No. 898,292. PATENTED SEPT. 8, 1908.

F. WALTON.

APPARATUS FOR EMBOSSING AND COLORING OR PAINTING LINCRUSTA OR LIKE MATERIAL.

APPLICATION FILED JULY 22, 1904.

2 SHEETS—SHEET 1.

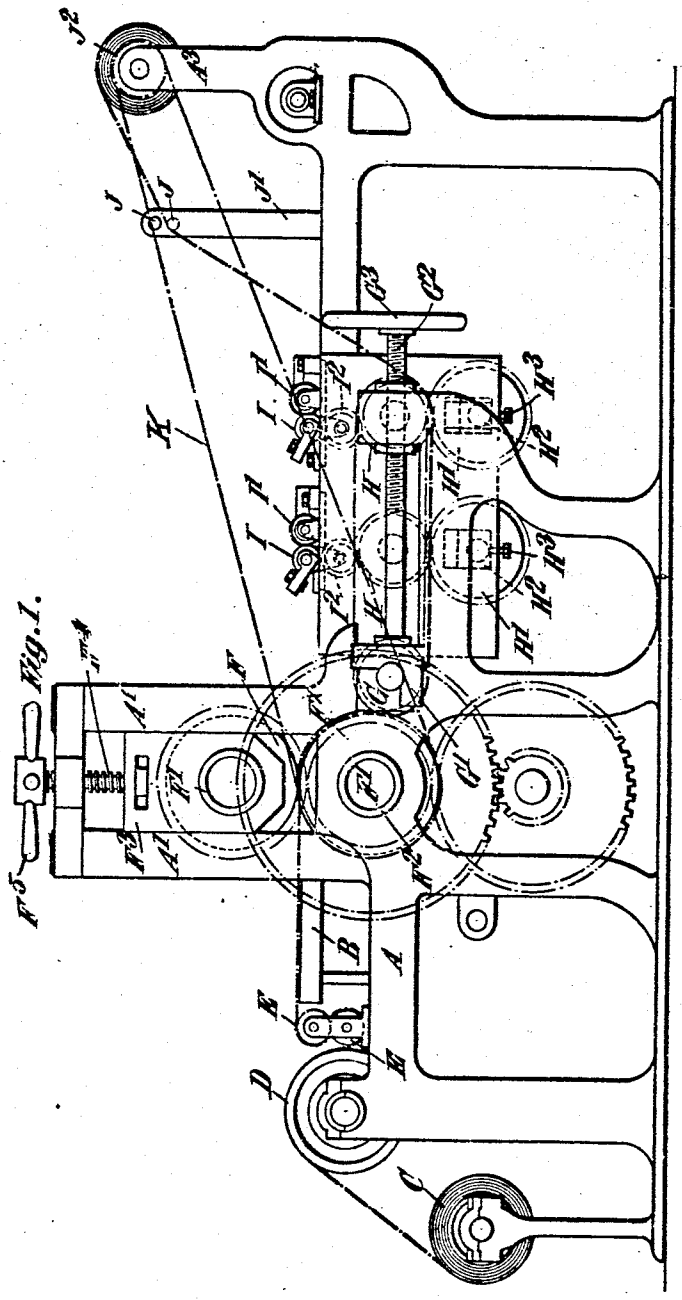

Fig. 1.

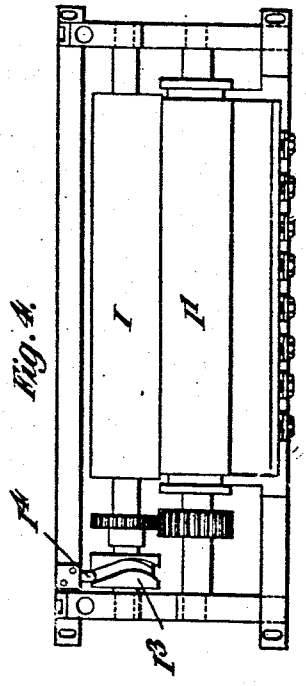

Fig. 4.

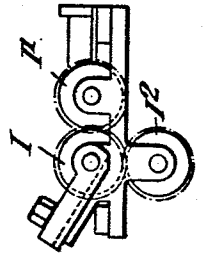

Fig. 3.

