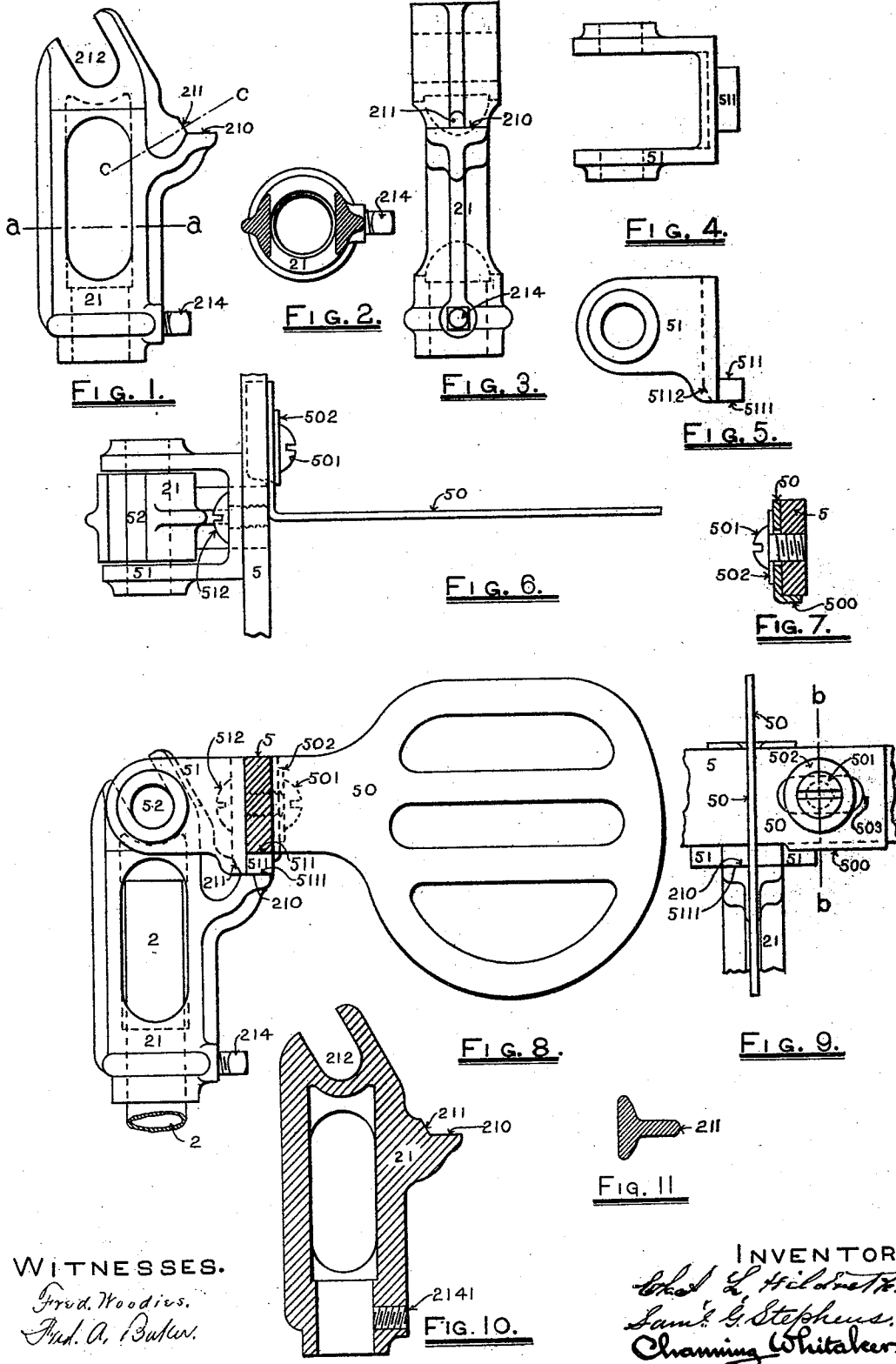


(No Model.)

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SEPARATOR MECHANISM FOR RING SPINNING FRAMES.

