

H. W. SANDERSON.

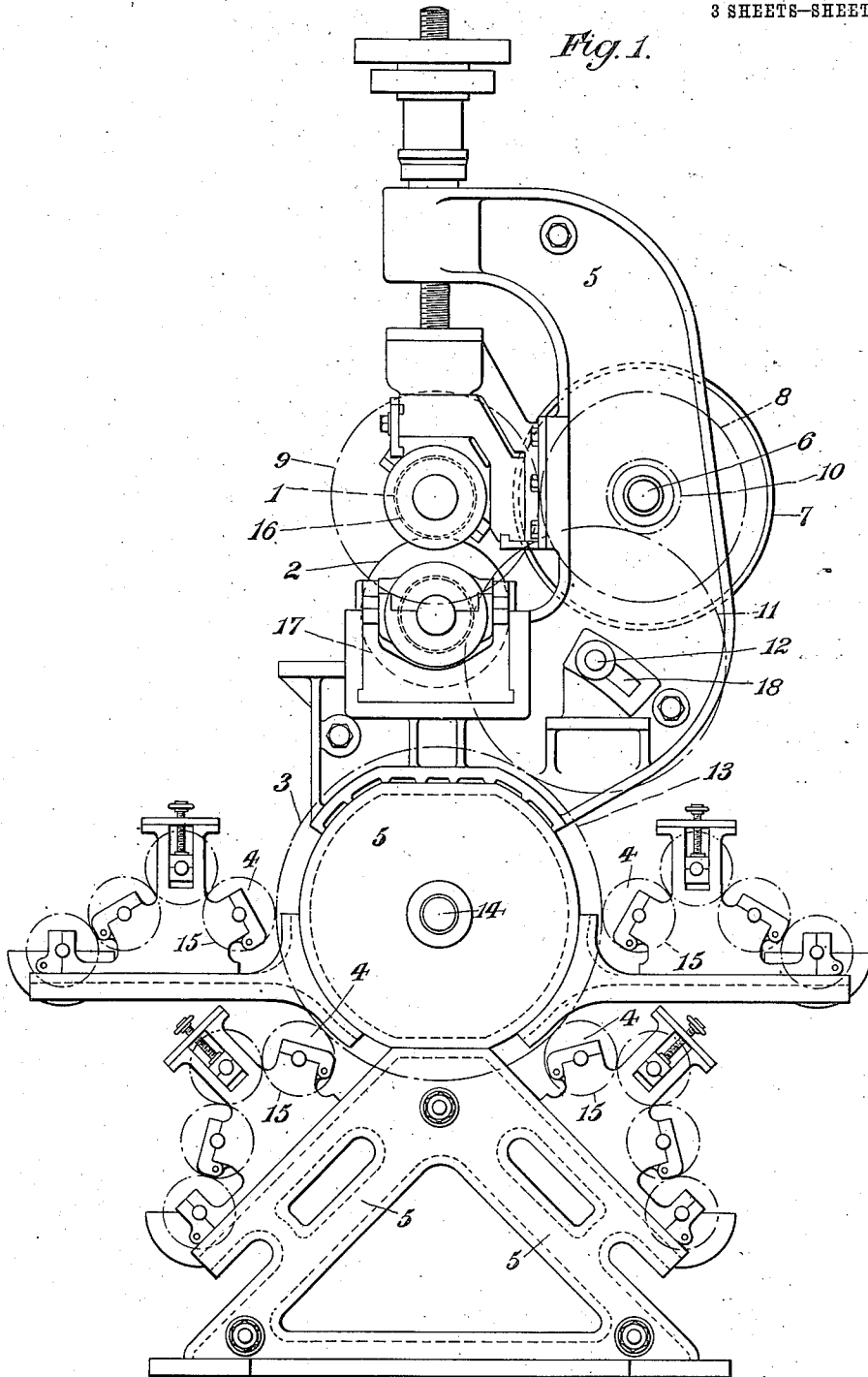
APPARATUS FOR USE IN THE PRODUCTION OF PRINTED AND EMBOSSED WALL PAPERS
AND THE LIKE.

APPLICATION FILED JAN. 31, 1912.

Patented Oct. 15, 1912.

3 SHEETS—SHEET 1.

1,041,678.



