Jan. 8, 1929. 1,698,153

A. B. COLLINGBOURNE

DEVICE FOR WINDING YARN AND THE LIKE

Filed May 20, 1927 2 Sheets-Sheet 1

Fig. 1.

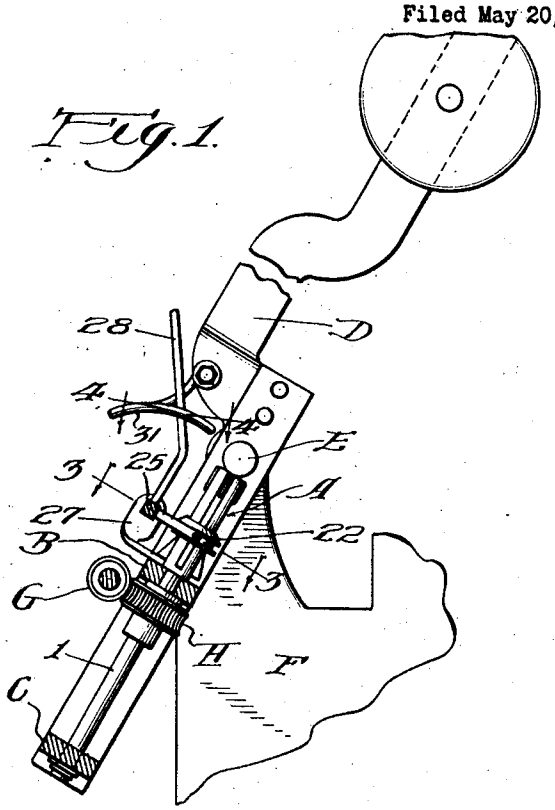


Fig. 2.

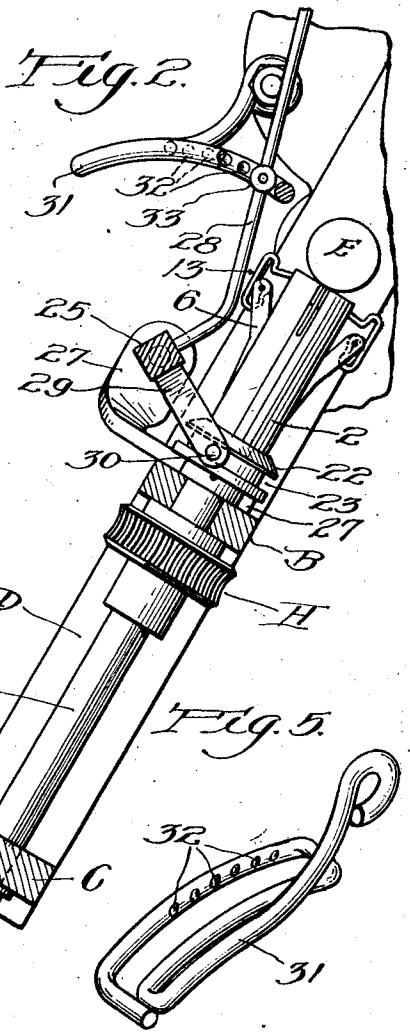


Fig. 5.

Fig. 4.

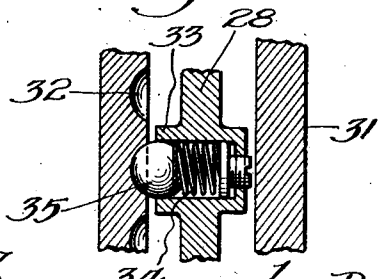
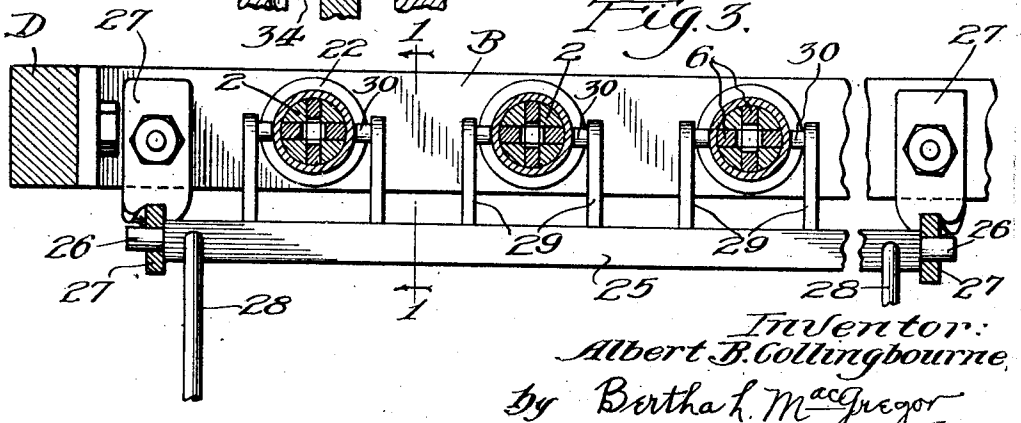


Fig. 3.



