

No. 742,243.

PATENTED OCT. 27, 1903.

L. SHAW.
PHOTOGRAPHIC PRINTING APPARATUS.

APPLICATION FILED MAY 22, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

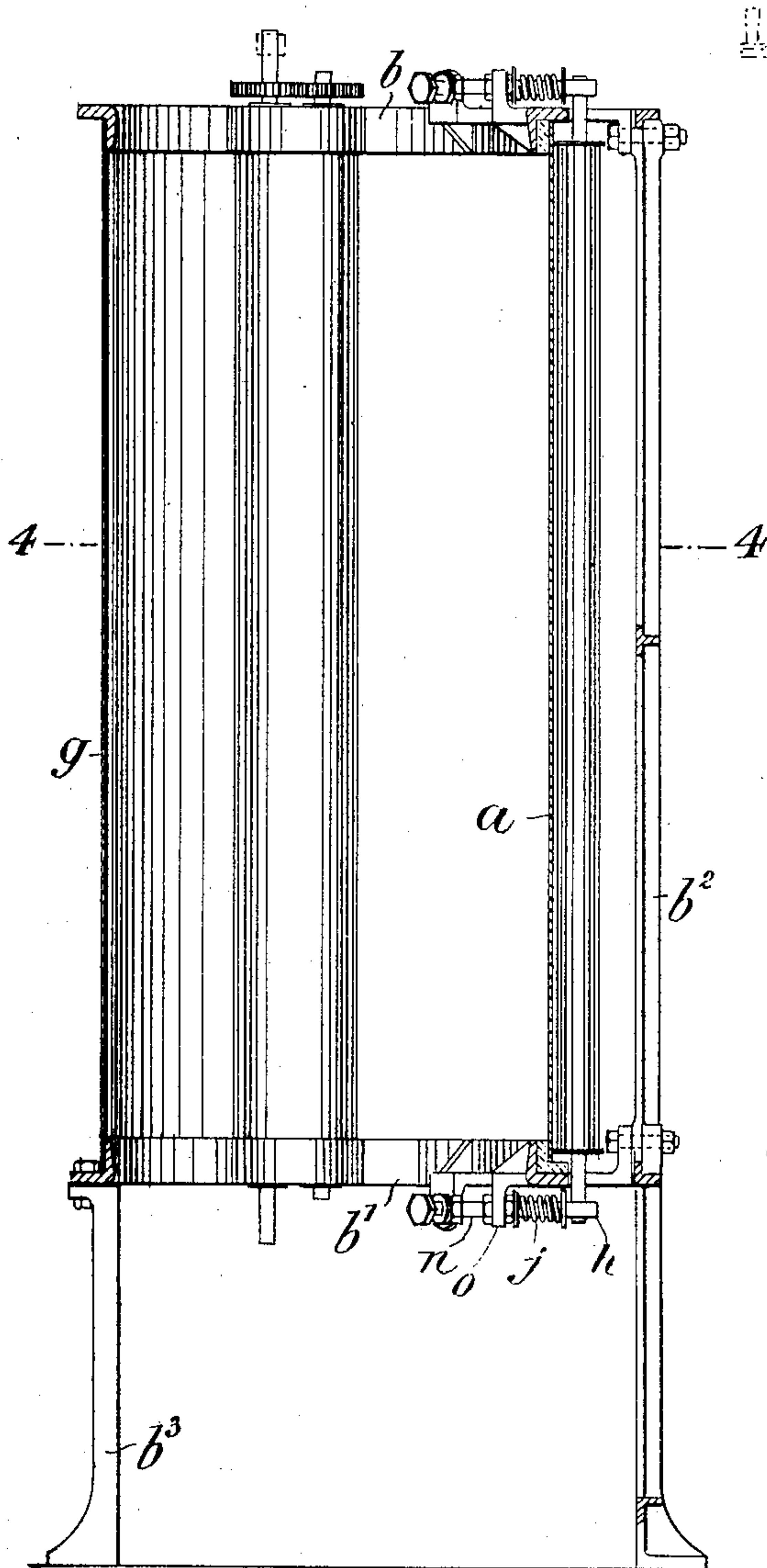


Fig. 1.

