Jan. 7, 1936. H. L. THOMAS ET AL 2,027,211

LONG DRAFT SPINNING CRADLE

Filed March 21, 1935

Fig. 1.

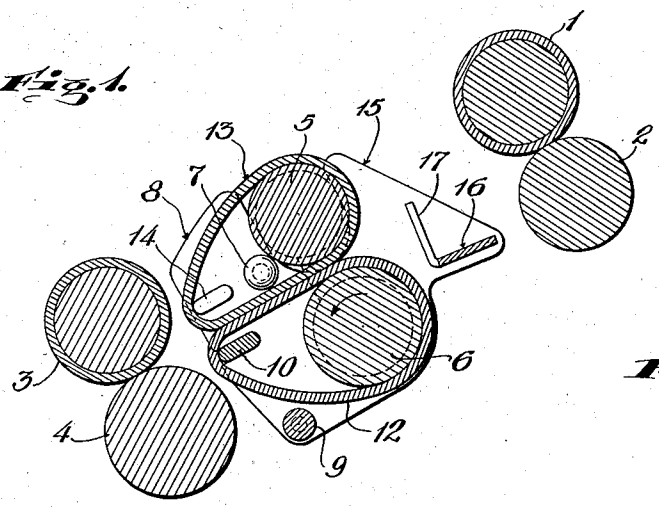


Fig. 7.

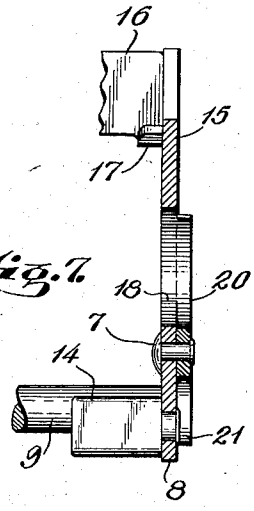


Fig. 2.

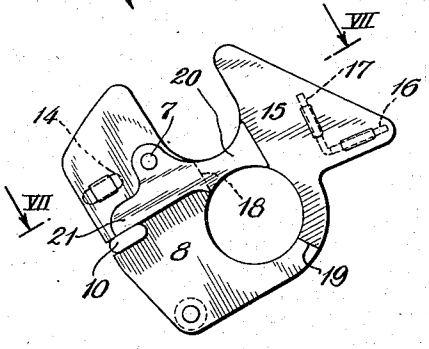


Fig. 4.

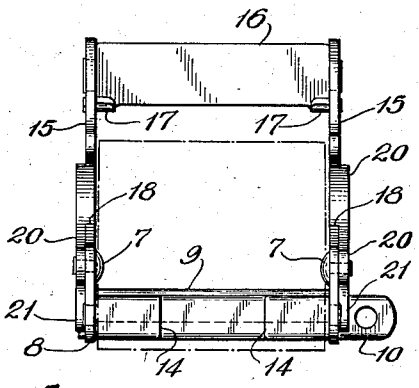


Fig. 5.

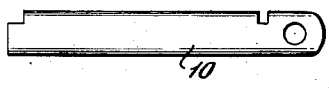


Fig. 3.

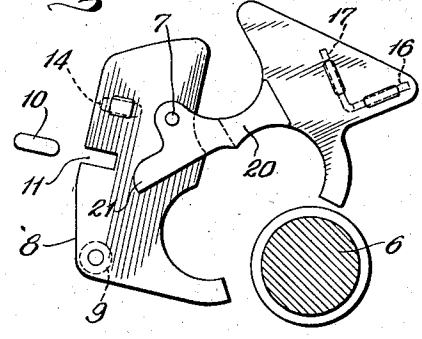
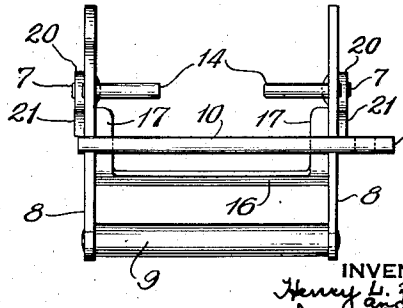


Fig. 6.



