W. O. ALDRICH.

THREAD BOARD.

APPLICATION FILED AUG. 3, 1909.

942,607. Patented Dec. 7, 1909.

Fig: 1,

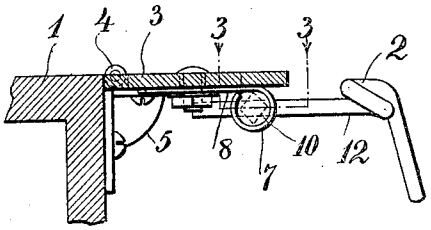


Fig: 2,

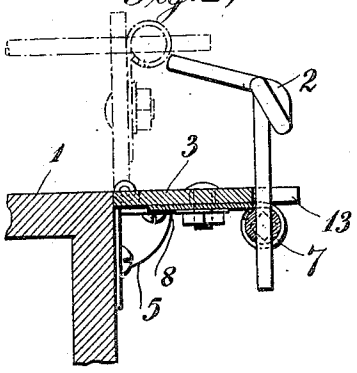


Fig: 3,

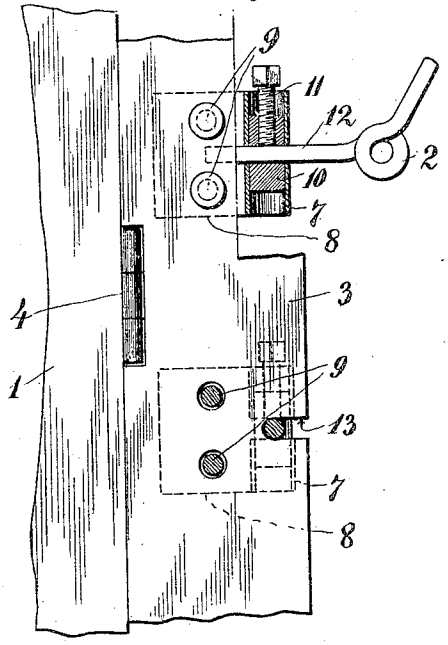


Fig: 4,

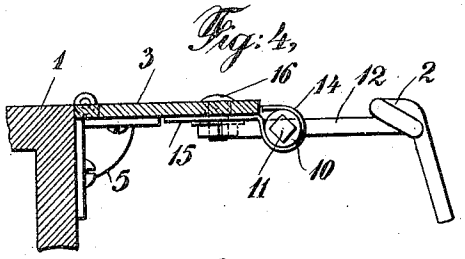


Fig: 5,

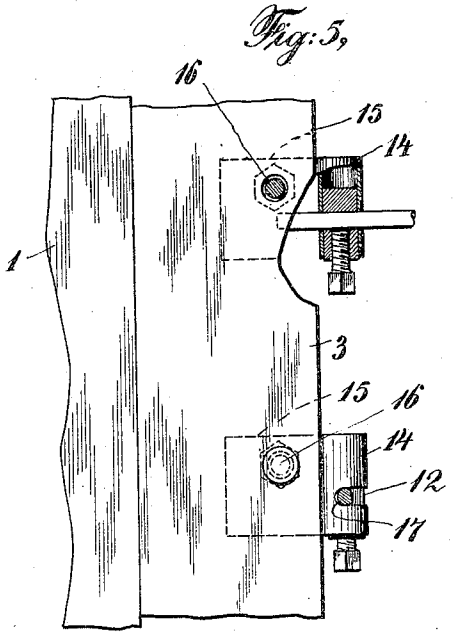
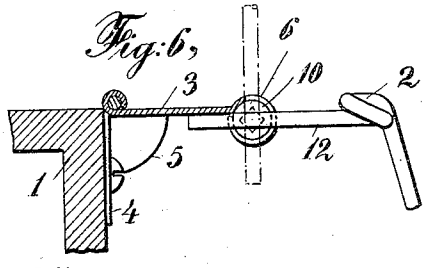


Fig: 6,



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THREAD-BOARD.

