

(No Model.)

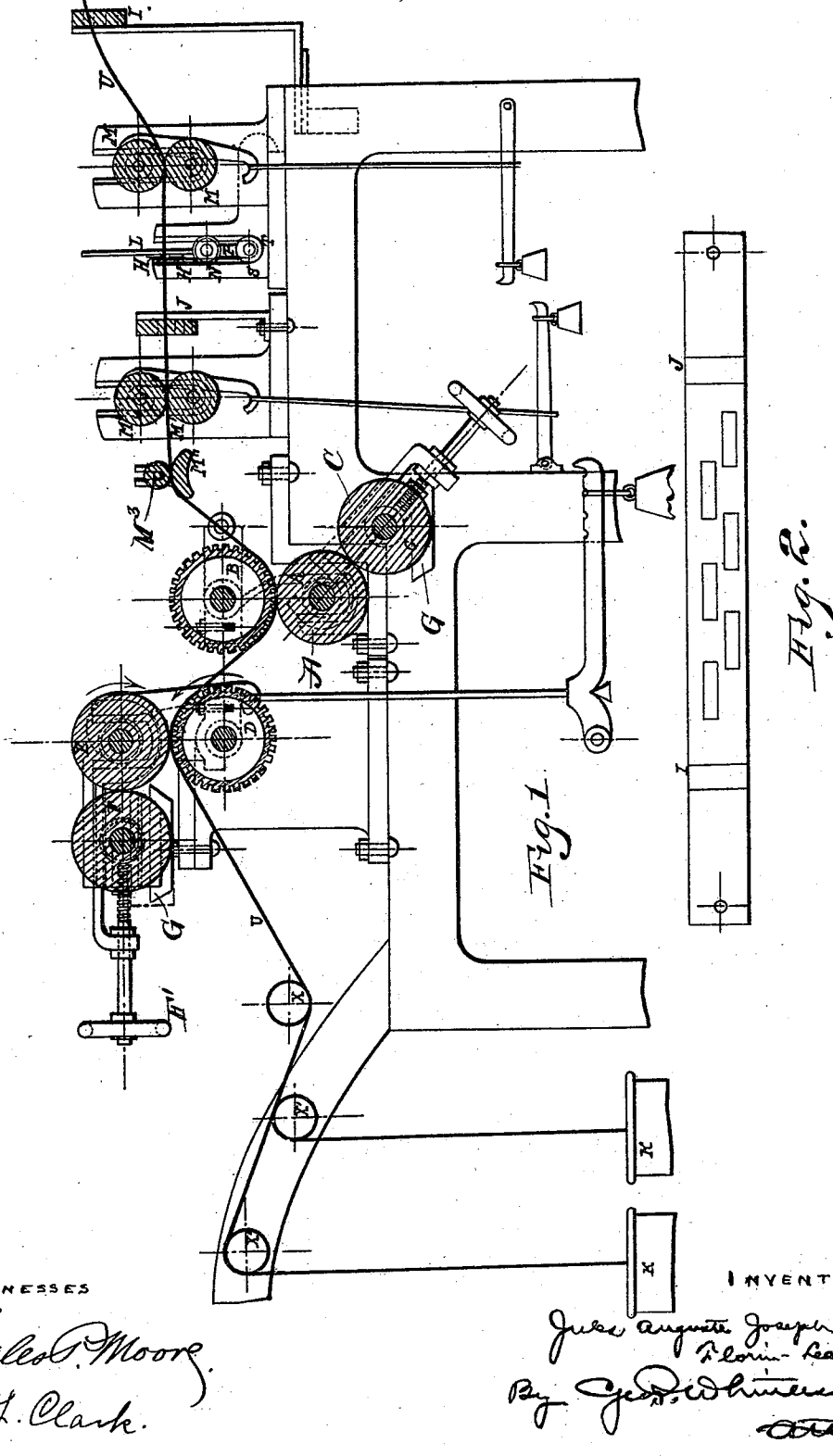
2 Sheets—Sheet 1.

J. A. J. FLORIN-LECLERCQ.

MACHINE FOR DYEING SLIVERS, &c., DIRECT FROM COMBS.

No. 530,831.

Patented Dec. 11, 1894.



WITNESSES

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FIG. 3.

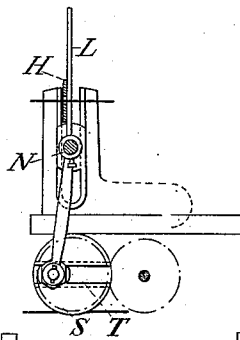


FIG. 4.

