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2,431,130

DEVICE FOR WINDING UP WEBBING FROM LOOMS

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2 Sheets-Sheet 1

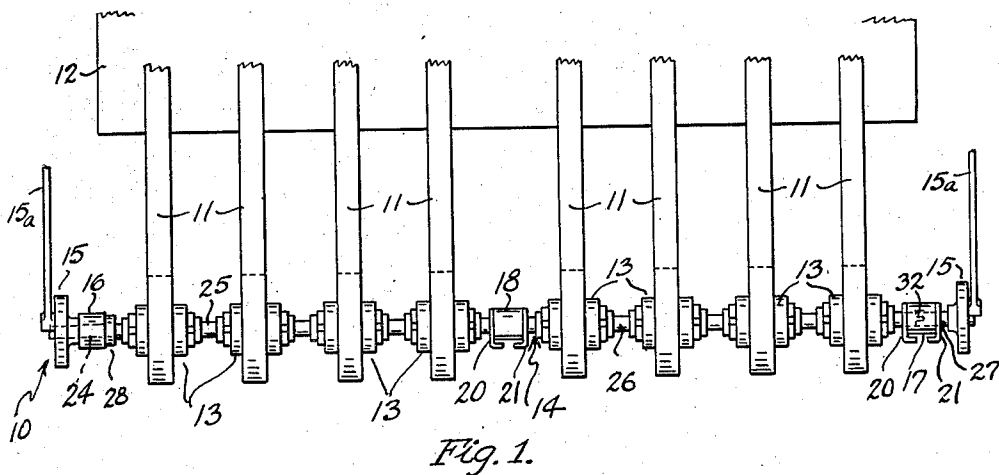
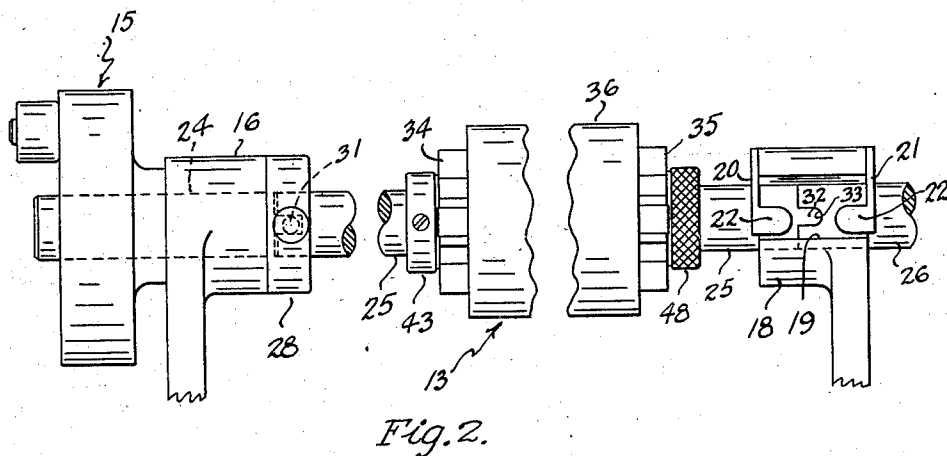
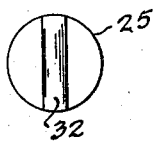
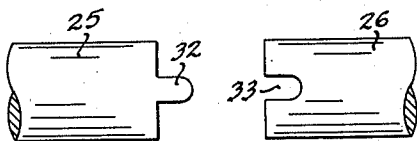
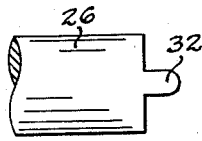
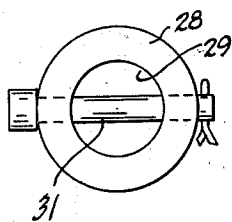
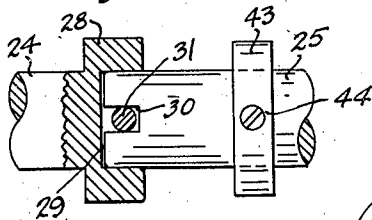


Fig. 4.



