No. 759,907. PATENTED MAY 17, 1904.

G. NOACK.

MACHINE FOR PRINTING PATTERN CARDS FOR WEAVING.

APPLICATION FILED MAR. 17, 1903.

NO MODEL. 3 SHEETS—SHEET 1.

Fig. 1.

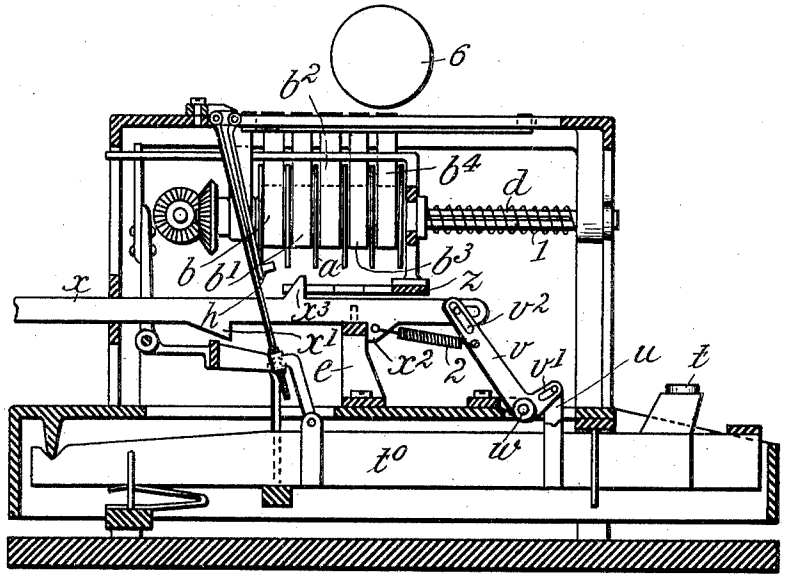
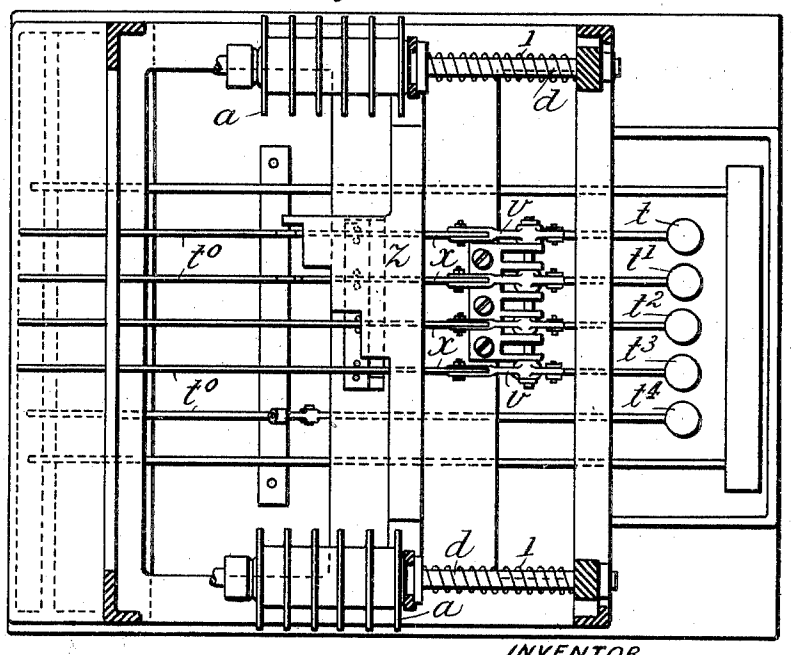


Fig. 2.



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WITNESSES.
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Fig.3.

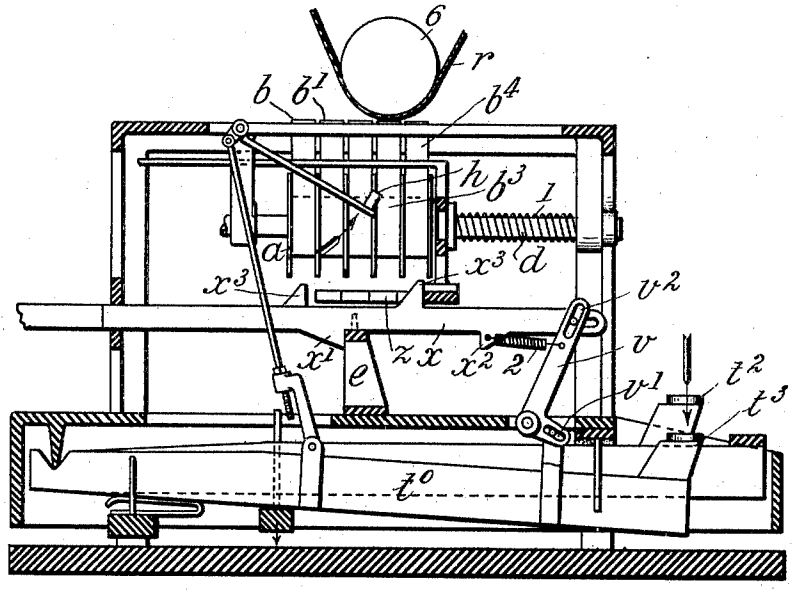
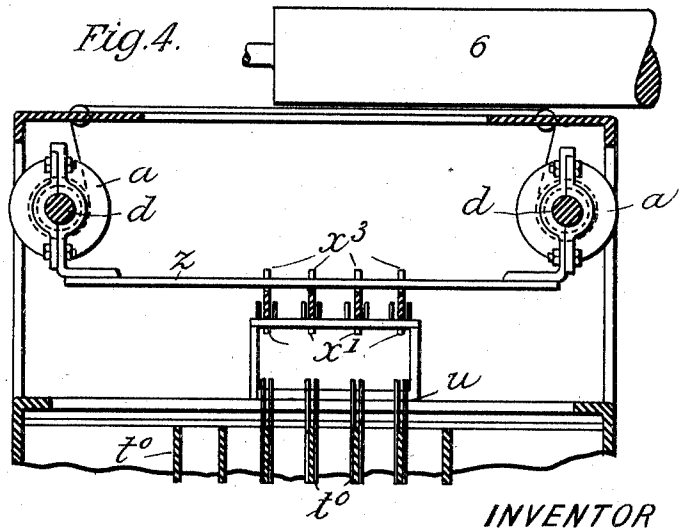


