Feb. 28, 1933. L. E. WIRTH 1,899,405

STRIPPER BAR MOUNTING

Filed April 8, 1932 3 Sheets-Sheet 1

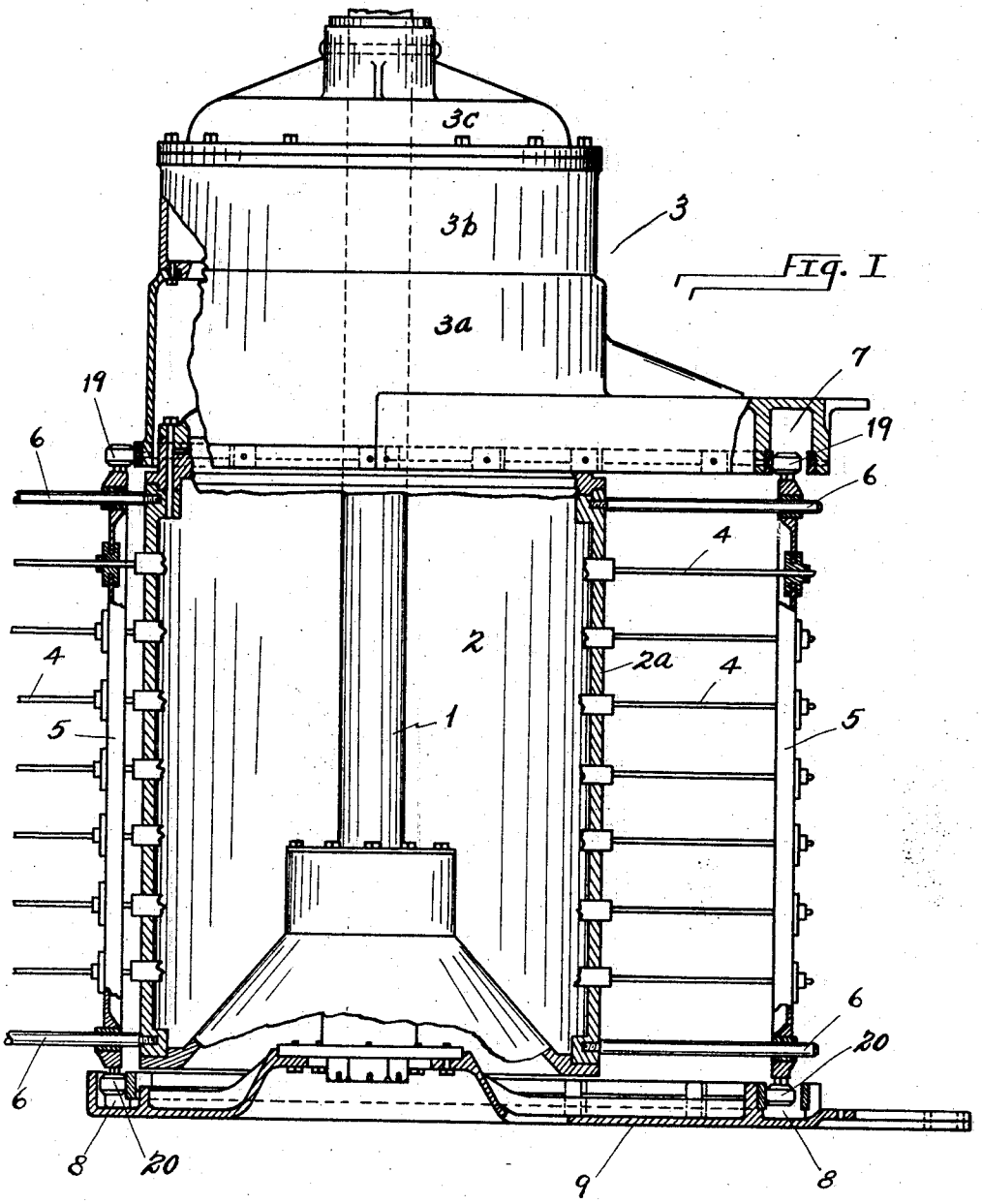


Fig. I

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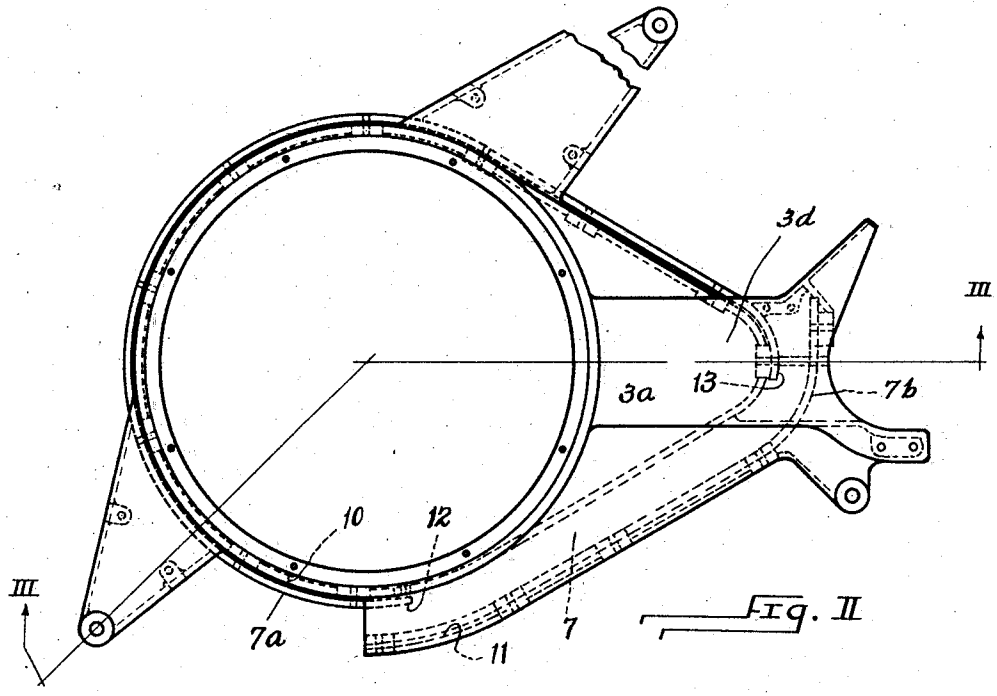


