

(No Model.)

A. LEUTNER.
CALENDER FOR PHOTOGRAPHIC PURPOSES.

No. 452,059.

Patented May 12, 1891.

Fig. 1.

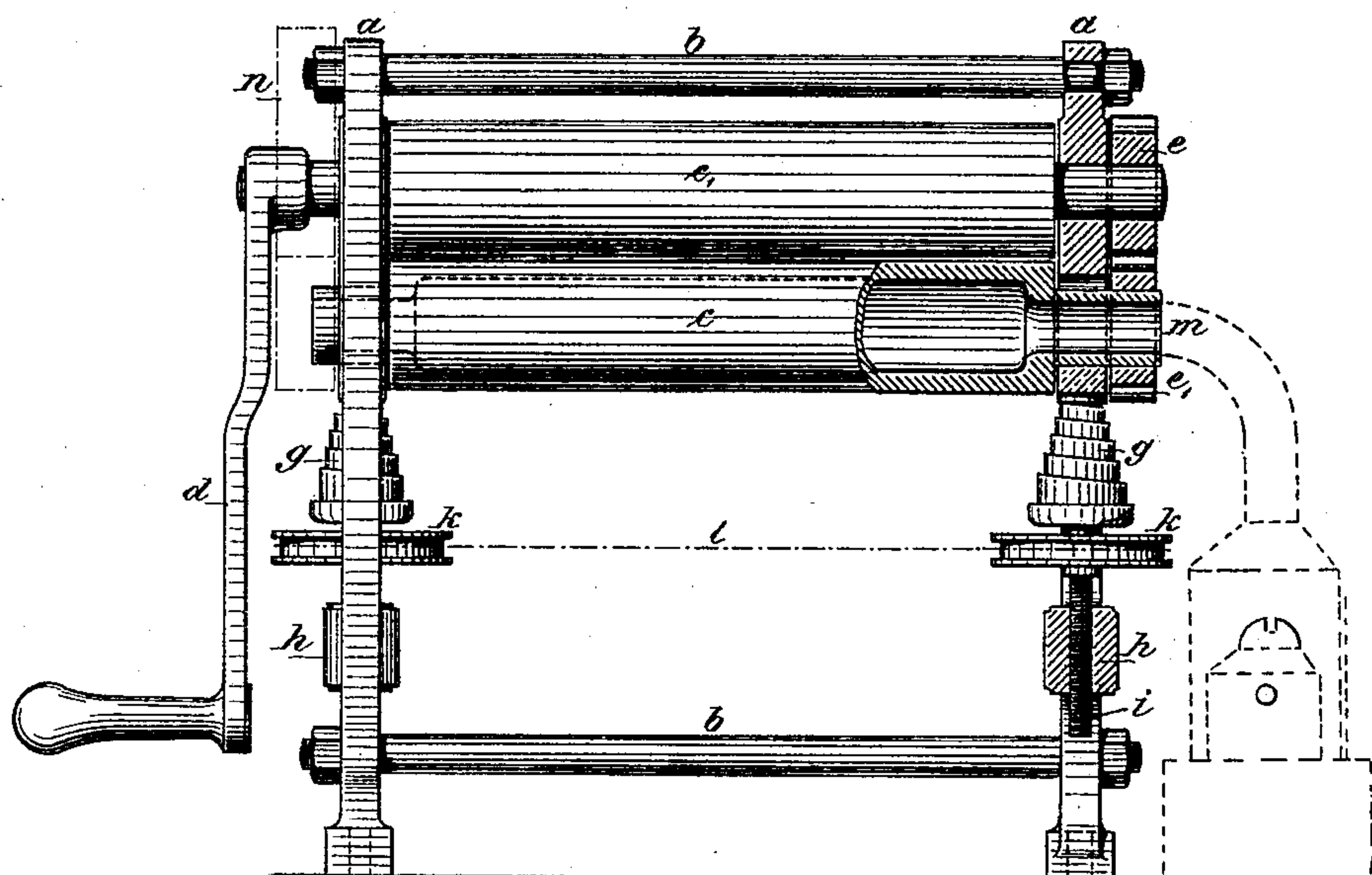
