Dec. 2, 1969 D. J. DE ROSA 3,481,219

BREAKAWAY CAM

Filed April 22, 1968

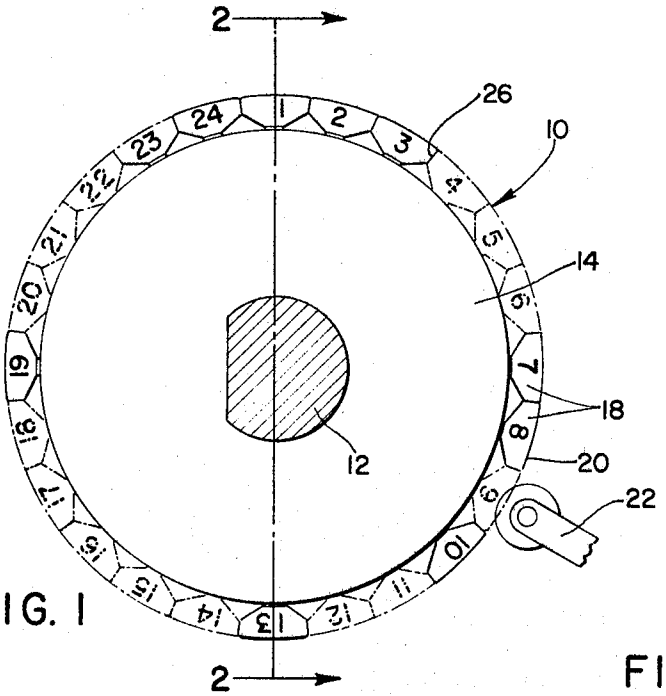


FIG. 1

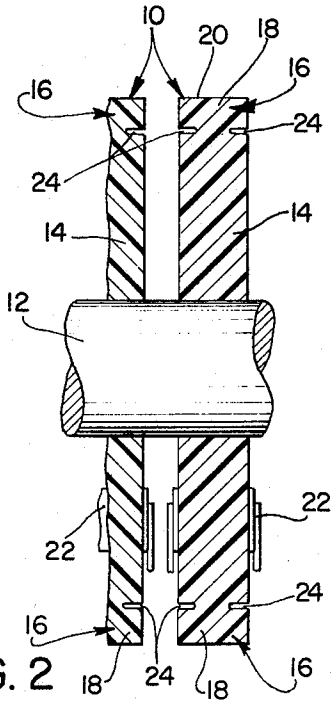


FIG. 2

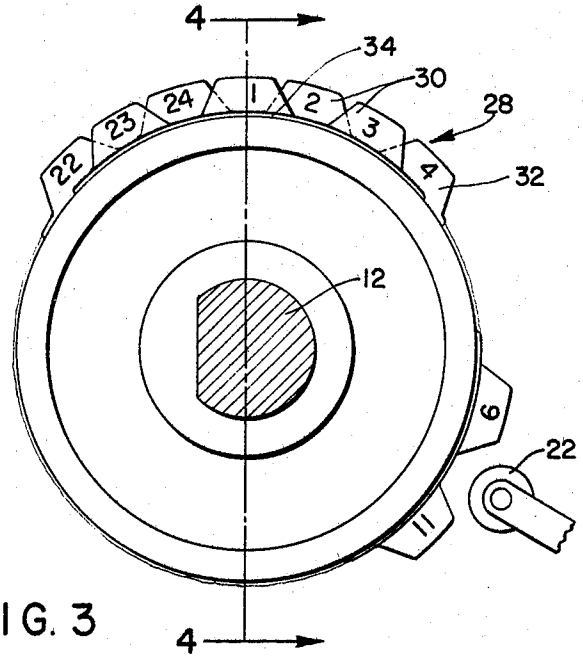


FIG. 3

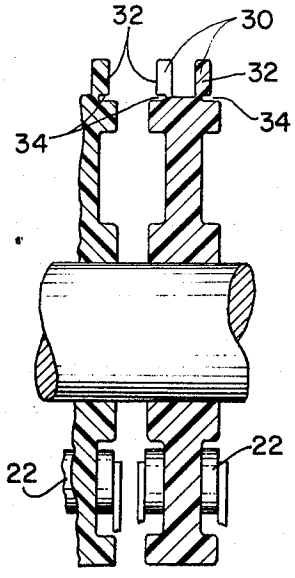


FIG. 4

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3,481,219
Patented Dec. 2, 1969

3,481,219

BREAKAWAY CAM

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Filed Apr. 22, 1968, Ser. No. 723,078
Int. Cl. F16h 54/04
U.S. Cl. 74—568 4 Claims

ABSTRACT OF THE DISCLOSURE

A textile machine control for programming operation of the machine. The programmer includes a rotating cam shaft carrying a plurality of fixed cams. Each cam has breakaway lobes bearing identified indicia to facilitate removing particular lobes according to a predetermined schedule for providing desired operation of the machine.

