July 11, 1933. J. O. McKEAN 1,918,210

TRAVERSING MEANS FOR WINDING MACHINES

Filed Jan. 27, 1933 2 Sheets-Sheet 1

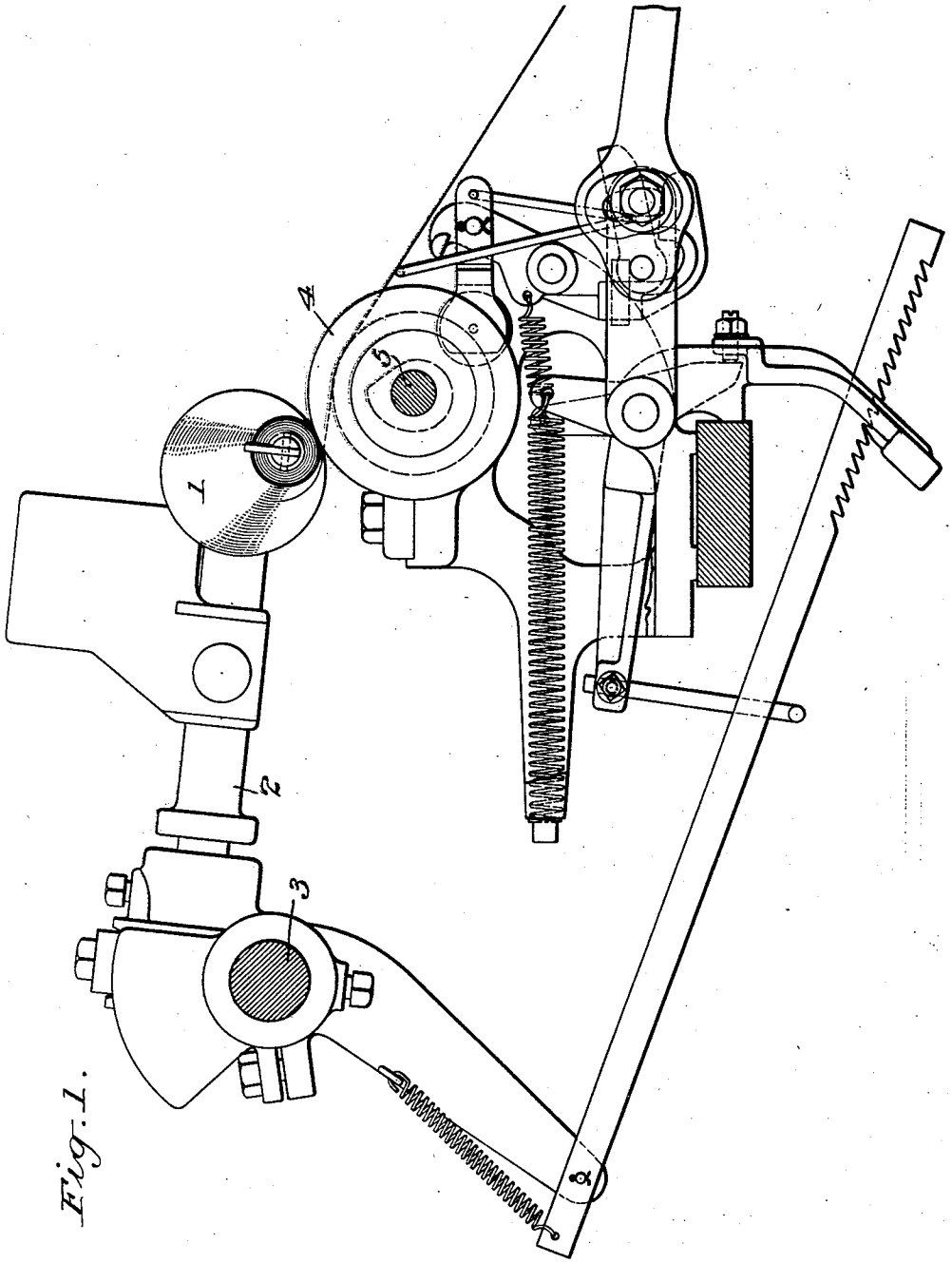


Fig. 1.

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Fig. 1.