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DEVICE FOR WINDING UP WEBBING FROM LOOMS

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2 Sheets-Sheet 2

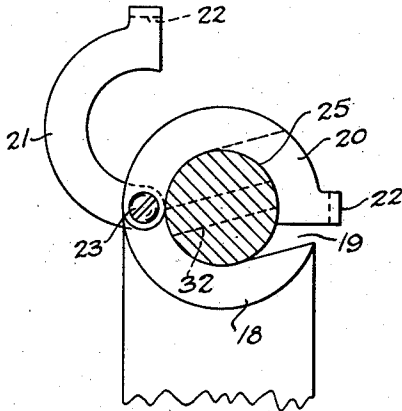


Fig. 9.

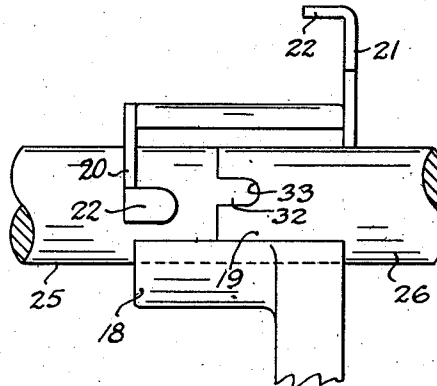


Fig. 8.

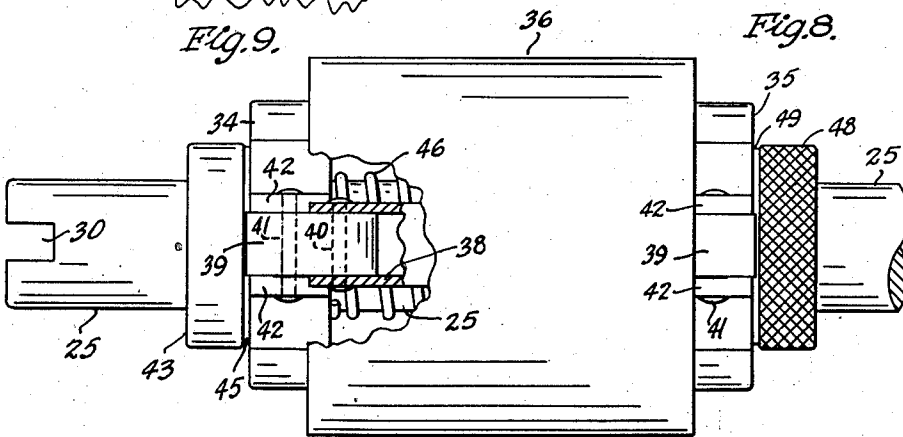


Fig. 10.

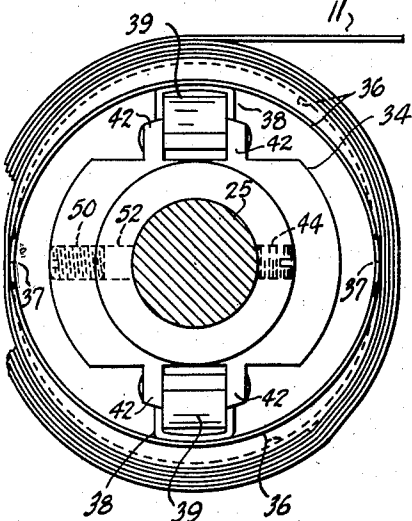
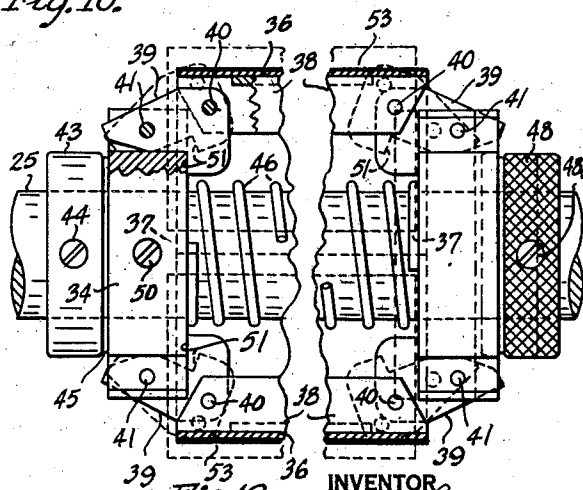


Fig. 11.



