

I. S. RUSSELL & H. R. RUSSELL.

Magnesium Lamps.

No. 138,346.

Patented April 29, 1873.

fig. 1.

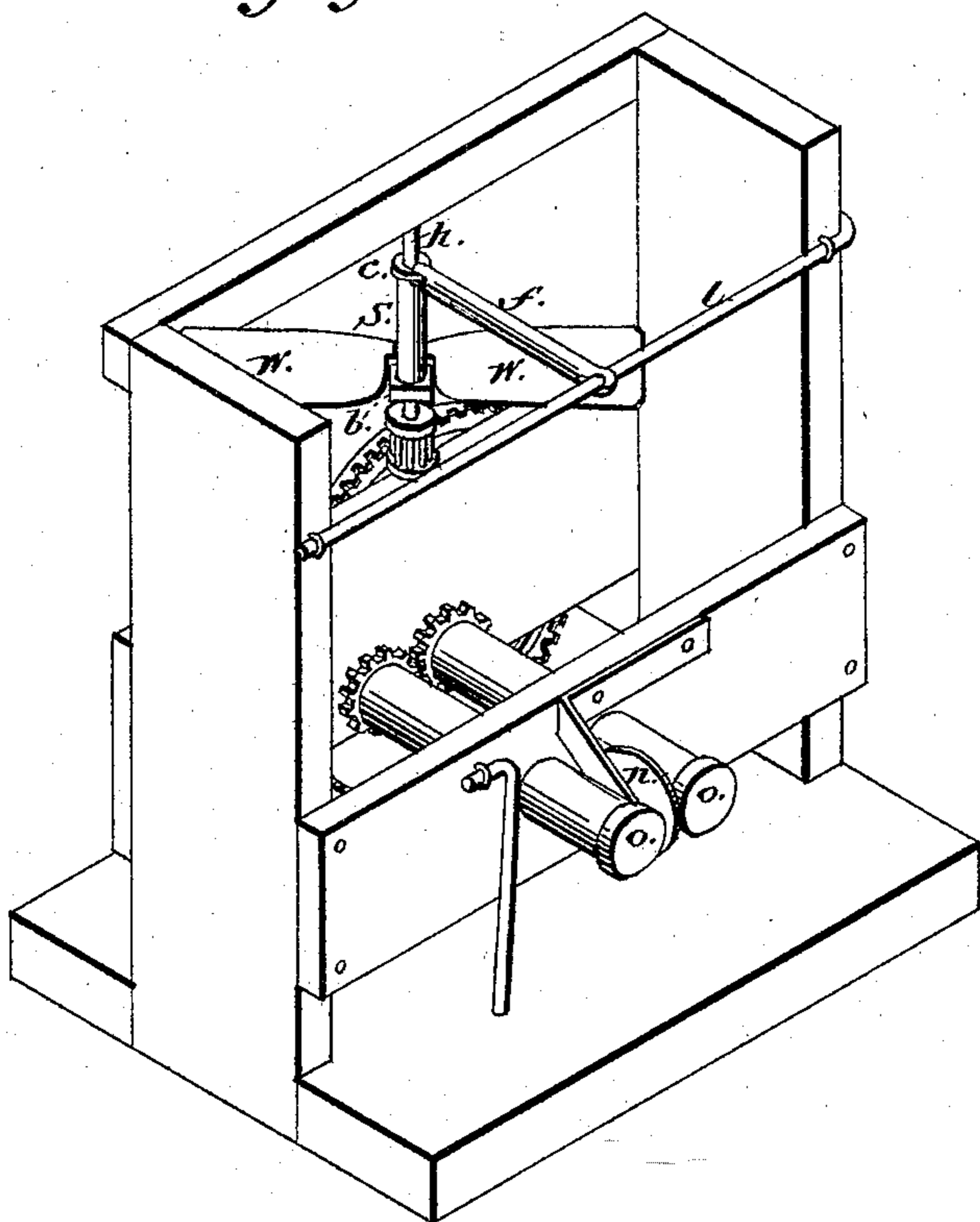


fig. 2.

