Aug. 12, 1924. 1,504,274

F. SCHNEIDER

ADJUSTABLE CAM DISK FOR USE IN CONNECTION WITH THE RECIPROCATING WORKING FRAMES OF EMBROIDERY MACHINES

Filed Sept. 24. 1923

Fig. 1

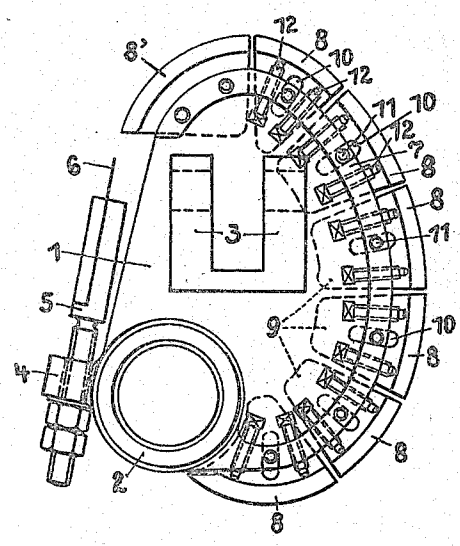
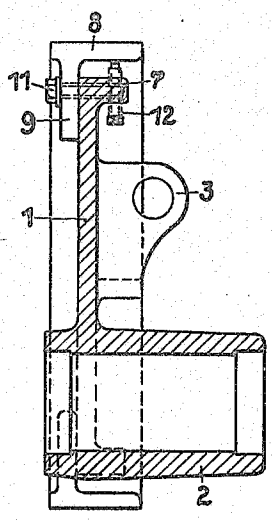


Fig. 2



Inventor:
Fritz Schneider
By: Hubert G. Ry
Attorney

Patented Aug. 12, 1924. 1,504,274

UNITED STATES PATENT OFFICE.

FRITZ SCHNEIDER, OF PLAUEN, GERMANY.

ADJUSTABLE CAM DISK FOR USE IN CONNECTION WITH THE RECIPROCATING WORKING FRAMES OF EMBROIDERY MACHINES.

Application filed September 24, 1923. Serial No. 664,596.

To all whom it may concern:

Be it known that I, FRITZ SCHNEIDER, a citizen of the German Republic, and a resident of Plauen, Saxony, Germany, have invented a new and useful Improved Adjustable Cam Disk for Use in Connection with the Reciprocating Working Frames of Embroidery Machines, of which the following is a specification.

My invention relates to cam disks of the kind used in connection with the reciprocating working frames of embroidery machines for balancing these frames, that is to say, for compensating the changes of tension of the springs carrying the reciprocating working frame so as to balance the weight of the latter cams of this kind are devised for a definite kind of springs and for different weights of the reciprocating working frame as corresponding to the different lengths of the machines. But as the presuppositions change in the several cases (may be, for instance, the steel from which the springs are made is of another kind), the cam disk which is of the same kind as the other cam disks must be accomodated to the particularities of the new machine either by added pieces of sheet metal attached to the peripheral surface of the cam disk or by any other means or in any other manner, at any rate in such a way that the weight of the reciprocating working frame of the embroidery machine is balanced at all embroidery positions.

I am aware of the fact that also adjustable cam disks for the purpose in view have already been devised, but I am, in fact, aware of only one such construction, the special features of which consist of a plurality of adjusting screws extending practically radially outwards from the body of the cam disk, and of a piece of band iron encompassing the disk and contacting with the outer ends of said screws, said piece of band iron serving as support for the thin steel band extending from one end of the peripheral cam surface over this latter to the reciprocating working frame of the embroidery machine. The comparatively thick piece of band iron contacts but loosely with the screw ends, in consequence of which it is apt to get displaced thereon, and besides, its curve is apt to alter its shape while the machine is in operation which is detrimental to the accuracy of the product.

The drawbacks of the known constructions of cam disks for the purpose in question are obviated in my improved adjustable cam disk which forms the subject-matter of this invention. The peripheral surface supporting the steel band mentioned consists of a plurality of segments distributed over and extending along the peripheral surface of the body of the disk, and adjustable means are provided by which the distance between the two peripheral surfaces, i. e., that of said segments and that of said body, can be altered according to the requirement. The segments may be attached singly to the body or may be connected with each other, and their connection with the body may be effected directly, i. e., by fastening bolts specially provided for this purpose, or indirectly, i. e., by the adjusting means which, generally, are threaded bolts or equivalent members provided, if desired, with nuts serving either for securing the bolts in place after the adjustment or contributing to the adjustment.

My invention is illustrated by way of example in the accompanying drawing in which Figure 1 is a side view of an adjustable cam disk constructed according to my invention, and Figure 2 is a vertical cross section therethrough.

