

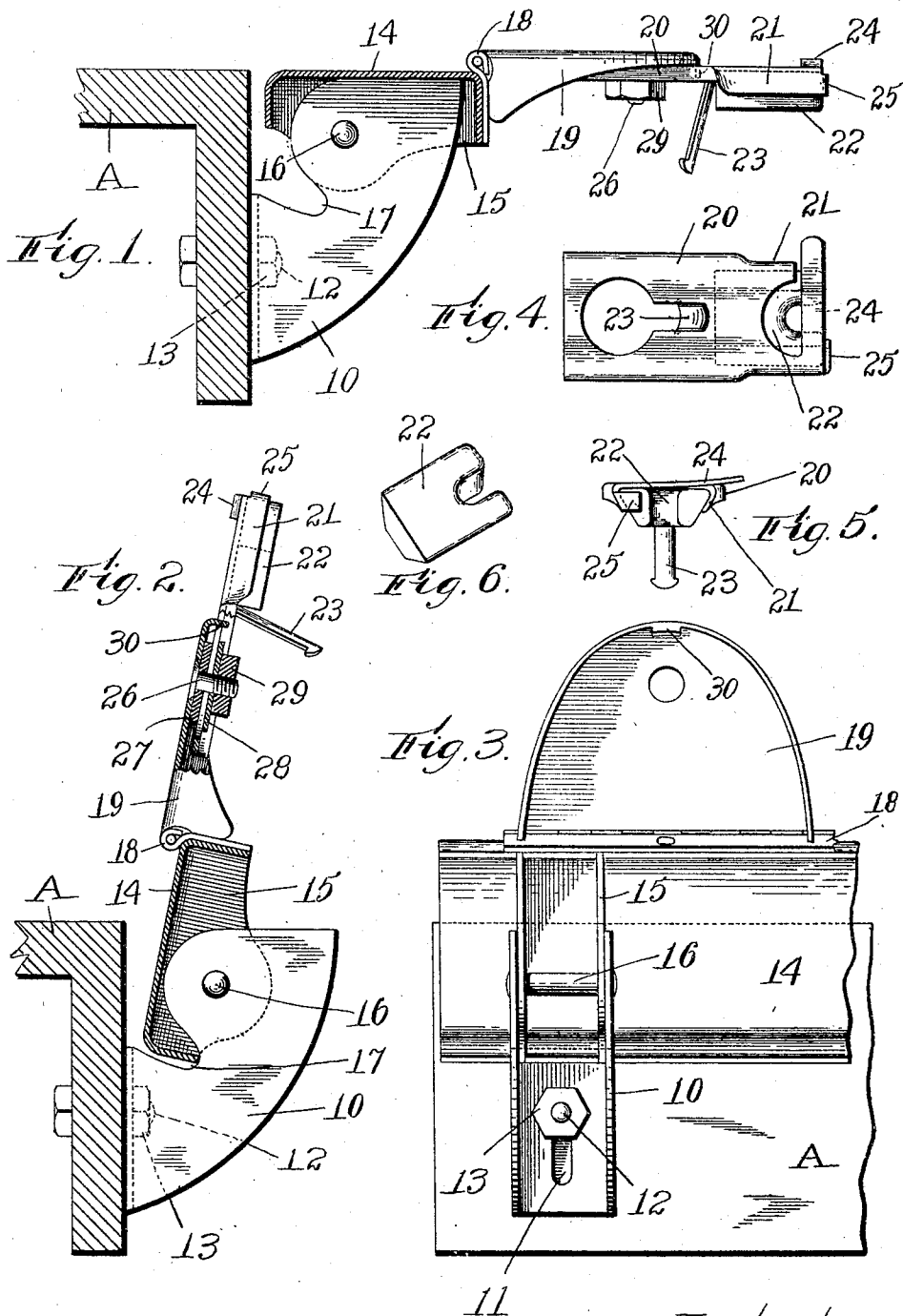
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L. T. HOUGHTON.

THREAD BOARD FOR SPINNING OR TWISTING MACHINES.

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UNITED STATES PATENT OFFICE.

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THREAD-BOARD FOR SPINNING OR TWISTING MACHINES.

No. 795,769.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed October 17, 1902. Serial No. 127,748.