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2,027,211

LONG DRAFT SPINNING CRADLE

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13 Claims. (Cl. 19—131)

The invention relates to long draft spinning frames in which endless aprons or belts are used for conducting the yarn fibers from one pair of rolls close into the bite of the next succeeding pair, and more particularly to the cradles by which such belts are supported and guided, the object being among other things to reduce to a minimum the wear on the belt edges incident to their rubbing on the cradle side walls, as well as generally to produce a more convenient and more acceptable form of cradle, as will presently appear.

To this end the invention consists broadly in constructing the cradles in front and rear sections or halves which can be clasped about the bottom draft roll to be thereby held in place in definite and proper relation to the other rolls, and so as to support the belts more positively than heretofore and guide them with minimum friction and wear.

Fig. 1 of the accompanying drawing is a vertical cross section through a conventional long draft roll head to which the form of this invention which is at present preferred has been applied.

Fig. 2 is a side elevation of the cradle removed.

Fig. 3 is the same opened.

Fig. 4 is a plan according to the arrow of Fig. 2.

Fig. 5 is a detail of the removable belt bearing bar.

Fig. 6 is a front elevation of Fig. 4 and

Fig. 7 a section on line VII—VII of Fig. 2.

In Fig. 1 the back rolls are marked 1—2, the front or delivery rolls 3—4 and the middle rolls to which the cradle is applied 5—6. The lower rolls will be understood in each case to be formed on continuous shafts extending the length of the frame and the upper rolls to be held in the usual cap bars not shown and to be individually removable, all as customary in this art.

The new cradle as shown is formed of front and back sections hinged to each other on a transverse axis by the riveted hinge studs marked 7. The front section comprises two vertical side plates 8 rigidly connected to each other by a suitably riveted cross-bar member 9 to form by itself a rigid structure, such member being a round rod appropriately shouldered and firmly riveted in place. This section carries the front bearings for the belts and which, in the case in hand, comprise a bearing bar 10, for the lower belt 12, removably seated in the front-edge notches 11 of the side plates 8 and a pair of opposed inwardly projecting studs or fingers 14 respectively riveted to the plates to support the top belt 13. The latter can be removed from this bearing by passing it through the open space between the opposed ends of the studs as described in application Serial No. 704,873, filed January 2, 1934, and thereupon the lower belt can be separated from the cradle by withdrawing the bearing bar 10 from its notches.

The rear section of the cradle is likewise formed of two vertical side plates marked 15 and preferably these are rigidly united by a riveted cross member and preferably by one, as shown, which is flat in section and serves as a roving-deflecting shelf marked 16 and which is provided with upbent arms 17 at its ends to serve as roving guards. These guards project sufficiently from the side walls 15 to keep the roving from running off the edges of the belts, while the shelf makes the roll-head self-threading as will be understood. The outline of the belt is shown by the dotted line in Fig. 4. Both the shelf part 16 and the guide parts 17 of this cross member are riveted to the side plates 15 making the back section a rigid structure like the front.

The proximate margins of the two cradle sections are cut or shaped to fit around the bottom roll 6 or its shaft and likewise to form an upper notch suitable to receive the top roll. When the cradle is clasped around the bottom roll the respective side plate sections occupy common vertical planes and meet edge to edge in flush relation at least so far as concerns their interior faces. This results in producing surfaces for the belt edges to rub on which are continuously flat and substantially uninterrupted, devoid of any jogs or shoulders or gaps in the paths of the belts, which, as we have found, accelerate the rate of wear, even when all exposed edges are rounded and smoothed to avoid it. The parting lines or meeting edges of the flush plate sections, on which they separate when opened, are indicated in Fig. 2 at 18 and 19, one being above the bottom roll and the other below it, and both constitute merely cracks or fine crevices in the continuous edge-guiding surface, without any apparent effect on the belts, even after long usage. The belts may thus be used until they wear out or break down from other causes.

In order best to produce and maintain this important flush relationship of the plate sections a hinge connection is used to connect them and which is best constructed by forming offsets 20 on the rear plate sections, which offsets forwardly overlap the outer faces of the front plate sections, being pivoted to the latter by the hinge

rivets 7, at a level or location which is inside of the runs of the top belt so that the rivet heads are not touched thereby.