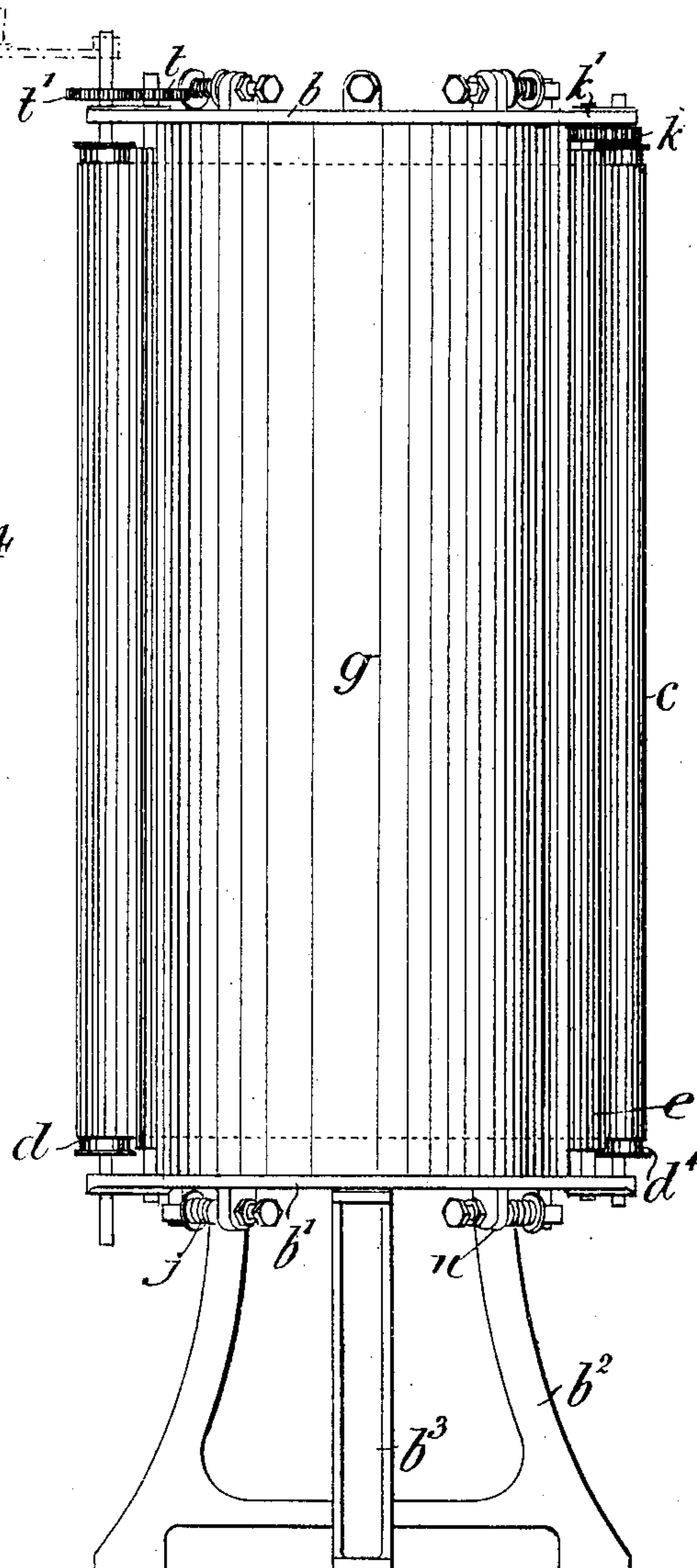


Fig. 2.

WITNESSES:

Walter George Sarney.
Charles Edward Agar.

INVENTOR:

Leonard Shaw

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2 SHEETS—SHEET 2.