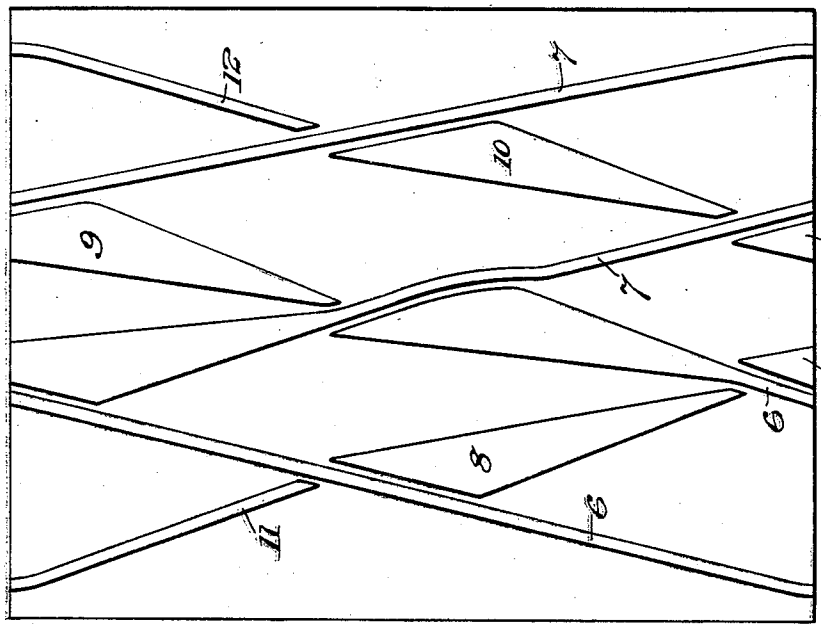


Fig. 2.

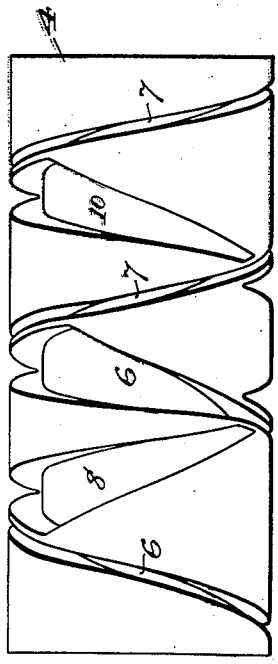


Fig. 3.

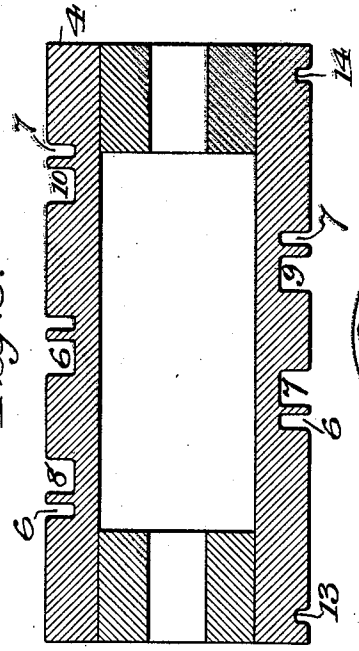
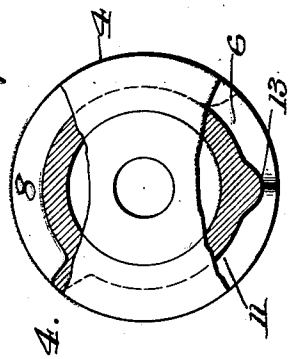


Fig. 4.



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UNITED STATES PATENT OFFICE

JOHN O. McKEAN, OF WESTFIELD, MASSACHUSETTS, ASSIGNOR TO FOSTER MACHINE COMPANY, OF WESTFIELD, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS

TRAVERSING MEANS FOR WINDING MACHINES

Application filed January 27, 1933. Serial No. 653,775.

My improved yarn traversing means for winding machines comprises a rotatable element having a plurality of yarn engaging grooves arranged in non-intersecting oppositely disposed helices; means, as a flared portion at the leading end of each of the grooves being provided for controlling the passage of the yarn thereto from its next preceding groove, over an oppositely disposed groove.

My invention further comprises a rotatable element of the above character in which the two end grooves have return portions, said grooves being shallow at the ends of the traverse, to render possible the delivery of the yarn to its package at these points, with a minimum amount of lash and a sharper return of the yarn, thus ensuring a more reliable winding of the package.

My invention more specifically comprises a rotatable element of the above character in which the two end grooves are considerably longer than the intermediate grooves, thereby causing a minimum number of points where the yarn is caused to pass over oppositely disposed grooves.

The object of my invention is to provide a yarn traversing means of the above character in which all possibility of the yarn being diverted from its path in one direction to its path in the opposite direction between the limits of its traverse movement is prevented, said object being attained by the complete elimination of intersecting oppositely disposed helices, said intersecting helices forming shoulders which tend to divert the yarn from one helix to an oppositely disposed helix, especially when the yarn is slack or under light tension.