Specification of Letters Patent. Patented Dec. 7, 1909.

942,607. Application filed August 3, 1909. Serial No. 511,005.

To all whom it may concern:

Be it known that I, WILLIAM O. ALDRICH, a citizen of the United States, residing at Whitinsville, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Thread-Boards, of which a full and true specification follows.

The object of the invention is to provide improved means for the support and adjustment of the thread guides and to simplify the construction and number of parts in the thread boards of spinning or twisting machines and to improve the appearance and cleanliness of such mechanism. These results are accomplished, in part, by hinging the wire thread guides directly upon the thread board rail and combining in their hinge connections with the rail, the provisions for their necessary adjustment, whereby the thread guide shanks spring directly from the outer margin of the continuous thread board rail without the interposition of the usual hinged finger-heads, but have provisions for the same lateral and longitudinal adjustment as are found in such finger-head constructions. The results mentioned are further attained by the special arrangement and construction of the hinge joint between the guide wire and the rail, whereby a large surface bearing is provided for such joint, having the least likelihood of binding or wearing loose, and whereby the adjustment of the thread guide therein may be readily made and securely fixed.

One of the special objects of the invention is the provision of a thread board mechanism which will have a continuous smooth upper surface extending substantially unbroken from the roller beam close up to the vertical plane of the spindles and forming an effective protecting cover for the parts beneath, shielding them from falling dirt and waste, and which presents no protuberances or crevices to obstruct the cleansing of the thread board, and further to provide a mechanism of this character that is free to be turned back toward the vertical plane of the roller beam, when doffing the spindles, leaving, when thus turned back, a clear open space in front of the roller beam devoid of projecting apparatus or thread board supports such as might interfere with the work on the spindles or the spindle bands or other parts below or in front of the roller beam requiring attention.

These and other advantages which, if not hereinafter pointed out, will be obvious to those familiar in this art, are attained or rendered available by my present invention.

The forms of the invention which are the subject of the following detailed specifications, will be understood as taken merely for purposes of illustration of the principle of the improvement and of the best way in which I have at the present time, embodied that principle, and will not be regarded as indicating or imposing any limitation upon the scope of the invention.

In the drawings forming a part hereof, Figure 1 is a cross-section of a roller beam with a thread board mechanism of this invention applied thereto, the thread board rail being also in section; Fig. 2 is a similar view with the thread guide turned up and illustrating its operation; Fig. 3 is a top plan of Fig. 1 with one of the hinge joints in horizontal section, on line 3—3 of that figure; Fig. 4 is a cross-section of a slightly modified thread board and roller beam; Fig. 5 is a top plan thereof, with one joint broken off to a horizontal central section; and Fig. 6 is a further and simplified form.

It will be understood that the roller beam, marked 1 in the above figures, is the usual roller beam or equivalent part on which the rollers of a spinning, twisting or like machine are supported, or above which they are mounted, being a longitudinal member extending the full length of the machine. The yarn from these rollers (which are not shown in the drawings) passes through the guide eyes 2 of the thread board mechanism of this invention to the usual upright spindles (also omitted from the drawings) which are mounted directly beneath them.

It is the object of the thread board mechanism, among other things, to provide supporting means for the guide eyes which will be capable of precise and close adjustment to center them accurately in line with the axes of their spindles. The yarn is spun or twisted in its passage from the rollers to the spindle, and is wound on the latter in the form of thread. When the spindles are full, the thread board mechanism, of which the guide-eyes are a part, is turned back out of the way in order to permit the removal of the bobbin containing the thread.

The thread board of this invention comprises a thread board rail 3, preferably made of a flat metallic plate, and mounted in hinged relation to the roller beam, by means of the hinges 4, which are disposed at intervals along its length. The thread board rail or plate is continuous with the roller beam, as indicated in Figs. 3 and 5, being closely hinged thereto so that there is no appreciable space or crevice between them when the rail is in its operative, that is to say, its horizontal, position, in which position it is suitably supported, as by means of the small brackets 5, and it is preferably flush with the top of the roller beam, or nearly so, when in this position. Its primary function is to form the support for a plurality of the guide-eyes, whereby all or a section of them may simultaneously be turned back toward the vertical plane of the roller.

