No. 885,351. PATENTED APR. 21, 1908.

A. LEISEL.

MACHINE FOR MAKING EMBOSSED WALL PAPER.

APPLICATION FILED AUG. 2, 1907.

2 SHEETS—SHEET 1.

Fig: 1.

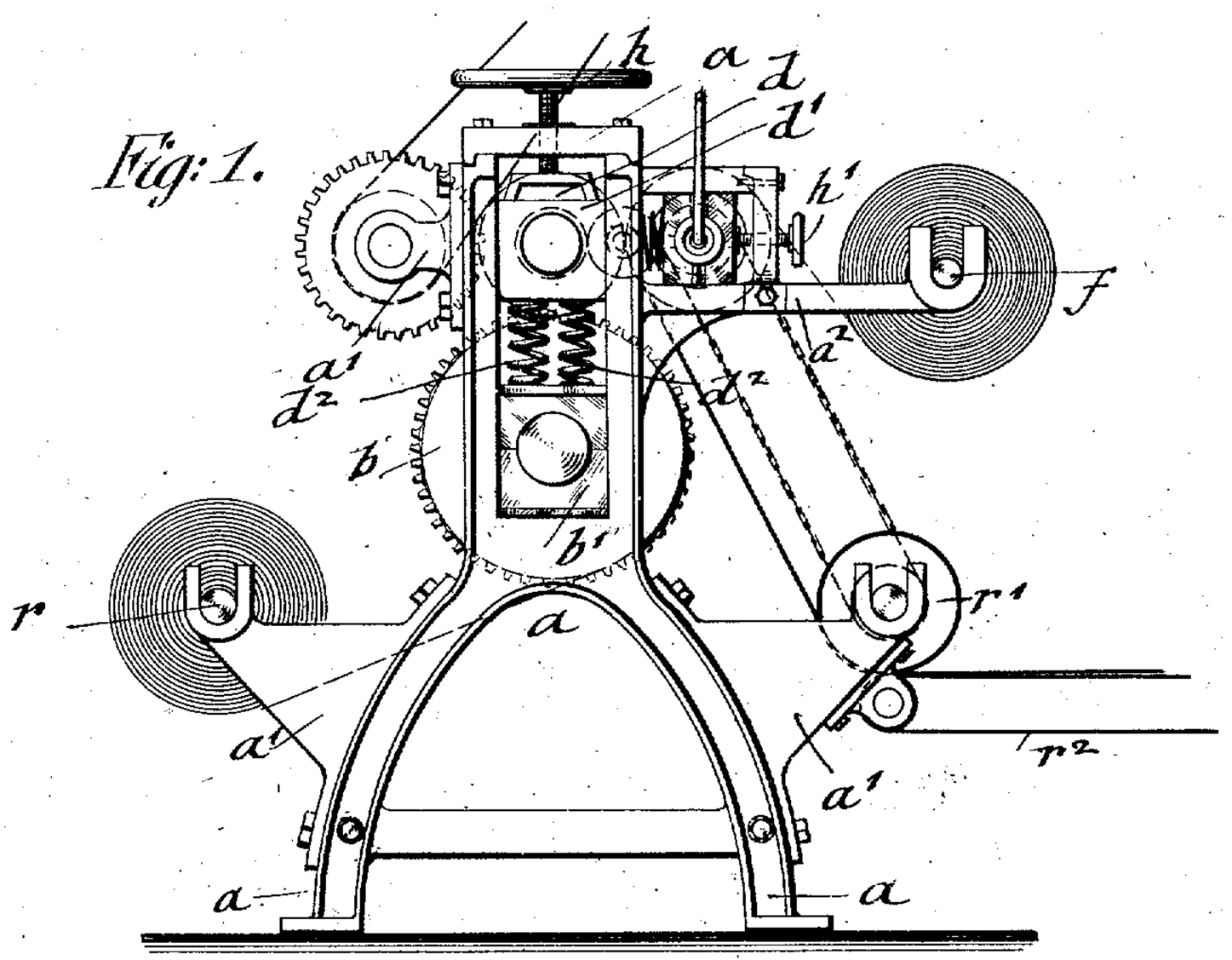
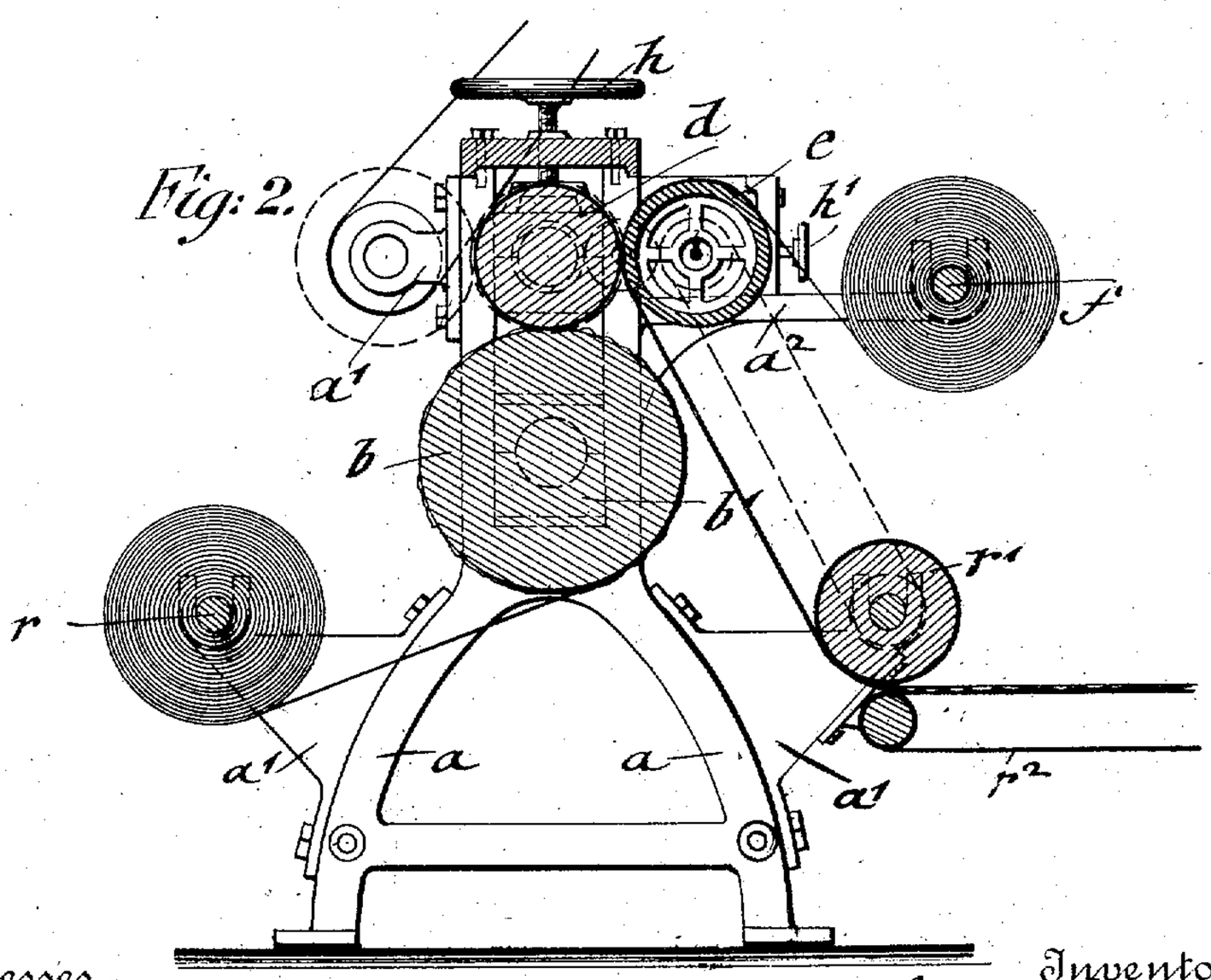


Fig: 2.



