(No Model.)

F. WIEBEL.

MACHINE FOR PRINTING TEXTILE GOODS.

No. 582,495. Patented May 11, 1897.

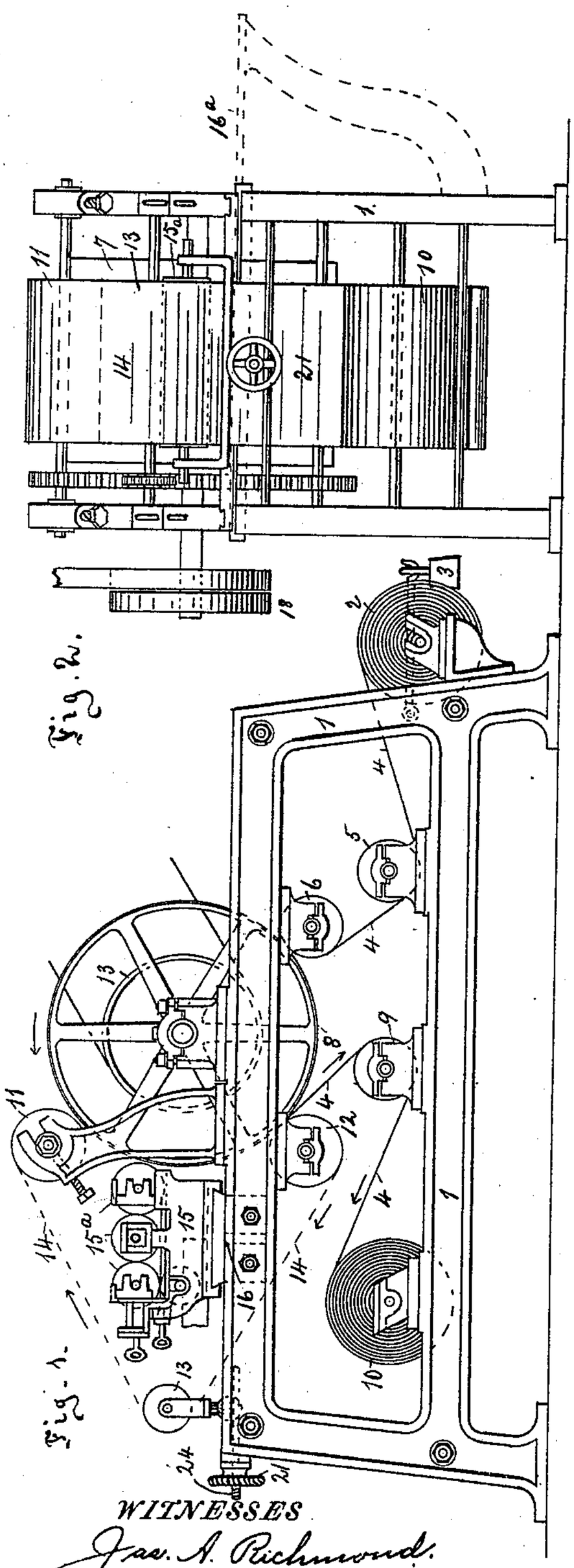

Fig. 2.

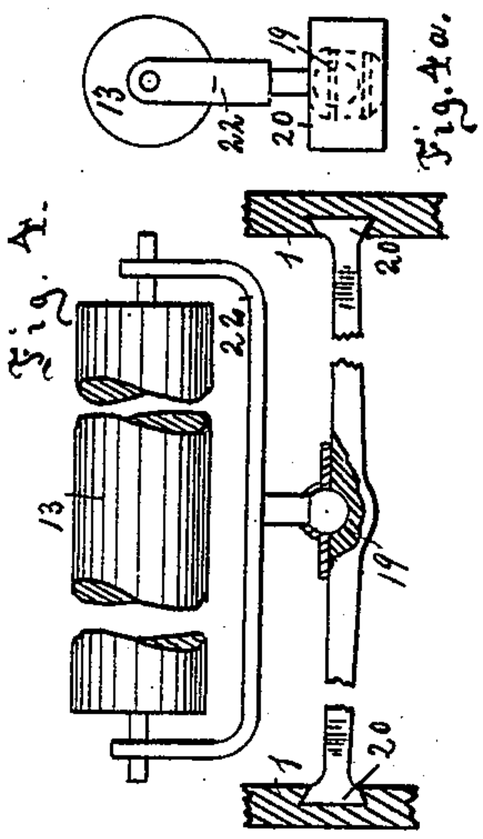

Fig. 4.