The placing of the top roll 5 in the top roll notch formed between the upper parts of the hinged plate sections, above the level of the hinge axis, locks the sections from being thereafter opened, which means that the top roll must be removed before the cradle can be disengaged from the lower roll. The sections can however be locked together in other ways, for example, the hinge offset 20 can be formed with a projecting nose as shown at 21 extended forward into such relation with the notch 11, on one or both sides, that when the bearing bar 10 is pushed into the notch it rides under the nose 21, thereby also locking the hinge. This latter method of locking is preferable because it locks the parts tighter and keeps the crevices at the parting lines 18 and 19 tightly shut and impossible to open under vibration or otherwise when the hinges have become limber from use. By thus producing edge to edge contact between the front and rear plate sections and properly locking them, the further advantage is secured that the circular aperture for the bottom roll can be made to fit quite snugly thereon, thereby improving the stability of the cradle, which has no other support except the two rolls. This keeps the belts in a more constant relation to the delivery rolls which is an important factor in good work.

The hinge offset 20 is desirably, though by no means necessarily, formed as a separate part electrically welded to the stamped side plates, but in any case it is extended well to the rear of the parting line so as to contribute the strength of extra thickness to the narrow neck part of the rear side plate which lies between the top and bottom rolls, and at the same time afford a wider bearing by which the cradle rests and rubs on the bottom roll.

We claim:

1. A cradle for long draft spinning frames having its side walls constituted respectively of front and rear plate sections adapted to clasp about a draft roll, said sections on each side of the cradle occupying a common plane and closing on each other in edge to edge flush relation to form a smooth and a substantially continuous belt guiding surface around said draft roll.

2. A cradle for long draft spinning frames having its side walls constituted respectively of front and rear plate sections having their proximate edges shaped to clasp around the bottom draft roll and form a top notch to receive the top roll, said sections occupying a common plane and closing on each other in edge to edge flush relation above and below said bottom roll to form an uninterrupted belt guiding surface around said roll.

3. A cradle for long draft spinning frames comprising a front part composed of rigidly united side plates provided with belt bearings and a rear part composed of side plates pivoted to the front plates to swing respectively in the same planes and adapted to close about the draft roll in edge to edge relation to said front plates.

4. A cradle for long draft spinning frames comprising two parts hinged together to clasp about a bottom draft roll, each part comprising opposite side plate sections rigidly connected by a cross-bar member.

5. A cradle for long draft spinning frames comprising front and rear cradle sections hinged together with their proximate portions shaped to clasp around the bottom draft roll and form between them a notch to receive the top roll, said sections comprising opposite plate sections in common planes.

6. A cradle as described comprising front and rear parts hinged to each other so as to clasp the bottom roll and means for locking the parts together.

7. A cradle as described comprising hinged-together parts adapted to clasp the bottom roll between them, one of them having a removable belt bearing bar in locking relation to the hinge.

8. A cradle as described comprising hinged-together side plates shaped to close together, edge to edge in the space between the top and bottom rolls.

9. A cradle as described comprising front and rear plate sections together forming the cradle side walls, one of said sections having a thickened neck part between the top and bottom rolls, said thickened part being pivoted to the other section to form a hinge between sections.

10. A cradle as described comprising front and rear sections hinged to each other on an axis located between the runs of the top belt and adapted to clasp about the bottom roll.

11. A cradle as described comprising a front part composed of rigidly connected side plate sections and a rear part hinged thereto and composed of side plate sections rigidly united by a cross member, said cross member having a flat section serving as a roving guide.

12. A cradle as described having a front side plate section and a rear side plate section together constituting one cradle side wall, one of said sections having an offset overlapping and pivoted to the other and holding both sections in a common plane.

13. A cradle as described comprising a front part comprising side plate sections united by a cross-bar and carrying bearing means for the top and bottom belts, a rear part comprising side plate sections also united by a cross-bar member, an offset hinge connecting the front and rear sections and maintaining them respectively in common planes, said front and rear sections meeting edge to edge above and below the bottom roll and means for holding them against separation.

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