

(No Model.)

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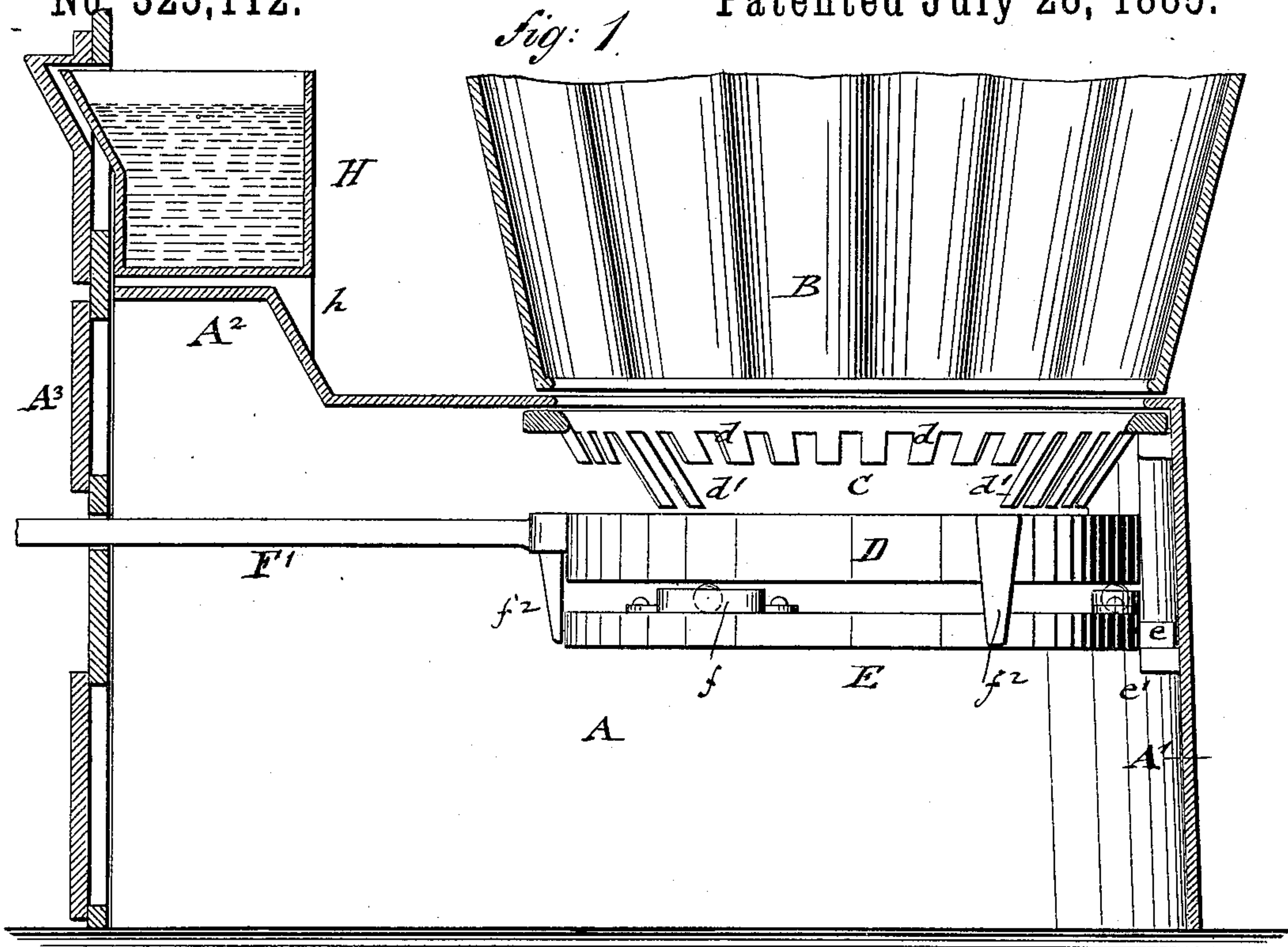
R. S. T. CISSEL.

FURNACE GRATE.