Fig. 4a.

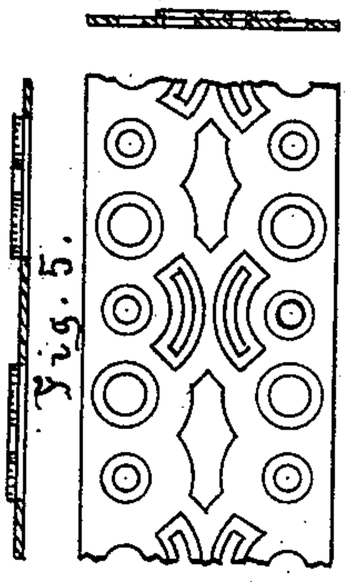

Fig. 5.

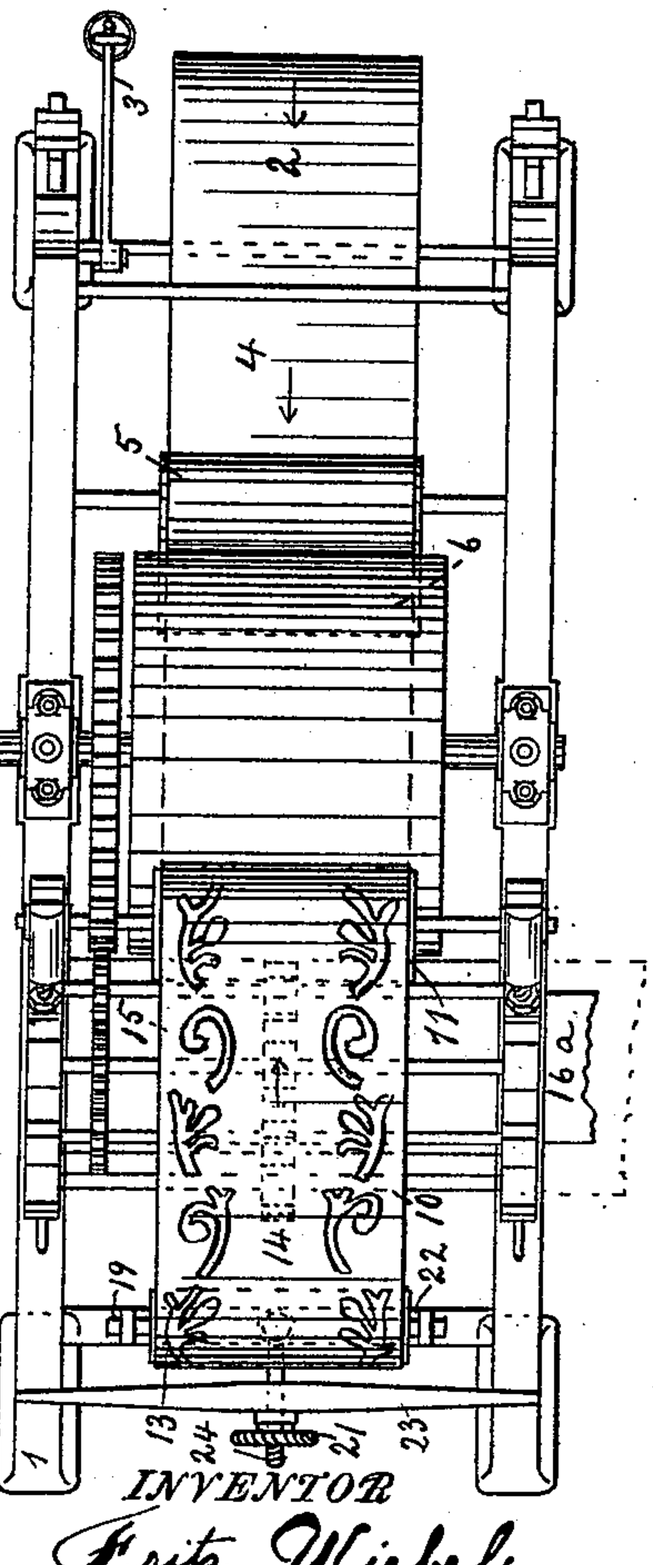

Fig. 3.