1 is the body of the cam disk, 2 is a sleeve-like hub thereof, 3 denotes two eye-forming lugs provided at the inner surface of the body, and 4 denotes another eye-forming lug provided at the hub or sleeve. The lugs 3 serve for connecting the body 1 with the spring of the spiral spring (not shown) balancing the weight of the reciprocating working frame of the embroidery machine, and the lug 4 serves for connecting the hub or sleeve with the so-called lock by which the cam disk is connected with one end of the steel band 6 which runs over the peripheral surface of the adjustable segments and is connected at its other end with the reciprocating frame.

8 are the adjustable segments which are, in the example illustrated, singly adjustable at the body of the cam disk. Each segment is rectangular in section (Fig. 2), and their consecutive peripheral limbs form the supports for the steel band; the breadth of these limbs is such that the steel band is securely and reliably carried and guided. The rim of the body 1 is enlarged so as to

form a kind of flange 7, and there are provided therein parts of adjusting screws or bolts 12 located near the ends of the segments.

The other limb 9 of each segment extends parallelly to the body 1 and contacts therewith, and there is provided in each segment (except the first which is that nearest to the eye 4) a slot 10 extending parallely to the bolts 12, and a bolt 11 supported in the rim 7 of the body passes through this slot. Each bolt 11 is situated between the adjusting bolts 12 pertaining to the respective segment, and each serves for securing the respective segment in place after the adjustment.

It is obvious that the segments can be adjusted in such a manner that their consecutive peripheral surfaces form a practically continuous curve, without the formation of steps at the gaps which would be detrimental to the steel band. It is also evident that no pieces of sheet-metal need be attached to the cam disk, or to its segments respectively, these latter themselves, including the bolts, being the means by which the cam disk is adjusted according to the requirement as stated in the preamble.

The first segment (8′) is not intended to take part in the adjusting and balancing, but its purpose is to conduct the steel band from the lock 5 to the adjustable segments, or, more precisely, to the first thereof; anyhow, it is also adjustable at least in a small measure in that its bolt holes are somewhat large.

I think it proper to add a few words concerning the manufacture of the segments. They are cast pieces which are properly worked, prior to their being mounted on the body, except at their outer faces where they are to carry the steel band mentioned. These faces are milled only after the segments have been mounted on the body, the milling being effected continuously over the entire set of the segments so as to turn the consecutive faces practically into a continuous curve divided, it is true, by gaps. This manner of working in the manufacture of the segments for the cam disk, or of the cam disk respectively, is very advantageous for the accuracy of the cam disk, as well as for its cooperation with the steel band and the reciprocating working frame of the embroidery machine.

I claim:

1. A cam disk for use in connection with the reciprocating working frame of an embroidery machine, comprising, in combination, a cam-shaped body, and a plurality of adjustable segments arranged along the peripheral surface of said body at some distance therefrom, and supporting means located in the gap between this surface and the opposite faces of the said segments.

2. A cam disk for use in connection with the reciprocating working frame of an embroidery machine, comprising, in combination, a cam-shaped body, a purality of adjustable segments arranged along the peripheral surface of said body at some distance therefrom, and means for securing said segments in their adjusted position.

3. A cam disk for use in connection with the reciprocating working frame of an embroidery machine, comprising, in combination, a cam-shaped body, a plurality of adjustable segments arranged along the peripheral surface of said body at some distance therefrom, a pair of adjusting bolts for each segment, and means for securing each segment in its position after the adjustment.

4. A cam disk for use in connection with the reciprocating working frame of an embroidery machine, comprising, in combination, a cam-shaped body, a plurality of adjustable segments arranged along the peripheral surface of said body at some distance therefrom and being rectangular in section, one of the limbs of each segment extending along the body parallelly thereto and having a practically radial slot therein, a bolt extending axially from the rim of the said body passing through said slot, and two adjusting bolts located in the body rim and extending practically radially with respect to the centre part of the body, each of said slots being located between the two appertaining adjusting bolts, as set forth.

5. A cam disk for use in connection with the reciprocating working frame of an embroidery machine, comprising, in combination, a cam-shaped body, and a plurality of adjustable segments arranged along the peripheral surface of said body at some distance therefrom, and supporting means located in the gap between this surface and the opposite faces of the said segments, the outer faces of these latter having been milled after the segments have been mounted on the said body, as set forth.

6. A cam disk for use in connection with the reciprocating working frame of an embroidery machine, comprising, in combination, a cam-shaped body, a plurality of adjustable segments arranged along the peripheral surface of said body at some distance therefrom, and means for securing said segments in their adjusted position, the outer faces of the segments having been milled after the segments have been mounted on the said body, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FRITZ SCHNEIDER.

Witnesses:
T. V. Feschau,
Hans Tauscher.