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2 SHEETS—SHEET 2.

Fig: 3.

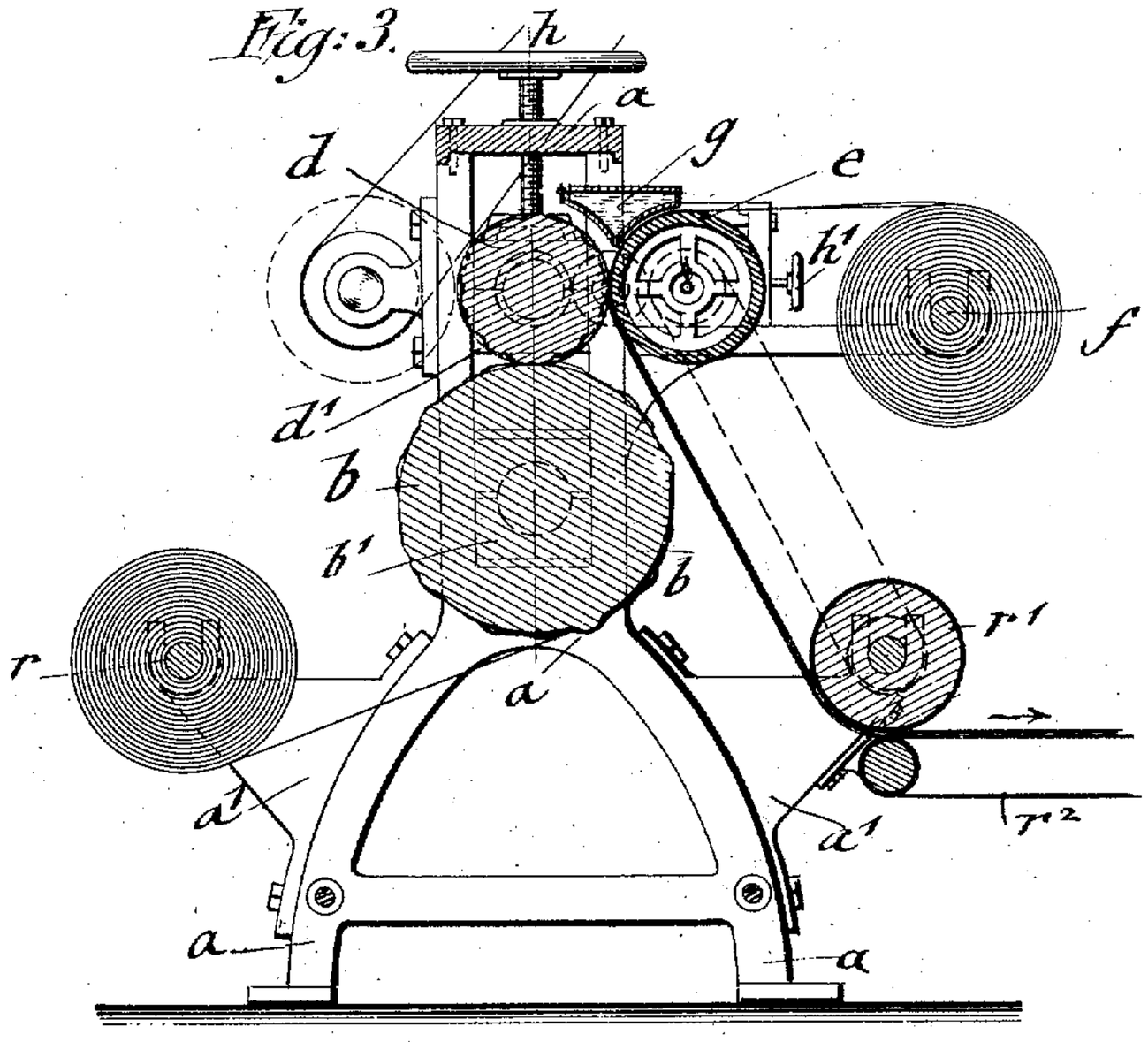

Fig: 4.