Inventor:
Albert B. Collingbourne,
by Bertha L. MacGregor
his Attys.

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A. B. COLLINGBOURNE

DEVICE FOR WINDING YARN AND THE LIKE

Filed May 20, 1927 2 Sheets-Sheet 2

Fig. 6.

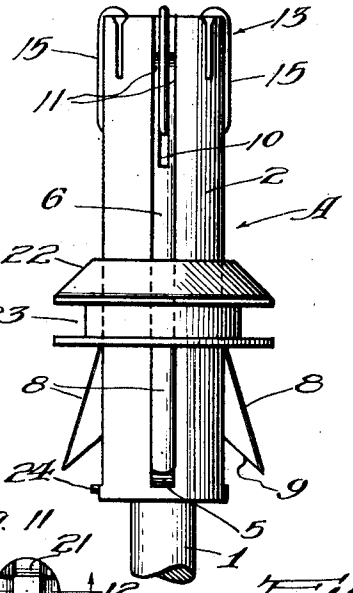


Fig. 7.

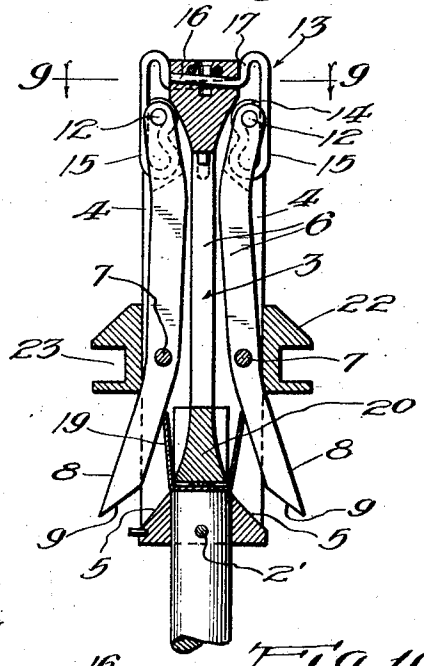


Fig. 11

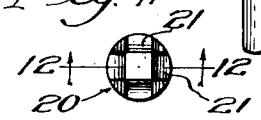


Fig. 9.

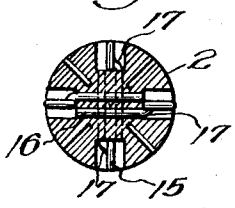


Fig. 12.

Fig. 10.

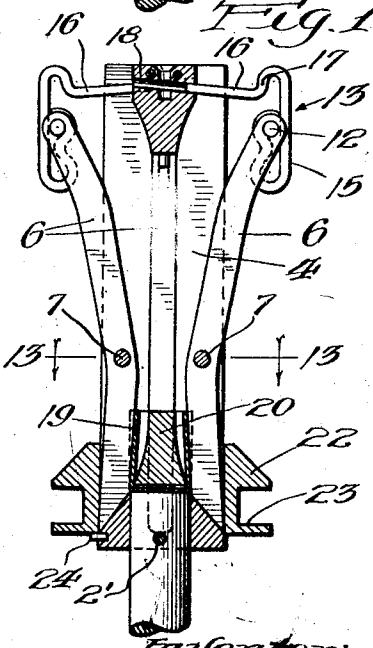


Fig. 8.

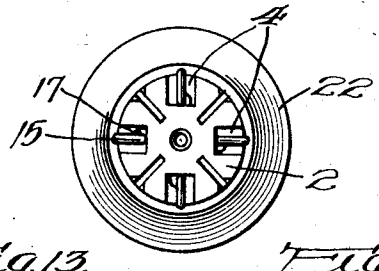


Fig. 13.

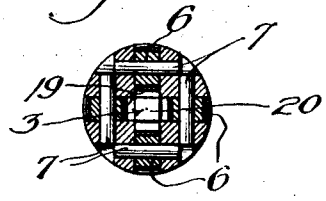
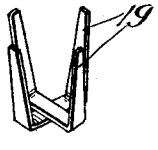


Fig. 14.



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his Atty:

Patented Jan. 8, 1929. 1,698,153

UNITED STATES PATENT OFFICE.