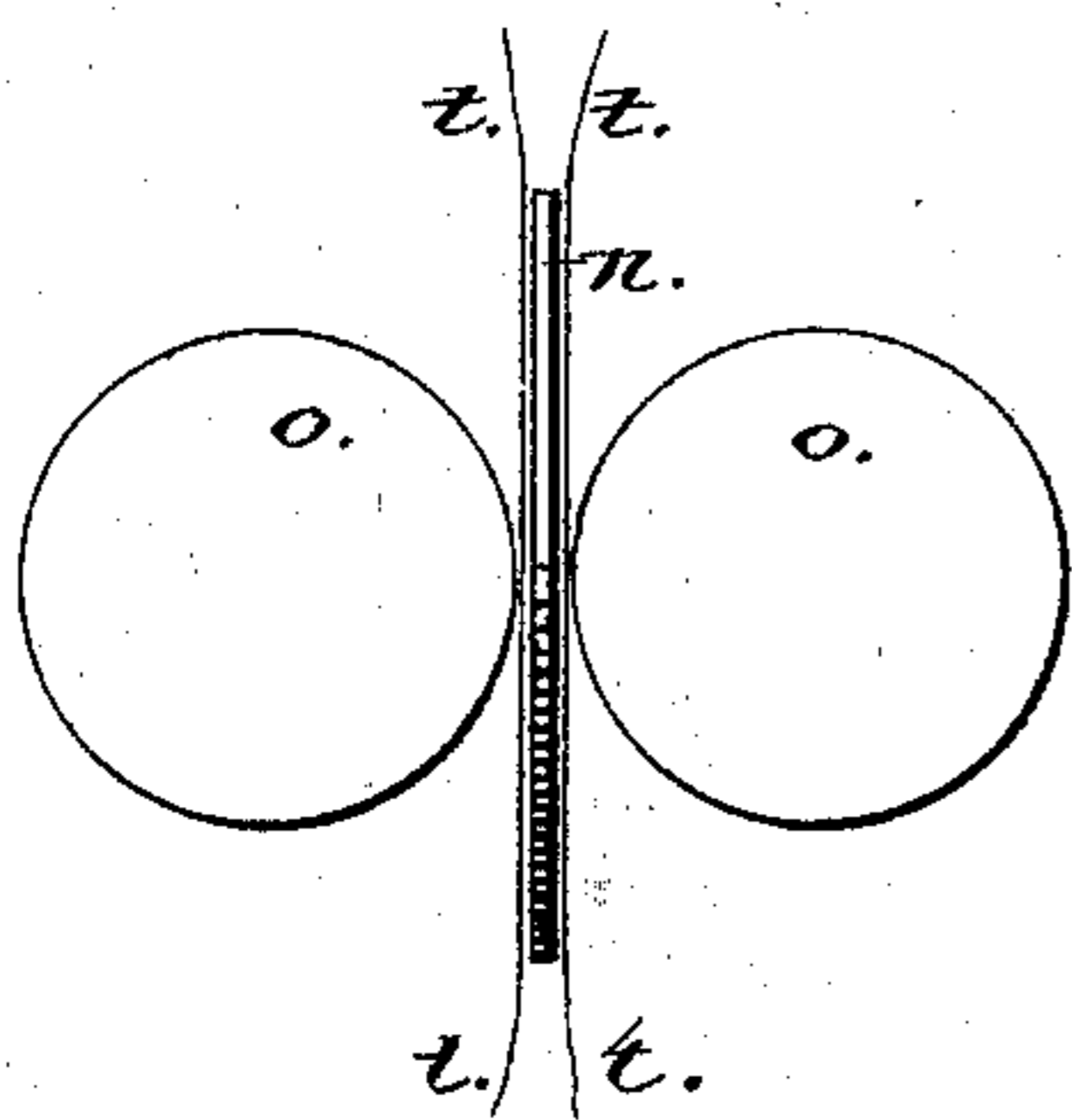


fig. 3.