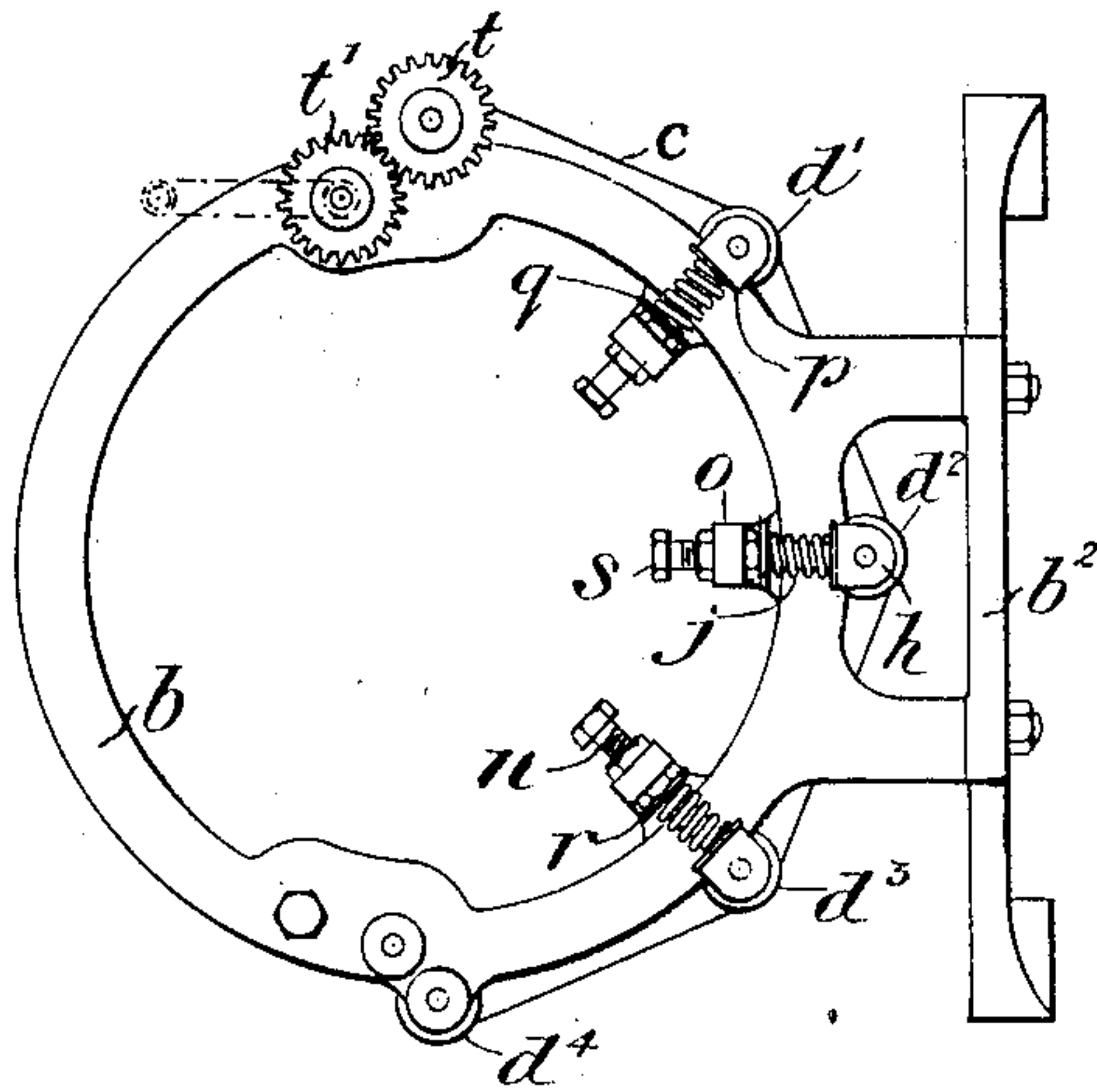


Fig. 3.