ALBERT B. COLLINGBOURNE, OF ELGIN, ILLINOIS, ASSIGNOR TO COLLINGBOURNE MILLS, INC., OF ELGIN, ILLINOIS, A CORPORATION OF ILLINOIS.

DEVICE FOR WINDING YARN AND THE LIKE.

Application filed May 20, 1927. Serial No. 192,984.

This invention relates to devices for winding yarns and the like.

One of the objects of the invention is to produce an improved carrier adapted to be used for winding balls of yarn having different interior diameters.

Another object of the invention is to provide means whereby the core-engaging device of the carrier may be readily adjusted to wind a ball of any desired interior diameter, and means for maintaining said devices in adjusted position; also to provide means for simultaneously adjusting and for maintaining in adjusted position the core-engaging devices of a plurality of carriers.

Heretofore, the movable devices used for frictionally holding the cores of balls to be wound have been spring pressed to normally extend beyond the periphery of the carrier, and it has been necessary to overcome the tension of the spring in order to remove the wound ball from the carrier. In my improved construction, the movable devices which contact with the interior of the core of the ball to be wound are normally within the periphery of the carrier, and positive adjusting means are provided for moving the core holding devices outwardly into their adjusted operative positions. When the winding is completed, said positive adjusting mechanism is again actuated and the core holding devices automatically move inwardly to their normal positions within the periphery of the carrier, and out of the way of the ball to be removed.

This construction is of great advantage because, by reason thereof, the wound balls may be easily removed from the carrier without marring the perfection of the winding. Another advantage is that the time of the operator is conserved, since the wound balls may be easily and quickly removed without effort.

In the drawings:

Figure 1 is a vertical sectional view taken in the plane of the dotted line 1—1 on Figure 3, showing a construction embodying my invention, with the carrier device in normal position.

Figure 2 is a view similar to Figure 1, enlarged, showing the carrier in one of its operative positions.

Figure 3 is a transverse sectional view of part of a balling machine and my improved spindle and carrier, taken in the plane of the line 3—3 of Figure 1.

Figure 4 is a transverse sectional view of the adjusting lever, taken in the plane of the line 4—4 of Figure 1.

Figure 5 is a perspective view of the guide for the adjusting lever.

Figure 6 is an elevation of the carrier in the normal position.

Figure 7 is a vertical sectional view of the carrier with the parts in the same position as that shown in Figure 6.

Figure 8 is a plan view of Figure 6.

Figure 9 is a cross section taken upon the line 9—9 of Figure 7.

Figure 10 is a vertical sectional view similar to Figure 7, but showing the parts in one of their operative positions, with the core holding devices in their most extended positions.

Figure 11 is a plan view of the spring retainer.

Figure 12 is a section taken on the line 12—12 of Figure 11.

Figure 13 is a cross section taken on the line 13—13 of Figure 10.

Figure 14 is a perspective view showing the springs.

It will be understood that any desired number of the spindle shafts and carriers, about to be described, indicated as a whole at A, may be mounted upon the horizontal frame bars B and C of a conventional winding or balling machine. The bars B and C are rigidly connected to side bars D, the latter being pivotally connected at E to the main frame F of the balling machine. The pivotal connection E permits the frame bars B and C, carrying the spindle shafts and carriers A, connected with the side bars D, to be swung about the point E so as to move the spindles and carriers A into and out of operative position with respect to flyer arms, not shown. The method of mounting the spindle shafts and carriers A in the bars B and C is well known in the art and need not be described in detail. I have indicated the usual worm gear G in mesh with the worm gear H, fixed to the spindle shaft to rotate the same.

Referring now to that form of construction in which I have chosen to embody my invention, the spindle shaft and carrier, indicated as a whole at A, comprise a shaft 1 and head

or carrier 2. The carrier 2 has an axial recess in its lower end to receive the shaft 1, which is secured to the carrier 2 by a screw or other suitable means. An axial recess 3 which extends longitudinally, intermediate the top and bottom of carrier 2 communicates with longitudinal slots 4 preferably arranged in diametrically opposite pairs and extending radially. The slots 4 extend from the top of the carrier 2 to the interior, tapered surfaces 5 near the bottom of the carrier 2.

Mounted in the slots 4 are arms 6 apertured between their ends and held within the slots 4 by pins 7 extending through the walls of the carrier 2 and the aperture in the arm 6. The arm 6 is so shaped as to fit within the relatively long, narrow slot 4 and to have an outwardly facing, beveled surface 8 on its lower end so that when the upper part of the arm 6 is entirely within the slot 4, the beveled surface 8 at the lower end of the arm will be exposed as shown in Figures 1, 6 and 7. The bottom surface 9 of the arm 6 is complemental to the tapered surface 5 of the carrier 2.