To all whom it may concern:

Be it known that I, LEWIS T. HOUGHTON, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Thread-Board for Spinning or Twisting Machines, of which the following is a specification.

This invention relates to an improved construction for guiding threads to the spindles of spinning or twisting machines.

The especial objects of this invention are to provide an entirely-metal structure, so as to dispense with the wooden thread-board or other parts which are liable to warp or change their shape; to provide means for pivotally supporting the thread-board-rail so that it will be partly counterbalanced to remain up unsupported while occupying a forwardly-inclined position; to construct the parts so that they cannot be thrown back to hit the drawing-rolls or other operating parts of the machinery; to provide a composite thread-guide construction consisting partly of porcelain and partly of a metal retaining-finger for holding a thread in the notch of the piece of porcelain, and to provide a two-point connection between the thread-guide and finger-head, one of said points of connection being fixed and the other point being adjustable, whereby a single clamping device utilized as the movable point of connection will permit in-and-out and sidewise adjustment of the thread-guide and the action of which when tightened will be supplemented by the fixed point of connection.

To these end this invention consists of the parts and combinations of parts, as hereinafter described and more particularly pointed out in the claims at the end of this specification.

In the accompanying drawings, Figure 1 is a side view, partially in section, of an apparatus constructed according to this invention. Fig. 2 is a similar view showing the parts thrown up. Fig. 3 is a front view thereof. Fig. 4 is a detail plan view of one of the thread-guides. Fig. 5 is a front view thereof, and Fig. 6 is a detail perspective view of one of the notched pieces of porcelain.

In the ordinary forms of spinning and twisting frames a wooden thread-board rail is pivotally supported from the roll-rail or other part of the frame of the machine and the

thread-guides are supported at the forward edge of the wooden thread-board rail. The individual thread-guides are usually separately pivoted, so that they can be turned up independently, or all the thread-guides can be raised by turning back the thread-board rail when the frame is to be doffed. A number of improvements have been made in the construction of the thread-guides themselves and the parts which directly support them, but in nearly all spinning and twisting frames the wooden thread-board rail has been retained. In practice the use of a wooden thread-board rail is objectionable, as the same is liable to warp or change shape, and inasmuch as oil soaks into the wooden thread-board a wooden construction cannot be kept as clean as metal. When the thread-guides are thrown up by lifting the thread-board, it sometimes happens that the thread-guides will be thrown back so far as to hit the drawing-rolls or other moving parts of the machine.

The especial object of this invention is to provide an entirely metal construction in which the parts are so supported that they will always occupy accurate positions and to provide a self-clearing hinge for supporting the thread-board rail.

A still further object of this invention is to provide a special form of composite thread-guide consisting of a notched piece of porcelain with a metallic retaining-finger or cross-piece for holding the thread in the notch thereof.

Referring to the accompanying drawings for a detail description of an apparatus constructed according to this invention, A designates the roll-rail or other part of the framework of a spinning or twisting machine. Extending from the front of the roll-rail A are sheet-metal brackets 10. As shown most clearly in Fig. 3, the sheet-metal brackets 10 are slotted at 11 to receive fastening-bolts 12, threaded onto which are the nuts 13. By supporting the parts in this manner a considerable range of adjustment may be secured, so that the thread-guides can be raised or lowered to suit different lengths of traverse of a lifting-rail.

The thread-board rail 14 consists of a piece of sheet metal substantially U-shaped or angle-shaped in cross-section. Riveted or otherwise secured in the sheet-metal thread-board rail 14 are U-shaped or angle-shaped hinge-

pieces 15, which fit down between the arms of the brackets 10 and are pivoted therein on rivets 16. The rivets 16, about which the sheet-metal thread-board rail 14 turns, are located some distance in front of the rear edge of the thread-board rail.

The upper surface of the brackets 10 form stops for holding the parts in their horizontal position, and the brackets 10 are notched at 17 to receive the rear flange of the thread-board rail 14, which will act as a stop.

