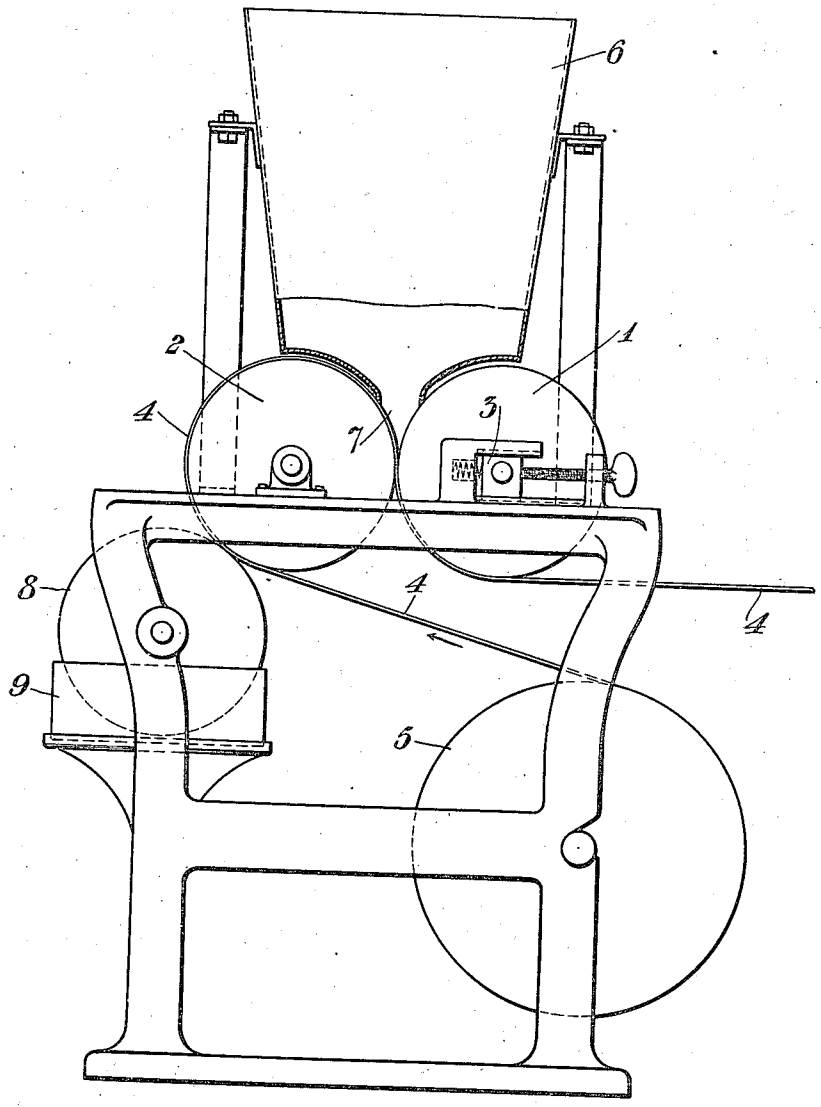
J. S. BERGMAN.

METHOD OF PRINTING.

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1,277,835.

Patented Sept. 3, 1918.



Witnesses:
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METHOD OF PRINTING.

1,277,835. Specification of Letters Patent. Patented Sept. 3, 1918.

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To all whom it may concern:

Be it known that I, JUSTUS SAMUEL BERGMAN, a subject of the King of Sweden, residing at Stockholm, in the Kingdom of Sweden, have invented new and useful Improvements in Methods of Printing, of which the following is a specification.

My invention refers to a method of printing according to which the printing means, the stereoptype, or the like, used for the printing acts to press aside the liquid ink or the like applied to the paper or the like in such manner that the impressed portions or spots become free from ink or become only slightly colored, in contrast to the intermediate, unimpressed places, where the ink remains and accumulates when it is forced aside out from the impressed places.

My invention is broadly characterized by that the printing is caused to be effected between rotary rollers and that the ink or the like used for the printing is applied to the paper or the like in a suitable quantity or in a layer of suitable thickness in close proximity to the line on which the rollers press against the paper fed between them.

A suitable way of carrying out my improved method is to cause the paper or the like to be fed in a long band between two rotary rollers, of which, one is a printing means and the other a smooth and, preferably, elastic or resilient counter-roller, while the ink or the like is continuously brought along by the paper from a tank above the rollers in an even layer at the place where the rollers are closest to each other. Thus, at the same or nearly the same moment as the ink from the tank comes into contact with the paper, the ink will be exposed to the pressure and, as it offers no difficulties accurately to control the quantity of ink or the thickness of the layer of ink, and simultaneously, the pressure or the distance between the rollers, the printing may be rapid and sharp without any excess of ink being transmitted to the paper and impairing the printed pattern or design, and on the other hand without any possibility of there being time for the paper to become damaged by the ink before the printing is effected.

In the accompanying drawing I have shown by way of example a suitable means for carrying out my improved method.

Two rollers 1 and 2 are rotating against each other, the roller 1 of which is provided on its surface with raised printing means, while the other roller 2 which preferably is elastic serves as counter-roller. The position and action of the rollers may, however, be reversed, so that the roller 2 serves as printing roller pressing against the back side of the paper, and the roller 1 as counter-roller, whereby a relieved print may be produced. As shown in the drawing the bearings 3 of the roller 1—or if desired of both rollers 1 and 2—are adjustable in direction toward and from the other roller for the purpose of adjusting the pressure and the distance between the rollers and thereby the thickness of the layer of ink applied to the paper. The paper 4 is fed from the roll 5 of paper on to the lower side of the roller 2 and from there around the same and down between the rollers 1 and 2 where it is printed. The ink tank 6 is placed above the rollers 1 and 2 and is filled with ink to such an extent that owing to its own pressure the ink will be applied to the paper through a suitable outlet opening 7 in the tank in a layer of the proper thickness at or immediately above the line where the rollers press hardest against each other and against the paper fed between them. The ink in the tank is preferably viscid, or often of a pulpy consistency.

In order to produce decorative color shades one or more colors may be applied to the printing side of the paper before it is introduced between the rollers 1 and 2, either over the whole surface of the paper or in spots. The color applied for this purpose should preferably be as thin as possible. The drawing illustrates an arrangement for this purpose comprising a roller 8 pressing against the printing side of the paper wound around the roller 2 and transmitting color to the same from the trough 9 in which it is partly submerged. It will be readily understood that for producing different color shades two or more such rollers may be provided, each partly submerged in a trough containing thin colored ink. These colors may also be applied to the paper by being sprayed on to the same by suitable means.

I claim:

1. The improved process of printing which consists in continuously feeding ink onto a strip of moving paper and then passing said paper with the ink disposed thereon between a roller having an uneven sur-

face and one having a smooth yielding surface whereby said ink is pressed over said paper in a definite direction thereby producing a print composed of characters pronouncedly shaded on one side and bright on the other.

2. The improved process of printing which consists in feeding ink onto a strip of continuously moving paper and rolling said ink over said paper between an even and an uneven surface immediately after it has been fed thereon whereby a pronounced shaded print is produced.

3. The improved process of printing which consists in applying colors to a strip of continuously moving paper, later applying ink to the colored side of said paper and immediately thereafter rolling said ink between an even and an uneven surface, over said paper in a direction opposite to its direction of travel.

JUSTUS SAMUEL BERGMAN.

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