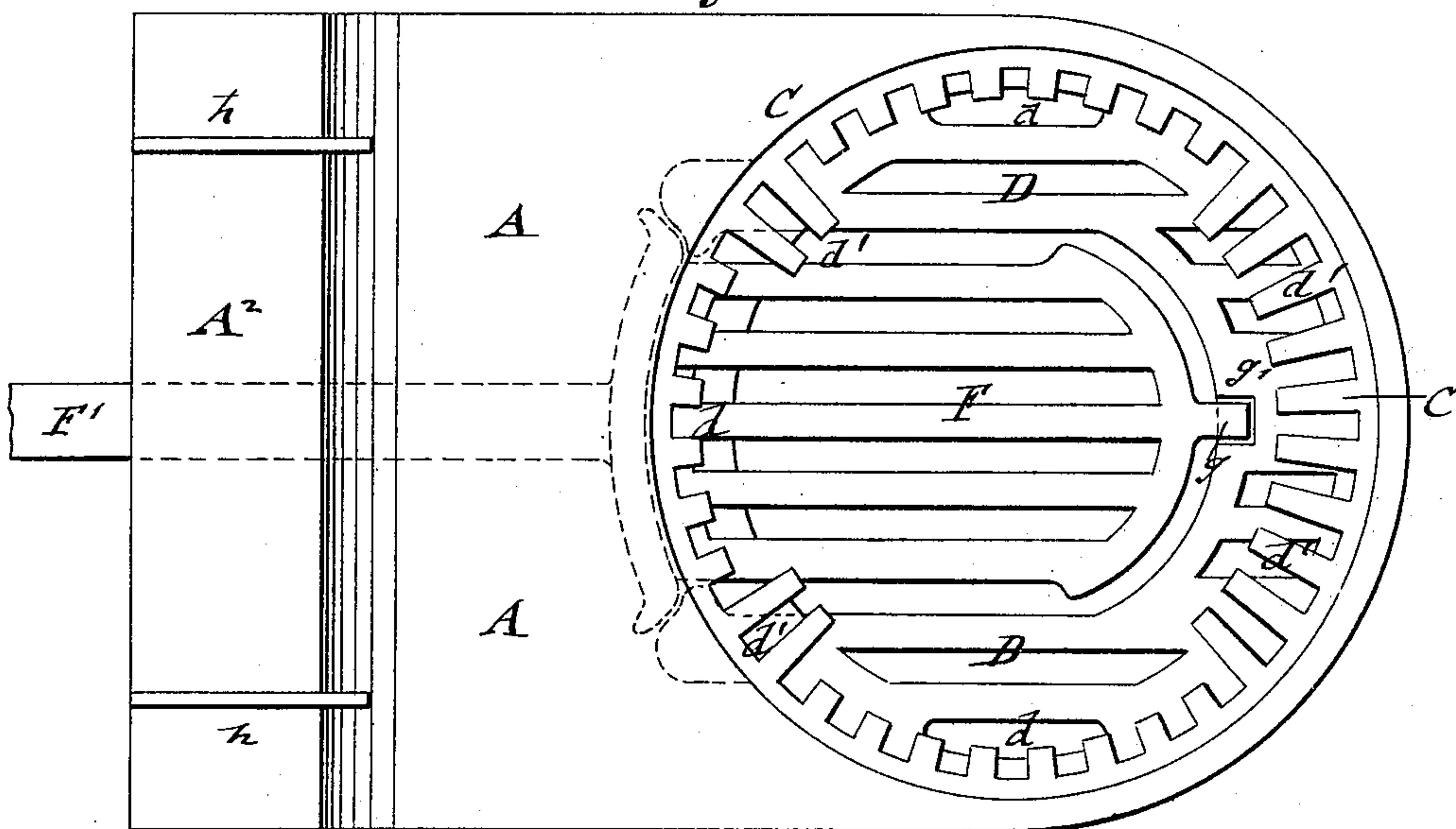
No. 323,112.

Patented July 28, 1885.