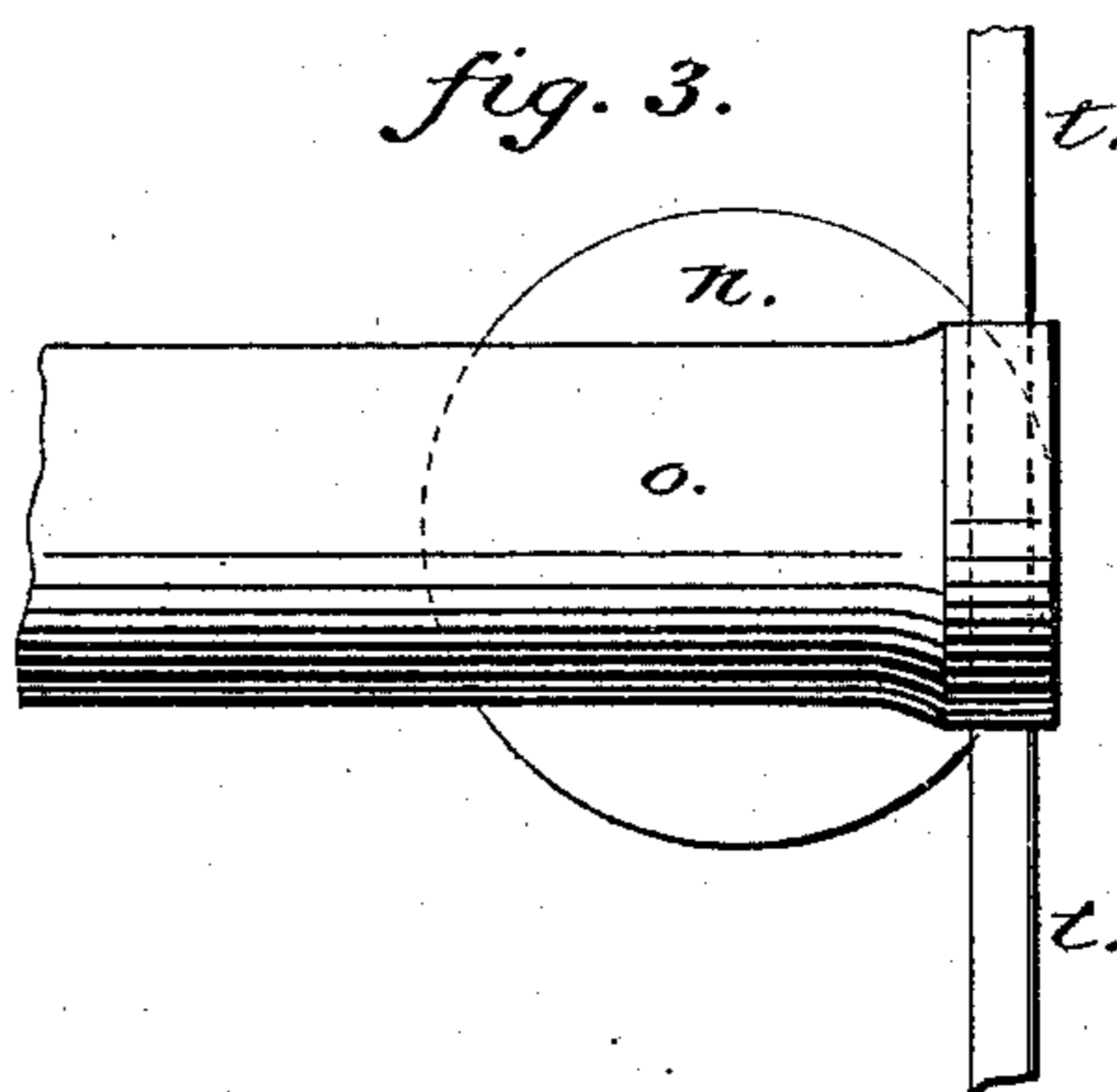