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DEVICE FOR WINDING UP WEBBING FROM LOOMS

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8 Claims. (Cl. 242-55)

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This invention relates to a device for winding up webbing from looms on which it is woven. The loom may weave a number of these webs, for example of the order of an inch or an inch and a half wide, simultaneously. These widths are given merely as examples, as other widths may be woven. Normally each web is wound up on a roll or block, all mounted on a common shaft which is driven by the loom mechanism. However, to take off any coil it is necessary to take off a shaft section with all the rolls, and then each coil of webbing is loosened so it may be slid from the reel, or it is rewound onto another reel. It is an object of my device to permit taking off any one or more of the reels of wound webbing desired, without unwinding the web, and disturbing a minimum number of the other reels, thus providing accelerated operation of the loom and the winding device, and greatly reducing the time the loom is not operating due to removing the wound coils and mounting the blocks.

With the foregoing and other objects in view, I have devised the construction illustrated in the accompanying drawings forming a part of this specification. It is, however, to be understood the invention is not limited to the specific details of construction and arrangement shown, but may embody various changes and modifications within the scope of the invention.

In the drawings:

Fig. 1 shows the arrangement of the loom and winding device diagrammatically in plan view;

Fig. 2 is a view from the bottom of Fig. 1 or looking toward the front of the loom, showing the bearing shaft and reel arrangement;

Fig. 3 shows the construction of one end of the left hand reel carrying section of the drive shaft;

Fig. 4 shows the right hand reel carrying section of the drive shaft;

Fig. 5 is an end view from the right of Fig. 3;

Fig. 6 is an end view of the left end section of the drive shaft;

Fig. 7 is a partial section showing a means for joining the left end and the first reel carrying shaft sections;

Fig. 8 is a front view of a bearing showing the shaft sections joined therein;

Fig. 9 is a view taken from the left of Fig. 8 showing the shaft in section;

Fig. 10 is a side elevation of one of the winding reels with parts broken away;

Fig. 11 is an end view of this reel after being collapsed in a coil of webbing after this webbing was wound on the expanded reel, and

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Fig. 12 is a longitudinal section of the reel in the collapsed condition.

The wind-up device 10 provides a suitable means for winding up the strips of webbing 11 which are woven by the loom, the front end portion of which is represented diagrammatically by 12, Fig. 1. The wind-up device 10 comprises a series of collapsible reels or blocks 13 mounted on a shaft 14 made in sections and driven from each end by the drive mechanism 15, which may be any of the usual drive means for the wind-up reels or beams, such as a ratchet or like driven from the loom mechanism by the rods 15a. Two sets of four reels or blocks each are shown in Fig. 1, the two shaft sections 25 and 26 supporting these reels being carried in two end bearings 16 and 17 and an intermediate bearing 18. These numbers are shown merely by way of example, as the number of reels in a set may be varied as desired and the number of shaft sections may also be as found desirable.

The bearing 16 is an ordinary bearing, while the bearings 17 and 18 are open on one side, as at 19 (Figs. 2, 8 and 9) so that the shaft 14, or more specifically the individual shaft sections, may be removed by sliding it out of the bearing through this opening 19. The shaft 14 is held in the bearings 17 and 18 by the pivoted clips 20 and 21 provided with finger grips 22 and pivoted at 23 at opposite ends of the bearings 17 and 18 so that they may be swung upwardly as at 21, Figs. 8 and 9, to release the shaft, or may be swung down as at 20, Figs. 8 and 9, to hold the shaft in place.

The shaft 14 is made in sections, which permits removal from the bearings 17 and 18 of one section without disturbing the other sections. In the form of the device shown in Fig. 1, the shaft 14 is in four sections, 24, 25, 26 and 27, with four winding reels or blocks 13 on each of the two central sections 25 and 26. However, it is to be understood that as many sections as desired may be used, with one or more winding reels 13 attached thereto.

The left end section 24 in the bearing 16 has an enlarged head 28 with a socket 29 in it to receive the notched end of the shaft 25, the notch being a transverse groove 30 which when seated in the socket 29, embraces the transverse pin 31 mounted in the enlarged head 28 and extending across the socket 30, so that as the shaft section 24 is rotated by the drive mechanism 15 it will rotate the shaft section 25. However, it is clear that the shaft section 25 may be withdrawn without disturbing the shaft section 24.