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WITNESSES

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W. E. Kell

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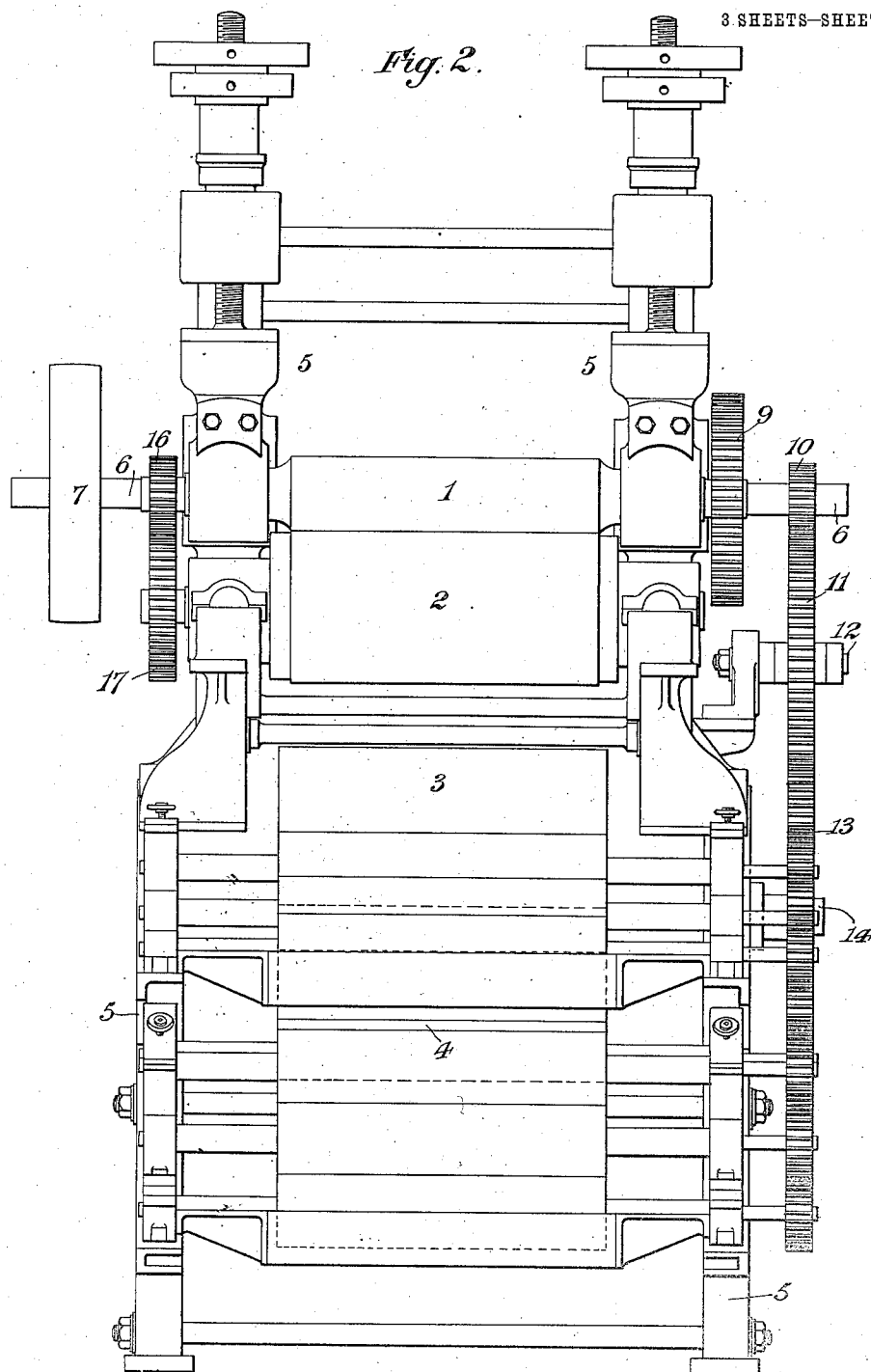
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3 SHEETS—SHEET 2.