When the thread-board rail and the parts carried thereby are turned up, as illustrated in Fig. 2, the rear flange of the thread-board rail by engagement with the brackets 10 will form a stop for preventing the thread-board rail from being turned back to a rearwardly-inclined position. When the parts are raised, as shown in Fig. 2, the center of gravity of the thread-board rail and its attachments will be thrown up, so as to be over or nearly over the pivots 16. If the center of gravity is thrown slightly to the rear of the pivot 16, the weight of the parts will hold them in their raised position. In practice, however, in order to sustain the parts in the position illustrated in Fig. 2 it is not necessary that the center of gravity should fall to the rear of the pivotal points, and even if the center of gravity is slightly in front of the pivotal points I have found in practice that the friction of the hinges is sufficient to maintain the parts in raised position when their center of gravity is slightly in front of the pivotal points—that is to say, in a spinning-frame equipped according to my invention when the thread-board is thrown back to its farthest position it will still extend out in a forwardly-inclined direction, so that it cannot be thrown back to hit any of the moving parts of the frame, and the parts are sustained in this position by reason of the fact that their center of gravity is substantially over the pivotal points, whether slightly to the front or rear thereof. A further advantage in this construction resides in the fact that the thread-board rail will be supported on a self-clearing hinge—that is to say, when the thread-board rail is raised a sufficient clearance will be left between its rear edge and the frame of the machine to permit waste and dust to fall through without interfering with the return of the thread-board rail to horizontal position, whereas in ordinary spinning-frames, in which the wooden thread-board rail is hinged at its rear edge to the roll-rail or other framework, the oil and dirt are liable to accumulate behind the thread-board rail, preventing the same from returning to horizontal position and requiring a frequent cleaning and scraping off of the parts before the thread-guides can be swung down into place.

Riveted or otherwise secured to the front edge of the thread-board rail 14 is a hinge-strip 18, having ears arranged to intermesh

with ears on the thread-boards 19 to form the hinge-joints for connecting the thread-boards 19 to the thread-board rail 14.

The form of thread-guide which is preferably employed is most clearly illustrated in Figs. 4 to 6, inclusive. As shown therein, each of these composite thread-guides comprises a dovetailed piece of porcelain having a thread-receiving notch at its forward end and a sheet-metal holder 20, having its edges bent down, as at 21, to form guides for receiving the dovetailed edges of the porcelain. The body portion of the holder 20 is stamped out and an arm 23 is bent down therefrom or secured thereto to form a kink-arrester, while at the same time serving as a stop for the rear edge of the porcelain. Extending across the porcelain, so as to project slightly from one side thereof, is a retaining arm or finger 24. The free end of the retaining arm or finger 24 is preferably bent slightly upward, so that the same will serve as a guide, permitting a thread to be snapped beneath the same into the notch of the porcelain piece 22, thus retaining the thread in place. In some cases in order to hold the porcelain in its holder 20 a small retaining-tongue 25 may be bent over in front of the porcelain 22, so that the porcelain cannot possibly work out of place. The composite thread-guide as thus constructed is fastened to the thread-board 19 by means of a screw 26, washers 27 and 28, and a nut 29, and the thread-guide is held from turning or twisting by means of a tongue 30. The size of the hole stamped in the plate 20 is considerably larger than the diameter of the fastening-screw 26. By means of this construction the thread-guide may be adjusted to different positions with respect to its thread-board and can be rigidly clamped in place, so that it cannot be turned or twisted—that is to say, by means of this construction a two-point bearing is provided for fastening each thread-guide, one point of bearing being provided by engagement with the tongue 30 and the adjustable point of bearing being provided by the clamping means. In the use of this construction whenever the clamp of a thread-guide is loosened the thread-guide can be moved in and out and can also be swung sidewise to bring the thread-guide into exact position over the spindle in connection with which the same is to be used. The accurate adjustment of a thread-guide with respect to its spindle is a necessity for perfect operation of a spinning-frame. After a thread-guide has been set it is also important that its means of fastening be fixed against the possibility of the thread-guide being knocked or moved out of adjusted position. In wooden thread-board constructions each of the thread-guides is threaded into a block of wood and its only capacity for in-and-out adjustment is a complete revolution of its screw-thread, while its only capacity for side-

wise adjustment is the bending of the thread-guide itself. To remedy the defects of ordinary wooden thread-boards, a number of different constructions have been devised. In all such constructions, however, it has been proposed either to provide a thread-guide with two independent means of adjustment, one allowing the thread-guide to be moved sidewise and the other allowing the thread-guide to be moved in or out, or where it has been proposed to use a single fastening, permitting a universal adjustment of the thread-guide, the fastening has been of such character that it would not hold the thread-guide from being readily knocked or swung out of place.

