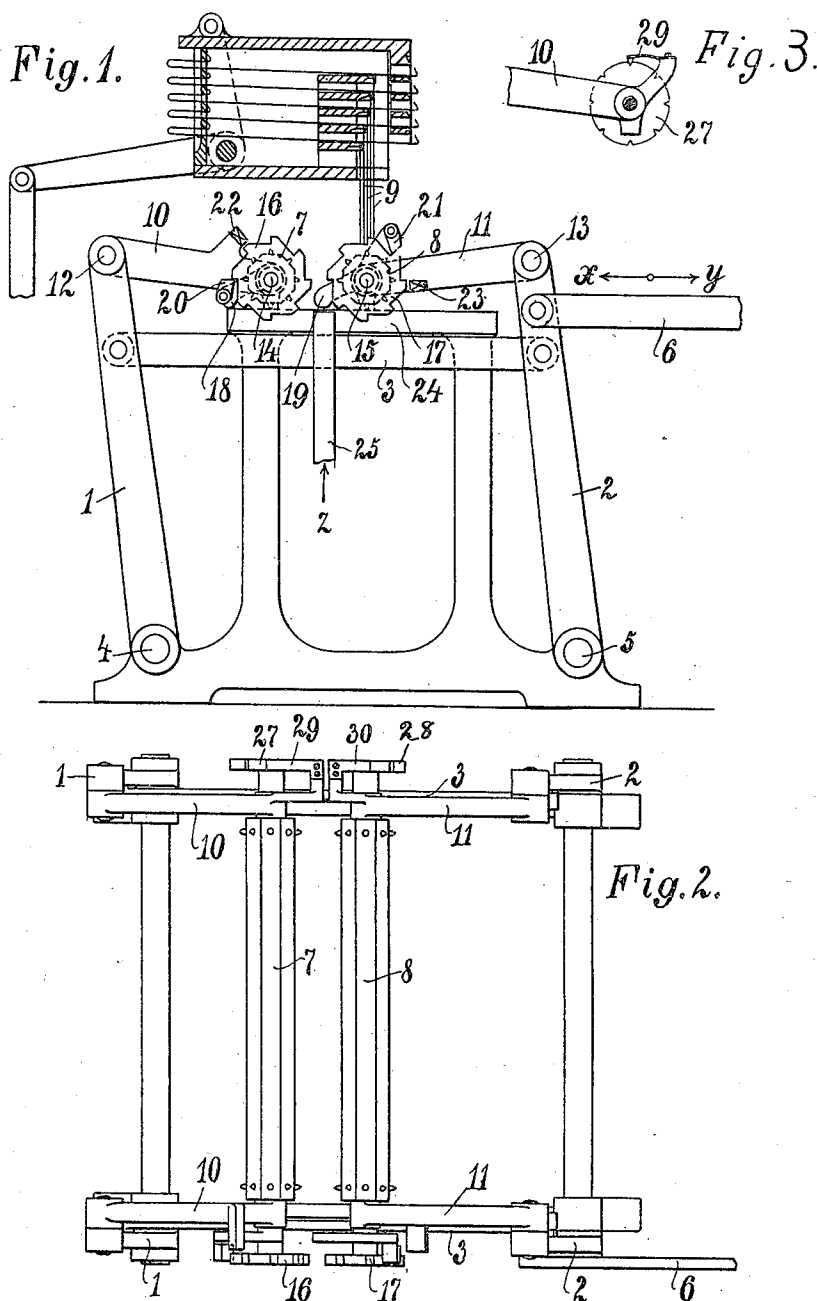


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JACQUARD APPARATUS.
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JACQUARD APPARATUS.

963,183.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, BRUNO SALZER and GUSTAV WALTHER, subjects of the German Emperor, both residing at Chemnitz, in the Kingdom of Saxony and Empire of Germany, have invented certain new and useful Improvements in Jacquard Apparatus, of which the following is a specification.

The invention relates to jacquard mechanism and is especially adapted for use in that class of machines wherein a plurality of card cylinders are provided and arranged to be severally and singly brought into operative relation with the needles.

One of the objects of the invention is to provide a mechanism of this character wherein the rotation or feed of the cylinders is effected independently of the oscillation of the cylinder frame, a further object being to reduce the extent of oscillation of the frame as much as possible.

A further object of the invention is to provide and arrange a card cylinder frame whereby oscillation brings the selected cylinder abreast of but out of contact with the needles so that the feeding or rotating of the card cylinders can be effected after the selected cylinder has been brought abreast of the needles and prior to movement of the cylinder into operative relation with the needles.

A further object of the invention is to provide each cylinder with feeding means and to provide a single actuating device for actuating the feeding means of all of the cylinders and arranged to actuate such feeding means after the selected cylinder has been brought into an operative position with respect to the needles.

The invention will be more fully described in connection with the accompanying drawing and will be more particularly pointed out and ascertained in and by the appended claims.

In the drawing:—Figure 1 is a view in side elevation, with parts in section, of a device illustrating one embodiment of our invention. Fig. 2 is a plan view thereof. Fig. 3 is a detail view of a part detached from the machine.

Like numerals of reference designate similar parts throughout the different figures of the drawing.

As shown the frame of the machine supports rocker shafts 4 and 5 on which are mounted levers 1 and 2 respectively. The

levers 1 and 2 are shown connected with each other by a connecting bar 3 so that both will move in unison. As illustrated a bar 6 is connected with the lever 2 and is designed for movement in directions indicated by the arrows *x* and *y*.

A card cylinder frame is shown including arms 10 and 11 pivotally connected at 12 and 13 with the levers 1 and 2 respectively. A card cylinder 7 is rotatively mounted in arms 10 and a cylinder 8 is rotatively mounted in arms 11. One of the arms 10 is provided with a tappet 22 and one of the arms 11 is provided with a tappet 23.