*Fig. 1.*



*Fig. 2.*



WITNESSES:

*A. Schehl,*  
*Carl Kay*

INVENTOR

*Richard S. T. Cissel*  
BY  
*Wm. & R. R. Reger*  
ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

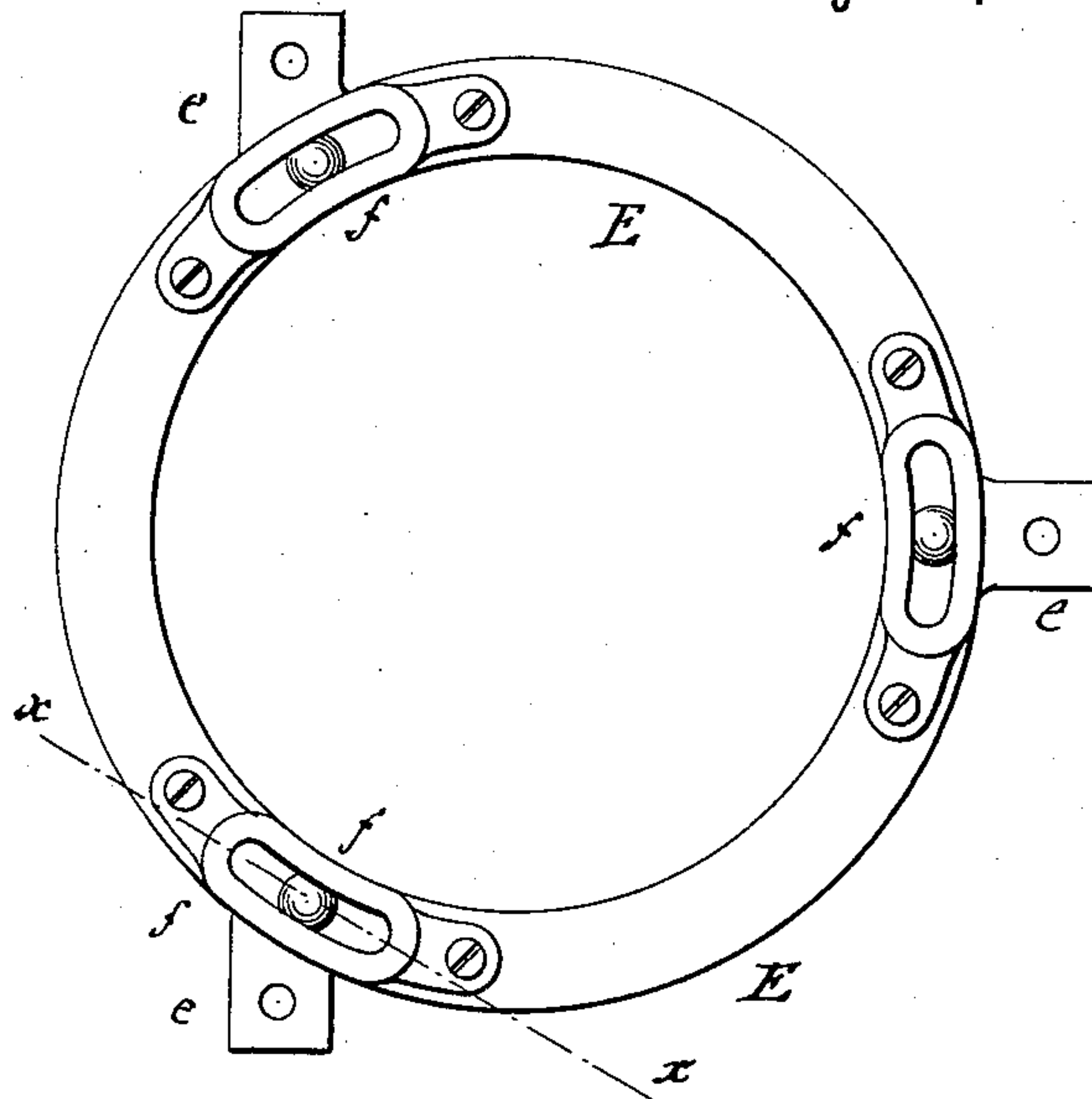
R. S. T. CISSEL.

FURNACE GRATE.

