

J. D. SLICHTER.
Grates.

No. 158,750.

Patented Jan. 12, 1875.

Fig. 1.

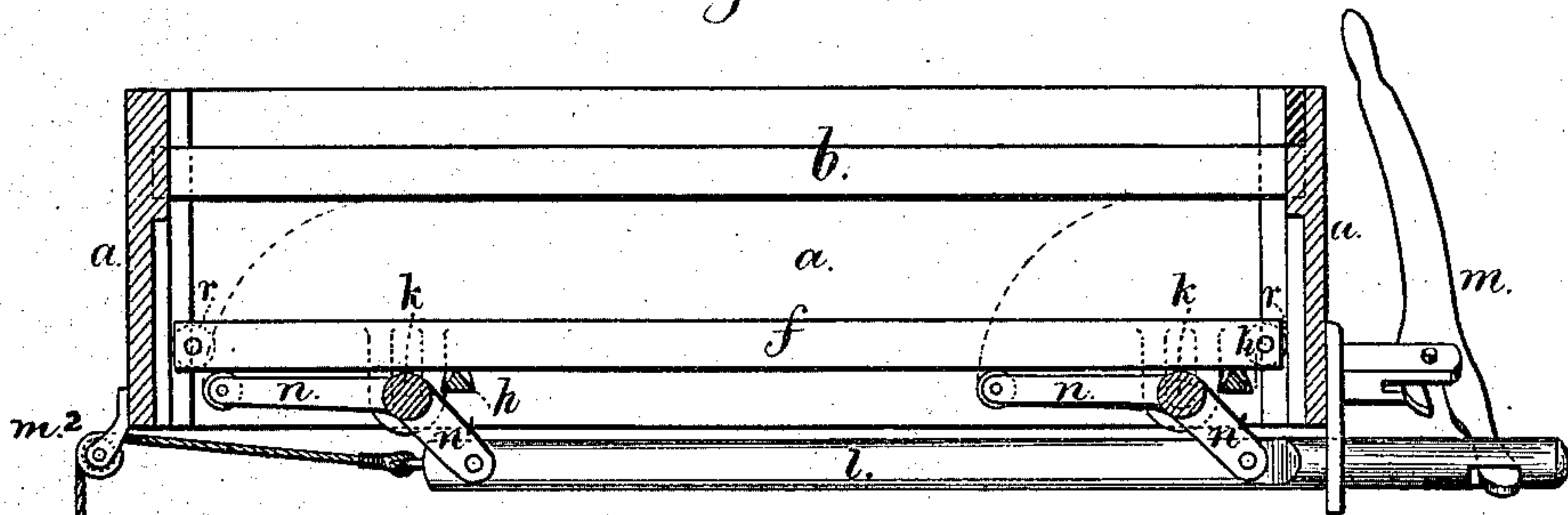


Fig. 2.