Fig. II

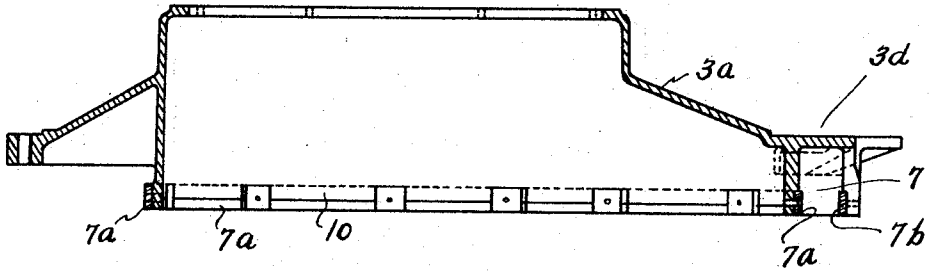


Fig. III

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STRIPPER BAR MOUNTING

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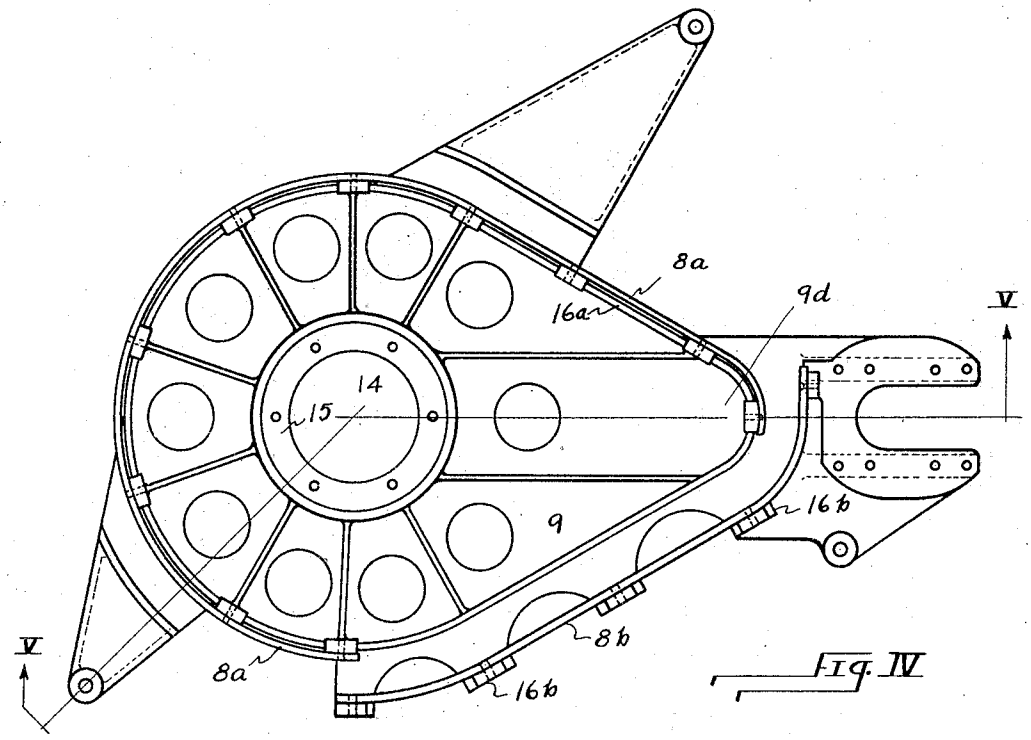
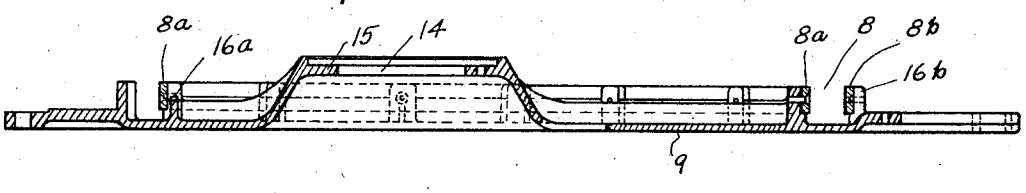


Fig. IV

Fig. V



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UNITED STATES PATENT OFFICE

LOUIS E. WIRTH, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO ALBERT M. HANAUER, OF PITTSBURGH, PENNSYLVANIA

STRIPPER BAR MOUNTING

Application filed April 8, 1932. Serial No. 604,006.

This invention relates to a stripper bar mounting in a cotton harvesting machine such as that disclosed in my co-pending application Serial No. 454,255, filed May 21, 1930.

In such a machine as that disclosed in my above noted application cotton is picked from the plants by means of a plurality of picking needles carried by a revoluble cylinder, which by suitable driving connection is rotated about a stationary shaft. This shaft is suspended from the frame of the machine. The needles themselves are carried with the cylinder during its revolution, and are rotated about their own axes to wind fibers of cotton about the needles. During a certain period in the revolution of the cylinders, rotation of the needles is temporarily discontinued, and in that period stripper bars are moved outwardly along the needles to push the cotton thereon to a point at the end of the needles where it may be readily removed, as by a stiff revolving brush. These stripper bars move inwardly and outwardly of the needles by contact with cam tracks defining a path designed to produce the inward and outward stripper bar movement in proper angular positions of the needle carrying cylinder or frame throughout each period of revolution.