Fig: 5.

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UNITED STATES PATENT OFFICE.

ALBERT LEISEL, OF PEEKSKILL, NEW YORK, ASSIGNOR TO THE LEISEL MANUFACTURING COMPANY, OF NEWARK, NEW JERSEY, A CORPORATION OF NEW JERSEY.

MACHINE FOR MAKING EMBOSSED WALL-PAPER.

No. 885,351. Specification of Letters Patent. Patented April 21, 1908.

Application filed August 2, 1907. Serial No. 386,689.

To all whom it may concern:

Be it known that I, ALBERT LEISEL, a citizen of the United States, residing in Peekskill, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Machines for Making Embossed Wall-Paper, of which the following is a specification.

This invention relates to an improved machine for making wall-paper that is embossed on the front and smooth on the back, and in which the spaces between the embossed sheet and rear-layer are either unfilled or filled with a suitable cement, and for this purpose the invention consists of a machine for making embossed wall-paper which comprises a paper-roll, an embossing-roll engraved with the design to be produced, said embossing-roll rotating in contact with the paper-roll, a heated presser-roll rotating in contact with the embossing-roll and serving to unite the face and rear-layers of paper, and supply-rolls for the face and rear-layers.

The invention consists further in a machine for making embossed wall-paper which comprises an embossing-roll, a paper-roll rotating in contact therewith, a heated presser-roll, rotating in contact with the embossing-roll and means for supplying a suitable cement by which the spaces between the embossed face-layer and the smooth rear-layer are filled up.

In the accompanying drawings, Figure 1 represents a side-elevation of my improved machine for making embossed wall-paper, Fig. 2 is a vertical longitudinal section of the machine shown in Fig. 1, Fig. 3 is a vertical longitudinal section of a modified construction of machine, and Figs. 4 and 5 are vertical transverse sections through the embossed wall-paper made by my improved machine, one being without any filling between the front and rear-layers and the other with a suitable cement filling between the same.

Similar letters of reference indicate corresponding parts throughout the several figures of the drawings.

Referring to the drawings, *a a* represent the side-standards of my improved machine for making embossed wall-paper. The side-standards are connected by transverse braces and provided with brackets a^1 at their lower left- and right-hand sides and another bracket a^2 at their upper right-hand side. On one side-bracket a^1 is supported the supply-roll *r* for the face-paper, while on the other side-bracket a^1 is supported the shaft of the guide-roll r^1 by which the finished wall-paper is conducted off. On the upper right hand-bracket a^2 are arranged the journal-bearings for the shaft of a heated presser-roll *e*. In the upper portions of the side-standards *a a* are arranged journal-bearings b^1, d^1, the lower stationary journal-bearings b^1 supporting the shaft of a rotary paper-roll *b*, and the upper adjustable bearings d^1 the shaft of an embossing-roll *d*. Helical springs d^2 are interposed between the journal-bearings for the paper-roll and embossing-roll. The embossing-roll *d* is pressed on the paper-roll against the tension of the interposed springs by means of hand-wheels *h* which engage the upper ends of the adjustable journal-bearings of the embossing-roll. The embossing-roll is made of brass or steel and engraved with the design which is to be embossed on the wall-paper in intaglio, the face-layer of paper being conducted from the supply-roll *r* around the paper-roll and through between the paper-roll and embossing-roll, and then over the latter and between it and the heated presser-roll *e*. The design is embossed on the paper by the pressure exerted by the upper embossing-roll on the yielding paper-roll and the face-layer carried through between the same. The paper-roll is twice the size of the embossing-roll. Power is transmitted to the embossing-roll *d*, paper roll and heated presser-roll by a belt and driving-pulley and motion-transmitting gear-wheels in any suitable manner. The heated presser-roll *e* is arranged sidewise of the embossing-roll and pressed against the same by means of hand-wheels h^1 acting on the journal-bearings of the same. The rear-layer of paper is conducted from a roll *f* supported on the bracket a^2 over the heated presser-roll and through between the same and the embossing-roll, being then conducted off by the guide-roll r^1 to a conveyer-belt r^2 and then wound up into a roll. The rear-layer is coated with an adhesive layer on its upper side, so that it will adhere to the embossed front layer by the pressure of the heated roll against the embossing-roll. The roll *e* is heated at the interior by gas, steam, or otherwise. The pressure of the embossing-roll and heated roll on the embossed face-layer and the coated rear-layer unites the two layers and forms the embossed wall-paper.