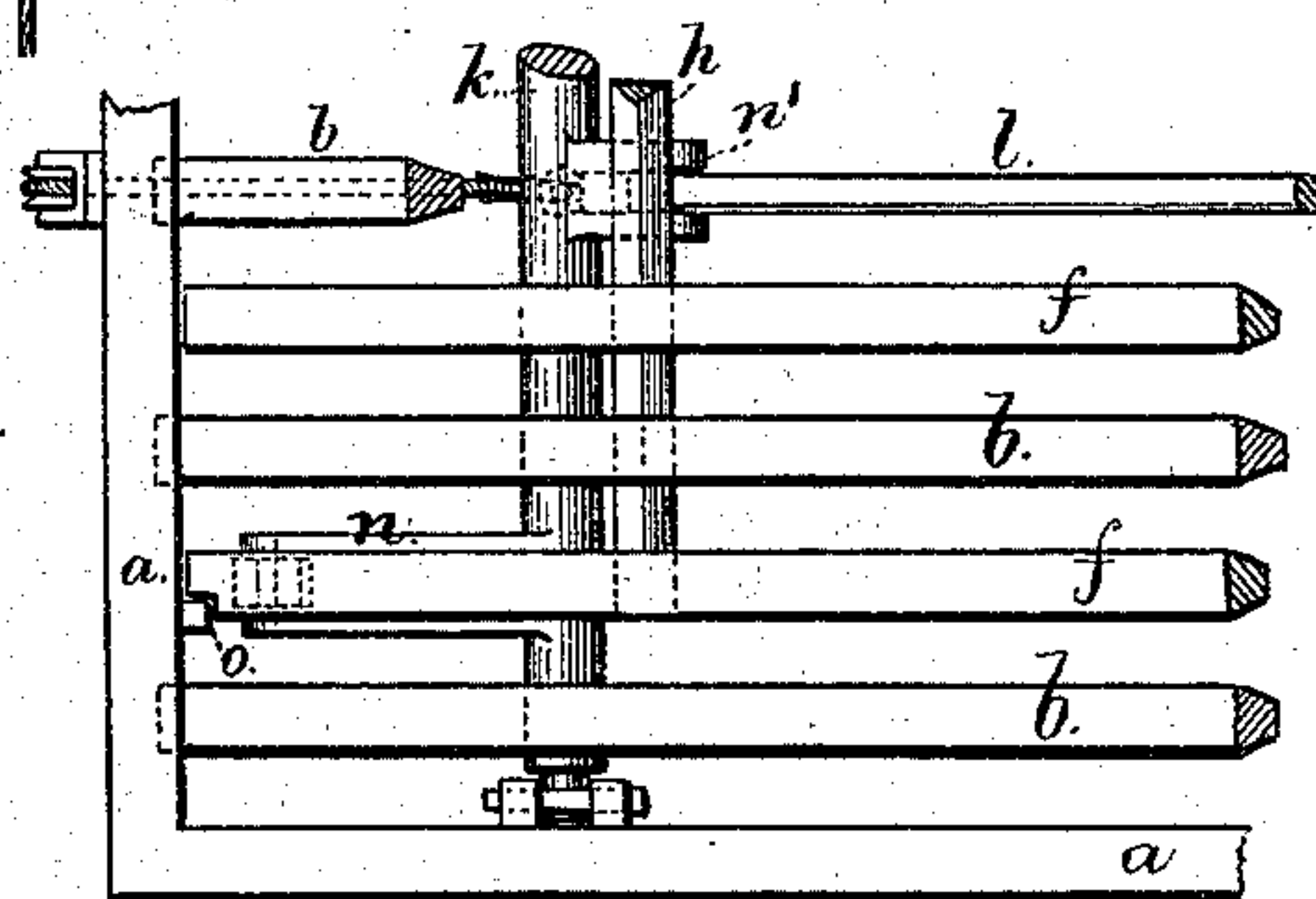


Fig. 4.

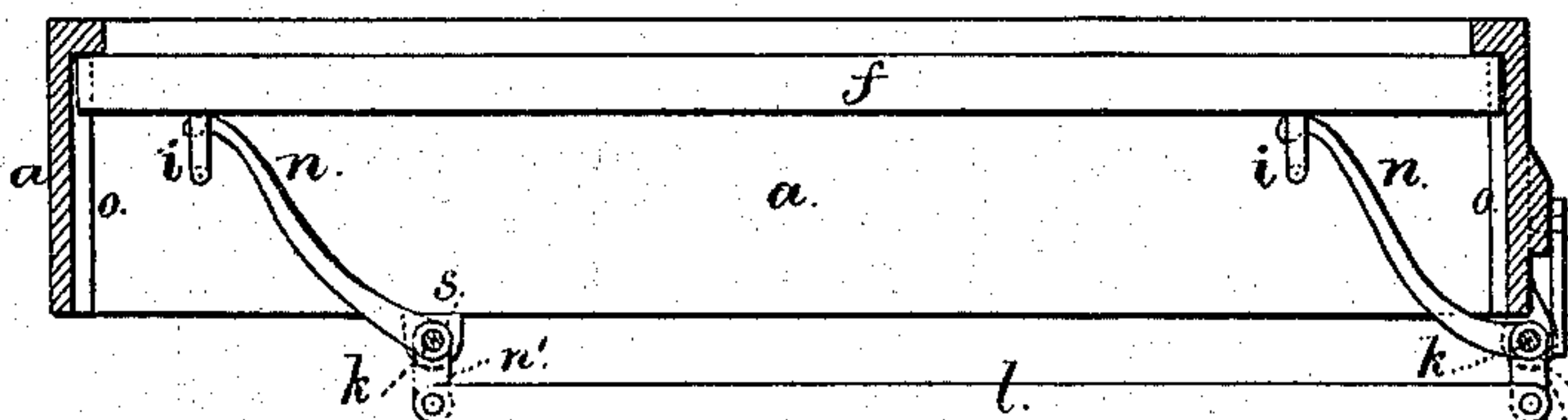


Fig. 5.