Fig. 1.

WITNESSES

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MACHINE FOR PRINTING TEXTILE GOODS.

SPECIFICATION forming part of Letters Patent No. 582,495, dated May 11, 1897.

Application filed December 10, 1895. Serial No. 571,706. (No model.) Patented in Germany March 6, 1894, Nos. 82,049 and 82,677; in France March 23, 1894, No. 237,265, and in Switzerland October 28, 1895, No. 12,229.

To all whom it may concern:

Be it known that I, FRITZ WIEBEL, a subject of His Majesty the Emperor of Germany, and a resident of Elberfeld, Rhenish Prussia, Germany, have invented a new and useful machine for printing textile goods, paper-hangings, and such like articles by endless templets having variable thickness of material, (for which I have obtained the following patents: in Germany, Nos. 82,049 and 82,677, dated March 6, 1894; in France, No. 237,265, dated March 23, 1894, and in Switzerland, No. 12,229, dated October 28, 1895,) of which the following is a specification.

The machines used hitherto for printing textile fabrics and paper-hangings give only a very restricted field for the extent of the repeating surface dimensions of the designs, as their engraved rolls or print forms or blocks are of moderate sizes and enlarging them would so considerably increase expenses that remunerative production would be without chance. Besides this restriction there is also the impossibility to produce with the existing machines during one and the same passage of the goods through the machine different intensities or shades of one and the same color from the same color-roll or gradations of the color following the design's contours on the printing-rolls.

My invention has for its object to allow, by the mechanical arrangements of my printing-machine made for the purpose, the use of endless templets for patterns of any size of ornaments, these templets having various thickness of stuff in various places of the same in order to vary the intensity of the color in these places. A further object in view is to be able to conveniently put in and out the coloring apparatus of the machine, and, finally, to provide for an automatic parallel guiding of the moving templet. This is of importance on account of the varying thickness of the templet in various places. These arrangements of my invention are fully represented in the annexed drawings, which show my printing-machine in—

Figure 1 in a side elevation; Fig. 2, in a front view seen from the left of Fig. 1. Fig. 3 is a plan, and Fig. 4 shows in an enlarged scale the arrangement for supporting the rear guide-roller for self-adjustment. Fig. 4ª is a side view of Fig. 4. Fig. 5 shows a part of a templet in plan and in cross-sections.

This new printing-machine is to work with endless templets of peculiar constitution and make, and in order to perform this work in the most advantageous manner its mechanical arrangement is the following:

In a suitably-consolidated framework 1 the roll 2, containing the material to be printed, is journaled in outside bearings, and its shaft is provided with a lever-brake 3, weighted suitably in order to secure a regular unwinding of the stuff 4, which, in order to be printed, is led over guide-rolls and tightening-rolls 5 6 to the main working drum 7, on which it is lying close over the greatest part of its circumference, leaving it at the lower part 8 in order to be led over another guide-roll 9 and farther on either to a drying device or, as shown in the drawings, onto a winding-up roll 10, situated in the frame in suitable bearings. The drawings show, further, to the left of the main drum a guide-roll 11 above and a guide-roll 12 below the horizontal center line. The former, 11, is touching in its whole length the main drum 7 and is revolving in adjustable bearings allowing an exact contact between the roll 11 and the drum. The other guide-roll 12 may be weighted, so as to keep the templet under tension. An adjustable roll 13 is fixed near the left-hand end of frame 1. The endless templet 14, of peculiar make, is laid over the said three rolls 11, 12, and 13, so that rolls 11 and 12 keep it tightly close to the drum and the stuff 4 to be printed on the drum, and so that the friction and adhesion between the stuff on the drum and templet cause the latter to run over its rolls and along with the stuff 4 when the drum is revolving. Gear-wheels and pinions may be used to support and to secure this motion of the templet. The inner free space circumscribed by the templet led over the three rolls 11 12 13 is partly occupied by the coloring apparatus 15, of known and approved construction. The coloring-rolls 15ª are mounted in

a suitable support movable on a sliding table 16, so that the coloring device may be pulled out sidewise onto a table 16ª.