The shaft section 25 extends to the interme-

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diate bearing 18, in which it has an end, as shown in Figs. 3 and 5, provided with a transverse rib 32, extending part way into the bearing 18, as shown at Fig. 2.

The next shaft section 26, having its end inserted into the bearing 18 from the opposite side is provided with a transverse groove 33, as shown in Fig. 4, to receive the rib 32, and thus provide driving connection between the two shaft sections 25 and 26. The opposite end of the shaft section 26, which is in the bearing 17, is provided with a similar transverse rib 32, as shown in Fig. 4, to fit a transverse groove, the same as 33, in the right hand shaft section 27, which is driven by the right hand drive 15.

The shaft section 25 carries a plurality of collapsible reels or blocks 13 on which the webbing 11 is wound and similarly the shaft section 26 carries a similar series of collapsible reels 13. The collapsible reel comprises two head members or end blocks 34 and 35 mounted on the rotatable shaft section 25 or 26. Between the two end blocks 34 and 35 is the winding drum 36, which consists of two semicylindrical sections separated as at 37, Fig. 11. On the inside of each of these sections of the drum 36 is secured by a suitable means, such as welding or screws (not shown) a channel shaped member 38, located longitudinally of the drum 36.

At the end of each channel and between its parallel sides, levers 39 are pivoted by means of pivot pins 40, the levers 39 also being pivoted by pivot pins 41 between lugs 42 on the end blocks 34 and 35, thus securing the drum 36 to the end blocks 34 and 35. The reel 13 is located at any desirable position on the shaft 25 or 26, by means of a locating collar 43, held on the shaft 25 or 26 by a set screw 44, which permits the collar to be shifted longitudinally of the shaft to any desired location. The end block 34 is placed against the collar 43, and separated from it by a wearing washing 45 composed of fibre or other suitable material. A coil spring 46 embracing the shaft 25 or 26 is placed between the end blocks 34 and 35 so that it tends to push the end blocks 34 and 35 away from each other. Now, however, if the end block 35 is shifted toward the end block 34, the pivots 41 will move toward each other, causing the pivots 40 to move outwardly, and in this manner the drum moves to the expanded position, the sections separating, as shown by dotted lines at 37, Fig. 11. The drum is held in this position by means of a movable collar 48 against the head 35 which is knurled to provide a convenient gripping means, and which is held in position by a set screw 48a. It is while the drum 36 is in this position that the webbing 11 is wound on it, the drum being driven by the rotating shaft 25 or 26 through a friction drive in the end block 34, which consists of a leather plug 52 or other suitable material held against the shaft with any desirable pressure by means of a set screw 50. It is clear that this friction drive enables the shaft 35 to rotate at a greater speed than the drum 36, thus keeping tension on the webbing at all times as it comes from the loom. If desired, the surfaces of the drum sections 36 may be covered with emery cloth or similar roughened surface material 53 to increase its grip on the web being wound.

When the desired amount of webbing has been wound onto the drum 36, set screw 48a in the collar 48 is loosened and the collar moved to the right, or away from the collar 43. The coil spring 46 then spreads the end blocks 34 and 35

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by shifting block 35 to the right. In this manner the pivots 31 move away from each other, causing the levers 29 to contract the drum 36 to the position shown by solid lines, Fig. 11. Lugs 51 on the levers 19 provide a limiting means to prevent the end blocks from being spread farther than desired. When the drum 36 is thus contracted the roll of webbing may be easily removed from the drum without unwinding the webbing, by simply sliding the webbing longitudinally off the drum.

Thus it is clear that with this arrangement all the wound up webbing on the reels 13 at the left of the bearing 18 may be removed without disturbing those at the right hand of this bearing 18, in the following manner: by merely lifting the pivoted clip 20 on the bearing 18, the right hand end of the shaft section 25 may be slid out of the bearing 18 through its open side 19, as shown in Figs. 2, 8 and 9. If the shaft is turned so that the rib 32 is positioned as shown, with one end facing the open side 19 of the bearing, it may be slid out without disturbing the shaft section 26. Then the left hand end of the shaft section 25 may be withdrawn from the socket 29 of the left end shaft section 24, and the various coils of webbing removed by collapsing their respective winding drums, or if preferred, the winding drums 36 may be collapsed while the shaft section is still in position, and the coils of webbing merely slid off the collapsed drums and then off the right hand end of the shaft 25 which has been shifted forwardly out of the bearing 18. Similarly, the other section 26 of the shaft, together with its winding drums 13 and the coils of webbing, may be inserted or removed independently of the shaft section 25, and the coils of webbing may be removed in the same manner. It is therefore not necessary to remove the whole shaft to remove the reels or coils or webbing or any particular reel or coil. Also, the shaft sections can be removed individually without dismounting the bearings or disassembling them.