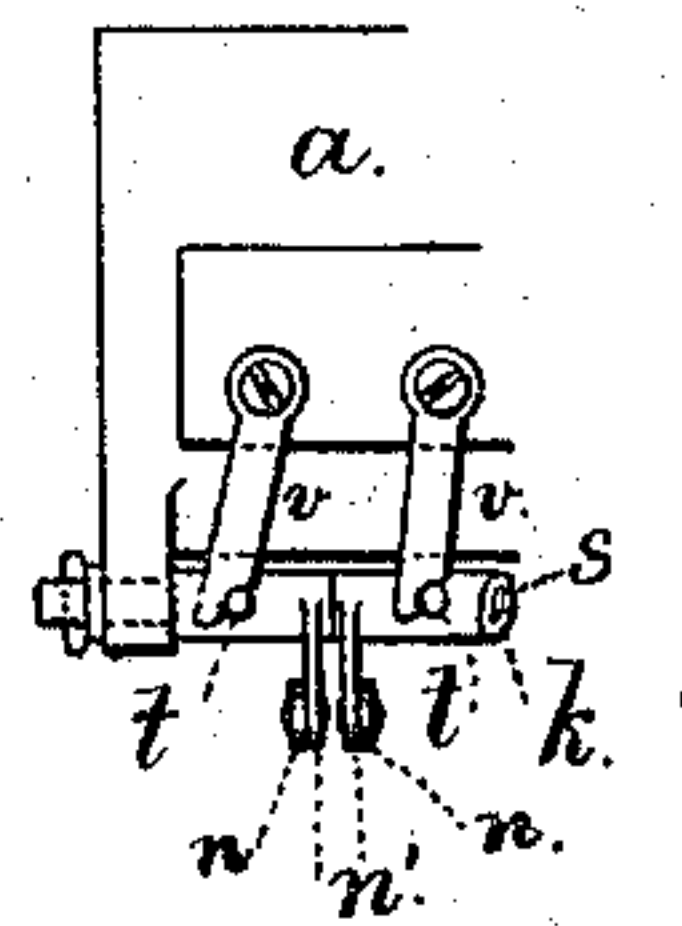


Fig. 3.

