R. ZAHN.

JACQUARD EMBROIDERING MACHINE.

APPLICATION FILED JUNE 17, 1912.

1,090,898. Patented Mar. 24, 1914.

Fig. 1.

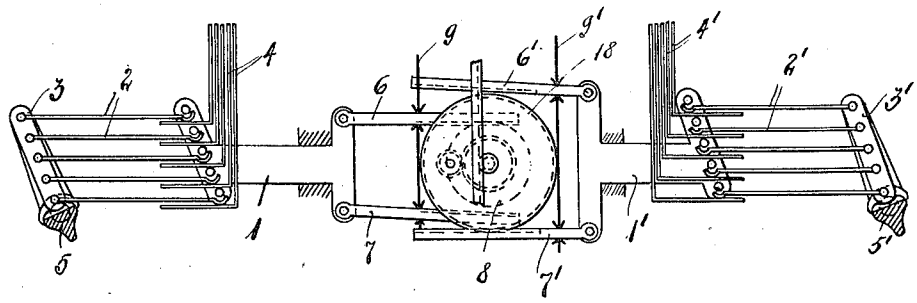
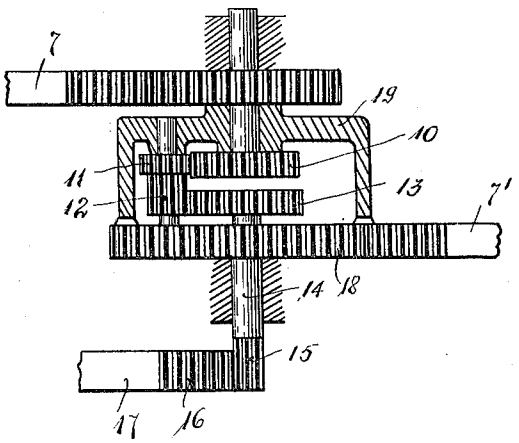


Fig. 2.



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UNITED STATES PATENT OFFICE.

ROBERT ZAHN, OF PLAUEN, GERMANY.

JACQUARD EMBROIDERING-MACHINE.

1,090,898. Specification of Letters Patent. Patented Mar. 24, 1914.

Original application filed February 5, 1910, Serial No. 542,305. Divided and this application filed June 17, 1912. Serial No. 704,108.

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 Jacquard Embroidering-Machines, of which the following is a specification.

The invention relates to embroidering machines of the automatic type and more particularly to a mechanism for adding up or totaling the large and the small movements of the embroidery frame and is a division from the application 542,305 filed Feb. the 5th, 1910 and allowed Dec. the 5th 1911, Patent No. 1,031,159 issued July 2, 1912.

The transmission of movement to the embroidery frame in different directions is effected automatically in the manner described and illustrated in the above named original application by means of jacquard controlled allotting members.

In the accompanying drawing which forms a part of this specification and in which similar reference characters denote corresponding parts, Figure 1 is a diagrammatic lateral elevation of an automatic embroidering machine showing the mechanism forming the subject of the invention and Fig. 2 is a plan view of the mechanism.

With reference to the drawing 1, 1^1 denote horizontal slides which are operated in the manner described and shown in the application above referred to by means of a number of coupling rods 2, 2^1 connected to rocking levers 3, 3^1 and adapted to be coupled to the said slides by jacquard operated bars 4, 4^1 receiving according to their position relative to the fulcrums 5, 5^1 of said rocking levers various throws. To the tail end of each of the oppositely arranged slides a pair of racks 6, 7 and 6^1, 7^1 are pivotally attached. The racks 6, 7 are adapted to alternately engage with a toothed wheel 8 arranged between the same according to whether a connecting rod 9 is moved in downward or in upward direction. The toothed wheel 8 is rigidly connected to a differential wheel 10 and the latter is connected by means of planet gear 11, 12 to a second differential wheel 13 the shaft 14 of which carries a small pinion 15 which engages with the rack 16 secured to the slide 17. This slide 17 corresponds with the slide 38 shown in the application above referred to and constitutes a part of the mechanism whereby the different movements received by the slides 1, 1^1 are transmitted to the embroidery frame (not shown). Similarly the racks 6^1, 7^1 of the slide 1^1 are adapted to alternately engage with the pinion 18 which forms part of the differential gear casing 19.

The operation is as follows: If the slide 1^1 is held stationary and the slide 1 is moved with one of its racks 6, 7 in engagement with the pinion 8 the latter rotates the wheel 10 which in turn rotates the planet gear 11, 12. This planet gear transmits its movement to the differential wheel 13 whose shaft 14 in rotating the pinion 15 displaces the rack 16 of the slide 17. During this operation the casing 19 remains stationary. If however, the slide 1 is held stationary and the slide 1^1 is moved, the racks 6^1, 7^1 of the latter cause the casing 19 to rotate in which case the planet gear 11, 12 rolls on the pinion 10 which now is stationary, thereby rotating the toothed wheel 13 with a speed depending upon the relative sizes of the gears 10, 11, 12 and 13. The two connecting rods 9, 9^1 by which racks 6, 7 and 6^1, 7^1 are alternately thrown in or out of action respectively are controlled by the jacquard mechanism and thereby determine the rotation which the pinion 15 is to receive for the purpose of operating the rack 16 of the slide 17.

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

1. In an automatic embroidering machine, the combination with two rocking members and two series of jacquard controlled allotting members connected to said rocking members, of a mechanism for combining the different movements of said two series of allotting members and comprising a differential gear interposed between said two series of allotting members and means for transmission of movement from said differential gear to the fabric frame.

2. In an automatic embroidering machine, the combination with two rocking members and two series of jacquard controlled allotting members connected to said rocking members, of a mechanism for combining the different movements of said two series of allotting members and comprising jacquard controlled racks connected to said two series of allotting members, a differential gear op-

erated from said racks and means for the transmission of movement from said gear to the fabric frame.

3. In an automatic embroidering machine, the combination with two rocking members and two series of jacquard controlled allotting members connected to said rocking members, of a mechanism for combining the different movements of said two series of allotting members and comprising a pair of jacquard controlled racks connected to each series of said allotting members, a differential gear operated from said racks, the racks of each pair being adapted to alternately engage the said differential gear, and means for the transmission of movement from said gear to the fabric frame.

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

ROBERT ZAHN.

Witnesses:
A. CURTIS ROTH,
ROBERT H. NIER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."