This invention relates to textile equipment and, more particularly, to a programmer utilizing cam blanks having breakaway lobes and indicia to facilitate programming the machine according to a predetermined schedule.

In setting up operation of various textile machines it is often necessary to provide special programmer cams for controlling various operations of a machine. These cams have either been specially cast or machined and this is both costly and time consuming and requires a large inventory of cams. One type of such Leesona Corporation programmer incorporates a rotating cam shaft carrying from 24 to 28 cams each cam controlling one or more actuators or followers, necessitating a vast inventory of cams.

The invention, in brief, is directed to textile equipment programmer cams and, more particularly, cam blanks. These blanks are provided with breakaway lobes, arranged in one or a plurality of rows along a cam surface, thus providing easy removal of particular lobes. The lobes bear identifying indicia to facilitate removal of particular lobes according to a predetermined schedule.

It is an object of this invention to provide a new and improved cam blank and, more particularly, a cam blank having removable lobes.

Another object is to provide a new and improved cam blank having easily removable lobes along its cam surface with the lobes bearing identifying indicia to facilitate removal of particular lobes according to a predetermined schedule.

These and other objects and advantages of the invention will be apparent from the following description and the accompanying drawing, in which:

FIG. 1 is a fragmentary, facial view taken through a cam shaft and illustrating partly in phantom lines, an embodiment of a cam blank;

FIG. 2 is a fragmentary, sectional view taken generally along the line 2—2 in FIG. 1;

FIG. 3 is a fragmentary facial view taken through a cam shaft and illustrating another embodiment of a cam blank formed into a cam; and

FIG. 4 is a fragmentary sectional view taken generally along the line 4—4 in FIG. 3.

Referring to the drawings, FIGS. 1 and 2 show a cam blank **10** mounted on a rotating cam shaft **12**. The illustrated blank may be any suitable metal such as brass or aluminum or any suitable plastic such as Nylafil S/30

and has a disc shaped body **14** with a generally circular cam edge portion **16**. This cam edge portion is a row of lobes **18**, the lobes shown in phantom lines illustrating lobes to be removed for providing a desired cam surface **20**. A cam follower **22** rides across the lobes **18** on the cam surface and either actuates or deactuates its related control element (not shown) when it rides off of a surface and into a space from which a lobe has been removed.

In order to remove the lobes **18** from the cam body **14**, each lobe is secured to the cam body by a reduced neck portion **24** as may best be seen in FIG. 2. The lobes may be connected to each other by similar reduced neck portions but it is felt preferable that they be separated from adjacent lobes, for example by casting the lobes with a slit **26** between adjacent lobes or cutting such a slit to separate the adjacent lobes. In FIG. 1 the cam blank has one circular row of lobes.

A cam blank having lobes of the type shown in FIG. 1 may have a plurality of rows of these lobes, and each row may serve an independent follower.

FIGS. 3 and 4 show a similar cam **28** formed from a blank but with two circular rows **30** of lobes **32**, the lobes of one row overlapping adjacent lobes in the other row. As previously discussed, the lobes **32** are connected to a body by a reduced neck **34**. The cam blank may be formed with as many such rows **30** of lobes as is desired.

Removal of a lobe **18** or **32** may be accomplished in any suitable manner, as by gripping the lobe with a plier and bending it to break it from the body at the reduced neck **24** or **34**. Obviously, the cam surfaces of the blanks may have shapes other than circular, for example they may be elliptical or oval, if desired, and the lobes may be of any desired configuration in addition to the two illustrated examples.

In order to facilitate setting up the cam blanks according to a predetermined schedule, the lobes are numbered in consecutive order, the illustrated cam blanks having 24 lobes. Thus, it is merely necessary in setting up the cam shown in FIG. 1, to provide a cam schedule stating: "Remove lobes **4–6**, **9**, **11** and **12**, **14–18**, and **20–23**." These are the lobes shown in phantom lines. For the cam shown in FIG. 3 the schedule would state: "Remove lobes **5–8**, **10** and **12–23**." Thus, neither drawings nor other instructions, nor any special machining is required, nor is it necessary to maintain a large stock of variously shaped cams in order to set up the programmer in a desired manner.

While this invention has been described with reference to particular embodiments in a particular environment, various changes may be apparent to one skilled in the art and the invention is therefore not to be limited to such embodiments or environment except as set forth in the appended claims.

What is claimed is:

1. A cam blank comprising a body, a plurality of lobes about said body, said lobes being disconnected from each other and extending outwardly from said body, and means securing said lobes to said body and facilitating detachment of said lobes from said body, said means comprising reduced neck portions, one connecting each of said lobes with said body.

2. A blank as set forth in claim **1** in which said reduced neck portions are each integral with said body and the associated lobe.

3. A blank as set forth in claim 2 in which said lobes bear indicia to facilitate identifying particular lobes.

4. A blank as set forth in claim 1 in which said lobes form a pair of rows about said body, the lobes of one row overlapping adjacent lobes of the other circle.

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