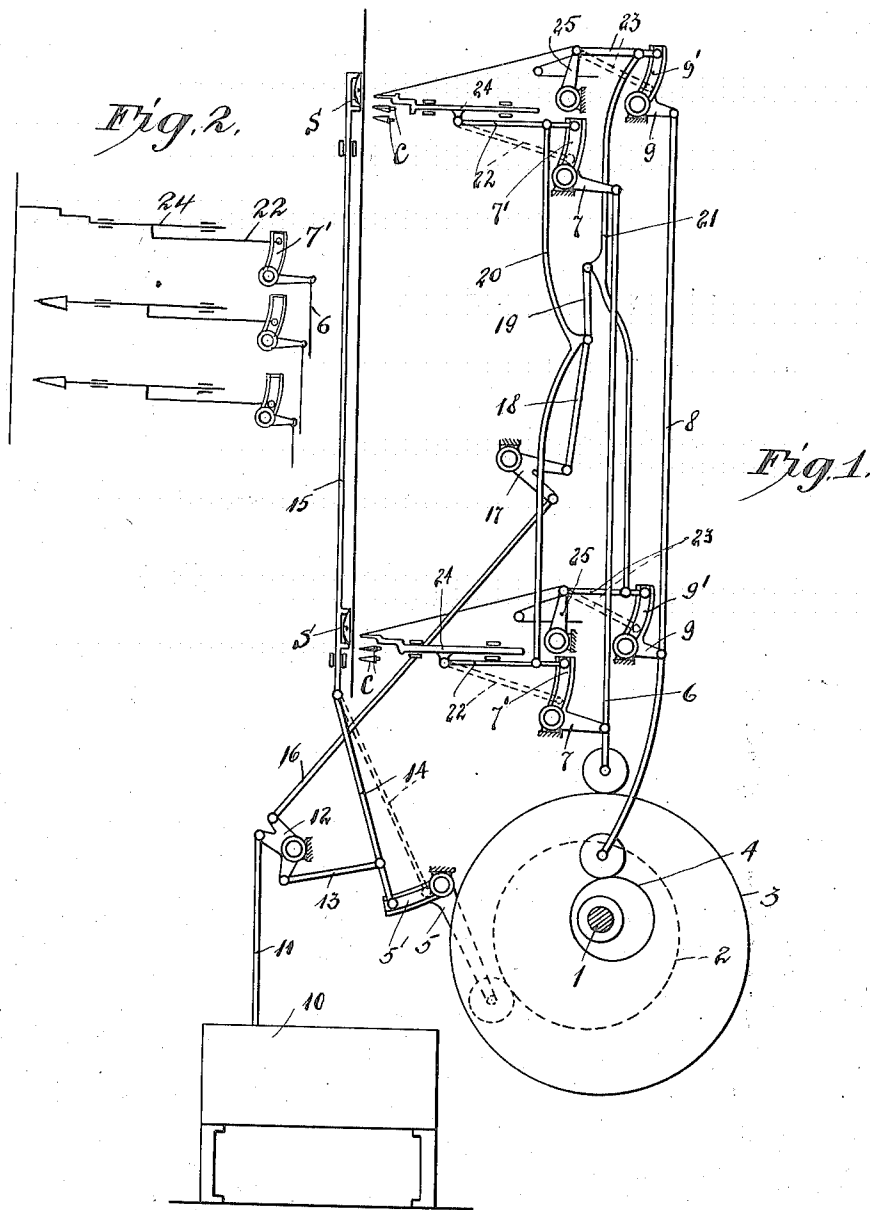


R. ZAHN, DEC'D.
A. RIETZSCH, ADMINISTRATOR.
AUTOMATIC EMBROIDERING MACHINE.
APPLICATION FILED JUNE 1, 1912.

1,266,747.

Patented May 21, 1918.



Witnesses:
C. S. Ashley
J. J. Donohue

Inventor
Robert Zahn
By Attorney
Max D. Ordman

UNITED STATES PATENT OFFICE.

ROBERT ZAHN, OF PLAUE, GERMANY; ALFRED RIETZSCH ADMINISTRATOR OF SAID
ROBERT ZAHN, DECEASED.

AUTOMATIC EMBROIDERING-MACHINE.

1,266,747.

Specification of Letters Patent. Patented May 21, 1918.

Application filed June 1, 1912. Serial No. 701,016.

To all whom it may concern:

Be it known that I, ROBERT ZAHN, a subject of the German Emperor, residing at Plauen, Kingdom of Saxony, Germany, have invented certain new and useful Improvements in Automatic Embroidering-Machines, of which the following is a specification.

The great economic value of an automatic (jacquard) embroidering machine lies in that without personal or direct help in a given time and quantitatively more work is produced than with an ordinary embroidery machine and that qualitatively the work is as perfect as its pattern whose production has required much time and a skilled workman.

Yet the efficiency of the automatic embroidering machine suffers a good deal on account of the fact that each time one set of embroidery implements is changed for another, particularly in passing from embroidering to boring, an interruption of the work is occasioned because the operating heavy masses of one set must be arrested and those of another set started.

This invention has for its object to remove these drawbacks and consists in that in lieu of completely arresting the operating implements the same are given short idle motions while the main shaft of the machine and all cams fixed thereon remain in action.

