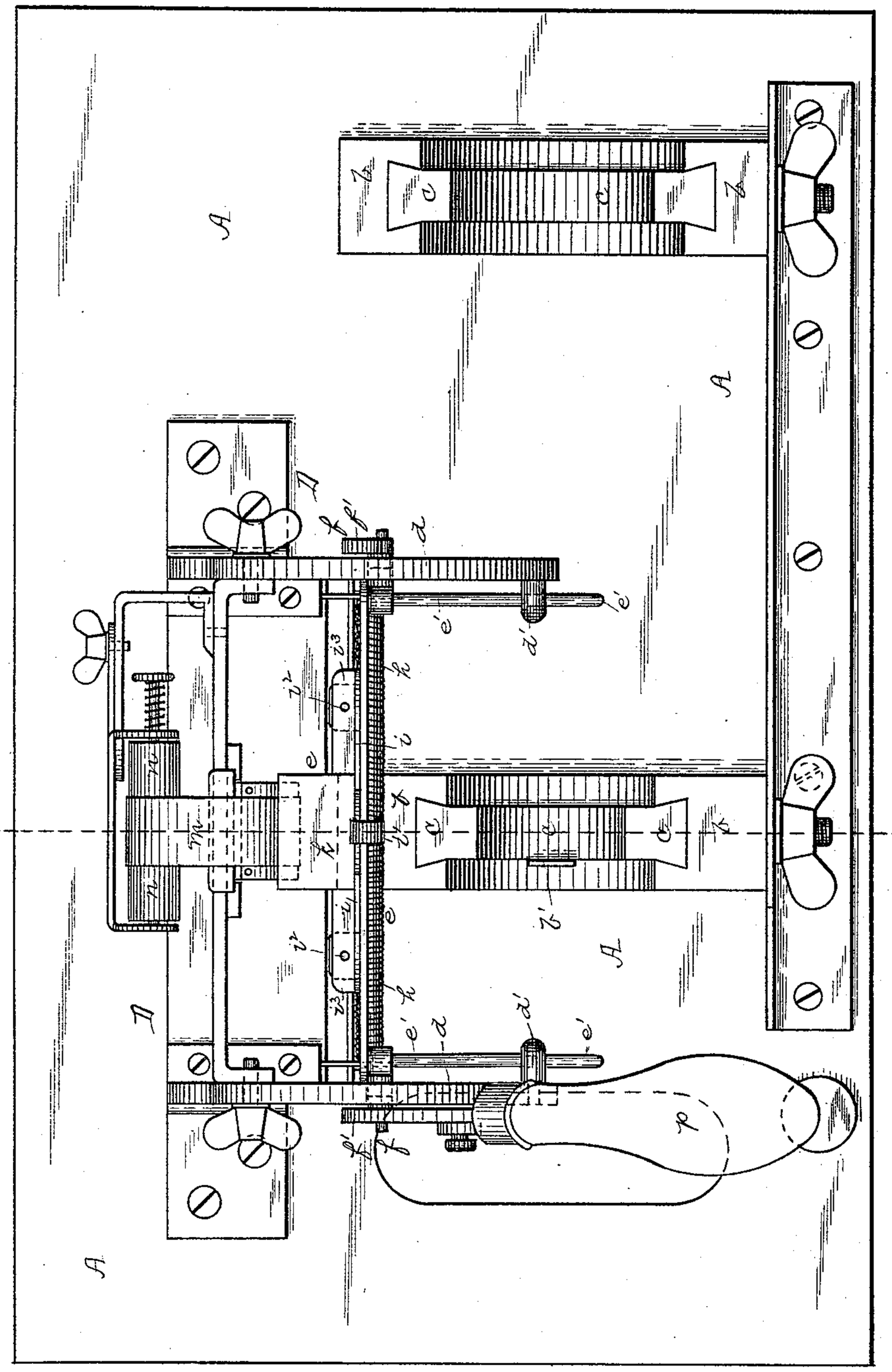
(No Model.) 3 Sheets—Sheet 1.

C. Z. F. ROTT.

MACHINE FOR PRINTING ON GLASS.

No. 451,978. Patented May 12, 1891.

Fig. 1.



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(No Model.) 3 Sheets—Sheet 2.

C. Z. F. ROTT.

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Fig. 4.