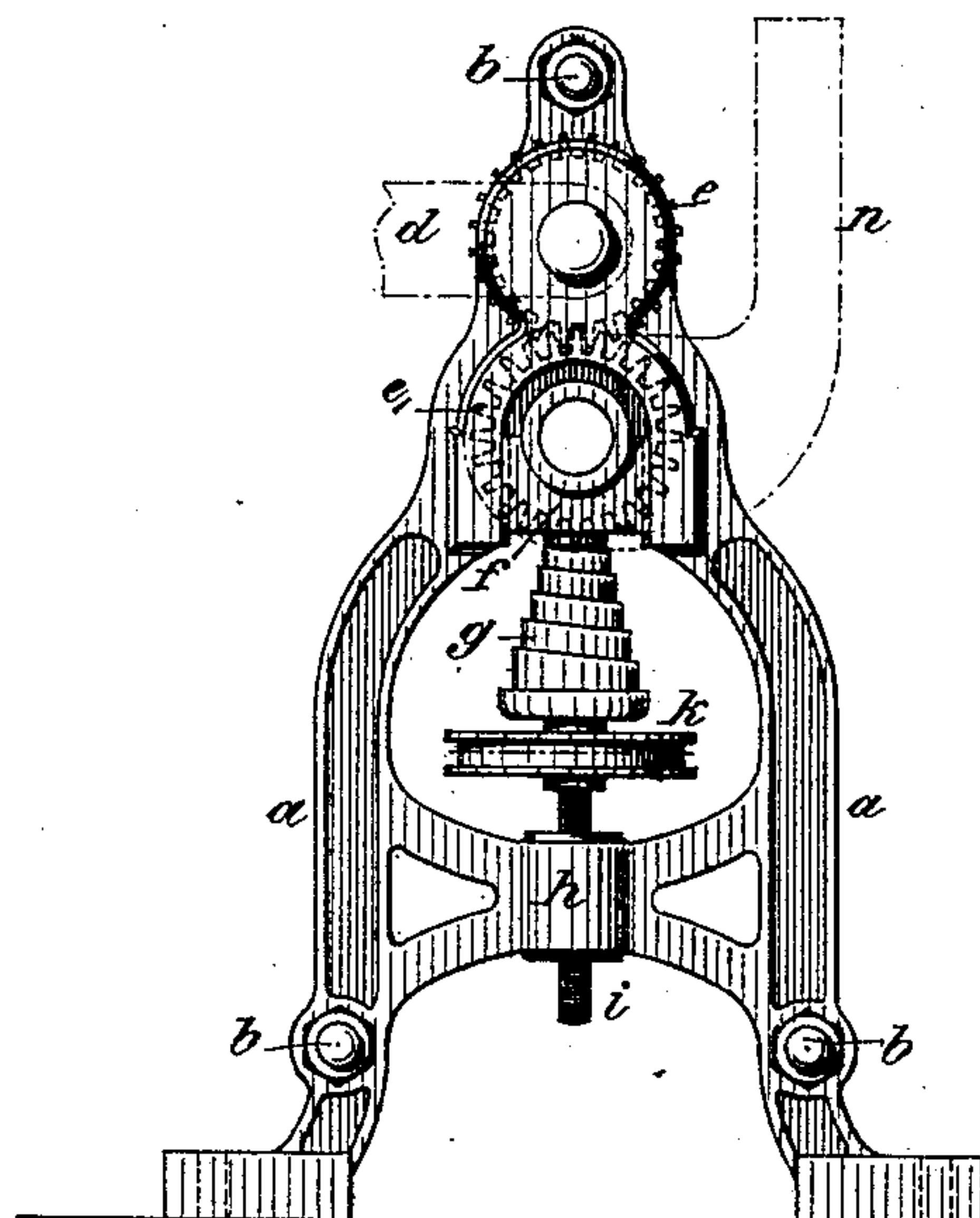


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

AUGUST LEUTNER, OF VIENNA, AUSTRIA-HUNGARY.