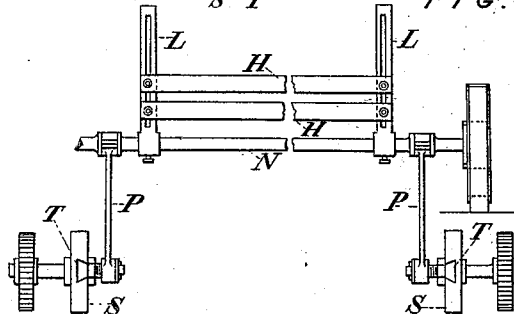
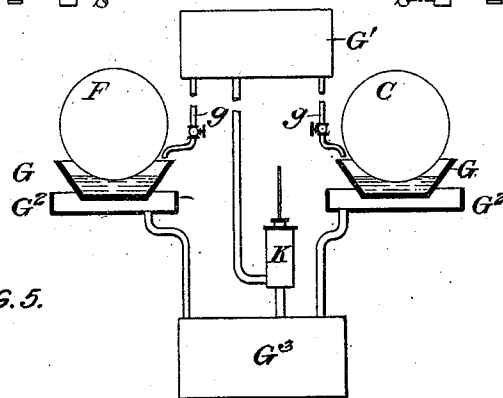


FIG. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

JULES AUGUSTE JOSEPH FLORIN-LECLERCQ, OF ROUBAIX, FRANCE.

MACHINE FOR DYEING SLIVERS, &c., DIRECT FROM COMBS.

SPECIFICATION forming part of Letters Patent No. 530,831, dated December 11, 1894.

Application filed April 20, 1893. Serial No. 471,068. (No model.) Patented in France September 30, 1891, No. 216,354; in Germany September 22, 1892, No. 67,729; in Belgium December 10, 1892, No. 102,510; in England January 16, 1893, No. 955, and in Switzerland March 18, 1893, No. 1,097.

To all whom it may concern:

Be it known that I, JULES AUGUSTE JOSEPH FLORIN-LECLERCQ, a citizen of the French Republic, residing at Roubaix, in the Department of Nord, France, have invented certain new and useful Improvements in Machines for Dyeing Slivers or Similar Substances Used in the Manufacture of Ribbon Direct from the Combs and for Like Purposes; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention has been patented in France, No. 216,354, dated September 30, 1891; in Germany, No. 67,729, dated September 22, 1892; in Belgium, No. 102,510, dated December 10, 1892; in Great Britain, No. 955, dated January 16, 1893, and in Switzerland, No. 1,097, dated March 18, 1893.

My invention has for its object the dyeing of slivers or ribbons, in an early stage of manufacture, when coming direct from the comb bobbin, without passing through the intermediary of the gill-box, as in other machines. This is effected by the aid of a special machine invented by me, which I will now proceed to describe with reference to the accompanying drawings, in which—

Figure 1 shows a side elevation of my machine, and Fig. 2 a plan of one of the parts called tringles. Fig. 3 is an end elevation on an enlarged scale, of the agitator. Fig. 4 is a front elevation of the same. Fig. 5 illustrates the dye circulating apparatus.

The machine shown operates in the following manner as will be readily understood from the said drawings: The slivers obtained by unrolling the bobbins pass through the rectangular openings of a pad bar I Figs. 1 and 2 and then between a first pair of regulable tension rollers M. M. Fig. 1. They then undergo the action of an agitator composed of two bars H. H. fixed to two sliding regulators L, mounted on an axle N, which is joined by cranks P, to two rotating disks S, in the

slide T, which arrangement regulates the course of the material U, and imparts to it a rapid succession of vertical concussions or blows, the object of which is to widen and flatten the material in such a manner as to obtain a band of uniform thickness. The working of this agitator may be effected by any suitable means and the construction of the agitator itself can be varied provided the foregoing result is produced. After being submitted to this agitation, the material crosses a second perforated bar J. similar to the first I, and then passes between a pair of compressing rollers M' M', the pressure of which like the rollers M, M, can be regulated in any well known way, as for instance, by a hook and weight as shown by Y, and Z. These rollers flatten the surface similarly to the tension rollers M, M, and pressure bar M'' with its superimposed roller M³. On leaving these rollers the combed material descends toward the first printing couple consisting of rollers A and B and passes between them, thereby receiving an impression on its lower surface. After this passage it ascends toward a second printing couple comprising the rollers E, and D, to receive an impression on its upper face. This serpentine movement of the ribbons produces the best results, but the material may when preferred pass horizontally from roller to roller. The rollers B and D are fluted and the dimensions of the flutes can be varied as desired. A, and E, are the printing rollers and have their surfaces perfectly smooth. They receive their supply of color from two other feeding rollers C, and F, rotating in contact with them, under a suitable pressure regulable by the screws C', F'', or in any other suitable way, so that they furnish a regular supply of coloring matter to the rollers A, and E. It will be understood that the projections of the fluted rollers B, and D, cause those parts of the material which fall upon the prominent parts of these rollers to receive the color under pressure and that the uncolored spaces of the material correspond to the flutes or intervals between the projections. These two successive series of rollers are necessary in order to make the printed impressions correspond in shade on the two