Having thus set forth the nature of my invention, I claim:

1. A winding device for looms comprising a shaft including a plurality of sections, separable driving connections between adjacent ends of the sections, the driving connection between at least one pair of sections being separable by sliding the end of one section laterally to the other, a bearing into which these two ends extend and open at one side to permit these ends to be slid laterally out of the bearing, and one or more winding drums for webbing mounted on one of the shaft sections.

2. A winding device for looms comprising a shaft including a plurality of sections, spaced bearings for the sections one of which is open at one side, separable driving connections between the adjacent ends of the shaft sections, one of said driving connections being located in said open sided bearing and being separable by sliding the end of one shaft laterally to the other out through said open side of the bearing while the adjacent end of the other section remains in it, and means for winding woven webbing on one of said shaft sections.

3. A winding device for looms comprising a shaft including a plurality of sections, separable driving connections between adjacent ends of the sections, spaced bearings for the sections one of which is open through one side, the driving connection between one pair of shaft sections being

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located in said latter bearing and separable by sliding the end of one section laterally out through said open side of the bearing, releasable means for retaining the ends of the shaft sections in the bearing, and winding means for woven webbing mounted on one of the shaft sections.

4. A winding device for looms comprising a shaft including a plurality of sections, separable driving connections between adjacent ends of the sections, spaced bearings for the sections one of which is open through one side, the driving connection between one pair of shaft sections being located in said latter bearing and separable by sliding the end of one section laterally out through said open side of the bearing, and one or more collapsible winding blocks for webbing mounted on one of the shaft sections so a coil of webbing wound on a block may be removed while coiled by sliding it off the end of the shaft after its removal from the bearing.

5. A winding device for looms comprising a shaft including a plurality of sections, separable driving connections between adjacent ends of the sections, spaced bearings for the sections one of which is open through one side, the driving connection between one pair of shaft sections being located in said latter bearing and separable by sliding the end of one section laterally out through said open side of the bearing, releasable means for retaining the ends of the shaft sections in the bearing, there being one of said means for each shaft and each releasable independently of the other to permit removal of either shaft while the other is retained in the bearing, and one or more collapsible winding blocks for webbing mounted on one of the shaft sections so that a coil of webbing from a block may be slid off the removed end of the shaft.

6. A winding device for looms comprising a shaft including a plurality of sections, a plurality of spaced bearings for said sections, one section being mounted in one bearing, a driving means from the loom for said section, another shaft section having detachable driving connection at

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one end with the first section and having a detachable driving connection at its opposite end with another shaft section and located in another bearing, said latter bearing being open at one side to permit insertion and removal of said ends of the shaft sections by lateral movements through said open side, the driving connection between said latter sections being a transverse rib on the end of one section and a transverse groove on the other section in which the rib is seated and adapted to permit separation of the sections by lateral movement of one section relative to the other, and winding means for webbing mounted on one of the latter shaft sections.

7. A winding device for looms comprising a shaft including a plurality of sections, spaced bearings for the sections one of which is open through one side, a separable driving connection between the ends of adjacent sections located in said bearing comprising a transverse groove in the end of one section and a transverse rib on the end of the other section seated in said groove and separable by sliding the end of one section laterally to the other out through the open side of the bearing, and a collapsible winding drum for webbing mounted on one of said sections.

8. A winding device for looms comprising a shaft including a plurality of sections, spaced bearings for the sections one of which is open at one side, a separable driving connection between adjacent ends of two shaft sections mounted in said open sided bearing comprising a transverse groove in the end of one section and a transverse rib on the end of the other section seated in said groove and separable by sliding the end of one section laterally to the other through said open side of the bearing independently of the other section, a releasable catch for the end of each shaft section mounted on the bearing to retain said ends in the bearing, and collapsible winding means for woven webbing mounted on one of the shaft sections.

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