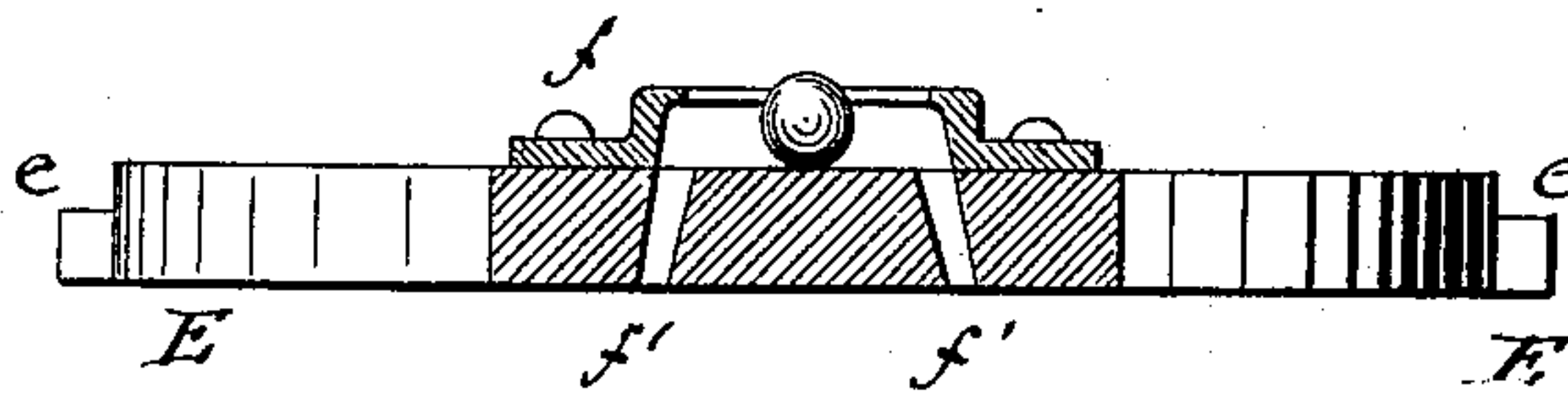
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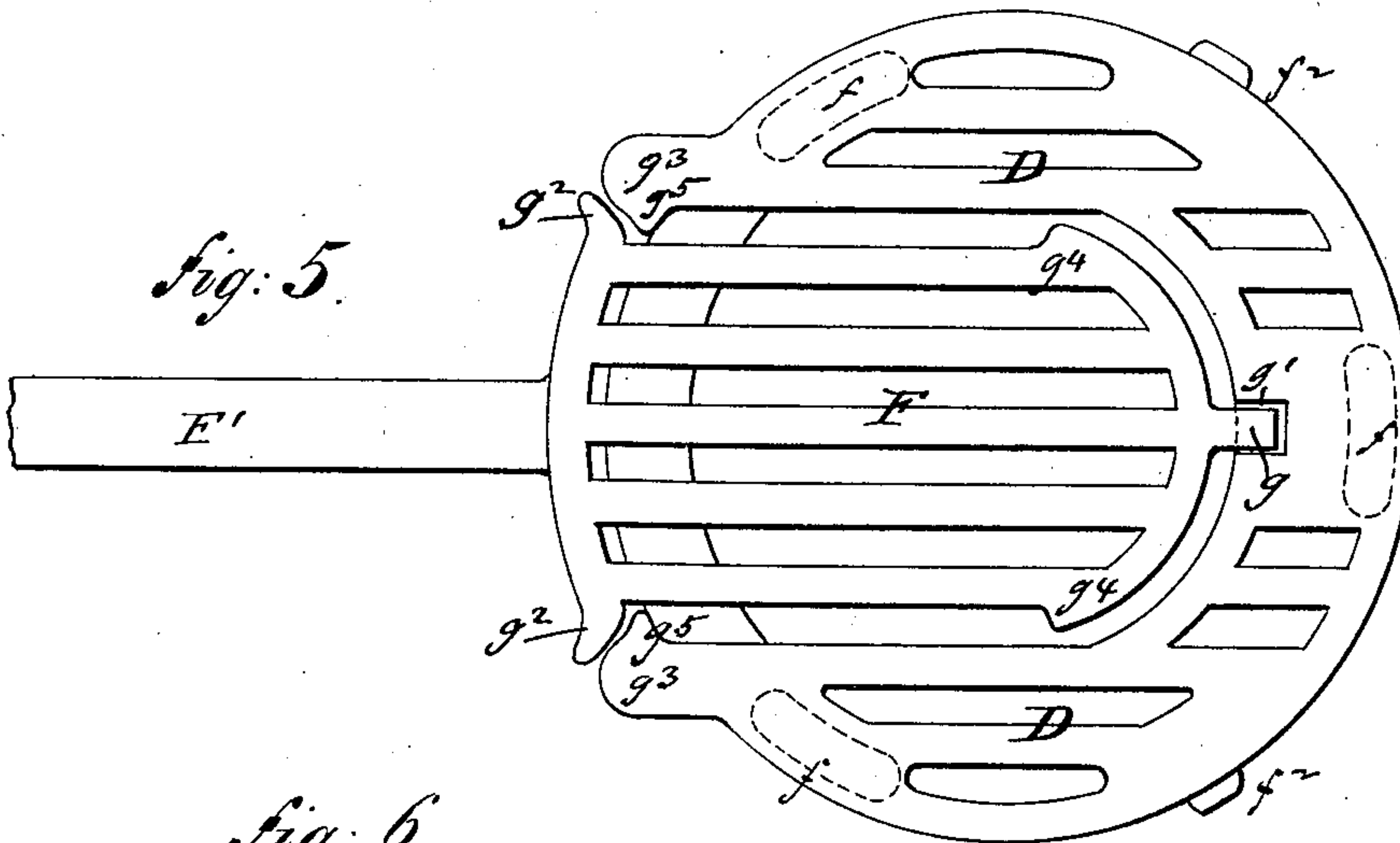
*Fig. 3.*