Witnesses
S. A. Panabaker.
H. H. Manning

Inventor
Frederick Walton
By Attorneys
Knight Bros

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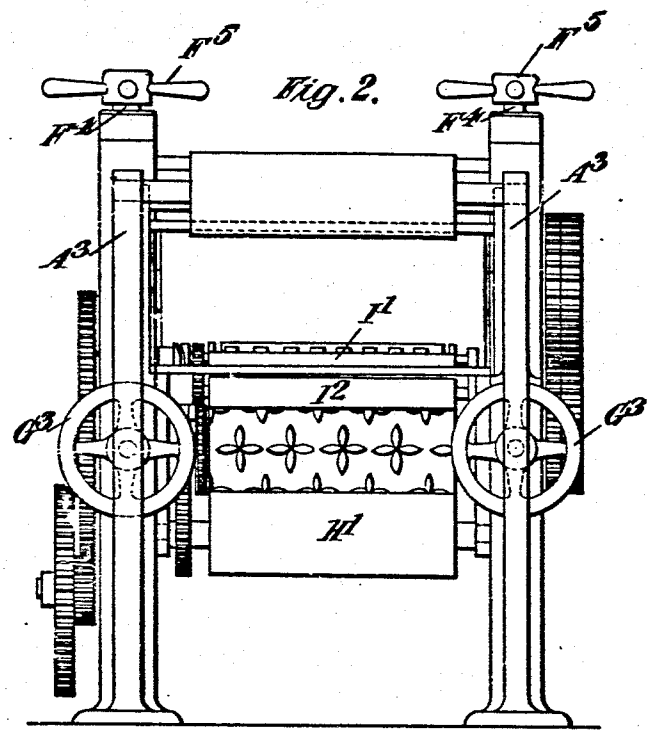
2 SHEETS—SHEET 2.

Fig. 2.



Witnesses
E. A. Parsons
A. A. Manning

Inventor
Frederick Walton
By Attorneys
Knight Bros.

UNITED STATES PATENT OFFICE.

FREDERICK WALTON, OF LONDON, ENGLAND.

APPARATUS FOR EMBOSSING AND COLORING OR PAINTING LINCRUSTA OR LIKE MATERIAL.

No. 898,292. Specification of Letters Patent. Patented Sept. 8, 1908.

Application filed July 22, 1904. Serial No. 217,710.

To all whom it may concern:

Be it known that I, FREDERICK WALTON, a subject of the King of Great Britain, residing at 114 Holborn, in the county of London, England, engineer, have invented Apparatus for Embossing and Coloring or Painting Lincrusta or Like Material, of which the following is a specification.

This invention has for reference to an improved apparatus for embossing and coloring or painting lincrusta or like material and has for its chief object to enable the lincrusta or like material to be embossed and painted in a continuous manner by mechanical means, so that the expenditure of time and labor that has hitherto been entailed when painting the lincrusta by hand will be avoided.

According to my invention the ingredients from which the lincrusta or like material is composed, are supplied to a suitable backing which together with the said lincrusta composition is subjected to heat and pressure during its travel, so as to obtain a sheet of the desired thickness. The said sheet of lincrusta or like material is next embossed with the desired pattern, preferably by means of rollers, and is then acted upon by the painting devices which apply paint of the required color or shade to the requisite parts of the embossed pattern. The lincrusta or like material thus embossed and painted is, after becoming dry, wound into a roll and needs no further treatment prior to use. The said painting devices are preferably in the form of rollers arranged in one or more pairs according to the number of colors or tints that are to be applied to the embossed material. Each pair of the painting rollers preferably comprises a hard plain roller and a comparatively soft roller which latter is formed with a fac-simile of the embossed pattern or the parts thereof that are to be painted with the particular color or shade that is to be applied to the material. This roller I term a composition pattern roller. These composition pattern rollers may be made by taking a plaster cast of the pattern on the embossing roller, said cast being made in several segments and formed into a mold into which printer's roller-composition may be poured, thus obtaining a composition roller of the same diameter as the embossing roller and bearing on its surface a fac-simile of the pattern of said embossing roller. Having thus obtained a number of such composition pattern rollers, corresponding with the number of colors or shades the lincrusta or like material is to possess in its finished condition, I then take each of said composition pattern rollers and remove from their surface that portion of the pattern which is not required to be painted by that particular roller.