CALENDER FOR PHOTOGRAPHIC PURPOSES.

SPECIFICATION forming part of Letters Patent No. 452,059, dated May 12, 1891.

Application filed June 7, 1889. Serial No. 313,416. (No model.)

To all whom it may concern:

Be it known that I, AUGUST LEUTNER, of No. 12 Mariahilfer Strasse, in the city of Vienna, in the Empire of Austria, have invented certain new and useful Improvements in Calenders for Photographic Purposes, of which the following is a specification.

My invention relates to improvements in calenders for photographic purposes, characterized by, first, the automatic adjustability of the calender-rolls for the slight differences in thickness of the card-board for rendering the adjustment by hand unnecessary; secondly, the warming of the calender-rolls, which requires very little time and causes a considerable saving of time and fuel.

It is well known that when the regulating devices of the ordinary calenders have been adjusted for a certain thickness of card-board or the like the effect will not be uniform, as the said card-boards are very variable in thickness. Even if these differences are small the want of uniformity in polish of the boards is severely felt and can only be prevented by continuously adjusting the regulating device. This disadvantage is overcome by employing my improved calender, as the small differences between the kinds or numbers of the thicknesses are automatically adjusted by the regulating device, for the reason that the rollers possess not only the requisite pressure, but also the correct degree of elasticity for producing a uniform polishing of the various thicknesses of the boards.

In the accompanying drawings, Figure 1 is the elevation, partly in section, of my improved machine. Fig. 2 is the end view of the same from the crank side.

The two bearing-standards *a* are connected by the rods *b*, so as to form a firm framework, in which the two calender-rollers *c c'* are arranged one above the other. The upper roller *c'* is solid or massive, one of its journals, which protrudes from the bearings, being provided with a crank *d*, and the other journal with a cog-wheel *e*, which gears into a second cog-wheel *e'* of the roller *c*, so that when the crank *d* is set in operation the two cylinders are set in uniform rotation, but in opposite direction to each other.

For regulating the pressure of the rollers *c c'* to each other, the regulating device is so arranged that the two bearings *f* of the lower roller *c* and the roller *c* itself will be adjusted in the vertical plane. The two movable bearings are supported by the volute springs *g*, which can be pressed against the bearings by means of the screw-spindles *i*, which run through the cross-connection *h* of the frame, so that the pressure in the roller-bearings can be regulated at will.

In order that the operation of the regulating device may cause the lower cylinder to lie snugly and uniformly in its entire length against the upper roller *c'* or against the card-board, the aforementioned screw-spindles *i* are provided with rope or chain drums *k*, which are so coupled by an endless chain, rope, or strap *l* that when the one spindle is rotated the second spindle will be compelled to make a like movement and in the same direction. The cylinder or roller *c* and also the journals of the same are hollow, and in order to be able to heat the said roller *c* I employ at the one end *m* of the said hollow space a lamp of suitable construction and at the other end a sheet-metal tube *n* as chimney, which, if made in the proper dimensions, will also serve to produce draft and draw the flame of the lamp into the roller.

As the heating device does not stand beneath the hollow polished roller, but the latter, on the contrary, is left perfectly free, the same can be readily cleaned, which is absolutely necessary when heat is employed in calendering.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, what I claim is in heated calenders for photographic purposes—

1. The combination, with a frame and a calender-roll, of a second calender-roll, which is hollow and provided with hollow journals, a suitable heating device, a conduit connecting the same with one of said journals, and a draft-tube or chimney connected with the other journal, substantially as set forth.

2. The combination, with a frame and a calender-roll, of a second calender-roll, volute

springs *g*, supporting the bearings of the latter, and adjusting-screws *k*, supporting said springs, substantially as set forth.

3. The combination, with the rolls, of the
5 herein-described regulating device, consisting of the supporting-springs *g*, the screws *i*, chain-drums *k*, and the chain *l* for connecting said drums, substantially as set forth.

In witness whereof I hereunto set my hand
in presence of two witnesses.

AUGUST LEUTNER.

Witnesses:

JOHANN DOLLY,
OTTO SCHIFFER.