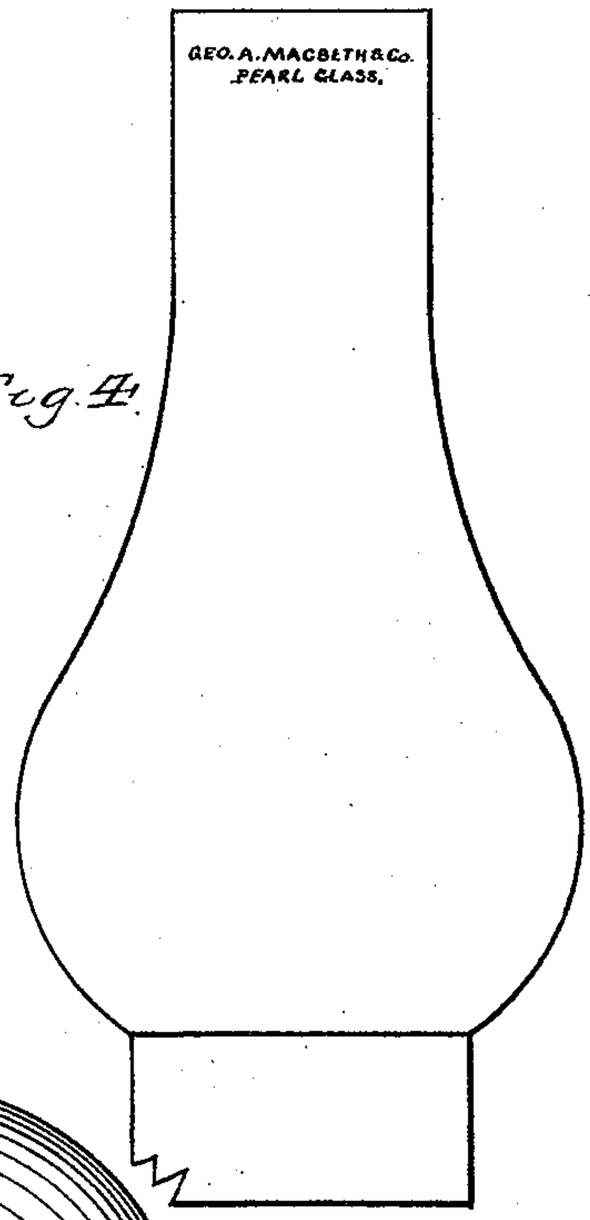
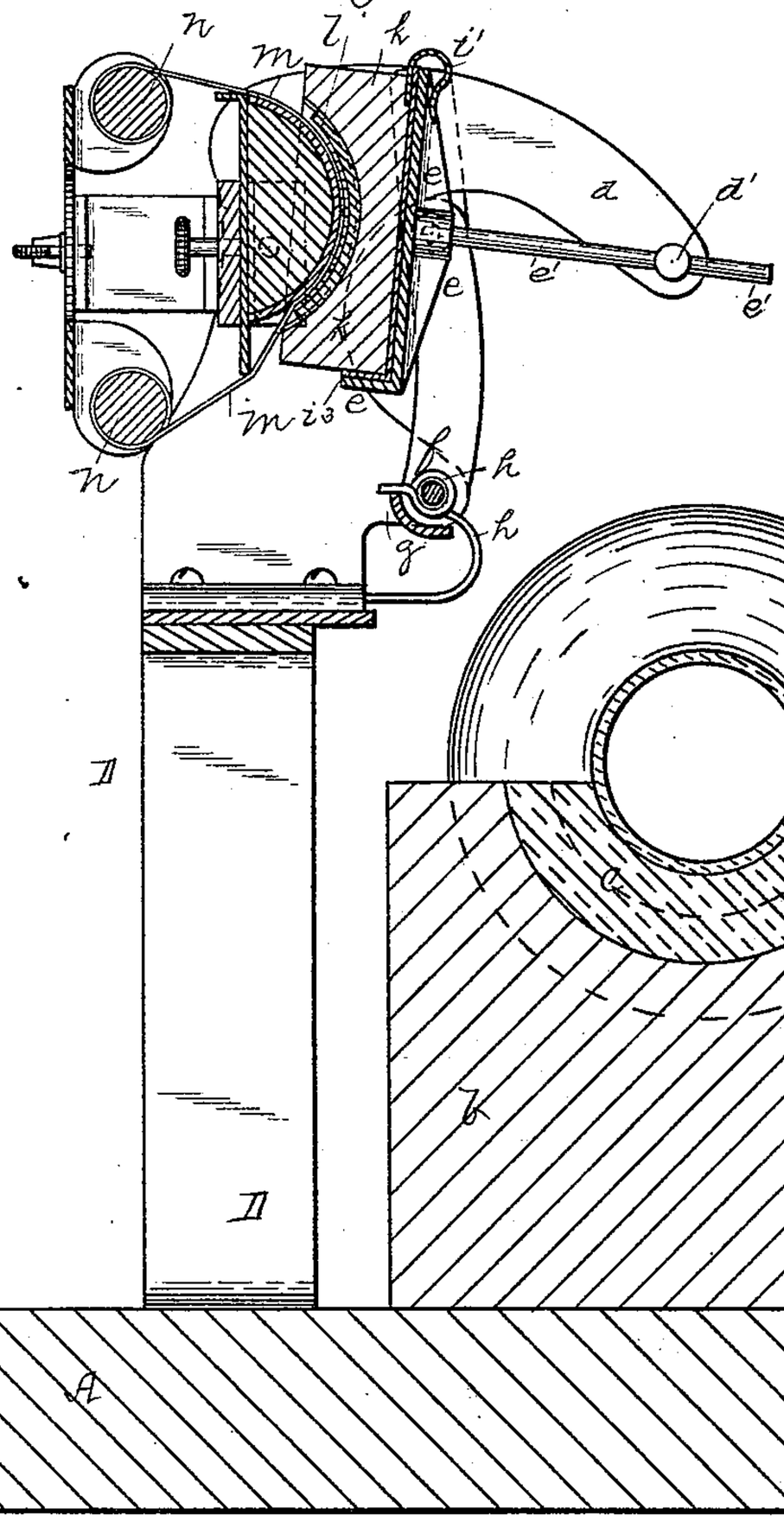


