extended through adjacent alined eyes, one set of eyes filling the spaces between the other set, to completely and at all times close the space between the roller-beam and the adjacent edge of the thread-board.

8. The combination, with a finger-board comprising upper and lower metallic members having laterally elongated and registering slots, the upper member having a downturned, apertured front edge, of a thread guide having its shank passed through the aperture and bent back upon itself at its inner end between the slotted portions of said members, and a clamping bolt connecting said members, extending through the slots therein and closely embraced by the sides of the bend in the shank, to clamp the thread guide in position, angular change in the position of the shank to cause lateral adjustment of the guide being effected by lateral movement of the clamping bolt in the elongated slots.

9. The combination, with a finger-board comprising laterally slotted upper and lower metallic members, the upper member having a downturned, apertured front edge, of a headed clamping bolt depending through the slots and provided with a nut at its lower end, and a thread-guide having its shank passed through the aperture and interposed between the upper and lower members and bent back upon itself to closely embrace the bolt, lateral movement of the latter in the slots changing the angular position of the shank and effecting lateral adjustment of the thread guide.

10. The combination, with a support and a thread-board hinged thereto, of a swinging weight, a fixed fulcrum therefor, and means between the weight and the thread-board, fixedly attached to one and in sliding engagement with the other of such parts, to increase the effective action of the weight and maintain the thread-board raised when swung upward and when lowered to relieve it of the lifting tendency of the weight.

11. The combination, with the roller-beam and a thread-board hinged thereto, of a lever fulcrumed on the roller-beam below and behind the hinge of the thread-board, means to swing the free end of said lever downward below its fulcrum, and an arm fixedly attached to the thread-board and extended rearwardly under the roller-beam and upcurved at its free end to slidably engage said lever, elevation of the thread-board causing the free end of the arm to descend and engage the lever near and below its fulcrum, the increased leverage of the means to depress the lever then acting with maximum effect to retain the thread-board elevated. lowering of the latter causing the free end of the arm to rise and engage the lever above and at a distance from its fulcrum, to hold the lever up and reduce to a minimum the action of the means for depressing it.

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

JOHN E. PREST.

Witnesses:
JOHN C. EDWARDS,
FREDERICK S. GREENLEAF.