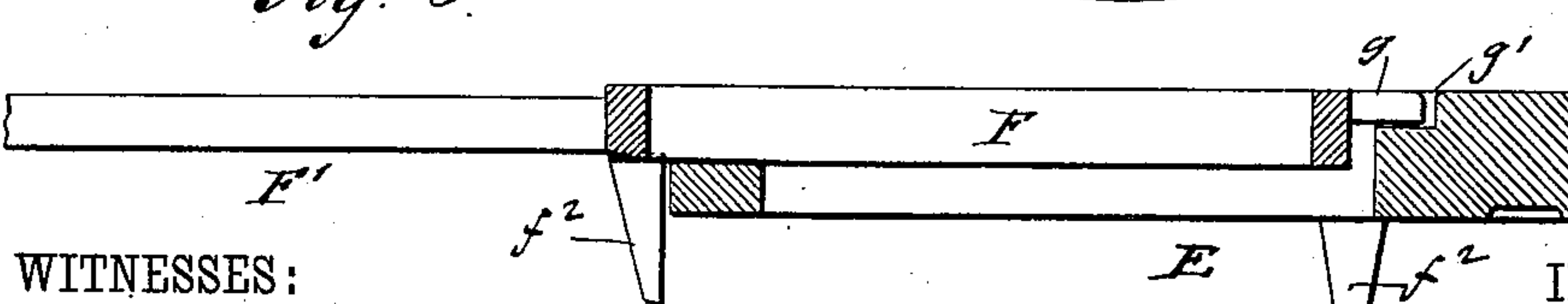
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



WITNESSES:

*A. Schehl.*  
*Carl Karp*

INVENTOR

*Richard S. T. Cissel*

BY

*Goepel & Raegenes*  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

RICHARD S. T. CISSEL, OF ELIZABETH, NEW JERSEY.

## FURNACE-GRATE.

SPECIFICATION forming part of Letters Patent No. 323,112, dated July 28, 1885.

Application filed October 29, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, RICHARD S. T. CISSEL, of Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Furnace-Grates, of which the following is a specification.

This invention has reference to certain improvements in the furnace-grate for which Letters Patent were granted to me, No. 304,906, and dated September 9, 1884, the improvements being designed with a view to simplify the construction of the grate and render the same more effective, especially for the removal of clinkers.