The table 16 is not fully bridging the space between the two frames 1 1. It extends only from each standard inward for a certain length, leaving a free gap between these two half-tables in order to enable the endless templet to be taken out of the machine when the coloring device is pulled out so far as to give it passage, as shown in dotted lines in Fig. 3.

As it is impossible to obtain gradations in color intensity in one and the same passage of the goods by templet-printing with ordinary templets, I have devised a new templet of variable thickness of material at the desired places, as in Fig. 5, in combination with a new self-adjusting arrangement for the guide-roll 13, which enables a true-running development of the templet, notwithstanding its various thickness of material or paper at the different places of its surface. This guide-roll 13 is running in bearings in a forked bracket 22, Fig. 4, which has in the middle a short arm with a ball-and-socket joint lodged in a cross-head 19, sliding with its shoes 20 20 in a guide-groove in each of the frames 1 1 and provided with a screw 24 and hand-wheel nut 21, turning in a cross-piece 23 of the frames 1 1 and allowing to regulate the tension of the templet 14. By this device I am enabled to put at different places of the templet more or less thick frisket sheets or strips pasted on it, or other thickening pieces, causing a more or less close contact of the surface of the elastic coloring-roll 17, through the openings in the templet 14, with the stuff 4 to be printed and so producing a more or less copious and intense coloring of the goods, and thereby gradations of the color intensity, in one and the same passage by one and the same coloring-roll in the different places of the templet and in the regularly-continuing printing process, making thoroughly perfect goods. This is only possible by the use of the automatically-adjusting device of guide-roll 13 described, which for any position taken by the guide-rolls 11 12 takes an exactly parallel position to them, and so insures true, uniform, and parallel travel of the templet 14 over the three leading-rolls 11 12 13 in spite of the variation of the central distances between the axis of rotation of the cylinders 11 12 and of coloring-roll 17 in consequence of the passage of thicker or thinner places of the templet. Though these variations are very small they would if not compensated make impossible a parallel passage of the templet. The ball-and-socket arrangement of the movable forked roll-holder 22 equalizes momentaneously the differences in tension and restitutes the parallelism of the axis in question.

For printing goods with several colors similar coloring arrangements may be added by arranging them on the circumference of the main drum.

Now I am well aware that printing by means of templets and by roller-presses has been done, and I do not claim, generally, printing goods by revolving templets; but

What I claim is—

1. In a machine for printing textile goods, paper-hangings and like goods in long strips, the combination of frames 1, a stuff-carrying roll 2, guide-rolls 5, 6, and 9, a taking-up roll 10, mounted in the lower part of said frames and a drum 7 mounted on the top rail of frames 1, with an endless templet 14, said templet varying in thickness at certain places, guide-rolls 11, 12 and 13 guiding said templet so that it will touch and surround partly the stuff 4 on the drum 7 and with a coloring device 15 placed inside the hollow space or loop formed by the endless templet, the whole as described and illustrated and for the purpose specified.

2. In a machine for printing textile goods, paper-hangings and like goods in long strips, the combination of frames 1, a stuff-carrying roll 2, guide-rolls 5, 6, and 9, a taking-up roll 10 mounted in the lower part of said frames and a drum 7 mounted on the top rail of frames 1, guide-rolls 11, 12, 13 taking up the endless templet and guiding the same so that it will touch and surround partly the stuff 4 on the drum 7, a coloring device 15 placed inside the hollow space or loop formed by the endless templet, with a cross-head 19 sliding in side grooves of the frames 1 and carrying by ball-and-socket joint a bracket 22 supporting the guide-roll 13 and thus enabling it to adjust itself automatically to the unequal tension of the templet 14.

3. In a machine for printing textile goods, paper-hangings and like goods in long strips the combination of frames 1, rolls 2, 5, 6 and 10, drum 7 and rolls 11, 12, 13, templet 14 and coloring device 15, sliding cross-head 19 carrying by ball-and-socket joint in a bracket 22 the guide-roll 13, with a screw and hand-wheel 24 and 21 respectively for adjusting the roll 13 according to various lengths of templets, the whole as illustrated and described and for the purpose specified.

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Witnesses:
F. H. STRAUSS,
A. STRAUSS.