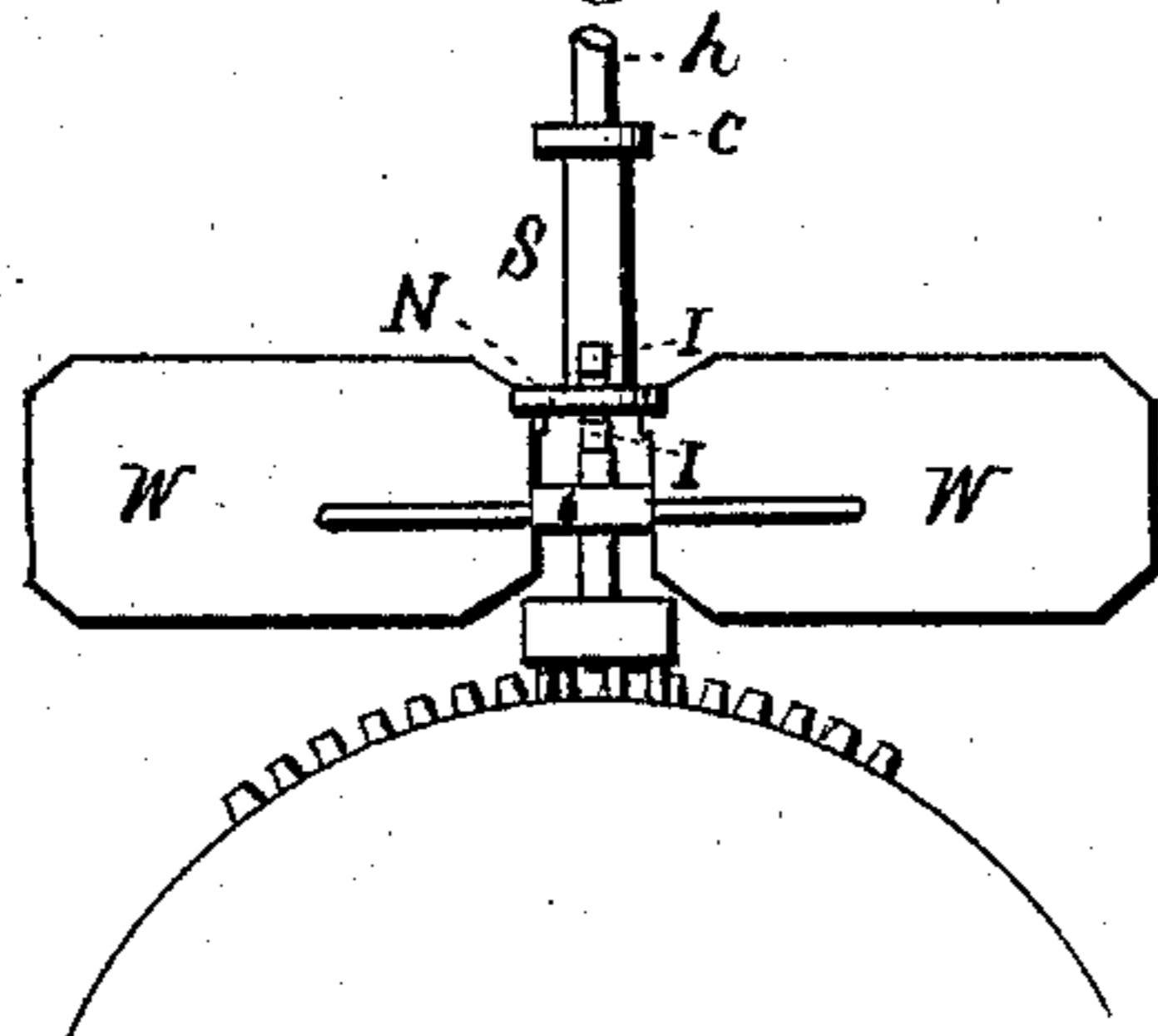