It is to be understood that hereinafter where the term "yarn" is used, it is used in its generic sense to cover thread, cord, or any other element which may be wound in connection with my improved traverse means.

A practical embodiment of my invention is represented in the accompanying drawings, in which:

Fig. 1 represents a detail vertical transverse section through a standard machine for winding conical packages, with my improved rotary traverse roll incorporated therein;

Fig. 2 represents the traverse roll in side elevation;

Fig. 3 represents the traverse roll in longitudinal central section;

Fig. 4 represents an end view of the traverse roll with portions of the same broken away to more clearly illustrate the varying depths of one of the end yarn engaging grooves in the traverse roll; and

Fig. 5 represents the peripheral surface of the traverse roll developed into a single plane to more clearly illustrate the relationship of the several yarn engaging grooves to one another.

The conical package 1 is carried by the forwardly projecting arm 2 of a rock lever mounted on the shaft 3 as is usual in this type of machine.

My improved rotary traverse roll 4 frictionally drives the conical package 1, which roll is mounted on a shaft 5 driven at the desired speed from a suitable source of power, not shown herein.

This rotary traverse roll 4 has in its peripheral surface a plurality of yarn engaging grooves arranged in non-intersecting oppositely disposed helices.

In the illustrated embodiment of my invention I have shown the rotary traverse roll as provided with two yarn engaging long end grooves 6 and 7 and three yarn engaging short intermediate grooves 8, 9 and 10, the long end grooves having oppositely disposed return portions 11 and 12. The short intermediate groove 8 is disposed in one direction and the short intermediate grooves 9 and 10 are disposed in the opposite direction.

Each of these long and short grooves is flared at its leading end for controlling the passage of the yarn thereto from the tail end of its next preceding groove, over an oppositely disposed groove.

All of the grooves are made substantially the same depth, except the long end grooves which are made shallow at the ends of the traverse, as indicated at 13 and 14 respec-

tively, to permit the yarn to be delivered to the package at these points with a minimum amount of lash and a sharper return of the yarn to ensure a more reliable winding of the package at the ends thereof.

In the accompanying drawings I have shown the flared leading end of the short intermediate groove 8 as arranged to receive the yarn from the tail end of the return portion of the long end groove 6 over a portion of the said end groove 6 which is disposed in the opposite direction. The flared leading end of the other long end groove 7 is arranged to receive the yarn from the tail end of the short intermediate groove 8 over another portion of the long end groove 6 which is disposed in the opposite direction. The flared leading end of the short groove 10 is arranged to receive the yarn from the tail end of the return portion 12 of the long end groove 7 over a portion of the said long end groove 7 which is disposed in the opposite direction. The flared end of the short intermediate groove 9 is arranged to receive the yarn from the tail end of the short intermediate groove 10 over another portion of the long end groove 7 which is disposed in the opposite direction. The flared leading end of the long end groove 6 is arranged to receive the yarn from the tail end of the short intermediate groove 9 over another portion of the long end groove 7 which is disposed in the opposite direction.

From the above description it will be seen that a traversing movement for the yarn, as it is wound upon its package, is obtained without requiring the yarn to pass through an intersecting groove which would tend to cause the yarn to be diverted from its travel in one direction, to its travel in the opposite direction, before it reaches the ends of its traversing movement. It will also be seen that no sharp shoulders are presented which might engage the yarn. It will also be seen that the traversing of the yarn is accomplished with a minimum number of points where the yarn is caused to pass over oppositely disposed grooves, this latter desirable feature being accomplished by the provision of longer and shorter grooves, as hereinabove described.

It will also be seen that another very desirable feature is obtained by making the end grooves shallow at the ends of the traverse, to ensure a more reliable winding of the package at the ends thereof.

It will also be seen that by the use of a plurality of yarn engaging grooves arranged in non-intersecting oppositely disposed helices, the leading ends of the grooves may be flared to a considerable extent to ensure the passage of the yarn into the grooves. This extreme flaring of the leading ends of the grooves could not be utilized were the grooves to intersect, as there would be a liability of the yarn to be deflected from a groove disposed in one direction to a groove disposed in the opposite direction, before the yarn reached the ends of its traverse.

It is evident that various changes may be resorted to in the construction, form and arrangement of the several parts without departing from the spirit and scope of my invention, and hence I do not wish to be limited to the particular embodiment herein shown and described, but

What I claim is:

1. A yarn traversing means for winding machines comprising a rotatable element having a plurality of yarn engaging grooves arranged in non-intersecting oppositely disposed helices.

2. A yarn traversing means for winding machines comprising a rotatable element having a plurality of yarn engaging grooves arranged in non-intersecting oppositely disposed helices, and means at the leading end of each groove for controlling the passage of the yarn thereto.

