

S. O. COWPER-COLES.
 PRODUCTION OF METALLIC PAPER OR THE LIKE.
 APPLICATION FILED FEB. 28, 1908.

951,365.

Patented Mar. 8, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

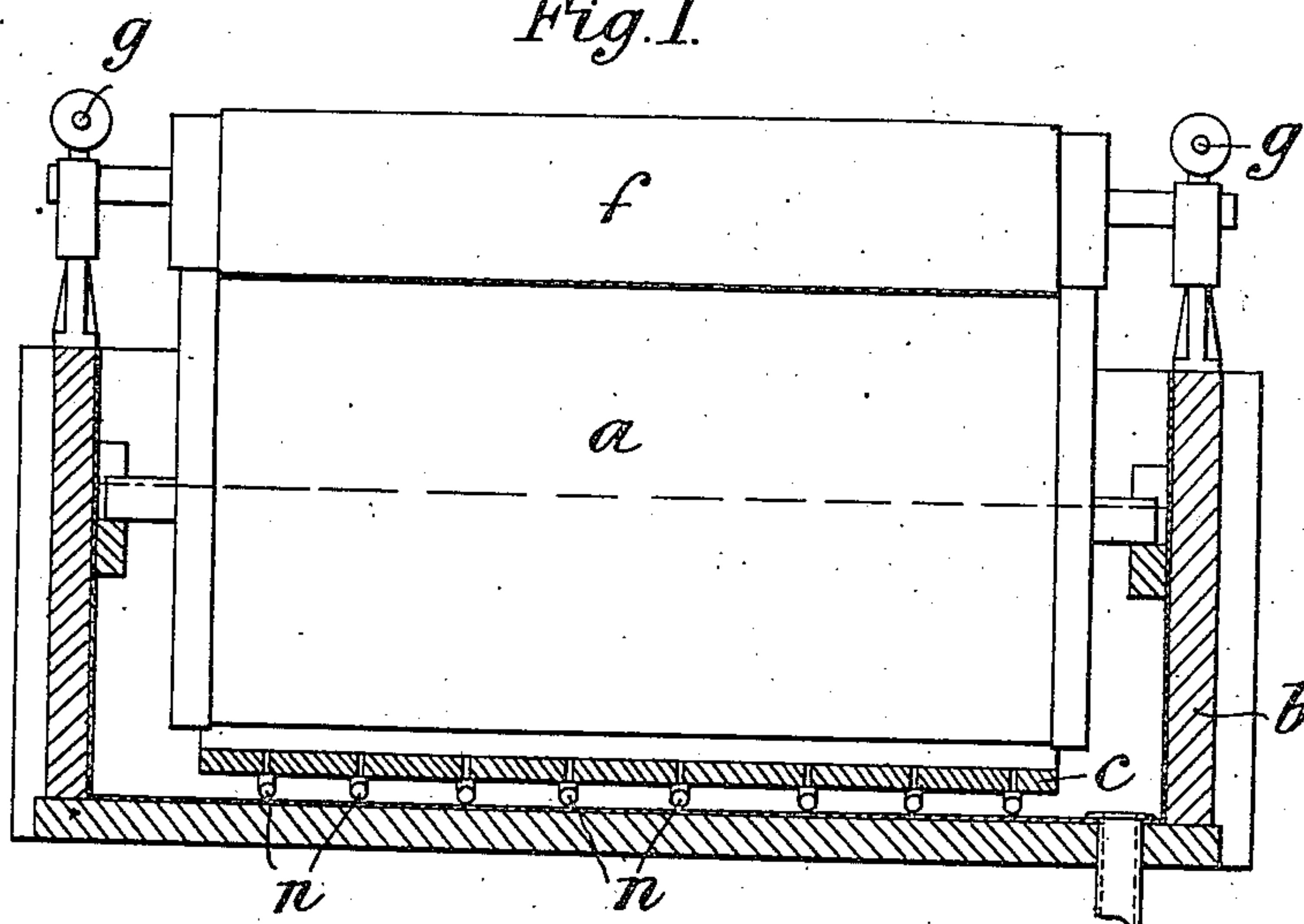
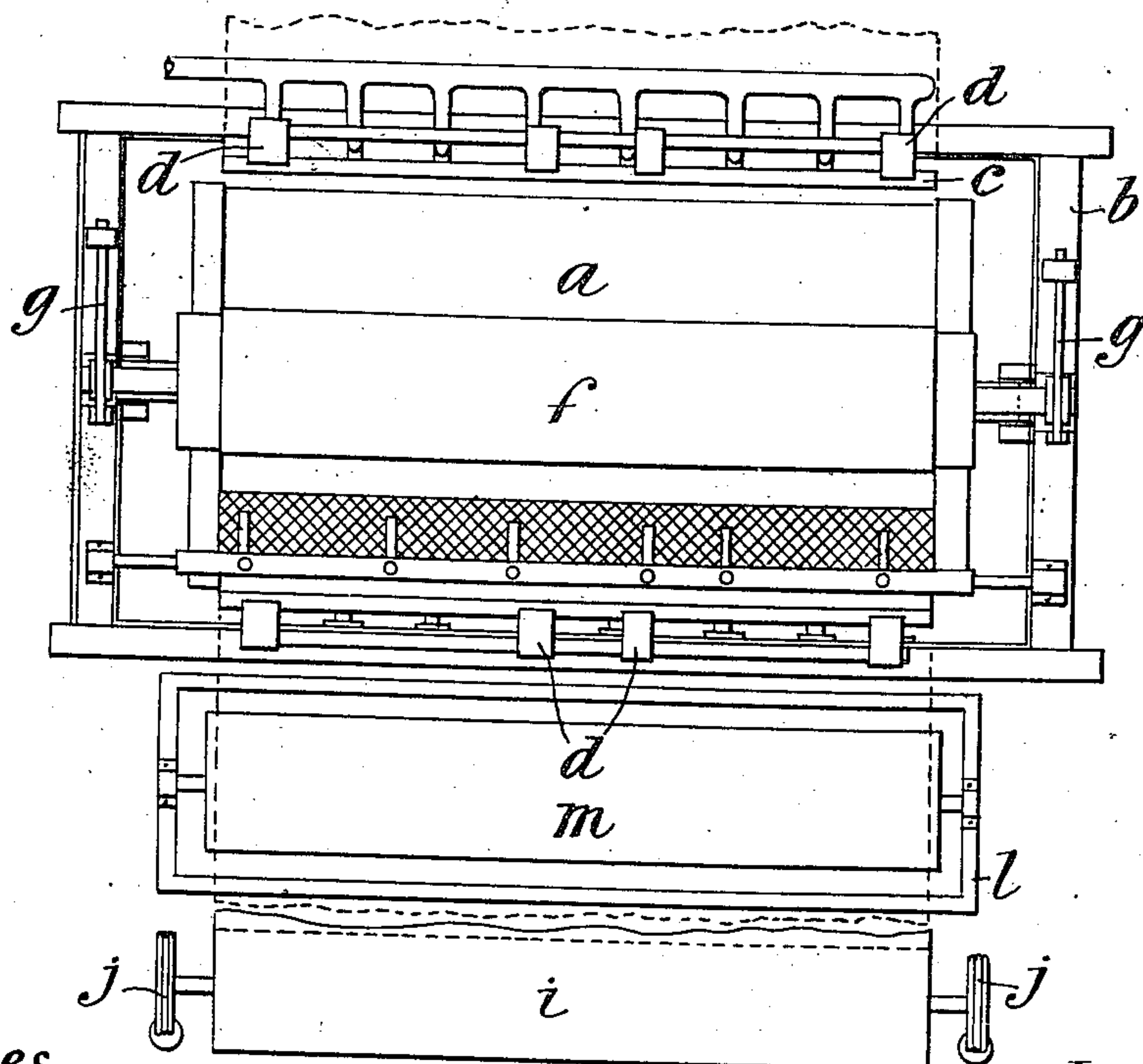