The paint of the desired color or tint is supplied to the aforesaid pairs of painting rollers by any suitable paint supplying contrivances; thus each pair of painting rollers is adapted to apply a different color to the pattern of the embossed lincrusta or like material and as each composition pattern-roller has a portion of the pattern removed at different places in accordance with the parts of the pattern that that particular roller is not required to paint, only the raised portions thereof (*i. e.* the portions that have not been removed) will be caused to paint the lincrusta or like material. Different colors will thus be applied to different parts of the pattern as the embossed material passes between the various rollers. In the case where it is desired to apply paint of only one color to the lincrusta or like material, it may be found unnecessary to cut away a part of the pattern surface from the composition pattern roller, although this will of course depend upon whether the whole or only a part of the embossed surface of the lincrusta or like material is to be painted.

In the accompanying drawings I have illustrated one form of machine suitable for carrying my invention into practice; Figure 1 being a side elevation, and Fig. 2 an end view. Fig. 3 is an end elevation, and Fig. 4 a plan of the contrivance for supplying the paint or color to the painting rollers.

A is the embossing part of the machine which has a steam heated plate B over which the lincrusta backing passes from a roll C; said backing reaching said plate by traveling over a roller D and between guiding rollers E E. The material of which the lincrusta is composed is supplied to the backing in any convenient manner as said backing passes over the heated plate B. The backing and its lincrusta material then travel between pressure rollers F F' whereby a sheet of the desired thickness is obtained. The rollers F F' are supported by shafts F' F' which rotate in bearings F² F³ and receive their motion from spur gearing or other appropriate

mechanism. The bearings F^2 of the upper roller F are carried in vertically adjustable blocks F^3, provided with screw rods or spindles F^4 having handles F^5. The said adjustable blocks F^3 work in guides formed in the upright framework A' of the machine and thus enable the pressure that the rollers F $F^\times$ exert upon the lincrusta as it passes between them, to be adjusted. The lincrusta and its backing after leaving the pressure rollers F $F^\times$ pass between the embossing roller G and the lower roller $F^\times$, whereby the pattern on the embossing roller is applied to the lincrusta. The embossing roller is supported in suitable bearings G' which are adjustable to and fro with respect to the roller $F^\times$ by means of screw rods or spindles G^2 working in bearings carried by brackets A^2 of the framework of the machine. G^3 are handles on the said screw rods for actuating them and thus adjusting the distance between the embossing roller and the roller $F^\times$ according to requirements. From the embossing roller G the embossed lincrusta and its backing pass to the pairs of painting rollers H H' of which two pairs are shown in the drawing, the rollers H being the composition pattern rollers and the rollers H' being the hard plain rollers which may be made of steel. The rollers H' are mounted in adjustable bearings H^2 having screws H^3 or some other appropriate means for actuating said bearings and in that way regulating the distance between the rollers H H' and consequently the degree of force with which the lincrusta will be pressed against the composition pattern rollers H.

Above the rollers H are arranged the contrivances for supplying the paint or color thereto. In the example illustrated each of said contrivances comprises a composition roller I and two metallic rollers I' I^2 lying in contact with the said composition roller I. The metallic roller I^2 also lies in contact with the composition pattern roller H and serves to convey the paint or color thereto from the roller I, said paint or color being supplied to the rollers I I' in any convenient and well known manner. The rollers I are provided with mechanism for causing them to move longitudinally and rub against the surface of the rollers I' to distribute the paint thereon. For this purpose the axles of the rollers I may have a grooved drum or cam I^3 (see Fig. 4) with which a fixed pin or projection I^4 engages, so that as the said roller I revolves it will also move longitudinally. The embossed and painted lincrusta as it leaves the final painting rollers, is guided by rods or rollers J J carried by an upright J' to a reel J^2 upon which it is wound; this reel is mounted in bearings in an upright A^3 of the framework of the machine.

For winding the lincrusta on the reel any suitable means may be used, such as a slack rope K surrounding one of the main rollers and capable of slipping as the reel grows in diameter. It is, however, not desirable in practice to wind up the newly printed material into the form of a roll as the lincrusta in such case is apt to smudge and set off. This disadvantage may be avoided by leaving the wet material on a hanging stove such as is used in ordinary linoleum printing and let it remain there until dry, after which it may be wound up on a reel.

The aforesaid composition pattern rollers H are of the same diameter as the embossing roller G and are so geared with the latter as to revolve at the same surface speed thereof, thus insuring that the portions of the pattern that the said rollers H bear shall properly register with those portions of the pattern embossed on the lincrusta by the roller G, and that are to be painted by the respective painting rollers as the said embossed lincrusta reaches each pair of them.