No. 498,264.

Patented May 30, 1893.



WITNESSES.

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SEPARATOR MECHANISM FOR RING-SPINNING FRAMES.

SPECIFICATION forming part of Letters Patent No. 498,264, dated May 30, 1893.

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To all whom it may concern:

Be it known that we, CHARLES L. HILDRETH and SAMUEL G. STEPHENS, residing at Lowell, and CHANNING WHITAKER, residing at Tyngsborough, in the county of Middlesex and State of Massachusetts, citizens of the United States of America, have invented certain new and useful Improvements in Separator Mechanisms for Ring-Spinning Frames, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates mainly to separator-mechanisms of the class in which the separators are applied to a rail that is mounted in supports provided therefor on vertical rods, termed separator-rods, to which is communicated a vertical reciprocating movement resembling that which is communicated to the lifting-rods which support the ring-rail with its rings, although it is capable of being applied to separator-mechanisms of other known classes.

More particularly, the invention relates to the supports or sockets in which are formed the bearings for the journals of the separator-rail, to the means by which the separator-rail is connected and combined with the said supports or sockets, and to the means by which the same and the separators are sustained when in their normal operative position.

The object of the invention is to provide simple, convenient and practical means whereby the separator-rail and separators shall be sustained conveniently and securely in proper position in the ring-spinning frame to which the devices are applied, and which, while permitting the separators to be moved when required from their lowered and working or operative position between the spindles to their raised and idle or inoperative position remote from the spindles, also shall permit the separator-rail and separators to be removed directly from the bearing-supports therefor, and from the machine, at any time, before the separators have been turned into their raised or idle position, as heretofore sometimes has been necessary for the purpose of unlocking the rail.

The invention consists in certain features of novel and improved construction, and in

certain novel and useful arrangements and combinations of parts, all as is set forth fully hereinafter, and it first will be described with reference to the accompanying drawings, and then will be particularly pointed out and clearly defined in the claims at the close of this specification.

In the drawings, Figure 1 is a view in side elevation of a bearing-support or socket embodying certain features of the present invention. Fig. 2 is a horizontal section on the dotted line *a—a* of Fig. 1. Fig. 3 is a view of the said bearing-support or socket in elevation taken from the right-hand side in Fig. 1. Fig. 4 is a view in plan of a bracket which is applied to the separator-rail and carries the journal or pivot-pin whereby the separator-rail is hinged to the bearing-support or socket. Fig. 5 is a view in side elevation of the said bracket. Fig. 6 is a view showing in plan a separator, part of a separator-rail, the bracket applied to the latter, the journal or pivot-pin, and the corresponding bearing-support or socket. Fig. 7 is a view in vertical section on the dotted line *b—b* in Fig. 9. Fig. 8 is a view showing in side elevation the parts which are represented in Fig. 6, with the exception of the separator-rail, which is represented in cross-section, a portion of the separator-rod being shown also. Fig. 9 is a view in elevation from the right-hand side in Fig. 8. Fig. 10 is a view in vertical transverse section of the bearing-support or socket. Fig. 11 is a view in section on the line *c—c* in Fig. 1.

At 2, in Fig. 8, is shown a portion of the separator-rod. At 21, see particularly Figs. 1, 2, 3, 8 and 10, is shown a bearing-support or socket which receives within its interior the upper end of the separator-rod, and is made capable of being slipped up and down thereupon to a limited extent for the purpose of making vertical adjustment, it being secured at the desired height upon the separator-rod by suitable means, such, for instance, as the clamping-screw 214, which may be fitted to a threaded hole 2141 formed in the bearing-support or socket, as in Fig. 10, and take a bearing at its end against the surface of the separator-rod.

At 212 is the open bearing which is formed

in the bearing-support or socket 21 for the reception of a journal or pivot-pin of the separator-rail.

