E. MAAG.

BLANK JACQUARD CARD.

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1,093,142.

Patented Apr. 14, 1914.

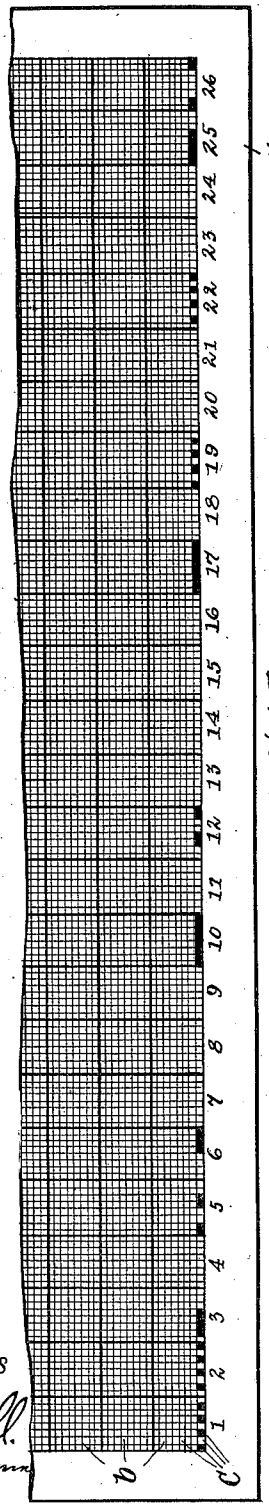


Fig. 1.

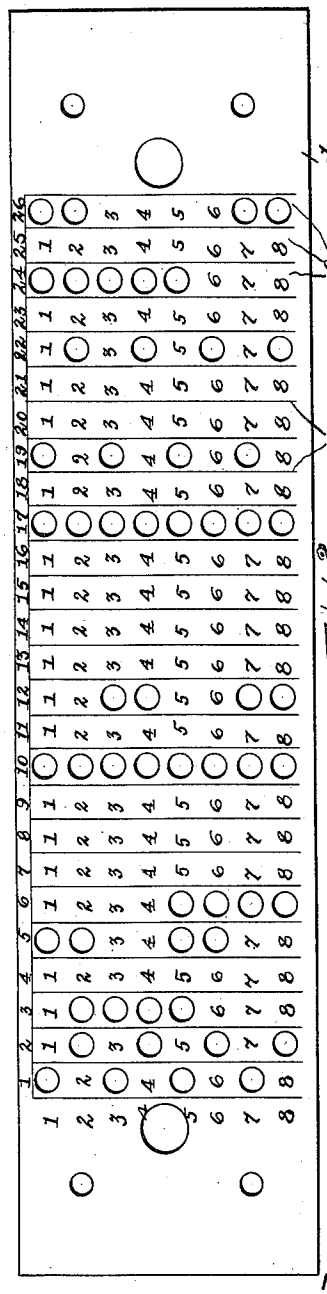


Fig. 2.

WITNESSES

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BLANK JACQUARD-CARD.

1,093,142. Specification of Letters Patent. Patented Apr. 14, 1914.

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To all whom it may concern:

Be it known that I, EDWARD MAAG, a citizen of the United States, residing at 127 Archer avenue, Mount Vernon, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Blank Jacquard-Cards, of which the following is a specification.

This invention relates to the art of punching jacquard cards from a chart or pattern by the use of a jacquard card punching machine, and it consists in certain improvements in the blank card whereby upon the punching thereof the detecting of errors in the punched or finished card is greatly facilitated, the tedium incident thereto is lessened and the possibility of mistakes being produced in the weaving operation is reduced to the minimum.

My invention will be found fully illustrated in the accompanying drawing, wherein,

Figure 1 shows a fragment of the chart which the operator of a jacquard card punching machine follows in operating the machine; and, Fig. 2 shows my improved jacquard card.

