

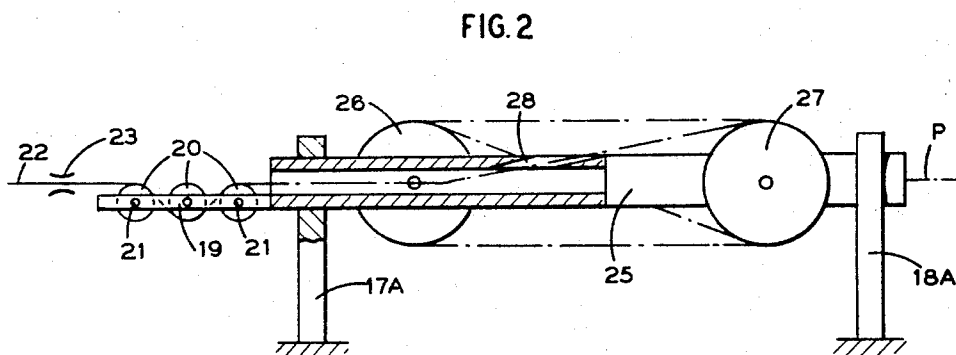
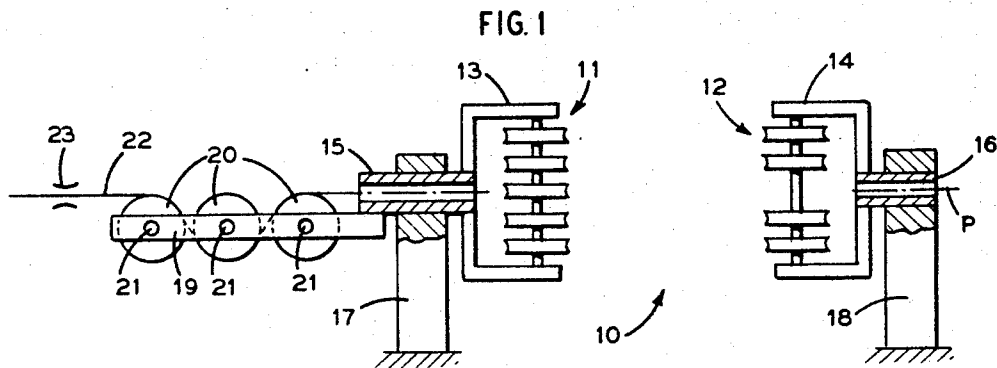
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ACCUMULATOR STRANDING MACHINE

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3,444,679

ACCUMULATOR STRANDING MACHINE

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5 Claims

ABSTRACT OF THE DISCLOSURE

A machine of the accumulator type for stranding wires, cables and other elongated elements; and having means for setting the position of the elements being stranded relative to each other to provide a definite lay of the stranded elements as they pass into the accumulator.

Background of the invention

Stranding machines of the accumulator type have been proposed, as set forth in Patent No. 3,169,360. In such machines, the elements to be stranded are passed around and between two sets of drums or pulley wheels, pulley fashion; which are mounted in a cage or frame arranged for rotation about its longitudinal axis.

At predetermined intervals, determined by the capacity of the accumulator, the rotation of the accumulator is reversed. Thus, the elements being stranded have a change of lay at predetermined spacings of the stranded product. During the rotation of the accumulator, the stranding operation takes place between a stranding nipple or a pair of pinch rolls as shown in said Patent No. 3,169,360, which are located in advance of the accumulator proper.

However, with such known arrangements, the stranding operation at the entrance to the accumulator does not provide defined lengths of lay, since the elements being stranded, even after entrance into the machine, do not have a fixed or determined relation to each other.

While Patent No. 3,169,360 shows pinch rolls at the exit end of the machine, through which the finished, stranded product passes; such rolls have no effect on the actual stranding operation which takes place at the entrance to the machine.

Accordingly, an object of this invention is to provide in an accumulator standing machine, means located in advance of the entrance to the machine proper for engaging the elements being stranded in a manner to determine their relative position during the stranding operation.

Another object of this invention is to provide accumulator standing machines with roller means at the entrance end thereof which are rotatable about axes located transversely of the longitudinal axis of the accumulator device, yet rotating with the accumulator device; the elements to be stranded passing about such roller means before admission to the accumulator device, so as to establish the relative positions of the elements, thereby defining the lengths of the lays in the stranded product.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

Summary of the invention

In accordance with the instant invention, standing machines of the accumulator type are provided with roller means associated with the accumulator device for synchronized rotational movement therewith; the roller means being adapted to engage the elements being stranded as they pass from a stranding nipple to the accumulator

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proper, to thereby fix the position of the elements relative to each other during the stranding operation.