At 50 in Figs. 6, 8 and 9, is shown a separator, and at 5 is the separator-rail, it having attached thereto by the screw 512 a bracket 51 carrying the journal or pivot-pin 52 that enters the bearing 212. The bracket is U-shaped, the base thereof being applied to the rear side of the separator-rail, and the arms thereof having holes therein as clearly shown for the reception of the journal or pivot-pin 52, the said arms passing backwardly on opposite sides of the bearing-support or socket 21 as shown in Fig. 6. The base of the bracket is formed with a forwardly-extending projection 5111 as shown most clearly in Figs. 4 and 5, and the lower edge of the separator-rail rests for support on the ledge 511 formed by the upper surface of such projection, as shown in Fig. 8.

Upon a projection at the front of the bearing-support or socket 21 is formed a ledge 210 serving as a support for the separator-rail and the parts carried thereby when the rail has been turned forward to place the separators in their lowered or operative position between the spindles of the ring-spinning frame in which the separator-mechanism is employed. At the inner end of the ledge 210 is provided a check 211 for preventing backward movement of the rail lengthwise of the ledge. The socket or bearing-support in portions thereof above the level of the ledge 210 is formed so as that there shall be no obstruction to interfere with the parts and prevent the separator-rail from being lifted and being removed before the separators have been turned into their raised or idle position. See particularly Figs. 1, 8 and 10, in which it will be perceived that all the upper part of the bearing-support or socket, above the ledge 210 and in front of the open bearing 212, is formed to permit the separator-rail and the parts carried thereby to be moved in the direction proper to remove the journal or pivot-pin 52 out of the open bearing 212, without it being necessary to rotate the rail backwardly on its pivotal support in order to unlock the said rail and render it free to be removed.

As hereinbefore stated, when the separator-rail is supported by the ledge 210 it and the separators are prevented from falling below the proper operative position. Either the rail may come into contact with the ledge, as will be obvious, or, which is preferred, the lower surface of the base of the bracket, and the forwardly extending projection 511 thereon, may rest on the said ledge, as shown in Fig. 8. The preponderance of the weight of the parts in front of the point of contact on the ledge 210 tends to cause the separator-blades to fall, the parts turning on the ledge 210 as on a pivot, and therefore the journal or pivot-pin would be raised out of the open bearing were it not for the fact that the check 211 prevents the separator-rail from moving

backward lengthwise of the ledge toward the center-line of the separator-rod. The straight inner side of the front wall of the open bearing prevents the parts from turning upon the ledge 210 unless the parts are permitted to slide toward the said center-line.

In practice we prefer to incline the walls or sides of the bearing 212 backward slightly, as shown in Figs. 1, 8 and 10, in order that the front wall or horn of the bearing may stand more nearly at right-angles to the direction of the rising movement of the journal or pivot-pin and thus act the more effectually to prevent upward movement of the journal or pivot-pin. When the bearing is thus formed, the front of the socket or bearing-support above the ledge 210 is also formed on an incline which is preferably approximately parallel with the incline of the walls or sides of the bearing, thus enabling the parts to be moved upward in the direction of the incline of the said walls or sides without meeting with any obstruction. In this case, the rear side of the bracket 51, at 5112, where it contacts with the check 211, is inclined correspondingly with the said check, in order that it may take proper bearing thereagainst.

The check 211 is formed as a projecting part at the inner end of the ledge 210. By preference, it is formed as a narrow projecting ridge, as indicated in Figs. 1, 3 and 11, which is located at mid-width of the socket 21 and of semi-cylindrical outline in section where the bracket touches it, as clearly shown in Fig. 11. It may be of angular outline in section. When the separators are in their usual operative position the surface 5112 of the bracket presses against the narrow projection, while, at the same time, the journal or pivot-pin presses against the interior of the bearing of the support. From this it results that if the separator-rail socket should, from any accidental cause, become slightly turned on its vertical axis, the pressure of the bracket upon the narrow check, and the pressure of the journal or pivot-pin against the interior of the bearing, will restore the socket-bearing to parallelism with the separator-rail.