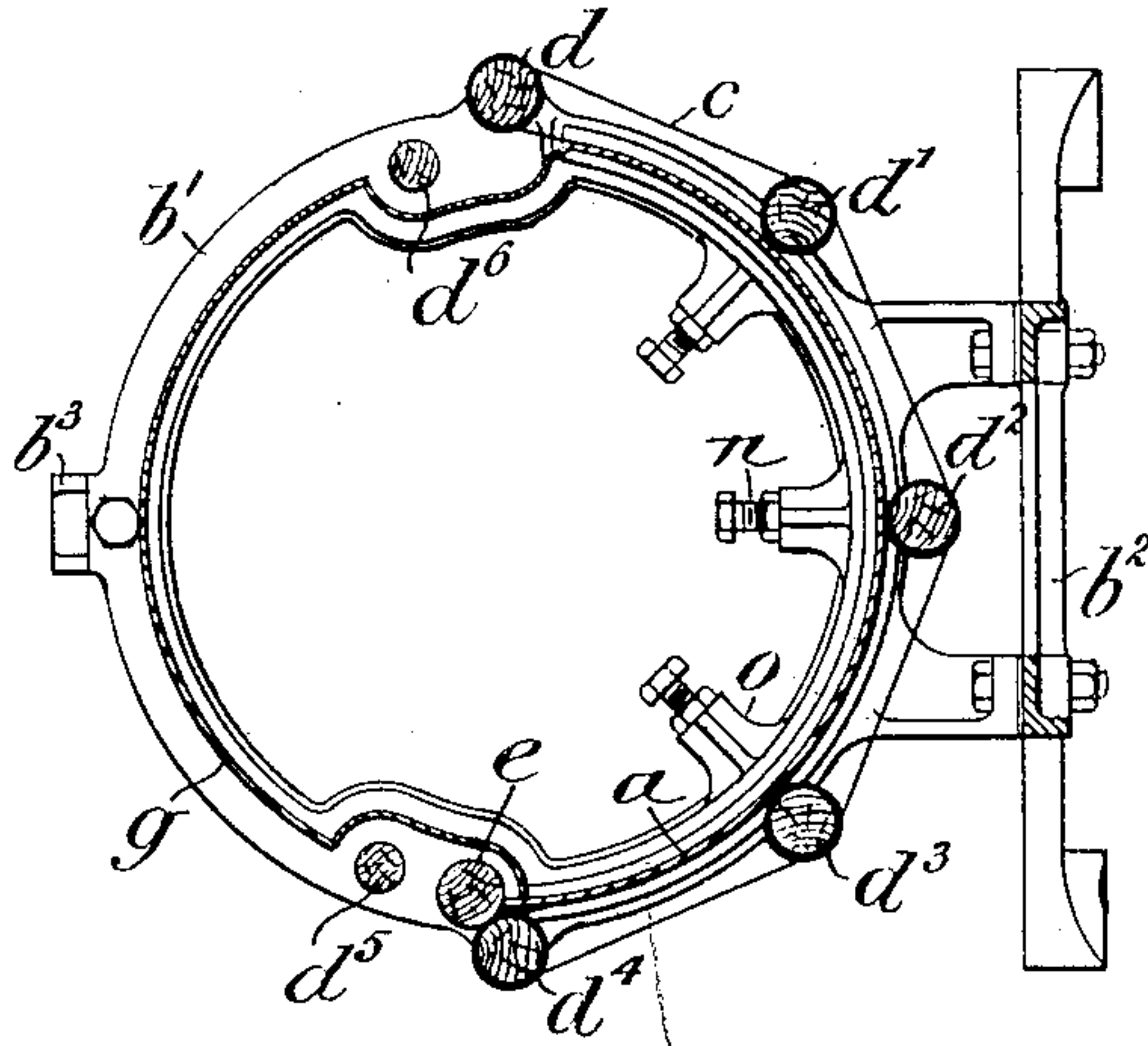


Fig. 4.