As is well known, the chart *a* employed in connection with the punching of jacquard cards comprises a rectangular field ruled off in a number of major rectangles *b* and of minor rectangles *c*, there being an equal number of the latter in all the major rectangles. Each complete horizontal row of minor units corresponds to the complete working field or area of a jacquard card, and for indicating the units in the working field or area of such cards that are to be punched certain of the minor units in such row of the chart are distinguished from the rest, usually by their being filled in by the designer with color, the remaining minor rectangles in said row being left blank. (See, for instance, the lowermost row of minor rectangles in Fig. 1). The operator follows the design or pattern reading always across the pattern in the same direction (usually from left to right) and taking up the successive rows of minor units consecutively (usually from the bottom upward). The cards *d* to be punched have as many crosswise rows *e* of units as there are major rectangles in a horizontal row of major rectangles in the pattern, and the number of units to a row in the card is equal to the number of minor rectangles in the width of each major rectangle in the design. The card is fed endwise through the card punching machine step by step, and during each pause the operator first presses those keys of the machine which correspond to the colored minor rectangles of the design, whereby to set the proper punches in operative condition, and then causes the punching operation. This is done until all the rows of units *e* in the cards have been punched, each row corresponding to one of the sections (equal to the width of each major rectangle) of a horizontal row of minor rectangles. A new card is then placed in the machine and operated upon in the same way, the operator now following the next row of minor rectangles above that last followed.

The operation above described is an extremely tedious one and even the most skilful of operators is likely to make mistakes; further, although the punched cards are usually carefully inspected before they are incorporated in the jacquard machine, it is not infrequent that such mistakes are overlooked until after the cards have gone into use in the weaving operation, when the resulting errors of course appear in the weave.

Heretofore blank jacquard cards have been provided with no means to assist in the inspection thereof after they have undergone the punching operation, in consequence of which it is common to find the woven fabric produced therefrom possessing errors, so that either the fabric stands defective in quality or else the weaving operation must be stopped and corrected and the faulty card substituted by a corrected one. The reading of the card, in verifying it, is fraught with considerable confusion and difficulty, due to the absence of any means whatever for guiding the eye in its comparisons, the seemingly indiscriminate placement and disorderly spacing of the punched openings thereof making it extremely difficult for even one well practised in the art to accomplish the verifying of the card without error. Accordingly I provide the obverse face of the card *d* with suitable means for defining the rows *e* of units; I also preferably so treat the card that any unit thereon may be quickly and readily, and in a way to further the avoidance of errors in comparison with the design, located with respect to the corresponding minor rectangle or unit on the design. Thus, in Fig. 2, for

instance, the columns or rows of units *e* are provided with marginal parallel lines *f*. The rows are further designated by consecutive indices, such as numerals in each instance, as shown. The first set of indices, viewing the card as shown in Fig. 2 (the position for comparison with the design *a*) read from left to right and each of the groups of indices in the second set read from the top down. Therefore, in place of the guideless card heretofore employed, I have a card which in verifying reveals substantially at once and without inaccuracy any faults in the punching thereof. Every row of units is clearly indicated, whether punching has occurred therein or not. Every row of units has, furthermore, its distinguishing index, making it unnecessary for the person verifying to rely on the unreliable expedient of marking with one hand the row being inspected on the card while he marks with the other hand the row-section of minor rectangles on the chart with which the card-row should agree. Again, each card row *e* having its units consecutively designated by indices, the operator can see at a glance, if the row has been wrongly punched, not merely that this is so but precisely what unit or units it is that are at fault.

If desired, a vertical column of consecutive indices, as indicated at the extreme left in Fig. 2, and arranged to read from the top down, may be provided. These (as are also the first set of indices above mentioned) are placed outside of the punched field or area of the card, each index therein being useful in designating the horizontal row of units to which it is opposite, especially in cases where all of the units in such row have been punched out and their indices are therefore obliterated.

The lines *f* and the sets of indices may be placed upon the card by printing, or in any other desired manner.

If desired, the design may have the vertical rows of major rectangles provided with consecutive indices, as shown in Fig. 1; these may be printed on the design or placed there by the person verifying before he begins the work of verifying the set of cards which complete the design.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. The herein described blank jacquard card having markings distinguishing from each other the several rows of the card corresponding to row-sections on the pattern from which such card is to be punched.

2. The herein described blank jacquard card having the several rows thereof corresponding to row-sections on the pattern from which such card is to be punched provided with consecutive indices.

3. The herein described blank jacquard card having markings distinguishing from each other the units of each row of units of the card corresponding to a row-section of units on the pattern from which such card is to be punched.

4. The herein described blank jacquard card having the units of each row of units thereof corresponding to a row-section of units on the pattern from which such card is to be punched provided with consecutive indices.

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

EDWARD MAAG.

Witnesses:
M. H. HALL,
B. T. SHEPARD.

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