Fig. 2.



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(No Model.) 3 Sheets—Sheet 3.

C. Z. F. ROTT.

MACHINE FOR PRINTING ON GLASS.

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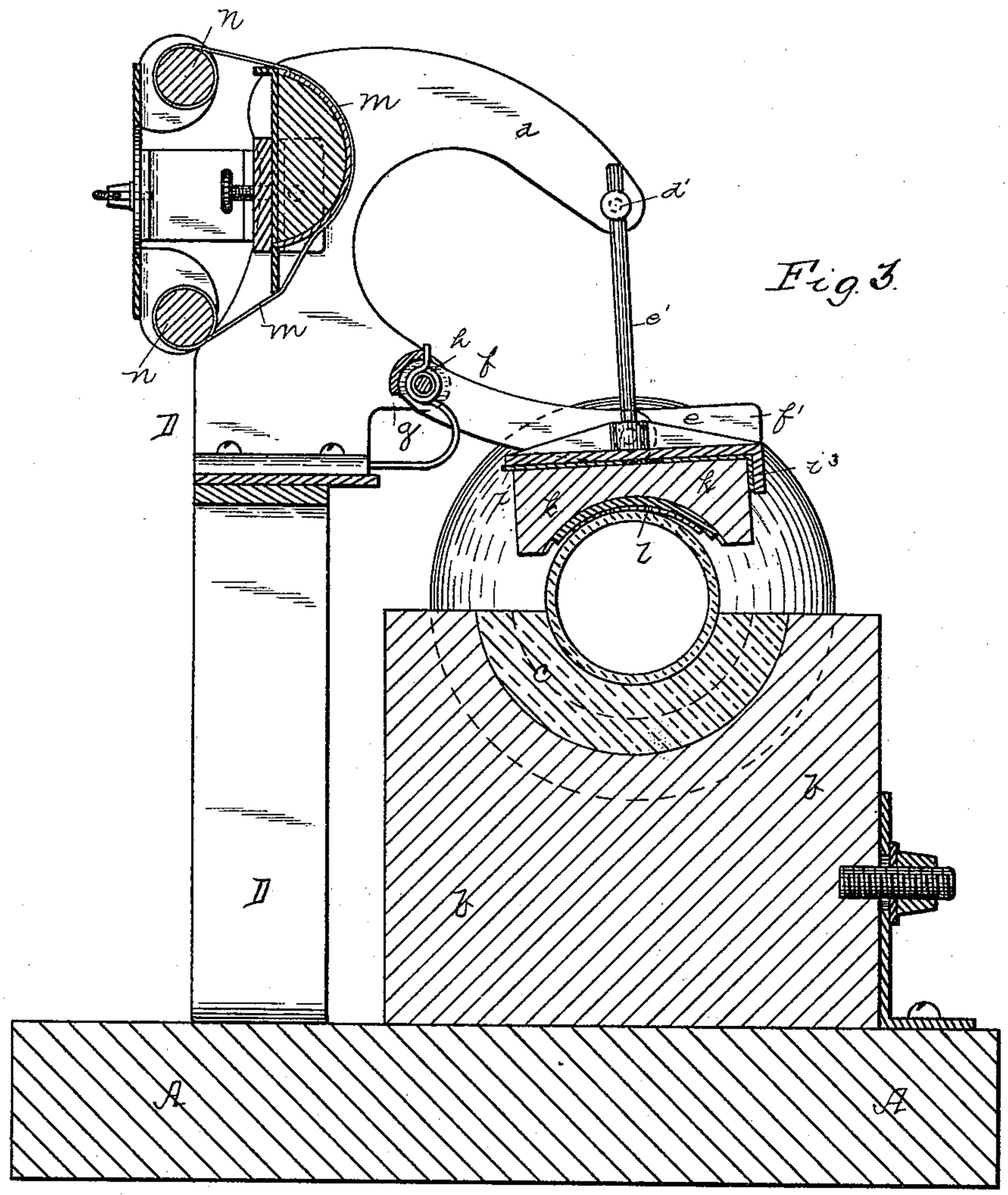