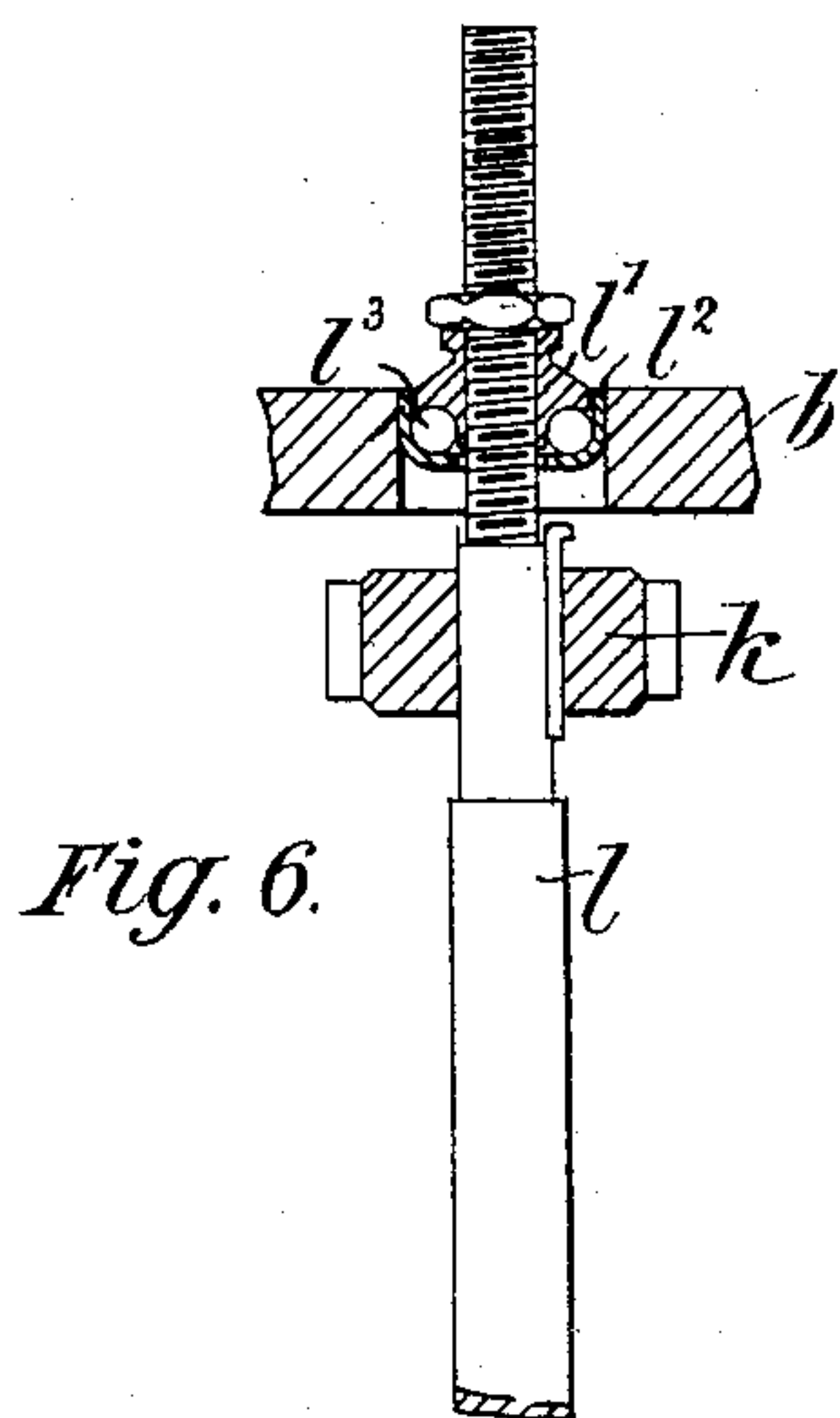


Fig. 6.