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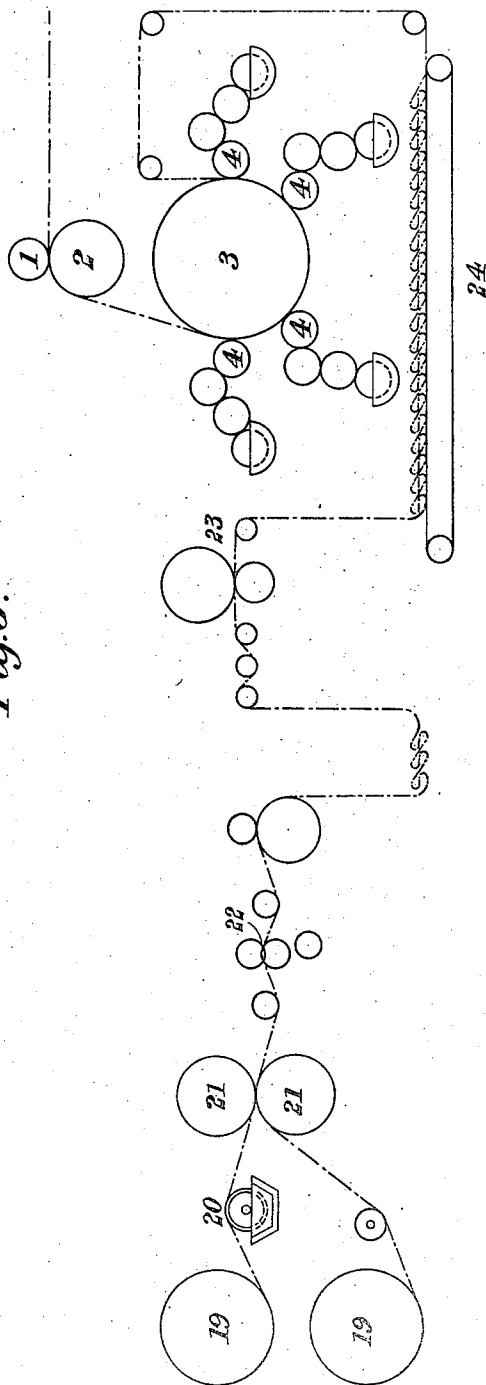
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3 SHEETS—SHEET 3.

Fig. 3.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR USE IN THE PRODUCTION OF PRINTED AND EMBOSSED WALL-PAPERS AND THE LIKE.

1,041,678.

Specification of Letters Patent.

Patented Oct. 15, 1912.

Application filed January 31, 1912. Serial No. 674,543.

To all whom it may concern:

Be it known that I, HAROLD WILLIAM SANDERSON, a subject of the King of Great Britain and Ireland, director of The Wall Paper Manufacturers Limited, A. Sanderson & Sons Branch, of Chiswick, in the county of Middlesex, England, have invented new and useful Improvements in Apparatus for Use in the Production of Printed and Embossed Wall-Papers and the Like, of which the following is a specification.

The object of my invention is to provide apparatus whereby the production of printed and embossed wall-papers and the like can be effected in an improved and more convenient, expeditious and economical manner, and incidentally so that a better product is obtained.

According to my invention I provide a combination of embossing rolls with a printing machine in which the paper, or other material, before being embossed, passes between an impression cylinder and printing rollers arranged around, or partly around, the said cylinder, each printing roller being provided with any suitable arrangement of color-distributing and printing devices which may, for example, be an ordinary copper roller printing machine, or an ordinary printing machine, and the embossing rolls may be a pair of the ordinary kind, but they are, according to my invention, combined with the printing device and driven by gear arranged so as to insure the proper relative peripheral speeds of the printing rollers and the embossing rolls so that correct register is effected between them and the embossing of the paper is effected in exact position relatively to the printing previously effected.

I will describe an arrangement, or construction, according to my invention with reference to Figures 1 and 2 of the accompanying drawings, which represent elevations at right angles to each other and Fig. 3 is a diagrammatic representation of the machine arranged in connection with an apparatus for preparing the paper to be printed and embossed.

1, 2, are the embossing rolls, 3 is the impression cylinder and 4 are the printing rollers each provided with their color troughs and distributing rollers. All the foregoing are mounted in bearings carried by framings 5, or brackets thereon. The

driving shaft 6 is mounted in bearings in the same framings and is provided with a driving pulley 7 (or fast and loose pulleys) and with a toothed wheel 8 which gears with another toothed wheel 9 of equal diameter fixed on the axis of the embossing roll 1, the said driving shaft 6 being also provided with a pinion 10 which is of a diameter equal to the diameter of the roll 1. Gearing with the pinion 10 is a toothed wheel 11 on a stud 12, which toothed wheel 11 in turn drives a toothed wheel 13 running loosely on the stud 14. The impression cylinder 3 is free to rotate on its own axis and it is so mounted that, if desired, it can be raised out of printing position. The toothed wheel 13 drives each of the printing rollers 4 by engaging a pinion 15 on the axis of each printing roller. The printing rollers 4 and their pinions 15 are of the same diameter as the pinion 10 and the embossing roll 1, subject however to any slight increase in the diameters of the printing rollers which may be necessary to allow for gathering up of the paper, or the like, which may take place after printing owing to the depth of embossing done by the embossing rolls.