The upper part of the arm 6 is bifurcated, as indicated at 10 in Figure 6, providing two spaced apart, upwardly extending arms 11, 11, the upper ends of which are apertured to receive pins 12, which hold in place between the arms 11 the devices which frictionally hold the core of the ball to be wound.

As shown in the drawings these friction devices, indicated as a whole at 13, are made of specially hardened steel wire, bent at various points between its ends,—first at 14 to engage the pin 12, and then to form a vertically extending, outwardly facing bar 15, and then to form a bar 16 at substantially right angles to the bar 15. The core holding device 13 is also slightly bent at 17 so as to bring the horizontal bar 16 into a vertical plane slightly to one side of the vertical plane of the bar 15. The upper part of the body of the carrier 2 is bored horizontally at 18 to receive a bar 16 of the core holding device 13, said bar 16 being adapted to have sliding motion therein. In this instance, four bores or guideways 18 are used, one for each bar 16, so spaced both horizontally and vertically as not to interfere with each other. The slight bend 17 referred to permits the bars 16 of diametrically opposite pairs of core holding devices 13 to move in their respective guideways 18, as best shown in Figure 9.

The connection between the parts 11 of the arm 6 and the core holding devices 13, through the pin 12, permits of pivotal motion between the parts when the arm 6 are actuated. This is essential in order to permit the bar 15 of the core holding device 13 to retain a truly perpendicular position regardless of the position of the arms 6 with respect to carrier 2. When the arms 6 are actuated as hereinafter described, the bars 16, travelling in their guideways 18, and the pivotal connection 12 between the arms 11 and core holding device 13, co-operate to maintain the vertical bar 15 in proper position.

I have herein described the core holding devices 13 as being made of special wire bent for the purposes referred to. It is obvious that the arms 6 may be provided with solid core holding devices pivotally connected thereto, and that the exact form thereof is immaterial.

In the lower part of the axial recess 3, resting on top of the spindle shaft 1 and normally extending outwardly into the slots 4, are the spring arms 19 shown in perspective in Figure 14. The spring arms are held in place by the block 20 shown in plan in Figure 11 and in section in Figure 12. Those parts of the side surfaces of the block 20 facing the slots 4, are beveled as indicated at 21 to accommodate the springs 19 when the lower end of the arm 6 is moved into slot 4 against the spring arms 19.

Mounted on the carrier 2 is a collar 22 provided with an outwardly opening groove 23. This collar normally rests upon the edges of the beveled surfaces 8 of the arms 6, as shown in Figures 1, 6 and 7. When it is desired to bring the devices 13 into frictional engagement with the inner surface of the ball core, the collar 22 is moved downwardly, by means hereinafter to be described, in frictional engagement with the beveled surfaces 8 of the arms 6, against the tension of the spring arms 19, until the devices 13 are radially extended as desired. In Figure 10 the collar 22 is shown at its lowermost position and the core holding devices 13 in their most extended positions. A pin 24 prevents the collar 22 from slipping off the carrier body 2.

The collar 22, for adjusting the position of the core holding devices 13, is actuated by the following mechanism; a bar 25 having trunnions 26 as each end, is rotatably mounted in apertured brackets 27, rigidly attached to the frame bar B of the machine. The bar 25 has a rigid handle or adjusting lever 28 extending upwardly therefrom as best shown in Figures 1 and 2. The bar 25 is also provided with pairs of rigidly connected arms 29, having pins 30 adapted to engage the walls of the groove 23 in the collar 22. When the lever 28 is moved by the operator, the bar 25 will be rotated through its trunnions 26 in the brackets 27, so as to move the arms 29, carrying the pins 30, in the arc of a circle described by the pins 30 with respect to the axis of the bar 25. This motion of the bar 25 and its parts causes the pins 30 to move the collar 22 upwardly or downwardly with respect to the carrier 2, thereby engaging or releasing the beveled surfaces 8 of the arms 6 as the case may be.

The adjusting arm 28 for rotating the bar 25 to move the collar 22 into desired position with respect to the carrier 2, may be held in

a desired position by the following arrangement of parts; a guide bracket 31 of any desired construction, having notches 32, is attached to the side frame D, in such a position that the lever 28 may engage the notched guide bar 31. This may be accomplished by providing the lever 28 with a recess 33 to hold a spring 34 and ball 35, the latter being adapted to engage the notches 32 of the guide bar 31 as the lever 28 is moved with respect thereto. This construction is shown in detail in Figure 4.