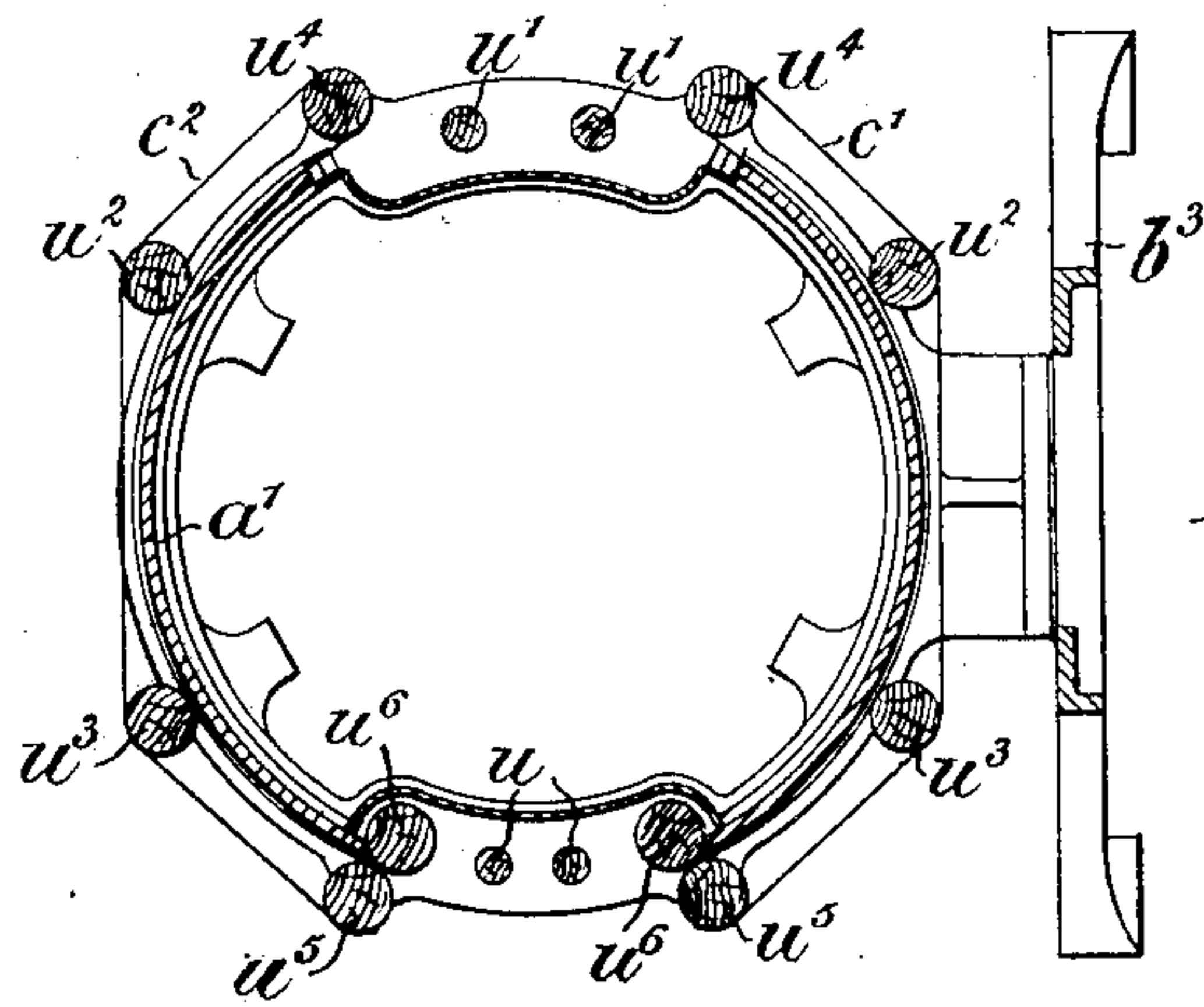


Fig. 7.

Fig. 5.