Fig. 3.

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UNITED STATES PATENT OFFICE.

CHRISTIAN Z. F. ROTT, OF PITTSBURG, PENNSYLVANIA.

MACHINE FOR PRINTING ON GLASS.

SPECIFICATION forming part of Letters Patent No. 451,978, dated May 12, 1891.

Application filed August 30, 1889. Serial No. 322,494. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN Z. F. ROTT, a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Machines for Printing on Glass; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to the production of decorations or marks upon cylindrical or like glassware, its object being to provide an apparatus for forming any desired pattern, design, mark, or words upon the surface of cylindrical glassware, such as lamp-chimneys and like articles. These designs have generally heretofore been made by marking upon the cylindrical glass article the design or mark with mucilaginous substance, and then sprinking or powdering upon the same a material which can be baked into the glass body, this material being applied in a dry or powdered state and being permitted to dry, and any of such material not held by the mucilaginous substance being then brushed from the article with a fine hair brush, and the design or mark being then baked into the glass by subjecting the same to heat in a furnace or to a flame. In such method of decorating the glass it is evident that much time and labor are required, it being necessary to handle the article three or four times and each handling increasing the cost. The apparatus forming the subject of the present application is intended to be employed in practicing a method or process of decorating such cylindrical glassware in which such extreme labor is overcome, and a design or mark is obtained which is more perfect in outline, such process being the subject of a separate application filed by me of even date herewith.

My present invention, generally stated, comprises a type-block containing the design or mark, conforming in shape to the article to be decorated, and a concave support for the article, conforming in shape thereto and having a cushioned surface thereon, such construction providing for the printing of the material which is to be baked into the cylindrical glass body by means of the type-block, so that the design can be quickly printed thereon at a single operation and the same be prepared for baking.

To enable those skilled in the art to make and use my invention, I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a top or plan view of the apparatus. Figs. 2 and 3 are cross-sections on the line *x x*, Fig. 1, showing the apparatus in two different positions; and Fig. 4 is a view of the lamp-chimney having the mark thereon illustrating the product of the invention.

Like letters of reference indicate like parts in each.

My invention is illustrated in connection with the forming of a mark or name upon lamp-chimneys, as it is well adapted for such purpose, and that is a simple illustration of the same.

The apparatus is supported on a table A, said table having the supports *b* and *b* for the chimney or other cylindrical article to be decorated, the support having concave upper surfaces, with rubber or like cushions *c* thereon, said cushions conforming substantially in shape to that of the article upon which the design is to be impressed, and so forming proper supports therefor, a suitable guide-piece *b'* being secured to the support *b* to guide the chimney to the proper position longitudinally upon the supports on the table. The table has also the frame D, carrying the type-block and the mechanism for inking the same and transferring the material from such type-block to the chimney, or, in other words, impressing the design or mark upon the chimney. This frame D has the arms or extensions *d* extending over the chimney-support *b*, and having journaled therein the bearings *d'*, through which the bearings *e'* of the type-carrier *e* pass. The type-carrier *e* is journaled in the bracket *f*, mounted in lugs or bearings *g* of the frame D, the type carried being mounted in the arms *f'* of the bracket, near the ends thereof, and the bracket swinging in such course that when its arms are raised it will bring the bearings of the type-carrier about on a line horizontally with the bearings *d'* of the extension *d*, through which the bars *e'* of the type-carrier pass; but when the bracket is drawn down the bearings of the type-carrier therein will be directly below the bearings *d'*, and as the bars *e'* pass through said bearings *d'* the type-carrier has imparted to it a swinging motion, the