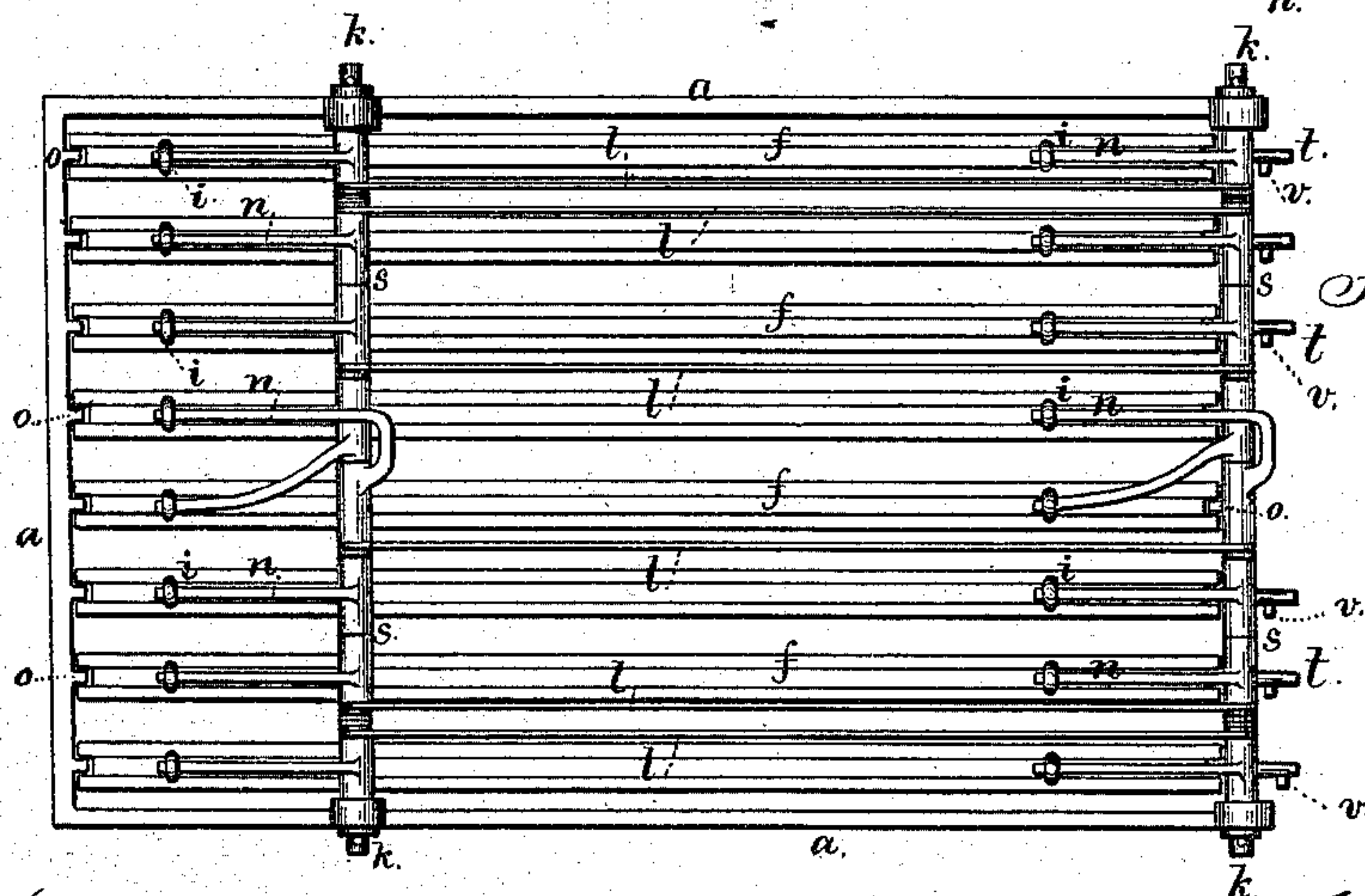
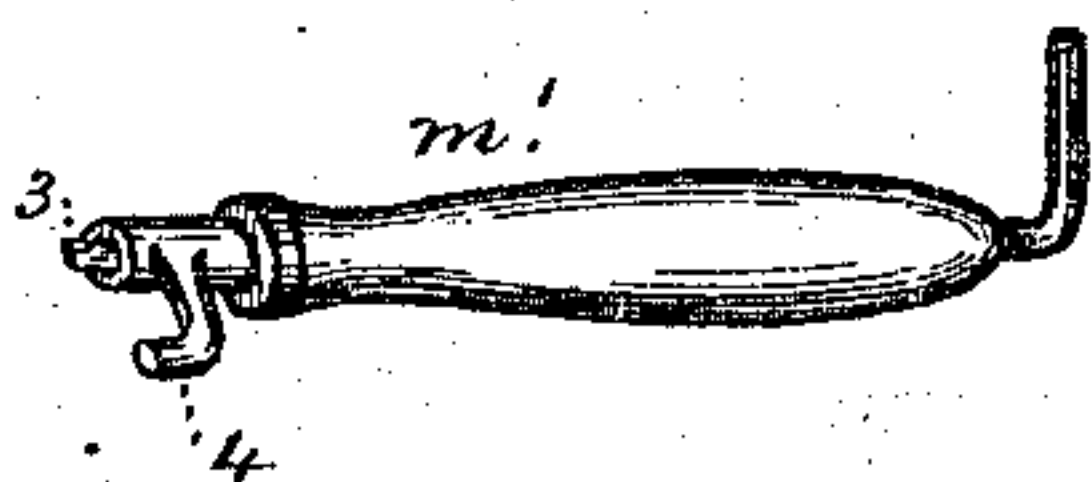


Fig. 6.