Fig.4.



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NO MODEL. 3 SHEETS—SHEET 3.

Fig. 5.

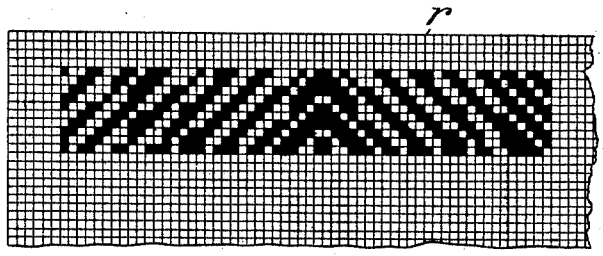
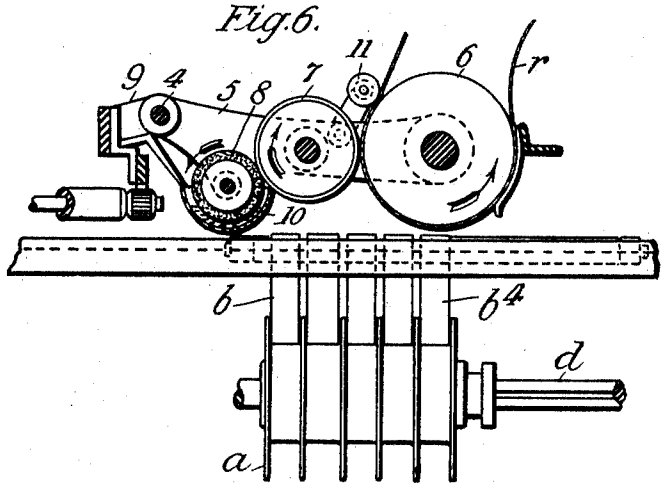


Fig. 6.



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UNITED STATES PATENT OFFICE.

GEORG NOACK, OF LEIPZIG-EUTRITZSCH, GERMANY.

MACHINE FOR PRINTING PATTERN-CARDS FOR WEAVING.

SPECIFICATION forming part of Letters Patent No. 759,907, dated May 17, 1904.

Application filed March 17, 1903. Serial No. 148,211. (No model.)

To all whom it may concern:

Be it known that I, GEORG NOACK, a subject of the German Emperor, residing at 26 Delitzscherstrasse, Leipzig-Eutritzsch, Germany, have invented certain new and useful Improvements in Machines for Printing Pattern-Cards for Weaving; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a machine for printing pattern-cards for use in weaving, by means of which, without the work being made more troublesome, the different methods of connection can be indicated by different colors, whereby the pattern can be better surveyed—in other words, rendered more distinct.

In the new machine the indication of the different methods of connection by means of different colors is facilitated not only by providing a special color-ribbon, but by the arrangement of a special printing-type with a key in connection with each color-ribbon, and the color-ribbons are so connected with the keys belonging thereto that when a key is struck the corresponding color-ribbon is simultaneously and automatically brought into position between the printing-type and card.

In the drawings, Figure 1 is a longitudinal section of the machine in the position of rest; Fig. 2, a horizontal section of the same; Fig. 3, a longitudinal section with key in the striking position; Fig. 4, a transverse section of the machine; Fig. 5, a weaving pattern-card. Fig. 6 represents a device for simultaneously printing the lines on the weaving-card.

As already mentioned, the machine is provided with as many keys $t\ t'\ t^2\ t^3\ t^4$ as color-bands $b\ b'$, in the present instance four. Each key is connected by its key-lever t^0 with a separate type-lever and type h; but all the type have a common printing-point. Four of the five key-levers t^0 are each provided with an arm u, which engages in a slot v', formed in one arm of an angle-lever v, which oscillates around a pin w, the other arm of lever v being furnished with a slot v^2 and pivoted to a bar x, Figs. 1 and 3, which is likewise slotted. The lower edge of the bar x is furnished with two stops $x'\ x^2$ and the top edge with one stop or projection x^3 only, the last mentioned striking against a transverse stepped bar z, which is firmly connected with the ribbon-reels a, while the lower stops $x'\ x^2$ come against opposite sides of a stop e, which limits the movement of the bar x.