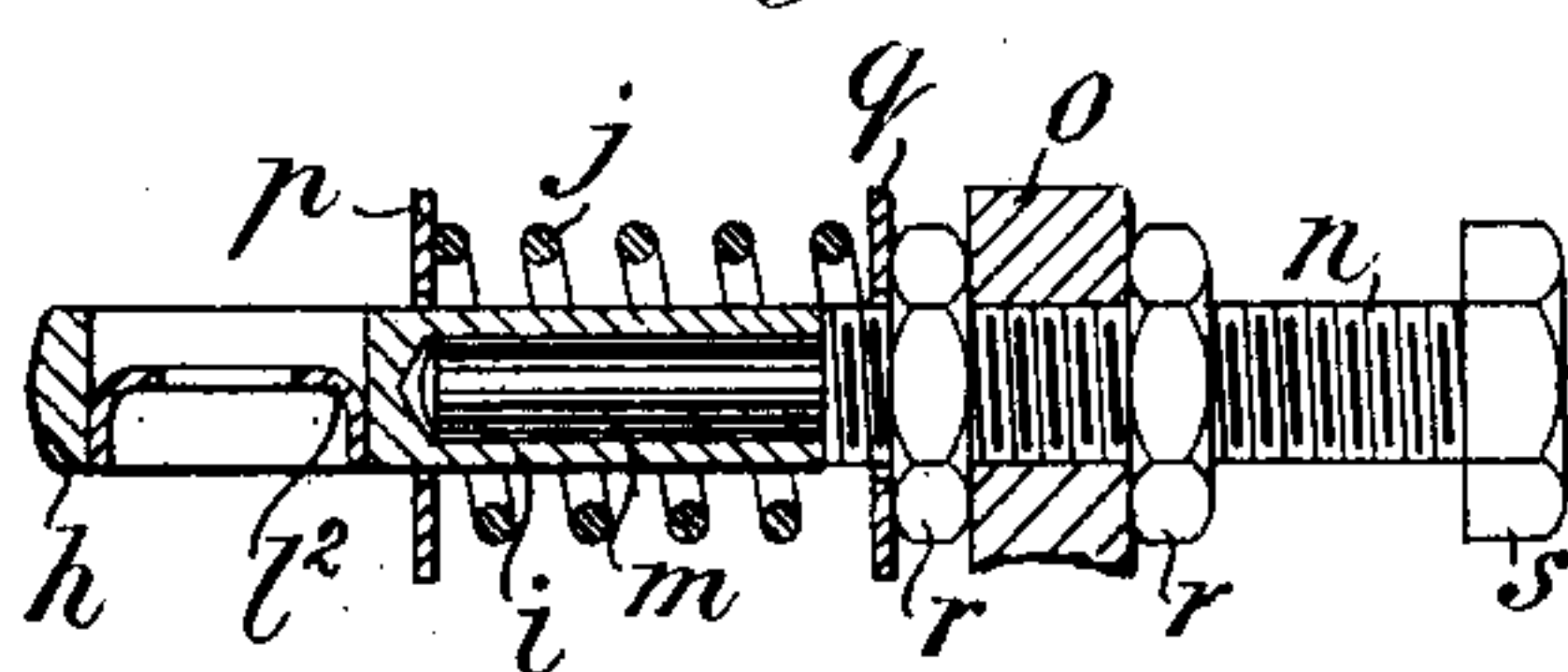


Fig. 8.

WITNESSES:

Walter George Sarney
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INVENTOR:

Leonard Shaw

UNITED STATES PATENT OFFICE.

LEONARD SHAW, OF WESTMINSTER, ENGLAND.

PHOTOGRAPHIC-PRINTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 742,243, dated October 27, 1903.

Application filed May 22, 1903. Serial No. 158,287. (No model.)

To all whom it may concern:

Be it known that I, LEONARD SHAW, a subject of the King of Great Britain and Ireland, residing at 39 Victoria street, in the city of Westminster, England, have invented certain new and useful Improvements in Photographic-Printing Apparatus, of which the following is a specification.

This invention relates to photo-printing apparatus of the kind in which the tracing or other transparency constituting the original, backed by a sheet of sensitive paper and a covering-apron, is arranged upon a glass plate of cylindrical form, an electric lamp or other suitable source of light being mounted to work in the focal axis of the said curved glass table, the objects of the present invention being to render the apparatus capable of dealing with drawings of considerable length and generally to facilitate and expedite the execution of the work.

In the accompanying drawings, which illustrate a machine embodying my invention, Figure 1 is a sectional elevation; Fig. 2, a front elevation; Fig. 3, a plan view; Fig. 4, a section on the line 4-4 in Fig. 1, and Fig. 5 is a sectional view of a modified construction, while Figs. 6, 7, and 8 are views of details.

Apparatus constructed according to my improved method and adapted for accomplishing the objects above referred to comprises a semicylindrical or an approximately semicylindrical table *a*, composed of glass or other suitable transparent material and mounted in end carriers *b b'* of any convenient character, which may be secured to supports *b² b³*. An endless canvas or other apron *c* is arranged about rollers *d d' d² d³ d⁴* in such a manner that a portion of the said apron *c* is maintained in a taut condition against the back of the sensitized paper, while the remaining portion passes outside the said rollers. Two of the guide-rollers *d* and *d⁴* are arranged at the respective edges of the table *a*, while the intermediate guide-rollers *d' d² d³* or some of them are furnished with means, preferably of a yielding character, whereby the tension of the apron *c* may be adjusted. One or the other of the two guide-rollers *d d⁴* at the respective edges of the table is furnished with a fellow roller *e*, to which it is geared by means of gear-wheels *k k'* and

with which it revolves in contact, (except for the intervention of the apron *c*,) and one of the guide-rollers, preferably *d*, is furnished with means whereby it may be rotated either manually, mechanically, or electrically. A discharging-roller *d⁵* and a collecting-roller *d⁶* are also mounted between the end carriers *b b'*, the collecting-roller *d⁶* being geared with the roller *d* by means of gear-wheels *t t'*.