faces of the same material. As many different kinds of impressions as required can be printed by multiplying these double series of rollers one after another, either with a serpentine or horizontal movement of the surfaces of the material operated on. When several bands of material are operated on at one time, as is contemplated, the colored or dyed material, as it leaves the last pair of rollers, separates and passes over the rollers X, X', which permit the various bands to be deposited in the separate receptacles K, K, thus avoiding their becoming mixed. The material is next fixed, washed, dried and rewound on to bobbins. If desired, the rollers X, X', at the exit can be replaced by spreaders or other means of effecting the required result. The operation of all these parts is effected by the main shaft of the machine which distributes the necessary power by means of gear wheels of suitable dimensions.

The fluted rollers are geared direct and the printing rollers work by simple contact or can be geared and driven by their axles. This arrangement of the direct gearing rollers effects the regular delivery of the material. The fluted roller being of metal or other hard substance is invariably of the same diameter, while the diameter of the printing roller can vary, from the fact of its being coated with elastic substance such as india rubber, gutta-percha, cloth and the like.

My dyeing process consists of two successive operations: first, the passage of the material through the agitator and compressors as before described which has the effect of flattening all the material into a uniform thickness, and next, the coloring of the material on one surface, and then the same operation on the other surface.

It results from the compression of a hard fluted roller upon a soft or compressible substance that greater precision and distinctness of effect are produced by this method in the application of the coloring matter than can be obtained in the compression of two fluted rollers with compressible or soft surfaces which often cause a defective and unequal distribution of the color.

By my process I compress a substantial thickness of ribbons united in one surface, without their undergoing the action of the gill box. I dispense with the cost of this machine and the inconveniences consequent upon its action, such as the frequent renewal of the bars, the waste and damage to the material and the isolation of the surfaces operated on. I obtain in these respects a great advantage and economy in the dyeing of ribbons or slivers from the combs. The feeding rollers C, and F, turn in the usual troughs G containing dye and above the machine is

placed a reservoir G' for feeding these troughs by means of small pipes *g* furnished with taps to renew the dye which is absorbed in the troughs. These troughs are furnished with drip pans G² which take off the overflow into a receptacle G³ beneath the machine. A pump K is continuously employed for raising the coloring matter from the lower receptacle to the higher from which any overflow is again carried below to the lower receptacle. This constant flow has the advantage among others, that while renewing the dye it avoids the froth which arises if the dye is allowed to remain too long in the troughs of the rollers as the rollers are apt to cause froth by their rotation. This froth not only prevents a good surface of color on the feeding roller, but also causes the dilution of the dye upon the printing roller.

Although the object of my machine is chiefly to dispense with the gill box, I reserve the right to add gills at the commencement of the action of the machine described above, as also before each pair of printing rollers, when it is desired to employ simultaneously two or more colors. I also equally reserve the right to employ any compound or exceptional products of color on the ribbons from the combs as well as coloring matter properly so called.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. A machine for dyeing ribbons or slivers, consisting of the following series of agencies, to wit: a perforated guide bar I, a pair of pressure rollers M, a transversely operating agitator or beater H, a second perforated guide bar J, a second pair of pressure rollers M', a pressure bar M² and roller M³, and two printing couples B C and D E, the first arranged out of line with the bar and the second couple, and each comprising a yielding printing roll C, E, and a hard fluted roll B D around which the ribbons pass, substantially as described.

2. In a machine for treating ribbons or slivers from the comb, an agitator comprising two parallel bars, uprights to which said bars are adjustably secured, a shaft carrying said uprights, vertical bearings in which the ends of said shaft slide, adjustable cranks connected with the ends of the shaft, and means for rotating the cranks substantially as described.

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

JULES AUGUSTE JOSEPH FLORIN-LECLERCQ.

Witnesses:

HENRI DEPLUK,
S. WUTTE.