It will be understood that the spring arms 19, extending outwardly into the slots 4, will normally press against the lower inner sides of the arms 6 and keep the friction devices 13 within the periphery of the carrier 2. It is only when the spring tension is overcome by moving the collar 22 downwardly so as to press against the beveled surfaces 8 of the arms 6 that the spring tension is overcome and the devices 13 are extended radially to hold a core of desired diameter. As soon as the adjusting lever 28 is again actuated to move the bar 25 and its parts so that the collar 22 is out of engagement with the beveled surfaces 8, the spring arms 19 will promptly exert pressure against the lower inner surfaces of the arms 6, as heretofore explained, causing the friction devices 13 to assume their normal position, and permitting the wound ball to be removed without coming in contact with any obstruction.

It will be also understood that the bar 25 with its collar engaging arms 29 carrying pins 30 may extend across the machine and control any desired number of carriers. On the other hand, the collar adjusting mechanism for each carrier may be separate from the other collar adjusting mechanisms, if desired. Nor do I desire to be limited to the particular form of adjusting mechanism herein shown and described as it is obvious that other means for moving the adjusting collars may be used without departing from the scope of my invention.

I claim as my invention:

1. A device for winding yarn and the like, comprising a carrier having a plurality of radial, longitudinally extending slots, an arm pivotally mounted in each slot, the outer surface of one end of said arm constituting a core engaging device normally within the periphery of the carrier, the other end being provided with an outwardly facing beveled surface and normally extending beyond the periphery of the carrier, arm engaging means within the carrier for holding the pivoted arms in said normal position, and means for adjusting and maintaining the arms in normal, extended or intermediate positions with respect to the carrier.

2. A device for winding yarn and the like, comprising a carrier having a plurality of radial, longitudinally extending slots, an arm pivotally mounted in each slot, a core engaging device pivotally connected to the upper end of the arm and supported normally within the periphery of the carrier, the other end of the arm being provided with an outwardly facing beveled surface and normally extending beyond the periphery of the carrier, means within the carrier for holding the pivoted arms in said normal position, and means for adjusting the position of the arms with respect to the carrier.

3. A device for winding yarn and the like, comprising a carrier having a plurality of radial, longitudinally extending slots, an arm pivotally mounted in each slot, a core engaging device, having an outwardly facing vertically disposed wall, pivotally connected to the upper end of the arm and normally within the periphery of the carrier, means for maintaining the vertically disposed wall of the core engaging device in parallel relation to the axis of the carrier, the other end of the arm being provided with an outwardly facing beveled surface and normally extending beyond the periphery of the carrier, means within the carrier for holding the pivoted arms in said normal position, and means for adjusting the position of the arms with respect to the carrier.

4. A device for winding yarn and the like, comprising a carrier having a plurality of radial, longitudinally extending slots, an arm pivotally mounted in each slot, a core engaging device, having an outwardly facing vertically disposed wall, pivotally connected to the upper end of the arm and normally within the periphery of the carrier, means for maintaining the vertically disposed wall of the core engaging device in parallel relation to the axis of the carrier, comprising an inwardly directed, horizontally disposed bar connected with the core engaging device and adapted to travel in guideways in the carrier body, the other end of the arm being provided with an outwardly facing beveled surface and normally extending beyond the periphery of the carrier, means within the carrier for holding the pivoted arms in said normal position, and means for adjusting the position of the arms with respect to the carrier.

5. A device for winding yarn and the like, comprising a carrier having a plurality of radial, longitudinally extending slots, an arm pivotally mounted in each slot, a core engaging device comprising a piece of wire bent between its ends to form an outwardly facing vertically disposed bar and an inwardly directed horizontally disposed bar adapted to travel in guideways in the carrier body, said core engaging device being pivotally connected to the upper end of the arm and normally within the periphery of the carrier, the other end of the arm being provided with an outwardly facing beveled surface and nor-

mally extending beyond the periphery of the carrier, means within the carrier for holding the pivoted arms in said normal position, and means for adjusting the position of the arms with respect to the carrier.

6. A device for winding yarn and the like, comprising a carrier having a plurality of radial, longitudinally extending slots, an arm pivotally mounted in each slot, the outer surface of one end of said arm constituting a core engaging device normally within the periphery of the carrier, the other end being provided with an outwardly facing beveled surface and normally extending beyond the periphery of the carrier, springs, located within the carrier, and extending radially outwardly into each of the slots, adapted to exert pressure against the inner surface of the lower ends of the arms to hold said arms in normal position, and means for adjusting the position of the arms with respect to the carrier.