From what has already been stated above with respect to the production of the composition pattern rollers H, it will be readily understood that in the machine illustrated, one of these rollers would bear only the portions of the embossed pattern that are to be painted or colored, say blue, while the other of said rollers would bear only the portions of the embossed pattern that required to be painted or colored, say red, the other portions of the pattern in each case having been removed from the surface of said rollers prior to their being placed in the machine.

In some cases when the relief of the lincrusta pattern is considerable it may be found desirable to have in each set of paint supply rollers an embossed roller to apply the paint to the composition pattern roller or rollers. This embossed paint-roller may be conveniently constructed by carefully applying to the ordinary metallic paint-roller a piece of the embossed lincrusta. The roller so covered may receive paint from the composition paint-rollers already described.

In some cases I may arrange two or more composition pattern rollers around one central impression cylinder or drum, over which rollers I may fix paint-supplying devices of the kind above described. The operation in this case is such that the lincrusta, after leaving the embossing roller, will be caused to travel by suitable mechanism around a central impression cylinder or drum and underneath the composition pattern rollers.

What I claim and desire to secure by Letters Patent of the United States is:—

1. In the manufacture of lincrusta and like embossed material, the combination with an embossing device, of a heated table over which a web of backing is caused to travel while it receives the material to be embossed, a pair of pressure rollers between which said backing and material pass, painting or coloring devices bearing on their surface a fac-

simile of the parts of the embossed pattern that are to be painted thereby, means for supplying the paint or color to said painting devices, and means for insuring that the patterns of the painting devices register with the corresponding patterns formed in relief by the embossing device substantially as described.

2. In the manufacture of lincrusta and like embossed material, the combination with an embossing device, of a heated table over which a web of backing is caused to travel while it receives the material to be embossed, a pair of pressure rollers between which said backing and material pass, a pair of painting rollers one of which bears on its surface a fac-simile of the part of the embossed pattern which is to be painted or colored thereby, means for supplying the paint or color to said pair of rollers, and means for insuring that the patterns of the painting rollers register with the corresponding patterns formed in relief by the embossing device substantially as described.

3. In the manufacture of lincrusta and like embossed material the combination with an embossing device, of a heated table over which a web of backing, is caused to travel while it receives the material to be embossed, a pair of pressure rollers between which said backing and material pass, a plurality of pairs of painting rollers, one roller of each pair bearing on its surface a fac-simile of the part of the embossed pattern which is to be painted or colored thereby, means for supplying the paint or color to each pair of said series of painting rollers, and means for insuring that the patterns of the painting rollers register with the corresponding patterns formed in relief by the embossing device substantially as described.

4. In the manufacture of lincrusta and like embossed material, the combination with an embossing device, of a heated table over which a web of backing is caused to travel while it receives the material to be embossed, a pair of pressure rollers between which said backing and material pass, a plurality of pairs of painting rollers one roller of each pair being composed of a comparatively soft material and bearing on its surface a fac-simile of the part of the embossed pattern which is to be painted or colored thereby, means for supplying the paint or color to each pair of said series of painting rollers, and means for insuring that the patterns of the painting rollers register with the corresponding patterns formed in relief by the embossing device substantially as described.

5. In the manufacture of lincrusta and like embossed material, the combination with an embossing device, of a heated table over which a web of backing is caused to travel while it receives the material to be embossed, a pair of pressure rollers between which said backing and material pass, a plurality of pairs of painting rollers, one roller of each pair bearing on its surface a fac-simile of the parts of the embossed pattern that is to be painted thereby, the said painting roller being arranged so that its pattern will register with the corresponding pattern of the material, means for revolving said painting rollers at the same surface speed as that of the embossing rollers, and means for supplying the paint or color to each pair of said painting rollers, substantially as described.

6. In the manufacture of lincrusta and like embossed material, the combination of a heated table over which a web of backing is caused to travel while it receives the material to be embossed, a pair of pressure rollers between which said backing and material to be embossed pass in order to be formed into a sheet of the requisite thickness, an embossing roller for embossing said material, an adjustable bearing for said embossing roller, a plurality of pairs of painting rollers, one roller of each pair bearing on its surface a fac-simile of the part of the embossed pattern that is to be painted thereby, means for revolving said painting rollers at the same surface speed as that of the embossing roller, means for supplying the paint or color to each pair of said painting rollers, and means for winding the embossed and painted material into a roll substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses this 9th day of July, 1904.

FREDERICK WALTON.

Witnesses:
T. RUOLL,
G. B. HAMILTON.