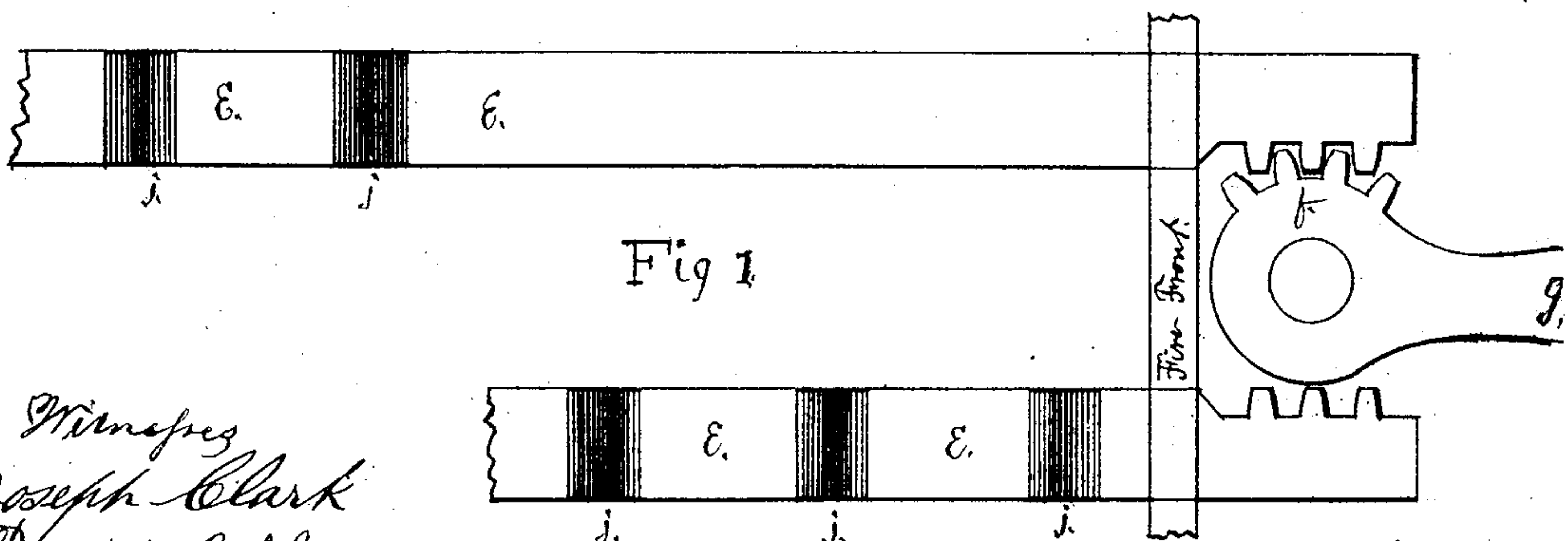
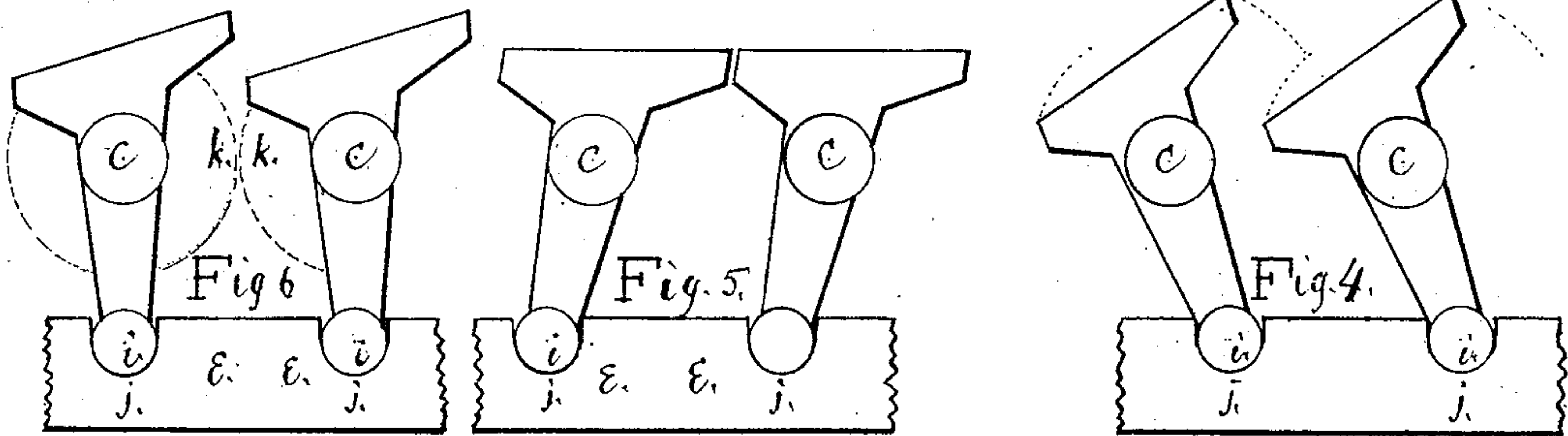