Fig. 2.



Witnesses.
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 By Whitaker & Trewartha Attys

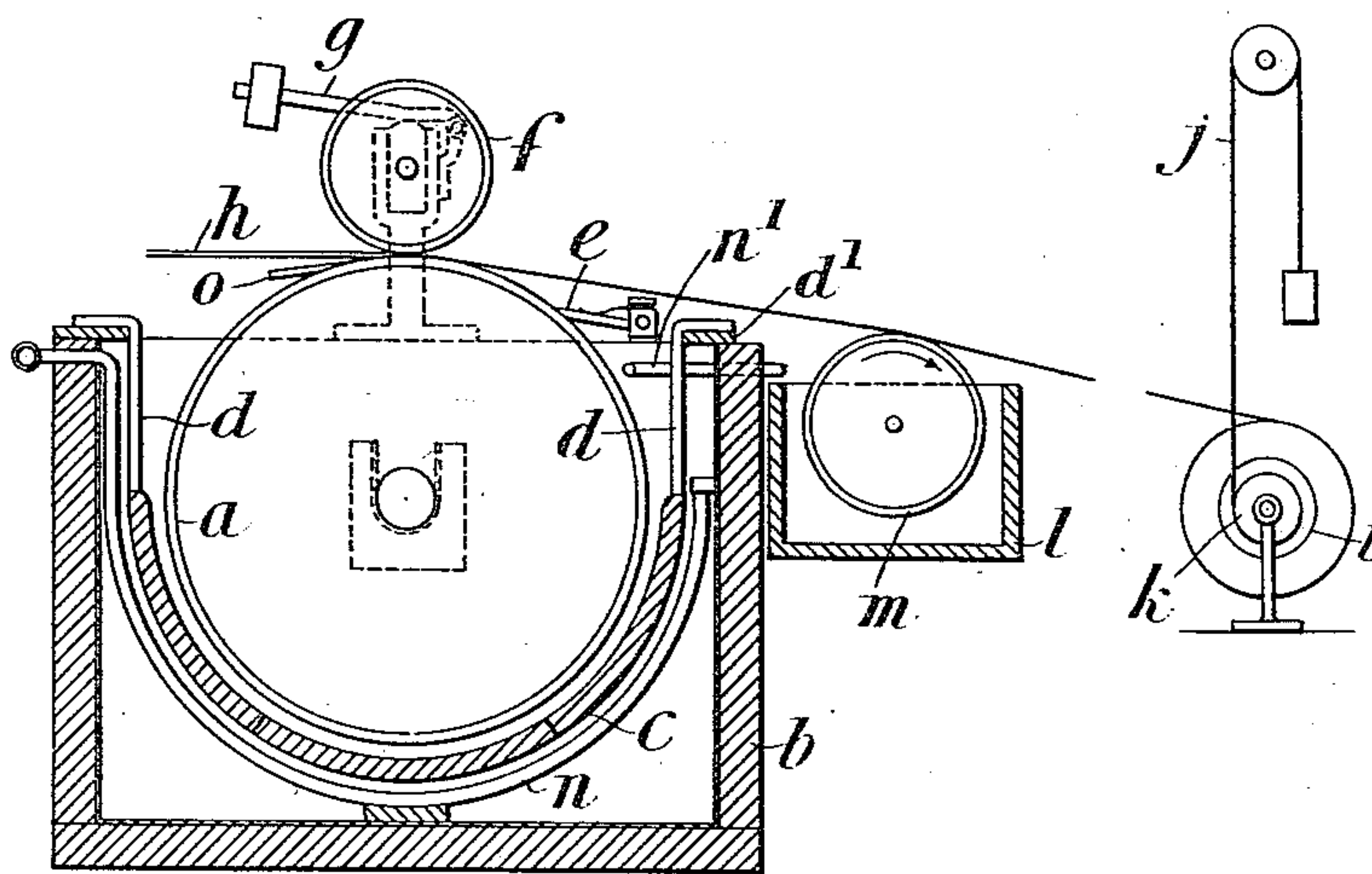
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2 SHEETS—SHEET 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

SHERARD OSBORN COWPER-COLES, OF WESTMINSTER, LONDON, ENGLAND.

PRODUCTION OF METALLIC PAPER OR THE LIKE.

951,365.

Specification of Letters Patent.

Patented Mar. 8, 1910.

Application filed February 28, 1908. Serial No. 418,348.

To all whom it may concern:

Be it known that I, SHERARD OSBORN COWPER-COLES, a subject of the King of Great Britain, residing at Grosvenor Mansions, 82 Victoria street, Westminster, London, England, have invented new and useful Improvements in the Production of Metallic Paper or the Like, of which the following is a specification.