Brief description of the drawing

FIG. 1 is a diagrammatic view showing one embodiment of the invention; and

FIG. 2 is a diagrammatic view, with parts in section, showing another embodiment of the invention.

Description of the preferred embodiments

As shown in FIG. 1, the accumulator device 10 comprises a first set of pulley wheels 11 mounted for rotation in a bifurcated member 13 and a second set of pulley wheels 12 mounted in a similar bifurcated member 14 and located in opposed relation to set of wheels 11. The wheels 11, 12 are free to rotate in the respective members 13, 14.

Member 13 includes a tubular portion 15 located axially thereof and arranged for rotation in a bearing standard 17. Similarly, member 12 includes an axially disposed tubular portion 16 arranged for rotation in a bearing standard 18 and portions 15, 16 are in longitudinal alignment with each other.

Normally, a plurality of elements to be stranded, generally indicated at 22, would pass through a stranding nipple 23 and thence directly into accumulator 10, passing back and forth over pulley wheels 11, 12 and thence outwardly as the finished product P. It is understood that members 13, 14 are rotated on standards 17, 18 in synchronized relation, by a suitable drive means, not shown.

In accordance with the instant invention, machine 10 is provided with means for establishing the positions of the several elements being stranded as they pass from nipple 23 to device 10. To this end, bracket means 19 is affixed to the outer end of tubular portion 15 of member 13 so as to rotate therewith. A set of rollers 20 are journaled on bracket 19 for free rotation, on respective shafts 21 arranged in parallel and transversely of the longitudinal axis of the device 10.

Thus, the strand elements 22 issuing from nipple 23 pass over and under the successive rollers 20 and thence through tubular portion 15 of member 13. Preferably, rollers 20 have a common tangent which lies in a plane coincident with the rotational axis of members 13, 14. Also, it has been found that optimum results are obtained when the spacing between rollers 22 is less than the roller diameter.

Such arrangement of rollers 20 provides a twist barrier and has been found to establish the relative positions of the several elements being stranded as the machine 10 starts to operate, the stranding taking place between nipple 23 and the rollers 20; thereby providing lays of definite extent and twist.

The instant invention is also applicable to a modified form of stranding machine, as shown in FIG. 2. Here the accumulator device comprises a single tubular member 25 arranged for rotation on longitudinally spaced bearing standards 17A, 18A. Member 25 carries at opposite ends thereof sets of pulley wheels 26, 27 which are freely rotatable on shafts extending transversely of member 25.

A bracket 19 and rollers 20 mounted thereon by way of shafts 21, similar to the roller assembly shown in FIG. 1; is affixed to the fore end of member 25 for conjoint rotational movement. Here also, the elements to be stranded as indicated at 22, pass through a stranding nipple 23 and then about rollers 20, as previously described, and thence through the fore end of tubular member 25 and thence outwardly thereof by way of a slot 28, to then pass back and forth over the pulley wheels 26, 27. The stranded product P passes from the last pulley wheel inwardly of member 25 by way of a slot,

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not shown, and thence outwardly of said member 25 to a takeup means, not shown.

The rollers 20 have a common tangent lying in a plane coincident with the axis of tubular member 25, which is rotated about said axis through a drive means, not shown. The stranding of elements 22 again takes place between nipple 23 and rollers 20, as previously described.

We claim:

1. In an apparatus for stranding a plurality of elongated elements comprising accumulator frame means arranged for reversible rotation about a longitudinal axis thereof, rotatable accumulator means on said frame means and arranged to freely rotate about an axis transverse to said longitudinal axis, and fixed means in advance of said frame means for passing said elongated elements to the rotatable accumulator means, the improvement comprising a plurality of roller means located between said fixed means and said accumulator frame means for engaging the advancing elongated elements and moving said elements in a path displaced from the longitudinal axis of said frame means, said roller means being arranged for synchronized rotation with said frame means.

2. Apparatus as in claim 1 wherein said roller means is mounted on said frame means for conjoint movement therewith.

3. Apparatus as in claim 2 wherein said roller means has a common tangent coincident with a plane in which said longitudinal axis lies.

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4. Apparatus as in claim 3 wherein said roller means have a spacing therebetween less than the diameter of one of said roller means.

5. Apparatus as in claim 1 and further including bracket means extending from said frame means toward said fixed means, and shaft means on said bracket means for mounting said roller means thereon, said shaft means extending transversely of said longitudinal axis.

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