The outer margin of the thread board rail is supplied with a plurality of hinge knuckles suitably arranged to support each of the thread guides in properly spaced relation with respect to the spindles. These knuckles may be formed integrally with the rail by curling the edge of it, as indicated at 6 in Fig. 6, or they may be, and preferably are, formed of separate pieces having attachment leaves or flanges which are secured to the rail so as to be capable of some adjustment of position thereon. In Figs. 1 to 5, the knuckles are thus made.

In Figs. 1 to 3 the knuckles are marked 7 and are formed from a flat blank rolled or curled into tubular form at one end, with the other end left flat and forming the attachment leaf 8, which is provided with two bolt-holes. The leaf is secured to the under side of the thread board rail so that the axis of the knuckle is below the level thereof, and the bolts 9 which fasten it to the rail fit their bolt-holes rather loosely so that the knuckle is capable of adjustment with respect to the rail. The knuckle 7 forms the support of a rotary cylindrical block or barrel 10 which is confined therein and serves as the pintle of the joint between the guide and rail. The barrel is preferably of less length than the knuckle and is placed centrally therein so as to be protected as much as possible from accumulations of dirt and waste, and is also cross-perforated and, further, provided with a longitudinal or axial bore, internally threaded and adapted to receive a set-screw 11, the head of which projects beyond the open end of the tubular support or knuckle so as to be accessible. The guide-eye 2, which may be the usual wire pig-tail or any other form of guide-eye, has a shank 12 which is received and longitudinally adjustable within the cross-perforation of the barrel, as indicated, being secured in place therein by the set screw 11 in the obvious manner. The knuckle is slotted to receive the shank, which, when inserted, constitutes the sole means of retaining the barrel within the knuckle, and the slot in the knuckle extends transversely at least 90 or 100 degrees of its circumference so that the shank and barrel may rotate upwardly from horizontal position to an upright position. The slot may, however, extend entirely through the knuckle, or it may be of such length (which form is preferred) that its end or ends will serve as an abutment or stop to limit the downward movement of the guide and hold it in horizontal position. In the form of Figs. 1 to 3, this means of stopping the thread guide is the sole means employed for that purpose. It will be observed that the knuckle in this form is situated within the outer margin of the thread-board rail and that the latter is slotted, as shown at 13, to accommodate the thread guide when turned up (Fig. 2). In this form the entire hinge and guide-adjusting mechanism is sheltered by the rail itself, and is thus most easily kept in a cleanly condition.

In the form of thread board shown in Figs. 4 and 5, the hinge knuckle 14 supports or confines the same pintle barrel 10 with the same longitudinal or axial set screw 11, and may also support the same kind of wire thread guide, having a shank 12, but the said knuckle 14 is formed of a blank that is curled or rolled upwardly to form the knuckle and is secured to the margin of the thread board rails so that the knuckle projects beyond the edge thereof and is flush at its upper side with the top of the rail, or nearly so. The attachment leaf 15 of this knuckle has but a single bolt-hole and bolt 16 which is somewhat offset from the line of the thread guide shank to allow the latter to escape it when thrust inwardly. Other modes of adjustably attaching the knuckles to the rail will meet the purposes of this invention, provided they possess the adequate strength and security. The axis of the knuckle 14 more nearly coincides with the plane of the rail, so that the inward extremity of the thread guide shaft—that end of it which projects beyond the hinge axis—may abut against the under side of the rail in order to hold the guide in its horizontal position, and such abutment means may be used in connection with the abutment means described for Figs. 1 to 3, if desired. The upper end of the slot in the knuckle, however, is preferably so located (see 17, Fig. 5) that it holds the guide in a nearly vertical position, when turned up, and so prevents the inner end of the shank from projecting outwardly toward the spindles.