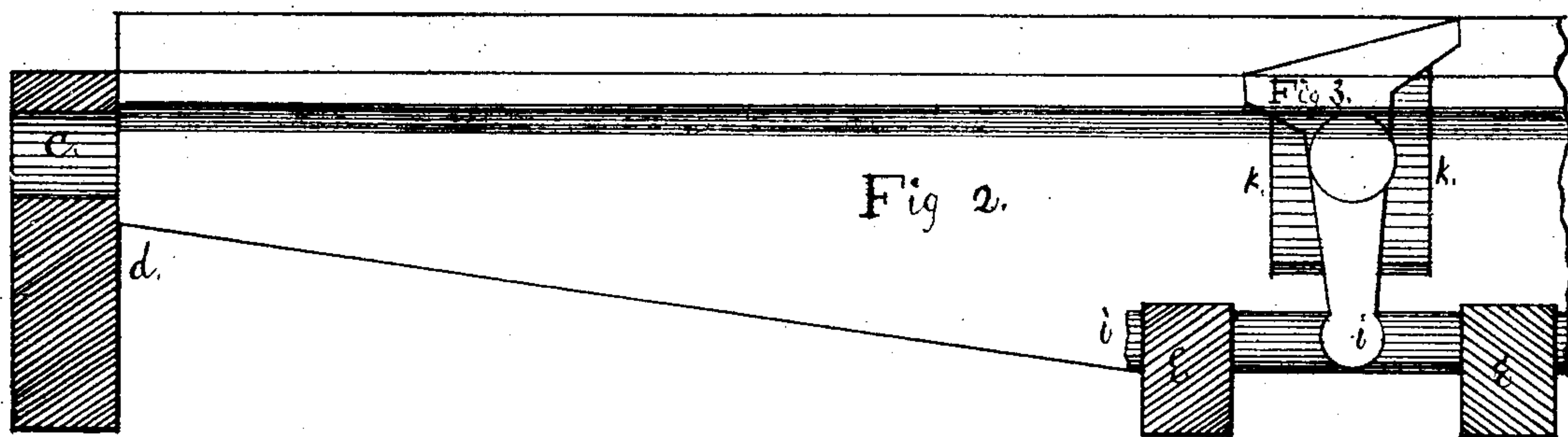
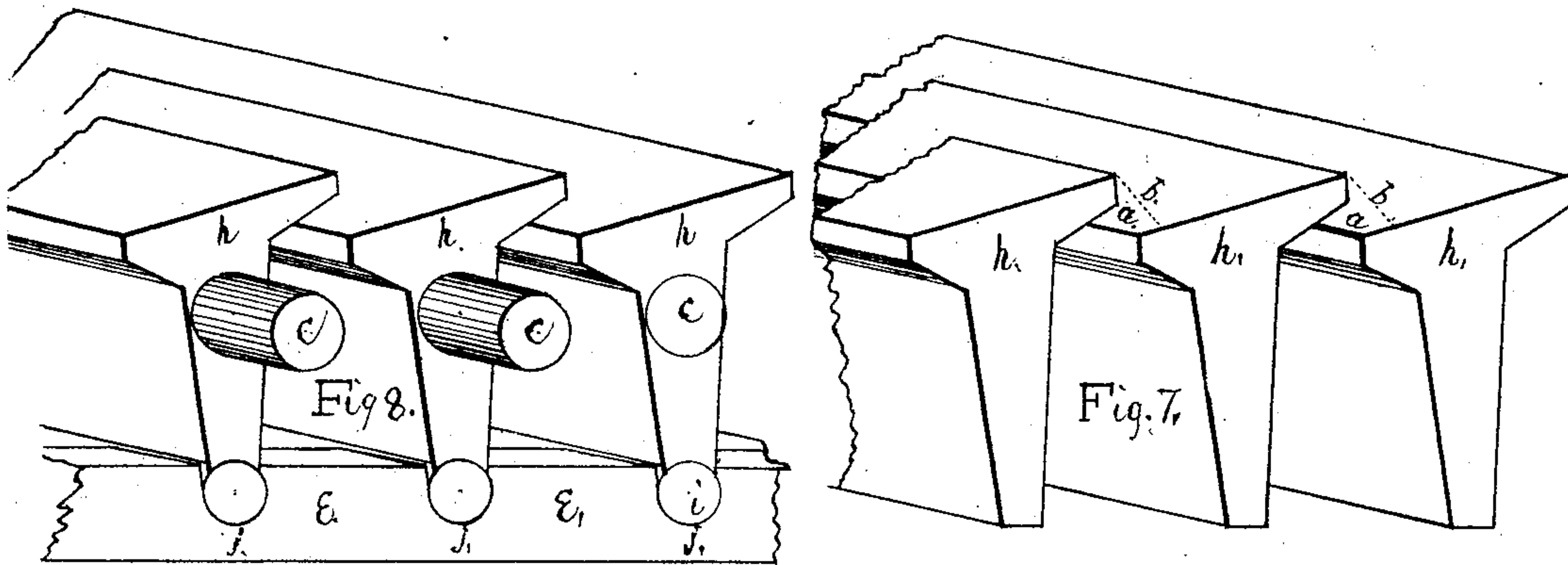