7. A device for winding yarn and the like, comprising a carrier having a plurality of radial, longitudinally extending slots, an arm pivotally mounted in each slot, a core engaging device pivotally connected to the upper end of the arm and normally within the periphery of the carrier, the other end of the arm being provided with an outwardly facing beveled surface and normally extending beyond the periphery of the carrier, springs, located within the carrier and extending radially outwardly into each of the slots, adapted to exert pressure against the inner surface of the lower ends of the arms to hold said arms in normal position, and means for adjusting the position of the arms with respect to the carrier.

8. A device for winding yarn and the like, comprising a carrier having a plurality of radial, longitudinally extending slots, an arm pivotally mounted in each slot, a core engaging device, having an outwardly facing vertically disposed wall, pivotally connected to the upper end of the arm and normally within the periphery of the carrier, means for maintaining the vertically disposed wall of the core engaging device in parallel relation to the axis of the carrier, the other end of the arm being provided with an outwardly facing beveled surface and normally extending beyond the periphery of the carrier, springs, located within the carrier, and extending radially outwardly into each of the slots, adapted to exert pressure against the inner surface of the lower ends of the arms to hold said arms in normal position, and means for adjusting the position of the arms with respect to the carrier.

9. A device for winding yarn and the like, comprising a carrier having a plurality of radial, longitudinally extending slots, an arm pivotally mounted in each slot, a core engaging device, having an outwardly facing vertically disposed wall, pivotally connected to the upper end of the arm and normally within the periphery of the carrier, means for maintaining the vertically disposed wall of the core engaging device in parallel relation to the axis of the carrier, comprising an inwardly directed, horizontally disposed bar connected with the core engaging device and adapted to travel in guideways in the carrier body, the other end of the arm being provided with an outwardly facing beveled surface and normally extending beyond the periphery of the carrier, springs, located within the carrier, and extending radially outwardly into each of the slots, adapted to exert pressure against the inner surface of the lower ends of the arms to hold said arms in normal position, and means for adjusting the position of the arms with respect to the carrier.

10. A device for winding yarn and the like, comprising a carrier having a plurality of radial, longitudinally extending slots, an arm pivotally mounted in each slot, a core engaging device comprising a piece of wire bent between its ends to form an outwardly facing vertically disposed bar and an inwardly directed horizontally disposed bar adapted to travel in guideways in the carrier body, said core engaging device being pivotally connected to the upper end of the arm and normally within the periphery of the carrier, the other end of the arm being provided with an outwardly facing beveled surface and normally extending beyond the periphery of the carrier, springs, located within the carrier and extending radially outwardly into each of the slots, adapted to exert pressure against the inner surface of the lower ends of the arms to hold said arms in normal position, and means for adjusting the position of the arms with respect to the carrier.

11. A device for winding yarn and the like, comprising a carrier having a plurality of a radial, longitudinally extending slots, an arm pivotally mounted in each slot, the outer surface of one end of said arm constituting a core engaging device normally within the periphery of the carrier, the other end being provided with an outwardly facing beveled surface and normally extending beyond the periphery of the carrier, means within the carrier for holding the pivoted arms in said normal position, and means for adjusting the position of the arms with respect to the carrier, said adjusting means comprising a grooved collar movably mounted on the carrier and adapted for frictional contact with the beveled surfaces of the pivoted arms, and means for actuating the collar.

12. A device for winding yarn and the like, comprising a carrier having a plurality of radial, longitudinally extending slots, an arm pivotally mounted in each slot, a core engaging device pivotally connected to the

upper end of the arm and normally within the periphery of the carrier, the other end of the arm being provided with an outwardly facing beveled surface and normally extending beyond the periphery of the carrier, means within the carrier for holding the pivoted arms in said normal position, and means for adjusting the position of the arms with respect to the carrier, said adjusting means comprising a grooved collar movably mounted on the carrier and adapted for frictional contact with the beveled surfaces of the pivoted arms, and means for actuating the collar.

13. A device for winding yarn and the like, comprising a carrier having a plurality of radial, longitudinally extending slots, an arm pivotally mounted in each slot, a core engaging device, having an outwardly facing vertically disposed wall, pivotally connected to the upper end of the arm and normally within the periphery of the carrier, means for maintaining the vertically disposed wall of the core engaging device in parallel relation to the axis of the carrier, the other end of the arm being provided with an outwardly facing beveled surface and normally extending beyond the periphery of the carrier, means within the carrier for holding the pivoted arms in said normal position, and means for adjusting the position of the arms with respect to the carrier, said adjusting means comprising a grooved collar movably mounted on the carrier and adapted for frictional contact with the beveled surfaces of the pivoted arms, and means for actuating the collar.