It will be evident from the foregoing that the circumferential speeds of the printing rollers 4 and embossing rolls 1 and 2 are the same, subject to the aforesaid possible slight increase of the diameters of the printing rollers.

The counter embossing roll 2 which operates with the driven embossing roll 1 is geared with the embossing roll 1 by toothed wheels 16 and 17 of a diameter to give equal peripheral speeds of the two rolls. The stud 12 of the wheel 11 is shown as being adjustable in a segmental slot 18 to enable the different sized embossing rolls and corresponding printing rolls 4 to be used.

The aforesaid arrangement of gearing enables a minimum number of wheels to be used and therefore correspondingly reduces backlash and friction and avoids objectionable take-up.

The parts not referred to may be like, or analogous to, corresponding parts respectively in ordinary embossing apparatus and wall-paper printing machines of the aforesaid type.

If desired I may dry the printed web as it passes from the printer to the embosser and

this may be done for example by blowing hot, or cold, air onto the said web.

I can use the apparatus described for both printing and embossing the combined web, or for printing without embossing, or for embossing without printing, by guiding the combined web to the printer and thence to the embosser as described; or by taking it off from the printer without passing it through the embosser, or by leading the said web direct to the embosser without passing it through the printer.

Fig. 3 illustrates the combination with the aforesaid apparatus of an apparatus for combining webs of paper, or other material, and cutting off their edges after the adhesive has been applied and while the combined webs are in a damp, or pulpy, condition, as described in the specification of United States Letters Patent No. 984,443, granted to me, 19 being the rolls of webs, 20 the paster, 21 the rolls which press the webs together and 22 the cutters, but instead of passing the combined and cut web at once through pattern embossing rolls, as in my said former specification, I pass it (on its way first to the aforesaid printing apparatus and afterward to the embossing apparatus) through pressing rolls (illustrated at 23) one, or both, of which may be lined, or ribbed, rolls to slightly indent the combined web on one side, or on both sides.

The parts of the printing and embossing machine which are shown in Fig. 3 are marked with reference numerals the same as those employed to denote the same parts in Figs. 1 and 2.

I have shown a traveling apron at 24 to carry the combined web to the printer. The web is indicated by the "dot-and-pick" lines.

What I claim is:—

1. In a combined printing and embossing machine, a driving shaft with pinion thereon, an embossing roll with pinion of like diameter meshing therewith, a second pin-

ion on said driving shaft, a series of printing rollers provided with pinions, a master gear meshing therewith and a pinion interposed between said master gear and said second pinion on the driving shaft for driving the printing rolls from the latter, the pinions of said printing-rolls driving gear being proportioned to secure a peripheral speed for the printing rolls corresponding to that of the embossing rolls, as described.

2. In a combined printing and embossing machine, a driving shaft with pinion thereon, an embossing roll with pinion of like diameter meshing therewith, a second pinion removably mounted on said driving shaft, a series of printing rollers, a master gear meshing therewith, a pinion interposed between said master gear and the second pinion on the driving shaft for driving the printing rolls from the latter, and an adjustable stud carrying said interposed pinion whereby the position of the latter may be shifted to accommodate different size pinions on the driving shaft, for the purpose described.

3. In a combined printing and embossing machine, side framing, a driving shaft mounted in the upper portion thereof and projecting beyond the same, an embossing roll mounted adjacent said driving shaft, pinions on said roll and shaft operatively connecting the same together, a second pinion removably mounted on the driving shaft outside the side frames, a series of printing rollers with pinions thereon, a master gear controlling the same and a pinion, mounted on an adjustable stud, interposed between said second pinion on the driving shaft and said master gear, for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HAROLD WILLIAM SANDERSON.

Witnesses:

WILLIAM GERALD REYNOLDS,

O. J. WORTH.