G. W. HILDRETH.

Grate for Burning Coal Screenings.

No. 112,246.

Patented Feb. 28, 1871.



Witnesses
Joseph Clark
Daniel McKim

G. W. Hildreth
Inventor

United States Patent Office.

GEORGE W. HILDRETH, OF LOCKPORT, NEW YORK.

Letters Patent No. 112,246, dated February 28, 1871.

IMPROVEMENT IN GRATES FOR BURNING COAL-SCREENINGS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, GEORGE W. HILDRETH, of Lockport, in the county of Niagara, in the State of New York, have invented new and useful Grates for Burning Coal-Screenings; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon, which refer to the same parts in the various figures.

Figure 1 is a plan.

Figure 2 is a side elevation.

Figure 3 is a transverse section.

Figure 4 is an end view, open.

Figure 5 is an end view, closed.

Figure 6, end view, partly open.

Figure 7 is a view of grates stationary.

Figure 8, view of oscillating grates.

The nature of my invention consists, first, in constructing a fire-grate, for burning any fine material or coal-screenings, with a side draught, so as to admit the draught of air or blast in sidewise, so that coal-screenings, &c., will not drop down through the grate, and still admit plenty of air by draught or blast to burn fine coal, coal-screenings, sawdust, or any other fine material that is liable to drop down through an ordinary grate with a perpendicular opening. This opening may be a parallel, oblong, or in sections of concave or circular form.

The second part of my invention consists in so constructing the grates that a part or the whole may be oscillated at the same time, and to make the space for the admission of air larger or smaller, as may be desired, and also to shake through the grate ashes or any other fine material that may accumulate thereon.

General Description.

Fig. 7 shows a perspective end view of three stationary grates, *h h h*, with an opening or space between them, at *a a*, to admit draught or blast upon the coal-screenings, which are thrown in upon the grates from the left hand toward the right, forming an embankment about the angle of the dotted lines *b b*, the grates running parallel with the fire-front.

Fig. 8 is a perspective end view of three grates, with the arrangement for oscillating them.

The ends of each grate has an axle or pivot thereon, marked *c c*, which is also seen in fig. 2, at *c*, resting in a side plate, the end of which is seen at *d*. Said side plate is long enough to receive any desired number of grates.

The oscillating motion is given to the grates by the center base-bars *e e*, as seen in figs. 1 and 2, also at *e e*, in figs. 5, 6, and 8.

The grate-bars are made round for a few inches in the center, at the lower edge, as seen at *i* in figs. 2 and 3, and turn in a box or cavity in the center bars *e e*, figs. 1, 4, 5, 6, and 8.

These center bars are moved by a rack and pinion, as seen in fig. 1 at *f*, by the handle *g*, which moves the rear portion of the grates as now set; turn the pinion and handle over, it is ready to move the front portion of the grates; or the center bars may be moved by any other device desired.

By this means the grate-bars are oscillated to the extreme, as seen by dotted lines in fig. 4; also, grates can be located so as to be tight, smooth, or level on the top, as seen in fig. 5, or may be set in any intermediate position, as seen in fig. 6.

To prevent the grates from bending sidewise when hot, I have a short circular bearing in the center of the grates, as seen by dotted lines *k k*, fig. 6, also at *k k*, fig. 2.

I claim as my invention—

1. A fire-grate, consisting of rocking bars, which, when closed, form a level, smooth, and imperforate upper surface, and which, when open, admit the air through side upward apertures, substantially as herein set forth.

2. A grate composed of bars, whether movable or stationary, having each an inclined upper surface, upon which coal-dust or fine coal may rest and burn, while air is admitted between the lower edge of that surface and the upper edge of the next bar, substantially as herein set forth.

G. W. HILDRETH.

Witnesses:

JOSEPH CLARK,
DANIEL MCKIM.