To make my invention more clear the same is more or less diagrammatically illustrated in the accompanying drawing forming a part of this specification, Figure 1 being a diagrammatic view of the entire machine and Fig. 2 a similar view of some parts thereof.

With reference to the drawing 1 denotes the main shaft of the embroidering machine on which are fixed the shuttle operating cam 2, the needle operating cam 3 and the thread tension controlling cam 4. The cam 2 operates the bell crank lever 5 one arm of which is formed to a loop 5¹. The cam 3 operates a rod 6 which is connected to looped bell crank levers 7 and the cam 4 operates a rod 8 which is connected to a looped bell crank levers 9. The boring implements are indicated by C and the shuttles by S.

The jacquard mechanism is indicated by a box 10 and operates, in well known manner, a rod 11 which is connected to one arm of a three armed lever 12. One of the other

three arms of this lever 12 by a rod 13 is connected to a rod 14, which at one end is pivoted to the shuttle guide 15 and at its other end slidably engages the loop 5¹ of the lever 5. The third arm of the lever 12 by a rod 16 is connected to one arm of a bell crank lever 17 the other arm of which by a set of rods 18, 19, 20 and 21 is connected to rods 22 and 23. The rod 22 is connected at one end to the needle bar 24 and at its other end slidably engages the loop 7¹ of the lever 7 and the rod 23 is connected at one end to the thread take up lever 25 and at its other end slidably engages the loop 9¹ of the lever 9.

Thus the jacquard controlled rod 11 has link motion connections with the various embroidering implements and enables the reduction of their stroke to such an extent, that their action during the operation of other implements, as those for boring, are rendered temporarily ineffective. Thus when passing from embroidering to boring, the jacquard mechanism draws the rod 11 downwardly, whereby through the medium of the lever 12 and the rod 13, the rod 14 is displaced within the loop 5¹ toward the fulcrum of the lever 5 so that the motion of the rod due to the oscillation of the lever 5 by the respective cam 2, and consequently also that of the shuttles S will be reduced to a minimum.

Simultaneously the rod 11 through the medium of the levers 12, 17 and rods 18, 19, 20, 21 swings the rods 22, 23 in the loops of the bell crank levers 7 and 9 toward the fulcrums of the latter thereby shortening the stroke of the needle bars 24 and that of take-up levers 25 so that their action as well as that of the shuttles during the boring is ineffective.

What I claim and desire to secure by Letters Patent is:

1. In an embroidering machine, embroidering implements, perforating implements, a single shaft rotating continuously in one direction whereby the said implements are operated, means including said shaft for imparting to the different parts of the embroidering implements an idle or ineffective motion without stopping the rotation of said shaft and means including said shaft for imparting an idle or ineffective motion to said perforating implements without stopping the rotation of said shaft.

2. In a jacquard embroidering machine, a stitching mechanism comprising stitching needles, shuttles and take-ups, a jacquard apparatus, a single shaft adapted to rotate continuously in one direction and to operate said stitching needles, shuttles and take-ups and a single jacquard controlled means for simultaneously rendering ineffective the different parts of the stitching mechanism without stopping the rotation of the shaft.
3. In a jacquard embroidering machine, a stitching mechanism including stitching needles, shuttles and take-ups, a jacquard apparatus, a single shaft adapted to rotate continuously in one direction and having a series of cams for actuating the said several parts of the stitching mechanism and a single means actuated from the said jacquard apparatus for simultaneously rendering ineffective the said several parts of the stitching mechanism without stopping the rotation of said shaft.
4. In a jacquard embroidering machine, a stitching mechanism including stitching needles, shuttles and take-ups, a jacquard apparatus, a single shaft adapted to rotate continuously in one direction, a series of cams thereon for actuating the said several parts of the mechanism and a single means actuated from the said jacquard apparatus for simultaneously rendering ineffective the said several parts of the stitching mechanism without stopping the rotation of said cams.
5. In an embroidering machine, driving means, a stitching mechanism including needles, shuttles and thread take-ups, adjustable means between each of said different implements of the stitching mechanism and said driving means and a single means for simultaneously adjusting all said aforementioned means.
6. In an embroidering machine, driving means, a stitching mechanism including needles, shuttles and thread take-ups, link motion connections between said different implements of the stitching mechanism and said driving means and a single means for simultaneously adjusting all said link motion connections.
7. In an embroidering machine, a stitching mechanism including needles, shuttles and thread take-ups, a single continuously rotating shaft, adjustable means between each of said implements of said stitching mechanism and said driving shaft and a single means for simultaneously adjusting all said aforesaid means without stopping the rotation of said shaft.
8. In a jacquard embroidering machine, a stitching mechanism, including needles, shuttles and thread take-ups, a single continuously rotating shaft, link motion connections between said shaft and each of the implements of said stitching mechanism, and a single jacquard controlled means for simultaneously adjusting all said link motion connections.
9. In a jacquard embroidering machine, a stitching mechanism, including needles, shuttles and thread take-ups, a single continuously rotating shaft, link motion connections between said shaft and each of the implements of said stitching mechanism, and a single jacquard controlled means for simultaneously adjusting all said link motion connections from operative position into an idle or ineffective motion position without stopping said shaft.

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

ROBERT ZAHN.

Witnesses:

A. CURTIS ROTH,
ROBERT H. NIER.