Each cylinder is provided with feeding means which as shown includes ratchet wheels 16 and 17 adapted to be actuated by the pawls 20 and 21 respectively. The pawl 20 is mounted upon an arm 18 pivoted upon a shaft 14 on which the roller 7 is mounted. The pawl 21 is carried by an arm 19 rotatable upon a shaft 15 upon which the cylinder 8 is mounted. A support 24 extends throughout the length of movement of the cylinders 7 and 8 and normally supports the same for movement in a horizontal plane in the position shown in Fig. 1, which position is such as to keep the cylinders 7 and 8 out of actual contact with the needles 9. As illustrated the cylinders 7 and 8 are movable in a horizontal plane below the needles 9.

In order to prevent accidental movement of the cylinders 7 and 8 beyond the movement imparted thereto notched disks 27 and 28 are provided for the cylinders 7 and 8 respectively and one of the arms 10 carries the spring pawl 29 for engagement with the disk 27 and one of the arms 11 carries a spring pawl 30 for engagement with the disk 28.

A device, which as shown is in the form of a single member 25, is arranged for vertical movement as indicated by the arrow *z*. The feeding devices, namely the arms 18 and 19, are so arranged that when any one of the cylinders is in operative relation but out of contact with the needles (of Fig. 1) the arm of such feeding device will be in a position to be engaged by the member 25.

The operation is as follows:—When the bar or connection 6 has been actuated in the direction of the arrow *y* to bring the cylinder 8 abreast of but out of contact with the needles 9, as shown in Fig. 1, then the arm 19 will be in operative relation and in a posi-

tion to be actuated by the device 25. Now when the device 25 rises it will engage the arm 19 and cause the pawl 21 to engage one tooth of the ratchet wheel 17 and rotate the card cylinder 8 a distance equal to the spaces between two teeth of the wheel 17. When this rotative movement has been effected the pawl 21 will engage the tappet 23 and upon continuous upward movement of the device 25 the card cylinder 8 and arm 11 will be raised about the pivot 13 so that imperforate portions of the card will engage certain of the needles 9 and perforate portions of the card will receive and prevent actuation of other of the needles. During downward movement of the device 25 the pawl 21 will still be in engagement with the tappet 23 until the cylinder carrying frame is lowered into contact with the support 24. The pawl 21, will, during this downward movement, insure retention of the cylinder 8 in the position to which it has been adjusted. After the cylinder carrying frame has been lowered into contact with the support 24 the arm 19 will assume the position shown in Fig. 1 by gravity and the spring pawl 30 will prevent accidental rotation of the cylinder 8.

It will thus be seen that means is provided for singly moving the cylinders into operative relation with but not in contact with the needles and that a device is provided for first actuating the feeding means to turn the selected cylinder and subsequently bring the card carried thereby into operative relation with the needles, and further that these operations may be effected by a single member having a continuous movement in one direction.

When the member or bar 6 is moved in the direction of arrow *y* the cylinder 7 will be brought into range with the needles and the arm 18 will be brought into operative relation with the device 25. The operation with respect to the cylinder 7 and its parts will be in all respects similar to the operation with regard to the cylinder 8 and its parts, hereinbefore described.

The device affords a very easy feed of the cards and thereby subjects the same to very little wear and this is very important in preserving the perforated design of the cards. A further great advantage is that each card cylinder is provided with a feeding device which is always in connection and ready for operation when the cylinders are moved into position so that adjustment of such feeding means from one cylinder to the other, is completely avoided.

We claim:—

1. In a jacquard-apparatus, the combination of a plurality of card-cylinders, a card cylinder frame a ratchet-wheel fixed to the shaft of each cylinder, a feed-lever pivoted

to said shaft, a pawl connected to said feed-lever adapted to engage said ratchet-wheel and a single bar adapted to move up and down and abut against the feed-lever of said cylinders, respectively.

2. In a jacquard-apparatus, the combination of a plurality of card cylinders, a frame for each cylinder, means for moving said frames and cylinders in a horizontal plane to bring one of the cylinders abreast of but not in contact with the needles, feeding means for each cylinder, and a device for first actuating the feeding means of the selected cylinder and subsequently moving the said cylinder and its card into engagement with the needles.

3. In a jacquard-apparatus, the combination of a plurality of card cylinders, a pivotally mounted frame for each cylinder, a support for normally maintaining the cylinders in a horizontal plane and in a position adjacent but out of range with the needles, means for moving said frames horizontally to bring one of the cylinders abreast of the needles, feeding means for each cylinder, and a device for first actuating said feeding means and subsequently moving said cylinder and its frame upwardly to bring the card into engagement with the needles.

4. In a jacquard-apparatus, the combination of vertically disposed jacquard-needles, a plurality of card cylinders, a pivotally mounted frame for each cylinder, a support for maintaining said cylinders below the ends of said needles and permitting horizontal movement thereof below said needles, means for moving said frames in a horizontal plane to bring one of the cylinders abreast of and beneath the needles, feeding means for each cylinder, and a single element movable in a vertical plane for first actuating the feeding means of the selected cylinder and subsequently elevating the cylinders to bring the cards into engagement with said needles.

5. In a jacquard apparatus, the combination with jacquard needles, of a plurality of card cylinders, a pivotally mounted frame for each cylinder, a support for maintaining said cylinders below said needles and in a horizontal plane, feeding means for each cylinder, and a device having a continuous vertical movement for engaging the feeding means of one cylinder to first feed the cylinder and subsequently raise the same and its card into engagement with said needles.

In testimony whereof we affix our signatures in presence of two witnesses.

BRUNO SALZER.

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Witnesses:

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