carrier being held in a vertical position when raised and being drawn into a horizontal position when lowered, as shown in Figs. 2 and 3. The bracket *f* has a spring *h*, secured thereto and acting to hold it and the type-carrier in their raised position. Secured to the type-carrier is a type-plate *i*, which carries the concave type-block *k*, the type-plate being secured to the carrier *e* in any desired way, that shown in the drawings being by means of pins i^2 on the type-plate engaging with lips i^3 on the carrier *e*, having seats therein, into which the pins i^2 on the type-plate enter, the type-plate also having a spring-clip *i'*, which passes over the upper end of the carrier *e* and so holds the type plate and block in proper position, while at the same time it provides for a rapid and easy changing of the type-block carrying the design which is to be impressed upon the chimney or other cylindrical glass article. The type-block *k* has a printing-surface *l* thereon, of rubber or like elastic cushioning material, containing the design to be formed upon the chimney or other article, the design or mark in the present case being the words "Geo. A. Macbeth & Co., Pearl Glass," such mark being taken as a simple illustration of the designs or marks which can be employed in practicing my invention. This printing-surface of the type-block conforms in shape to the surface of the chimney or other article upon which the design is to be impressed.

Any suitable means may be employed for inking the type-surface with the material which is to be transferred to the lamp-chimney, that shown being a convex inking-pad corresponding in shape to the concave type-surface, and this being believed to be the best form of inking-pad.

The material to be printed on the glass can be held upon an inking-ribbon *m*, which can be wound upon suitable rolls *n* and pass over the surface of the inking-pad, said ribbon being supplied with the inking material from a suitable source.

The inking material may be any suitable mixture capable of being baked into the glass body of the chimney or other article, and when so baked into it forms a permanent union therewith, and so produces a permanent design or mark. I find that a mixture of lead, borax, and oxide of zinc, of about equal parts, produces a suitable inking mixture which will produce a white ornamentation or mark upon the glass; but this mixture may be varied as will be found desirable and according to the color to be produced. The article to be marked is placed upon the concave supports *b* and *b*, and the operator then draws down the type-block, which has been pressed against the inking-ribbon and contains a suitable quantity of the material to be printed, and presses the type-block upon the cylindrical glass article, the apparatus being operated either by the handle *p* or by a foot-treadle, as may be desired. In doing this the type-block receives the material from the inking ribbon or pad and prints this material on the cylindrical glass articles, so forming the desired design or mark thereon, whether it be composed of words, figures, or ornamentation. In so printing the design it is evident that I can form upon the chimney the exact figure or shape desired, the perfectness of the design depending only upon the perfectness of the figure on the type-block and the means of inking the same, and I am therefore enabled to obtain a design or mark practically perfect in outline. The chimney having the mixture so printed upon it and forming the design thereon is then baked in any suitable way, the most simple way being to place the chimney in a suitable holder and expose it to the flame of the glory-hole, and so bake the design, and it is evident that this can be accomplished at the same time that the end of the chimney is fire-polished, so that there is practically no cost in carrying out the process, except that of printing the design or mark on the chimney or other article.

In forming names, trade-marks, or like designs on chimneys, tumblers, or other such cylindrical glassware, the same can be easily and rapidly accomplished by the process I have described, causing practically no delay in the manufacture or finishing of the articles, because as soon as the mark is printed on the article it can be baked in, and therefore I am enabled not only to form a design or mark much more perfect in outline than has heretofore been produced, but also to reduce the expense of forming such design and the time required for the same.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In apparatus for decorating or printing on cylindrical or like glassware, the combination of a type-block containing the design or mark and a concave support conforming in shape to the article and having a cushioned surface, substantially as and for the purpose set forth.

2. In apparatus for decorating or printing on cylindrical and like glassware, the combination of a concave type-block conforming in shape with the article to be decorated and a concave support conforming in shape with the article and having a cushioned surface, substantially as and for the purpose set forth.

3. In apparatus for decorating or printing on cylindrical or like glassware, the combination of a concave type-block conforming in shape with the article to be decorated and a convex inking-pad corresponding in shape to the type-block, substantially as and for the purpose set forth.

In testimony whereof I, the said CHRISTIAN Z. F. ROTT, have hereunto set my hand.

CHRISTIAN Z. F. ROTT.

Witnesses:
H. L. GOEHRING,
ROBT. D. TOTTEN.