The face of the wall-paper can be finished in paper, silk, oil cloth or other fabric, while the rear-layer remains smooth. The non-embossed parts of the face-layer are united with the rear-layer by the pressure between the embossing and heated rolls. The adhesive employed for the rear-layer is preferably made waterproof, so as to secure protection against the moisture of the paste used in hanging the wall-paper on the wall; the embossed parts remaining in relief as the moisture cannot pass to the front-layer due to the waterproof adhesive used. As the face-paper is tightly hugged by the pressure of the embossing-roll on the paper-roll, it is embossed and simultaneously fed toward the embossing-roll and heated roll which latter is perfectly smooth.

When it is desired to fill the spaces between the embossed face-layer and the rear-layer, a hopper *g* is arranged between the embossing-roll and heated-roll to which a suitable cement is supplied by means of scoops or shovels, said cement being preferably composed of wood-fibers mixed with oxidized linseed oil, resin, etc. The cement is supplied in the form of a thick paste, which is made plastic by the heat of the presser-roll *e*. The cement fills the cavities between the embossed face and rear-layers and forms thereby a solid-relief wall-paper which resembles the well known lincrusta wall-paper and has the strong, solid and durable properties of the same. This embossed paper can never lose its shape and is capable of resisting considerable pressure, while the embossed paper which is not filled up with cement in cavities is less capable of resisting pressure; both papers, however, are produced with the required design at a considerable speed and with a superior finish, according to the quality and style of the wall-paper to be produced. Figs. 4 and 5 show respectively transverse sections of the unfilled and filled wall-papers.

The advantages of my embossing machine are that a solid-relief embossed wall-paper can be made with a face of paper, silk, oil cloth or other fabric, and a flat back, which could not be accomplished with the machines heretofore known. When the embossed wall-paper is not filled with cement, the waterproof adhesive substance which unites the layers, secures protection against moisture penetrating into the embossed face-layer when hanging the wall-paper, while when the solid-relief wall-paper is made by filling the spaces with cement, the intermediate cement filling prevents the moisture from passing to the face-layer of paper.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A machine for making embossed wall-paper, consisting of a paper-roll, an embossing-roll having a design engraved thereon in intaglio and rotating in contact with the paper-roll, a heated presser-roll rotating in contact with the embossing-roll, and means for feeding the face and rear-layers of paper through between the paper-roll and embossing roll and the embossing-roll and heated presser-roll.

2. A machine for making embossed wall-paper, comprising a paper-roll, an embossing-roll having the design to be produced engraved into the same, a heated presser-roll, rotating in contact with the embossing-roll a supply-hopper between the embossing-roll and heated presser-roll for supplying a cement filling to the embossed parts and means for supplying two layers of paper, a face-layer and a rear-layer, the face-layer passing through between the paper and embossing rolls and the face and rear-layers between the embossing and heated presser-rolls.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

ALBERT LEISEL.

Witnesses:

PAUL GOEPEL,

HENRY J. SUHRBIER.