The apparatus may be designed in such a manner that the table *a* occupies either a horizontal or vertical position.

On the opposite side of the lamp to that occupied by the curved glass table there is arranged a curved sheet *g* of tin-plate or the like for confining the light, the inner surface of the plate *g* serving as a reflector, while its outer surface serves as a table for supporting and guiding the drawings or other sheets on their way to the feed-rollers.

The means for regulating the tension of the apron may consist of a bracket *h* for carrying each end of the spindle *l* of the roller, the bracket *h* being furnished with a hollow shank *i*, which is adapted to slide on a portion *m* of the stud *n*. The latter is screwed into a lug *o* on one of the end carriers *b b'*, a spiral spring *j* being arranged upon the shank *i* so as to bear at one end against a washer *p* on the shank of the bracket *h* and at the other end against the washer *q* in contact with a nut *r* on the stud *n*. The said stud *n* is provided with the head *s*, whereby it may be turned into different positions in order to vary the tension of the spring *j*, and this stud may be locked in position by means of the nuts *r*. The spindles *l* of the rollers may be screw-threaded at their ends and provided with cones *l'*, between which and suitable cups *l²*, secured by friction in the end carriers *b b'* or the brackets *h*, are situated balls *l³* for reducing the friction between the working parts.

In using my improved apparatus the tracing or drawing to be reproduced, accompanied by the sensitized paper, is fed between the two rollers *d e* and is thus conducted between the apron *c* and the outer surface of the glass table *a*, the apron holding the tracing and the sensitized paper closely pressed against the said surface. By suitably regulating the speed of the driving-roller, and consequently the travel of the apron, the tracing, together

with the sensitized paper, occupies such a period in traveling over the surface of the table as to afford the desired exposure before being discharged at the opposite edge of the table. The operation is thus rendered continuous, and the length of the sheet printed is unrestricted by the width of the table.

In the alternative construction shown in Fig. 5 the apparatus is arranged so as to allow of two prints being made at the same time, and to this end at opposite sides of the end carriers are provided in duplicate the discharge-rollers u u , the collecting-rollers u' u' , the tension-rollers u^2 u^2 and u^3 u^3 , the end rollers u^4 u^4 and u^5 u^5 , and the feed-rollers u^6 u^6 . These rollers and their corresponding aprons c' c^2 may be operated in a similar manner to that previously described, the reflector g being replaced by an additional glass table a' .

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

1. The herein-described photo-printing apparatus comprising one or more approximately semicylindrical transparent tables supported in end carriers, an endless apron arranged about the outer surface of each table, guide-rollers for carrying the said apron, a feed-roller for actuating the same, and means for rotating the feed-roller, substantially as described.

2. The herein-described photo-printing apparatus comprising an approximately semicylindrical transparent table supported in end carriers, a reflector supported in the said end carriers opposite the said table, an end-

less apron arranged about the outer surface of the said table, guide-rollers for carrying the said apron, a feed-roller gearing with one of the end guide-rollers, a collecting-roller gearing with the other end guide-roller, a discharge-roller, and means for rotating one of the end guide-rollers, substantially as set forth.

3. The herein-described photo-printing apparatus comprising an approximately semicylindrical transparent table supported in end carriers, an endless apron arranged about the outer surface of the table, guide-rollers for carrying the said apron, a feed-roller gearing with one of the end guide-rollers, spring-controlled bearings for supporting one or more of the guide-rollers, and means for rotating one of the end guide-rollers, substantially as described.

4. In a photo-printing apparatus of the kind herein described, means for keeping the apron taut comprising brackets for supporting the tension guide-rollers, hollow shanks on said brackets, studs adjustably secured in the end carriers and upon which the brackets are adapted to slide and springs for pressing the brackets outward, substantially as set forth.

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

LEONARD SHAW.

Witnesses:

WALTER GEORGE SARNEY,
CHARLES EDWARD AGAR.