Witnesses,
Chas. H. Smith
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Inventor
Joseph D. Slichter.
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UNITED STATES PATENT OFFICE.

JOSEPH D. SLICHTER, OF READING, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO LOUISA BRADFORD, OF SAME PLACE.

IMPROVEMENT IN GRATES.

Specification forming part of Letters Patent No. **158,750**, dated January 12, 1875; application filed October 3, 1874.

To all whom it may concern:

Be it known that I, JOSEPH D. SLICHTER, of Reading, in the county of Berks and State of Pennsylvania, have invented an Improvement in Grates for Furnaces, Stoves, &c., of which the following is a specification:

Grates for furnaces have been made with removable bars, and in Letters Patent No. 147,072, granted to me, alternate bars are placed upon arms, so as to be swung up or down in the arc of a circle, but parallel to the stationary bars.

My invention relates to mechanism for raising and lowering the alternate bars bodily and vertically, for shaking the fuel or removing clinker.

In the drawing, Figure 1 is a vertical section, with the group of alternate bars lowered. Fig. 2 is a plan of a portion of said grate. Fig. 3 is an inverted plan of the grate in a slightly-modified form. Fig. 4 is a longitudinal section of the same, and Fig. 5 is a partial end view.

The frame *a* of metal receives within it the stationary grate-bars *b*, that are preferably made to enter, at their ends, mortises in the frame *a*, so as to be removable when burnt out. The removable bars *f* alternate with the stationary bars *b*, and they are raised and lowered bodily, and in a position parallel, or nearly so, to the stationary bars *b*, and these bars *f* are either separate, as in Figs. 3 and 4, or united in sections or groups by the bars *h*, as in Figs. 1 and 2. The shafts *k* are employed for raising and lowering the bars *f*. They run transversely, and are united by the links *l*, and these shafts are turned together by an end motion given to the link *l* by the lever *m*, as in Fig. 1, or by turning either shaft or the sleeves on the shaft, as in Fig. 3. The crank-arms *n* and rollers shown in Fig. 1, or the cam-shaped arms *n'*, Fig. 3, act in the same way to raise and lower the bars bodily as the shafts are turned either one way or the other. It is preferable to pass the ends of the cam-arms through the loops *i*, which are upon the under sides of the grate-bars, and serve as guides.

The ends of the moving bars are retained within the frame *a*, so that there is little or no end movement, and it is preferable to employ the guide-ribs *o* to steady the bars in position, and there may be friction-rollers *r* inserted in the ends.

Where the bars are raised and lowered separately, as in Figs. 3 and 4, the crank-arms *n* and arms *n'* are preferably cast upon sleeves *s*, that surround and are sustained by the shafts *k*, and at the front end of the grates these sleeves are provided with the projecting studs *t*, upon which the wrench or lever *m*¹ is placed to raise or lower the bar, and a latch, *v*, swinging in above this stud, holds it and the bar in position when the latter is elevated.

If desired, all the bars may be made to raise and lower when fitted, as shown in Figs. 3 and 4, in which case they are lowered and raised progressively or alternately to shake the dust and ashes out of the fuel, or to drop clinker or foreign substances, or allow them to be raked out.

By providing two sets of sleeves to four bars, and carrying the arms *n* past each other, as shown in Fig. 3, two bars can be lowered while the alternate two are held up, and vice versa.

The projections 3 and 4 on the lever *m*¹, Fig. 6, serve to turn aside or into position the latches *v*.

A counterpoise, with a wire rope or chain over the pulley *m*², may be employed to lessen the force applied to the lever *m* in returning the bars to place.

I claim as my invention—

The combination, with the grate-bars mounted to slide vertically, of the projections *t*, latches *v*, sleeves *s*, arms *n*, and guide loops *i*, as and for the purposes set forth.

Signed by me this 8th day of September, A. D. 1874.

JOSEPH D. SLICHTER.

Witnesses:

GEO. D. WALKER,
CHAS. H. SMITH.