In order that each picking needle assembly comprising the supporting shaft, the revoluble carrying cylinder, the picking needles and associated means may be wholly self contained I mount the cam tracks for guidance of the stripper bars solely upon other elements of the assembly, and so form and arrange these cam tracks and their supporting means, that the upper and lower cam tracks are rigid, and are in exact alignment with each other.

As in my co-pending application Serial No. 595,535, filed February 27, 1932, each of the stripper bars is provided with rigidly mounted guide fingers, as well as with rotatable picking needles. These fingers form tracks on which the stripper bars move inwardly and outwardly under the influence of their contact with the cam tracks, and serve to protect the picking needles from angular forces resulting from movement of the stripper bars. As a further feature of my invention, I mount these stripper bar guide fingers in the same wall of the carrying cylinder in which the picking needles are mounted. This mounting of the stripper bar guide fingers assures their alignment at all times with the vertical rows of picking needles with which the guide fingers are associated, preserving an accurate correlation of the guide fingers with the picking needles independently of the alignment of any other element of the assembly.

In the accompanying drawings Figure I is a view, partly in vertical section and partly in elevation, of a picking needle carrier assembly, showing the needle-carrying cylinder, its supporting shaft, the housing associated therewith, and the cam tracks and cam track mountings, but omitting for simplicity the driving connections for the cylinder and for the needles; Figure II is a plan view of the upper cam track mounting and cam track; Figure III is a vertical sectional view through the upper cam track mounting and cam track taken on the irregular section line III—III of Figure II; Figure IV is a plan view of the lower cam track mounting and cam track; and Figure V is a vertical sectional view taken on the irregular section line V—V of Figure IV.