10 This invention relates to improvements in the production of metallic paper or the like, for example, decorative coverings such as panels or the like for walls, ceilings and for decorating boxes and similar articles.

15 According to the invention a thin sheet of copper or other suitable metal is electro-deposited on a slowly revolving horizontal metallic drum arranged in a vat similar to that described in the specification of my 20 British patent No. 24904 of 1904, the surface of the drum being plain or engraved or embossed with any desired ornamentation. Above and pressed against the drum is arranged a roller and between them is passed a 25 web of paper, canvas or the like having upon the whole or part of the side which makes contact with the drum, a suitable mucilage, the result being that the deposited film of metal is caused to adhere to the paper or the 30 like where treated with the mucilage so that the said paper is wholly or partly covered with the metal.

To enable the invention to be fully understood I will describe it by reference to 35 the accompanying drawing, in which:—

Figure 1 is a transverse sectional view of apparatus constructed according to my invention for the production of wall and ceiling coverings. Fig. 2 is a plan; and Fig. 3 40 a sectional side view of the apparatus.

a is the drum arranged to rotate in the vat *b* and having its surface plain or engraved or embossed with any desired ornamentation. The said drum forms the 45 cathode and may have a slight reciprocating motion in its bearings.

c is the anode in the form of an adjustable band passing around the lower portion of the drum *a* and suspended by rods *d*, *d* 50 resting on a contact bar *d*¹.

e is a brush contact for the cathode.

f is the roller arranged above the drum *a* and pressed into contact with its surface, for instance, by means of weighted levers *g*, and

h is the web of paper, canvas or the like 55 which passes from a roll *i* between the drum *a* and roller *f*, suitable means, such, for instance, as a weighted cord *j* engaging a pulley *k* connected to the shaft of the roll *i* so as to offer resistance to the unwinding of the 60 paper *h* and maintain it at the required tension.

l is a tank containing a suitable mucilage and *m* is a roller revolving therein and in contact with the paper *h*. 65

n, *n* are perforated pipes passing beneath or between the anode, sprays of air or the electrolyte or alternate rows or jets of both passing therefrom and through holes in the anode to agitate the electrolyte. 70

*n*¹ is a steam pipe for removing the solution adhering to the film just before contact with the web of paper or the like.

By the described arrangement it will be seen that when the paper *h* or the like is fed 75 between the drum *a* and roller *f* the mucilage on the paper will come in contact with and adhere to the film of metal deposited on the said drum and remove it therefrom, a knife *o* bearing against the drum to insure 80 the stripping off of the film when the latter is deposited on a drum having a plain surface. In the case of an embossed or engraved drum the said knife would be placed at the side of the drum. By applying the 85 mucilage to certain parts only of the paper or the like the film of metal on the drum *a* will be caused to adhere to these parts only, whereby a pattern can be formed.

With the above described apparatus I 90 have obtained very satisfactory results by the use of a cathode drum of aluminium rotating in an electrolyte consisting of a solution of copper sulfate, a thin bright deposit of metal, easily removable by means 95 of the web of paper or canvas covered with a suitable mucilage being thus obtained. Cathodes formed of lead and alloys of lead have also given satisfactory results. The metallic cathode may be treated by any 100 known method to produce a film of oxid or sulfid to further facilitate the stripping of the deposited metal.

The paper or the like treated as above can again be subjected to treatment in order to 105 apply a film of another metal to the metal already adhering to the paper. For instance, if the film first applied is of copper

the second film can be of gold, silver, zinc, tin or cadmium deposited in any desired pattern by passing the copper strip under or over a roller covered with a suitable stopping of varnish or resist to protect those portions which are not to receive the deposit of a different colored metal.

In cases where it is desired to emboss paper or the like completely coated with metal as above described or to give it a pattern or water-mark, it is passed between suitably engraved rollers, when the said paper or the like is still moist or damp. It is then conveyed through a drying oven and its surface lacquered, colored or printed with the desired design or pattern.

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:— 20

In the art of producing metal covered paper, the process of continuously forming the same, which consists in depositing metal upon a rotating drum, partially immersed in an electrolyte, causing the electrolyte to impinge against the periphery of said drum during the deposition of the metal, then uniting the film deposited on the periphery of said drum to a continuous sheet of paper and removing the paper and deposited film of metal from the drum. 25 30

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Witnesses:

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