14. A device for winding yarn and the like, comprising a carrier having a plurality of radial, longitudinally extending slots, an arm pivotally mounted in each slot, a core engaging device, having an outwardly facing vertically disposed wall, pivotally connected to the upper end of the arm and normally within the periphery of the carrier, means for maintaining the vertically disposed wall of the core engaging device in parallel relation to the axis of the carrier, comprising an inwardly directed, horizontally disposed bar connected with the core engaging device and adapted to travel in guideways in the carrier body, the other end of the arm being provided with an outwardly facing beveled surface and normally extending beyond the periphery of the carrier, means within the carrier for holding the pivoted arms in said normal position, and means for adjusting the position of the arms with respect to the carrier, said adjusting means comprising a grooved collar movably mounted on the carrier and adapted for frictional contact with the beveled surfaces of the pivoted arms, and means for actuating the collar.

15. A device for winding yarn and the like, comprising a carrier having a plurality of radial, longitudinally extending slots, an arm pivotally mounted in each slot, a core engaging device comprising a piece of wire bent between its ends to form an outwardly facing vertically disposed bar and an inwardly directed horizontally disposed bar adapted to travel in guideways in the carrier body, said core engaging device being pivotally connected to the upper end of the arm and normally within the periphery of the carrier, the other end of the arm being provided with an outwardly facing beveled surface and normally extending beyond the periphery of the carrier, means within the carrier for holding the pivoted arms in said normal position, and means for adjusting the position of the arms with respect to the carrier, said adjusting means comprising a grooved collar mounted on the carrier and adapted for frictional contact with the beveled surfaces of the pivoted arms, and means for actuating the collar.

16. A device for winding yarn and the like, comprising a carrier having a plurality of radial, longitudinally extending slots, an arm pivotally mounted in each slot, the outer surface of one end of said arm constituting a core engaging device normally within the periphery of the carrier, the other end being provided with an outwardly facing beveled surface and normally extending beyond the periphery of the carrier, springs, located within the carrier and extending radially outwardly into each of the slots, adapted to exert pressure against the inner surface of the lower ends of the arms to hold said arms in normal position, and means for adjusting the position of the arms with respect to the carrier, said adjusting means comprising a grooved collar movably mounted on the carrier and adapted for frictional contact with the beveled surfaces of the pivoted arms, and means for actuating the collar.

17. A device for winding yarn and the like, comprising a carrier having a plurality of radial, longitudinally extending slots, an arm pivotally mounted in each slot, a core engaging device pivotally connected to the upper end of the arm and normally within the periphery of the carrier, the other end of the arm being provided with an outwardly facing beveled surface and normally extending beyond the periphery of the carrier, springs, located within the carrier and extending radially outwardly into each of the slots, adapted to exert pressure against the inner surface of the lower ends of the arms to hold said arms in normal position, and means for adjusting the position of the arms with respect to the carrier, said adjusting means comprising a grooved collar movably mounted on the carrier and adapted for frictional contact with the beveled surfaces of the pivoted arms, and means for actuating the collar.

18. A device for winding yarn and the like,

comprising a carrier having a plurality of radial, longitudinally extending slots, an arm pivotally mounted in each slot, a core engaging device, having an outwardly facing vertically disposed wall, pivotally connected to the upper end of the arm and normally within the periphery of the carrier, means for maintaining the vertically disposed wall of the core engaging device in parallel relation to the axis of the carrier, the other end of the arm being provided with an outwardly facing beveled surface and normally extending beyond the periphery of the carrier, springs, located within the carrier and extending radially outwardly into each of the slots, adapted to exert pressure against the inner surface of the lower ends of the arms to hold said arms in normal position, and means for adjusting the position of the arms with respect to the carrier, said adjusting means comprising a grooved collar movably mounted on the carrier and adapted for frictional contact with the beveled surfaces of the pivoted arms, and means for actuating the collar.

19. A device for winding yarn and the like, comprising a carrier having a plurality of radial, longitudinally extending slots, an arm pivotally mounted in each slot, a core engaging device, having an outwardly facing vertically disposed wall, pivotally connected to the upper end of the arm and normally within the periphery of the carrier, means for maintaining the vertically disposed wall of the core engaging device in parallel relation to the axis of the carrier, comprising an inwardly directed, horizontally disposed bar connected with the core engaging device and adapted to travel in guideways in the carrier body, the other end of the arm being provided with an outwardly facing beveled surface and normally extending beyond the periphery of the carrier, springs, located within the carrier and extending radially outwardly into each of the slots, adapted to exert pressure against the inner surface of the lower ends of the arms to hold said arms in normal position, and means for adjusting the position of the arms with respect to the carrier, said adjusting means comprising a grooved collar movably mounted on the carrier and adapted for frictional contact with the beveled surfaces of the pivoted arms, and means for actuating the collar.