In the accompanying drawings reference numeral 1 designates a suspending shaft, which in practice is non-rotatably mounted on the frame of a cotton harvesting machine. All the elements of the picking assembly are wholly supported by this non-rotatable shaft 1. Revolubly mounted on shaft 1 is a cylinder 2 having a vertical wall 2*a*. Above the cylinder 2, and non-rotatably mounted with respect to shaft 1, is a housing 3 which comprises housing elements 3*a*, 3*b*, and 3*c*. This housing serves to contain and protect means for transmitting power to the cylinder for revolving it about shaft 1, and for rotating the picking needles of the assembly about their own axes. The form and arrangement of these actuating connections are shown and described in my co-pending application Serial No. 454,255, filed May 21, 1930.

The picking needles 4 of the assembly are mounted in the vertical wall 2*a* of carrying cylinder 2, and project outwardly therefrom. These needles 4 are arranged in vertical rows, and a stripper bar 5 is associated with each vertical row of needles. The needles 4 project through the stripper bar, being desirably surrounded at the stripper bar by loosely mounted sleeves, such as those shown and described in my co-pending application Serial No. 595,535, filed February 27, 1932.

As described generally above, during the picking of cotton, cylinder 2 is revolved by suitable actuating connections about non-revoluble shaft 1 as an axis of rotation. By suitable operating connections each individual row acts as a unit, all the needles of a particular row being simultaneously rotated throughout a predetermined number of degrees of cylinder movement during each complete revolution of the cylinder. During rotation of the needles 4 of each vertical row, the stripper bar 5 associated with that row lies adjacent the base of the needles in such position that it does not interfere with the gathering of cotton by the needles. In timed relation to the completion of the gathering of cotton by the needles, and when the picking rotation of the needles is terminated, the stripper bar 5 associated with the row of needles 4 is moved outwardly along the needles, and pushes toward their ends the cotton fibers which have been gathered by them. Associated with each vertical row of picking needles 4 are two stripper bar guide fingers 6, which serve to relieve the needles of tortional forces produced by inward and outward movement of the stripper bar.

My present invention relates particularly to the means for producing inward and outward movement of the stripper bars associated with the several rows of needles, and with the mounting of the stripper bar guide fingers. Inward and outward movement of the stripper bars is caused by cam tracks as in my co-pending application Serial No. 454,255, and the patent to Hiram N. Berry, No. 1,747,566, dated February 18th, 1930. Stripper bar guide fingers associated with each vertical row of needles are shown and described not only in my said co-pending applications but also in the Berry Patent No. 1,747,566. My invention, therefore, resides in the mounting of the picking cylinder generally, and specifically in the mounting of the stripper bar guide fingers and in the structure and mounting of the cam tracks producing operative movement of the stripper bars.

By reference to Figure I of the drawings, it will be noted that the upper cam track 7 is carried by the stationary housing element 3*a*, and that the lower cam track 8 is carried by a plate 9, which lies below cylinder 2, and is wholly and immovably supported by the shaft 1.

With particular reference to Figures II and III of the drawings, it will be noted that the housing element 3*a* which carries the upper cam track 7 is a single integral casting. This housing element and cam track support 3*a* is wholly supported from shaft 1 by its rigid connection with the other housing elements 3*b* and 3*c*. The cam track 7 is formed of two metallic strips 7*a* and 7*b*, which form inner and outer track elements. The inner track strip 7*a* is attached to the skirt 10 of support 3*a* and the outer track strip 7*b* is carried by the skirt 11 of the support. It will be seen by reference to Figure II of the drawings that the continuous track formed by these strips 7*a* and 7*b* follows a circular path on the support 3*a* throughout an angular distance of more than 180 degrees.

The casting is extended outwardly in the region 3*d* to provide for an irregular positioning of the cam track to act on the stripper bar 5 of the assembly. The inner track element 7*a* extends from a point 12 to a point 13 adjacent the peak of extension 3*d*. Slightly overlapping both ends of the inner track strip 7*a* is the outer track strip 7*b*, the inner track strip being omitted throughout the greater proportion of the extent of the outer track strip 7*b*.