The separator 50 has the end of its stem or shank turned at a right angle to the line of its blade, and in this portion is formed a transverse slot 503 to enable the separator to be secured, with capacity for lateral adjustment, to the front side of the separator-rail by means of a screw 501 passing through the slot and into the rail, a washer 502 being placed upon the stem of the screw between the head thereof and the outer surface of the separator. The under edge of the portion of the separator which fits against the front of the separator-rail has a flange 500 bent to fit against the lower edge of the separator-rail, this preventing the separator-blade from becoming twisted out of the intended vertical plane.

We do not lay claim broadly herein to the

combination of the separator-rail, and a stop moving in unison therewith, of a support provided with an open bearing for the rail-journal or pivot, and also with a rest, without obstruction to interfere with the stop while the rail is being removed, for this is not of our invention. Nor do we claim broadly herein the like combination having the rest located on the front portion of the support, or the support provided with a narrow projecting rest, for these are not of our joint invention. Nor is the adjustable socket of our joint invention.

We claim as our invention—

1. The combination with the separators, and the separator-rail having a journal or pivot-pin, of a support provided with an open bearing for the reception of the said journal or pivot-pin, a ledge for supporting the rail and separators in their normal operative position, and a check at the inner end of said ledge for preventing movement of the rail lengthwise of the ledge, the said ledge and check being without obstruction to prevent the rail from being removed before the separators have been turned out of their operative position, substantially as described.

2. The combination with the separators, and the separator-rail having a journal or pivot-pin, of a support provided with an open bearing having a backwardly inclined wall, a ledge for supporting the rail and separators in their normal operative position, and a check at the inner end of said ledge for preventing movement of the rail lengthwise of the ledge, the inner face of the backwardly inclined wall serving to prevent a forward rising movement of the journal or pivot-pin, the said ledge and check being without obstruction to prevent the rail from being removed before the separators have been turned out of their operative position, substantially as described.

3. The combination with the separators, the separator-rail, the bracket applied thereto, and the journal or pivot-pin carried by the said bracket, of the support provided with an open bearing for the reception of the said journal or pivot-pin, a ledge for supporting the rail and separators in their normal operative position, and a check at the inner end of said ledge to contact with the back of the bracket for preventing movement of the rail lengthwise of the ledge, the said ledge and check being without obstruction to prevent the rail from being removed before the separators have been turned out of their operative position, substantially as described.

4. The combination with the separators, the

separator-rail, the bracket applied thereto, and the journal or pivot-pin carried by the said bracket, of the support provided with an open bearing having a backwardly inclined wall, a ledge for supporting the rail and separators in their normal operative position, and a check at the inner end of the said ledge to contact with the back of the bracket for preventing movement of the rail lengthwise of the ledge, the said ledge and check being without obstruction to prevent the rail from being removed before the separators have been turned out of their operative position, substantially as described.

5. The combination with the separators, the separator-rail, the bracket applied thereto having an inclined contact surface, and the journal or pivot-pin carried by the said bracket, of the support provided with an open bearing for the reception of the said journal or pivot-pin, a ledge for supporting the rail and separators in their normal operative position, and a rearwardly and upwardly inclined check at the inner end of the said ledge to co-act with the inclined contact-surface of the bracket for preventing movement of the rail lengthwise of the ledge, the said ledge and check being without obstruction to prevent the rail from being removed before the separators have been turned out of their operative position, substantially as described.

6. The combination with the separators, the separator-rail, the bracket applied thereto, having an inclined contact-surface, and the journal or pivot-pin carried by the said bracket, of the support provided with an open bearing having a backwardly inclined wall, a ledge for supporting the rail and separators in their normal operative position, and a rearwardly and upwardly inclined check at the inner end of the said ledge to co-act with the inclined contact-surface of the bracket for preventing movement of the rail lengthwise of the ledge, the said ledge and check being without obstruction to prevent the rail from being removed before the separators have been turned out of their operative position, substantially as described.

In testimony whereof we affix our signatures in the presence of two witnesses.

CHAS. L. HILDRETH.
SAML. G. STEPHENS.
CHANNING WHITAKER.

Witnesses:

FRED WOODIES,
FRED A. BAKER.