I regard my fastening devices which I employ for fastening the thread-guides to the finger-heads as a matter of great practical importance in view of the necessity for accurate thread-guide adjustment and in view of the fact that by my construction I am enabled to use a single clamp, which when loosened will permit any desired thread-guide adjustment and which by reason of the two-point engagement will hold a thread-guide so that the same cannot be accidentally displaced from adjusted position.

My thread-guide fastening is applicable to other different types of thread-guides from the particular thread-guide I have herein shown and described, and in applying my invention to different thread-boards or to different thread-guides I may employ any desired construction which will afford two separate points of support for a thread-guide, one of which is fixed and the other of which is adjustable.

Numerous other changes may be made in practicing this invention by those who are skilled in the art without departing from the scope thereof as expressed in the claims. It is not desired, therefore, to be limited to the details of construction which have been herein shown and described; but

What is claimed, and sought to be secured by Letters Patent of the United States, is—

1. In a spinning or twisting frame, the combination of a thread-board rail, and means for pivotally supporting the same upon an axis far enough in front of its rear edge so that the center of gravity of the thread-board rail and its attachments will be substantially over the axis thereof while the parts are still in a forwardly-inclined position.

2. In a spinning or twisting frame, the combination of a sheet-metal thread-board rail, brackets, and means for pivotally supporting the thread-board rail on said brackets so that it may be turned up about an axis located in front of its rear edge to bring the center of gravity of the thread-board rail and its attachments substantially over the axis about which it turns while the parts are still occupying a forwardly-inclined position.

3. In a spinning or twisting frame, the combination of a sheet-metal thread-board rail substantially of channel-beam cross-section, a supporting-bracket extending up between the flanges of the thread-board rail, and means for pivotally connecting said parts, the bracket being notched to receive the rear flange of the thread-board rail which acts as a stop for limiting the turning movement of the thread-board rail.

4. In a spinning or twisting frame, the combination of a thread-board rail, means for pivotally supporting the same so that it may be turned up about an axis located in front of its rear edge, a thread-board pivoted to the thread-board rail, and a composite thread-guide consisting of a notched piece of porcelain with a sheet-metal holder having a retaining-tongue extending across the notch of the piece of porcelain.

5. A composite thread-guide comprising a piece of porcelain having dovetailed sides, with a thread-receiving notch at its forward end, and a sheet-metal holder having its edges bent down to form ways for receiving the dovetailed sides of the piece of porcelain, and having a cross-piece or tongue for holding the thread in the notch at the end of the piece of porcelain.

6. A composite thread-guide consisting of a piece of porcelain having dovetailed sides, and a sheet-metal holder having turned-under edges forming ways for holding the porcelain, and having an arm extending down from its body portion to act as a kink-arrester, and also to act as a stop for the rear edge of the porcelain.

7. In a construction of the class described, the combination of a thread-board, a thread-guide adjustable both sidewise and in and out relatively to said thread-board, and means for fastening and clamping the thread-guide on the thread-board including two separated holding-points.

8. In a construction of the class described, the combination of a thread-board, and thread-guide, a fixed bearing on the thread-board for the thread-guide that serves as a fulcrum on which the guide may swing and permits the in-and-out movement of the thread-guide, and a clamp for the thread-guide at a distance from said fixed bearing.

9. In a construction of the class described, the combination of a thread-board, a thread-guide, and means for fastening the thread-guide to the thread-board comprising a clamp permitting a sidewise and in-and-out adjustment of the thread-guide when loosened, and a separate point of bearing of the thread-guide and thread-board at a distance from the clamp and assisting in holding the thread-guide from displacement when the clamp is fastened.

10. A composite thread-guide consisting of a piece of porcelain having dovetailed sides,

and a notch at its forward end, and a sheet-metal holder having turned-down edges forming ways to receive the piece of porcelain, with an arm extending down from its body portion to form a kink-arrester, and also serve as a stop for the rear edge of the porcelain, and having a retaining-finger bent across the front of the porcelain to lock the same in place.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

LEWIS T. HOUGHTON.

Witnesses:

LOUIS W. SOUTHGATE,
PHILIP W. SOUTHGATE.