The plate 9 which carries lower cam track 8 has a central opening 14 and flange 15 for attachment to shaft 1. By reference to Figure V of the drawings, it will be seen that the plate 9 has thereon an upstanding flange 16*a*, carrying the inner track strip or section 8*a*, and upstanding lugs 16*b* carrying the outer track strip 8*b*. The contour of the plate 9 in plan, in so far as the formation of the track-carrying flanges is concerned, is identical with the contour of the upper cam track support 3*a*, and in the assembly these two supports are mounted in exact alignment with each other.

In operation of the picking assembly, with the needle-carrying cylinder 2 revolving in a clockwise direction, each of the stripper bars is carried around with the cylinder by the stripper bar guide fingers 6. Each stripper bar has adjacent its ends rollers 19 and 20 which are in contact respectively with the upper cam track 7 and the lower cam track 8. During revolution of the needle-carrying cylinder 2 through the angular distance in which the cam tracks follow a semi-circular path, a stripper bar following that path lies inwardly adjacent the base of the needles with which it is associated. This defines the period in which the needles are in picking condition.

A continuation of the single revolution of the needle-carrying cylinder causes the rollers to follow along the extension 3*d* of the upper cam track support and extension 9*d* of the lower cam track support, with the rollers still in contact with the inner track strips

7*a* and 8*a* of the two tracks. This movement forces the stripper bars gradually outward along the needles until the peak of the tracks is reached. Shortly before the rollers reach the peak of the tracks, they enter within the outer track strips 7*b* and 8*b*, and after the peak has been passed the continued revolution of the needle-carrying cylinder brings the stripper bars inwardly to a point at which the needles are operatively exposed. The outer track strips force this inward movement.

It will be noted that each of the stripper bar guide fingers is mounted directly in the wall 2*a* of cylinder 2, in line with a vertical row of picking needles. For this reason any accidental displacement of an element of the picking assembly cannot cause the stripper bar guide fingers to be out of line with the picking needles, and the stripper bars may move inwardly and outwardly under the influence of the cam tracks without exerting pressure on the needles.

As previously emphasized, both the cam tracks are carried wholly by the non-revoluble shaft of the assembly, and are without connection to any other part of the machine to which the assembly is mounted. This permits a picking assembly to be adjusted in the machine as a whole and without mutual adjustment of its several elements. The cam track supports are rigid structures, rigidly connected to the shaft. The possibility of the two cam tracks working out of mutual alignment is therefore minimized.

I claim as my invention:

1. In a picking assembly for use in a cotton harvesting machine, the combination of a non-revoluble shaft, a needle carrier revoluble on said shaft, a lower cam track support carried wholly by said shaft, an upper cam track support carried wholly by said shaft, lower and upper cam tracks carried respectively by said lower and upper supports in vertical alignment with each other, and stripper bars mounted to move angularly with the needle carrier and operatively contacting both cam tracks.

2. In a picking assembly for use in a cotton harvesting machine, the combination of a non-revoluble shaft, a needle carrier revoluble on said shaft, a plate structure carried wholly by said shaft below the needle carrier and constituting a lower cam track support, a housing carried wholly by said shaft above the needle carrier and constituting an upper cam track support, lower and upper cam tracks carried respectively by said lower and upper supports in vertical alignment with each other, and stripper bars mounted to move angularly with the needle carrier and operatively contacting both cam tracks.

3. In a picking assembly for use in a cotton harvesting machine the combination of a non-revoluble shaft, a needle-carrying cylinder revoluble on said shaft, picking needles mounted in the wall of said cylinder to project in vertical rows therefrom, stripper bars through which the needles of each vertical row project, and stripper bar guide fingers mounted directly in the wall of the cylinder in line with each vertical row of needles and projecting each through the stripper bar associated with the row of needles with which that guide finger is in line.

4. In a picking assembly for use in a cotton harvesting machine the combination of a non-revoluble shaft, a needle-carrying cylinder revoluble on said shaft, a lower cam track support carried wholly by said shaft, an upper cam track support carried wholly by said shaft, lower and upper cam tracks carried respectively by said lower and upper supports in vertical alignment with each other, picking needles mounted in the wall of said cylinder to project in vertical rows therefrom, a stripper bar operatively contacting both cam tracks associated with each vertical row of needles and through which the needles project, and stripper bar guide fingers mounted directly in the wall of the cylinder in line with each vertical row of needles and projecting each through the stripper bar associated with the row of needles with which that guide finger is in line.

In testimony whereof I have hereunto set my hand.

LOUIS E. WIRTH.