Fig. 4.



Attest;

Edw. T. Brown  
J. M. Russell

Inventors:

Isaac G. Russell  
Henry R. Russell

# UNITED STATES PATENT OFFICE.

ISAAC S. RUSSELL, OF NEW MARKET, MARYLAND, AND HENRY R. RUSSELL  
OF WOODBURY, NEW JERSEY.

## IMPROVEMENT IN MAGNESIUM-LAMPS.

Specification forming part of Letters Patent No. **138,346**, dated April 29, 1873; application filed  
March 20, 1873.

*To all whom it may concern:*

Be it known that we, ISAAC S. RUSSELL, of New Market, Maryland, and HENRY R. RUSSELL, of Woodbury, New Jersey, have invented certain Improvements in Magnesium-Lamps, of which the following is a specification:

Our invention relates to lamps for burning magnesium in the form of wire or ribbon, which is fed to the flame by means of clock-work; and it is particularly applicable to those used in illuminating pictures in the magic-lantern. The first part of our invention relates to the means of increasing the steadiness of the light, and the second part to the method of regulating the speed of the feed-rollers.

Figure 1 is a perspective view of principal parts of our improved device; Fig. 2, an end view of the feed-rollers; and Fig. 3, a side view of the same.

Similar letters indicate corresponding parts.

O O are the feed-rollers pressed together by a spring or springs and turning toward each other, for the purpose of carrying the ribbons down to be burned just below them. The difficulty heretofore has been that the ribbons would vibrate and give a trembling, unsteady light. To remedy this defect the thin wheel or disk *n* is interposed. This revolves upon an axle placed between the rollers, which make it revolve by pressing against it. The ribbons *t t* coming from reels pass one on each side of disk *n* and between it and the rollers, and are carried downward ready to be burned. When they come from the reels they are slightly curved generally, and if the concave side of the curve be placed next to the disk *n*, the ribbons being pressed against a broad surface, will be carried downward without vibrations, or nearly so, and without making the light tremulous and unsteady. The same effect may be produced by having stationary guides below the rollers for the ribbons to pass through, and we have employed this method; but there is some difficulty on account of clogging. To prevent the oxide of magnesium from collecting on the feed-rollers and disk, and clogging them, scrapers are attached; but

as they are not new it is not thought necessary to describe them here, or to represent them in the drawing.

Motion is communicated from the feed-rollers to the shaft *h*, upon which is the fixed block *b*. The wings W W are attached to the block *b* by pivots, upon which they freely turn. The sleeve S is loose upon the shaft *h*, and carries at its upper part a collar, *c*, and at its lower part a projection, F, with its two fingers, I I, embracing the bent rod N connecting the wings W W. The rock-shaft *l* has a lever, by which it is turned, and an arm, *f*, grooved at its extremity to receive the collar *c*, which should revolve freely in said groove. Now when the lever is lowered the rock-shaft *l* turns, the arm *f* is pressed down, carrying the collar *c*, sleeve S, projection F, and fingers I I, by which the wings W W are turned upon their pivots and made more nearly parallel with the plane of their revolution; and when the lever is raised a reverse movement of all the parts takes place. Now if the wings W W be set more or less oblique they will offer more or less resistance to the power which drives the clock-work, and thus the operator can, at pleasure, regulate the speed of the feed-rollers while the machine is in motion in order that the right quantity of metal may be furnished to the flame.

We claim as our invention—

1. The disk *n* interposed between the feed-rollers O O to steady the ribbons and light, as described.

2. In a magnesium-lamp, the governor for the feed-rollers, consisting of the wings W W, operated by the chain of mechanism consisting of the shaft *l*, lever *f*, fingers I I, and bent rod N, all substantially as shown and described.

ISAAC S. RUSSELL.

HENRY R. RUSSELL.

Witnesses to I. S. R.:

EDM. F. BROWN,

JAMES S. GRINNELL.

Witnesses to H. R. R.:

WM. C. STOKES,

JEPHTHA ABBOTT.