Coming now to the form of the invention illustrated in Fig. 6, in which the knuckles 6 are formed integrally with the rail, as above stated, the thread guide shanks 12 in-

tersect these knuckles, as in the case of all the preceding forms, and are pivotally supported therein by the same pintle barrel 10, in which it is also longitudinally adjustable, but there is no provision for lateral adjustment of the guide-eye in this form, it being intended that the operator will use his pliers to bend the shank as needed and as is done in the case of wooden finger-heads and preferred by many. The axes of these integral knuckles may be disposed as shown in Fig. 6, so that the inner end of the shank will find an abutment against the under side of the rail, for holding it horizontal, and the upper end of the shank-slot is preferably disposed as in Fig. 5 so as to stop the shank in its vertical position and thus keep the inner end from projecting outwardly beyond the rail. This position is indicated in Fig. 6 by dotted lines.

I claim:

1. In a thread-board, a thread-board rail mounted in hinged relation to the roller beam and free to be swung upwardly and backwardly toward the vertical plane thereof for doffing, in combination with a plurality of thread guides pivotally carried on horizontal axes by the outer margins of said rail and with the inner extremites of their shanks extending beneath the said rail.

2. In a thread-board, a thread-board rail mounted in hinged relation to the roller beam, and a plurality of thread guides pivotally carried by, and having shanks extending beneath the outer margin of said rail and inwardly and outwardly adjustable with respect to said rail.

3. In a thread-board, a horizontal supporting plate, in combination with a wire thread guide hinged on a horizontal axis on the said plate and having a shank projected inwardly beyond its axis and abutting against the under side of said plate to limit the hinging movement of said thread guide.

4. In a thread-board, a thread-board rail mounted in hinged relation to the roller beam and having one or more hinge knuckles on its outer margin, in combination with straight thread-guide shanks intersecting said knuckles and rotatably supported thereby.

5. In a thread-board, a horizontal thread-guide supporting member mounted in hinged relation to the roller beam and having a horizontal hinge knuckle on its outer margin with its axis disposed below the level of the adjacent portion of said member, in combination with a thread-guide shank pivoted in and intersecting said knuckle and extended beyond the same and beneath said supporting member.

6. In a thread-board, a thread-guide supporting member mounted in hinged relation to the roller beam and having a hinge knuckle at the outer margin thereof, in combination with an intersecting thread-guide shank pivoted in and movable through said hinge knuckle transversely to the axis thereof.

7. In a thread-board, a thread-guide supporting member having a hinge knuckle at its outer margin, adjustably fixed to said member, in combination with a thread guide shank pivoted in and movable for longitudinal adjustment through said hinge knuckle, transversely to the axis thereof.

8. In a thread-board, a hinged thread-board rail having a series of hinge knuckles on its outer margin, rotary barrels inclosed by said knuckles and thread-guide shanks carried by said barrels and projecting transversely through said knuckles.

9. In a thread-board, a thread-guide support, a barrel therein and a thread-guide shank longitudinally adjustable through said barrel, in combination with means operative through the end of said tubular support for securing said shank in its adjusted position.

10. In a thread-board, a tubular thread-guide support, a rotary, cross-perforated barrel therein, provided with an axially disposed set screw and a thread-guide shank in the perforation of said barrel adapted to be engaged by said set screw.

11. In a thread-board, a longitudinally adjustable hinged thread-guide and means acting co-axially with its hinge-axis for securing said guide in its longitudinally adjusted positions.

12. In a thread-board, a thread-board member mounted in hinged relation to the roller beam and a cross-perforated pintle rotatably mounted on said member and provided with a longitudinal set screw, in combination with a thread-guide shank secured in said perforation by the said set screw.

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

WILLIAM O. ALDRICH.

Witnesses:
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