The ribbon-reels a are mounted to slide longitudinally on the spindles d, but are held in their normal positions by springs 1, coiled on the spindles.

The stops x^2 are connected with the longer arm of the bent lever v by tension-springs 2, Figs. 1 and 3, which when the corresponding keys t are depressed pull the bar x and bar z to shift the reels, and for this reason must be made somewhat stronger than the two springs 1 on the ribbon-reel shafts d. After a key has been struck the springs return the ribbon-reels a to the normal position, so that the front color-ribbon in this case b^4 is in a position to transfer an impression of its corresponding type. If now the type h is to transmit a mark of the color of the ribbon b^4 to the weaving-pattern r, the key t^4 is depressed and the transmission at once effected without moving the reels laterally. If, however, a mark is to be transmitted from the other ribbons—for example, the color-ribbon b^3—the action is as follows: When the key t^3 is depressed, the particular lever v, and therewith the bar x, is carried forward (see Fig. 3) until the stop x' on the bar x lies against the stop e, in which movement the stepped transverse bar z and therewith the ribbon-reels are moved by the stop x^3 until the color-ribbon b^3 comes into position between the printing-type and card. The type h strikes the ribbon at the end of the downward movement by the key t^3.

In order to allow the necessary end play to this movement, which is independent of the movement of the lever v or the bar x, the ends of the last-mentioned moving parts are provided, as already stated, with oblong slots $v'\ v^2$, so that there is nothing in the way of the final downward movement of the keys. Moreover, the machine may be provided with a device which simultaneously with the moving of the pattern r brings about the crosswise ruling of the same, so that the adjustment of

the pattern when the printing commences is dispensed with, and ordinary unprinted paper can be used, which is ruled in the machine. For this purpose the arms 5, (see Fig. 6,) which serve for raising the device and which oscillate on the bolt 4, (see Fig. 6,) carry in addition to the platen-roller 6 the pattern-roller 7, the surface of which is marked with squares, and the color-roller 8, which lies against the pattern-roller 7, the roller 8 rotating in the color-holder 10, fixed in the extension 9. A counter-pressure roller 11 presses the weaving-pattern card against the platen-roller when it runs onto the same.

The whole printing device, together with the conveying-roller, is made movable backward and forward in the same manner.

What I claim, and desire to secure by Letters Patent, is—

1. A machine for printing weaving pattern-cards in which the different methods of connection are indicated by different colors, comprising a plurality of type or impression levers, key-levers adapted to operate the type-levers, a plurality of differently-colored ribbons each corresponding to a separate key-lever, adjustable reels carrying the ribbons, a platen-roller mounted above the ribbons, slide-bars connected with the key-levers and provided with projections, a transverse stepped bar connected with the ribbon-reels and adapted to coöperate with the projections on the slide-bars to shift the color-ribbon of any particular key into position to transfer the impression when that key is struck substantially as described.

2. A machine for printing weaving pattern-cards in which the different methods of connection are indicated by different colors, comprising a plurality of type or impression levers, key-levers adapted to operate the type-levers, slide-bars mounted above the key-levers and provided with stops, slotted angle-levers connecting the key-levers with the slide-bars, springs connecting the bars with the angle-levers, a transverse stepped bar mounted above the slide-bars, stops or projections on the slide-bars adapted to coöperate with the steps on the transverse bar to advance the said bar more or less, ribbon-reel spindles, ribbon-reels mounted on the spindles and connected with the stepped bar and moving therewith, a spring on the reel-spindle for returning the ribbon-reels and stepped bar to their normal position, and different-colored ribbons on the reels, each color corresponding to a particular key and adapted to be brought into the working position on the striking of such key, and a platen-roller mounted above the ribbons, substantially as described.

3. A machine for printing weaving pattern-cards in which the different methods of connection are indicated by different colors, comprising a plurality of type or impression levers, key-levers adapted to operate the type-levers, slide-bars mounted above the key-levers and provided with stops, slotted angle-levers connecting the key-levers with the slide-bars, springs connecting the bars with the angle-levers, a transverse stepped bar mounted above the slide-bars, stops or projections on the slide-bars adapted to coöperate with the steps on the transverse bar to advance the said bar more or less, ribbon-reel spindles, ribbon-reels mounted on the spindles, and connected with the stepped bar and moving therewith, a spring on the reel-spindle for returning the ribbon-reels and stepped bar to their normal position, and different-colored ribbons on the reels, each color corresponding to a particular key and adapted to be brought into the working position on the striking of such key, a platen-roller mounted above the ribbons, a pattern-printing roller mounted adjacent to the platen-roller, a color-feed roller mounted behind the printing-roller and transferring the color to the pattern-printing roller, substantially as described.

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

GEORG NOACK.

Witnesses:
HERM. LOCK,
RUDOLPH FRICKE.