20. A device for winding yarn and the like, comprising a carrier having a plurality of radial, longitudinally extending slots, an arm pivotally mounted in each slot, a core engaging device comprising a piece of wire bent between its ends to form an outwardly facing vertically disposed bar and an inwardly directed horizontally disposed bar adapted to travel in guideways in the carrier body, said core engaging device being pivotally connected to the upper end of the arm and normally within the periphery of the carrier, the other end of the arm being provided with an outwardly facing beveled surface and normally extending beyond the periphery of the carrier, springs, located within the carrier and extending radially outwardly into each of the slots, adapted to exert pressure against the inner surface of the lower ends of the arms to hold said arms in normal position, and means for adjusting the position of the arms with respect to the carrier, said adjusting means comprising a grooved collar movably mounted on the carrier and adapted for frictional contact with the beveled surfaces of the pivoted arms, and means for actuating the collar.

21. In a balling machine, a frame, a plurality of devices for winding yarn and the like mounted in the frame, said devices comprising a carrier having a plurality of radial, longitudinally extending slots, an arm pivotally mounted in each slot, the outer surface of one end of said arm constituting a core engaging device normally within the periphery of the carrier, the other end being provided with an outwardly facing beveled surface and normally extending beyond the periphery of the carrier, means within the carrier for holding the pivoted arms in said normal position, and means for adjusting the position of the arms with respect to the carrier, said adjusting means comprising grooved collars movably mounted on the carriers and adapted for frictional contact with the beveled surfaces of the pivoted arms, and means for simultaneously actuating the collars.

22. In a balling machine, a frame, a plurality of devices for winding yarn and the like mounted in the frame, said devices comprising a carrier having a plurality of radial, longitudinally extending slots, an arm pivotally mounted in each slot, the outer surface of one end of said arm constituting a core engaging device normally within the periphery of the carrrier, the other end being provided with an outwardly facing beveled surface and normally extending beyond the periphery of the carrier, means within the carrier for holding the pivoted arms in said normal position, and means for adjusting the position of the arms with respect to the carrier, said adjusting means comprising grooved collars movably mounted on the carriers, a bar rotatably mounted on the frame in juxtaposition to the carriers, collar engaging arms rigidly connected to the rotatable bar and a lever for rotating the bar.

23. In a balling machine, a frame, a plurality of devices for winding yarn and the like mounted in the frame, said devices comprising a carrier having a plurality of radial, longitudinally extending slots, an arm pivotally mounted in each slot, the outer surface of one end of said arm constituting a core engaging device normally within the periphery

of the carrier, the other end being provided with an outwardly facing beveled surface and normally extending beyond the periphery of the carrier, means within the carrier for holding the pivoted arms in said normal position, and means for adjusting the position of the arms with respect to the carrier, said adjusting means comprising grooved collars movably mounted on the carriers, a bar rotatably mounted on the frame in juxtaposition to the carriers, collar engaging arms rigidly connected to the rotatable bar, a lever for rotating the bar and a notched guide bracket on the machine frame for holding the lever in adjusted position.

24. In a balling machine, a frame, a plurality of devices for winding yarn and the like mounted in the frame, said devices comprising a carrier having a plurality of radial, longitudinally extending slots, an arm pivotally mounted in each slot, the outer surface of one end of said arm constituting a core engaging device normally within the periphery of the carrier, the other end being provided with an outwardly facing beveled surface and normally extending beyond the periphery of the carrier. means within the carrier for holding the pivoted arms in said normal position, and means for adjusting the position of the arms with respect to the carrier, said adjusting means comprising grooved collars movably mounted on the carriers, a trunnioned bar, said bar carrying rigidly connected arms having pins at their ends adapted to enter the grooved collar, a notched guide bracket, an adjusting lever rigidly connected to the bar and adapted to be held in adjusted position in the notched guide bracket.

25. In a balling machine, a frame, a plurality of devices for winding yarn mounted in the frame, each of said devices including a carrier, a plurality of movable core-engaging arms mounted in each carrier, means on each carrier for adjusting the position of the arms relative to the carrier, means operatively connecting said adjusting means for simultaneously actuating all of the same, and means for holding said last mentioned means in any of a plurality of adjusted positions.

In testimony, that I claim the foregoing as my invention I affix my signature this 14 day of May, 1927.

ALBERT B. COLLINGBOURNE.