3. A yarn traversing means for winding machines comprising a rotatable element having a plurality of yarn engaging grooves arranged in non-intersecting oppositely disposed helices, the leading end of each groove being flared for controlling the passage of the yarn thereto.

4. A yarn traversing means for winding machines comprising a rotatable element having a plurality of yarn engaging grooves arranged in non-intersecting oppositely disposed helices, the two end grooves having return portions.

5. A yarn traversing means for winding machines comprising a rotatable element having a plurality of yarn engaging grooves arranged in non-intersecting oppositely disposed helices, and means at the leading end of each groove for controlling the passage of the yarn thereto, the two end grooves having return portions.

6. A yarn traversing means for winding machines comprising a rotatable element having a plurality of yarn engaging grooves arranged in non-intersecting oppositely disposed helices, the leading end of each groove being flared for controlling the passage of the yarn thereto, and the two end grooves having return portions.

7. A yarn traversing means for winding machines comprising a rotatable roll having in its peripheral surface long end and short intermediate yarn engaging grooves arranged in non-intersecting oppositely disposed helices.

8. A yarn traversing means for winding machines comprising a rotatable roll having in its peripheral surface long end and short intermediate yarn engaging grooves

arranged in non-intersecting oppositely disposed helices, and means at the leading end of each long and short grooves for controlling the passage of the yarn thereto.

9. A yarn traversing means for winding machines comprising a rotatable element having a plurality of long end and short intermediate yarn engaging grooves arranged in non-intersecting opposite helices, the leading end of each groove being flared for controlling the passage of the yarn thereto.

10. A yarn traversing means for winding machines comprising a rotatable element having a plurality of long end and short intermediate yarn engaging grooves arranged in non-intersecting helices, the two end grooves having return portions.

11. A yarn traversing means for winding machines comprising a rotatable element having a plurality of long end and short intermediate yarn engaging grooves arranged in non-intersecting helices, and means at the leading end of each groove for controlling the passage of the yarn thereto, the two end grooves having return portions.

12. A yarn traversing means for winding machines comprising a rotatable element having a plurality of long end and short intermediate yarn engaging grooves arranged in non-intersecting helices, the leading end of each groove being flared for controlling the passage of the yarn thereto, and the two end grooves having return portions.

13. A yarn traversing means for winding machines comprising a rotatable element having a plurality of yarn engaging grooves arranged in non-intersecting oppositely disposed helices, the two end grooves having return portions and being made shallower at the ends of the traverse movement.

14. A yarn traversing means for winding machines comprising a rotatable element having a plurality of long end and short intermediate yarn engaging grooves arranged in non-intersecting oppositely disposed helices, the two end grooves having return portions from and being made shallower at the ends of the traverse movement.

15. A yarn traversing means for winding machines comprising a rotatable element having a plurality of yarn engaging grooves arranged in non-intersecting oppositely disposed helices, all of the grooves being of substantially the same depth, except the two end grooves which are made shallower at the ends of the traverse.

16. A yarn traversing means for winding machines comprising a rotatable element having a plurality of yarn engaging grooves arranged in non-intersecting oppositely disposed helices, all of the grooves being of substantially the same depth, except the two end grooves which are made shallower at the ends of the traverse, the leading ends of all of the grooves being flared for controlling the passage of the yarn thereto.

17. A yarn traversing means for winding machines comprising a rotatable element having a plurality of long end and short intermediate yarn engaging grooves arranged in non-intersecting oppositely disposed helices, all of the grooves being of substantially the same depth, except the two long end grooves which are made shallower at the ends of the traverse.

18. A yarn traversing means for winding machines comprising a rotatable element having a plurality of long end and short intermediate yarn engaging grooves arranged in non-intersecting oppositely disposed helices, all of the grooves being of substantially the same depth, except the two long end grooves which are made shallower at the ends of the traverse, the leading ends of all of the grooves being flared for controlling the passage of the yarn thereto.

19. A yarn traversing means for winding machines comprising a rotatable element having a plurality of yarn engaging grooves arranged in non-intersecting oppositely disposed helices, all of the grooves being of substantially the same depth, except the two end grooves which are made shallower at the ends of the traverse, said end grooves also having return portions.

20. A yarn traversing means for winding machines comprising a rotatable element having a plurality of long end and short intermediate yarn engaging grooves arranged in non-intersecting oppositely disposed helices, all of the grooves being of substantially the same depth, except the two end grooves which are made shallower at the ends of the traverse, said end grooves also having return portions.

In testimony, that I claim the foregoing as my invention, I have signed my name this 24th day of January 1933.

JOHN O. McKEAN.