In the accompanying drawings, Figure 1 represents a vertical longitudinal section of my improved furnace-grate, showing the movable grate and grate-rest in side elevation. Fig. 2 is a plan of the same. Figs. 3 and 4 are a detail plan and a sectional side elevation of the grate-rest, partly in section, on line  $x x$ , Fig. 3; and Figs. 5 and 6 are, respectively, a plan and a vertical longitudinal section of the movable grate and its dumping-section.

Similar letters of reference indicate corresponding parts.

A in the drawings represents the ash-pit of my improved furnace, which is inclosed either by a brick wall or by an iron casing, A', according as the furnace is to be portable or stationary.

Below the corrugated fire-pot B is supported a fixed grate, C, of circular shape, which is provided with shorter grate-bars  $d$  at the sides and front part of the grate, and with longer grate-bars  $d'$  at the remaining portions, so as to form open spaces that facilitate the dropping of the clinkers at the side and front of the grate, as shown in Fig. 1.

A second and movable grate, D, is supported below the fixed grate on a grate-rest, E, said grate-rest being supported with lugs  $e$  at three or more points of its circumference, which lugs rest on stays  $e'$  of the ash-pit. The general construction of the grate-rest E is the same as that in the patent heretofore referred to, with this difference, that the bottoms of the boxes  $f$  for the anti-friction rollers are provided with drop-holes  $f'$ , through which the ashes that accumulate in the boxes  $f$  are conducted off, so as not to impede the free motion of the anti-friction rollers.

The grate D is supported on the anti-friction rollers of the grate-rest E, and made, like the grate-rest, of circular shape. The grate D is provided at three or more points of its circumference with downwardly-extending stays  $f^2$ , that bind on the grate-rest and prevent the lateral displacement of the same, while the longer grate-bars  $d'$  of the grate C prevent the lifting up of the movable grate D.

At the center of the grate C is arranged a dumping-section, F, of oblong shape, which is slotted like the grate D, and provided with a forwardly-extending rod, F', that passes through the front wall of the furnace to the outside. The rear end of the dumping-section F is supported by a lug,  $g$ , in a recess,  $g'$ , of the grate D, and provided at its front corners with laterally-projecting lugs  $g^2$ , which abut against forwardly-extending projections  $g^3$  of the grate D, so that the latter is taken along when the dumping-section is horizontally oscillated. The rear end of the dumping-section F is made arc-shaped, and provided at opposite sides with projections  $g^4$ , which engage inwardly-projecting stops  $g^5$  of the front projections,  $g^3$ , of the grate D, so as to arrest the motion of the dumping-section when the same is moved forward for permitting the dumping of the ashes on the grate and fire-pot. By oscillating the grate D and dumping-section F the grate D is cleared of clinkers through the side and front openings between the bars  $d$   $d'$  of the grate C, whereby a clear fire can always be kept up on the grate.

By this arrangement the construction of the grate is considerably simplified, and the entire body of the coal and ashes dumped at any time with great facility by simply moving the dumping-section forward, which is afterward returned into its proper position on the oscillating grate D.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of a movable grate, D, having front projections,  $g^3$ , and stops  $g^5$ , and a recess,  $g'$ , at the rear part, a dumping-section, F, provided with laterally-projecting front and rear lugs,  $g^2$   $g^4$ , and a center lug,  $g$ , at the rear part, and a grate-rest having supports for said movable grate, substantially as described.

2. The combination of a movable grate, D, having front projections,  $g^3$ , and stops  $g^5$ , and

a recess,  $g'$ , at the rear part, a dumping-section, F, provided with laterally-projecting front and rear lugs,  $g^2$   $g^4$ , and a center lug,  $g$ , at the rear part, and a grate-rest having boxes  
5 with anti-friction rollers, substantially as set forth.

In testimony that I claim the foregoing as my

invention I have signed my name in the presence of two subscribing witnesses.

RICHARD S. T. CISSEL.

Witnesses:

LOUIS C. RAEGENER,  
SIDNEY MANN.