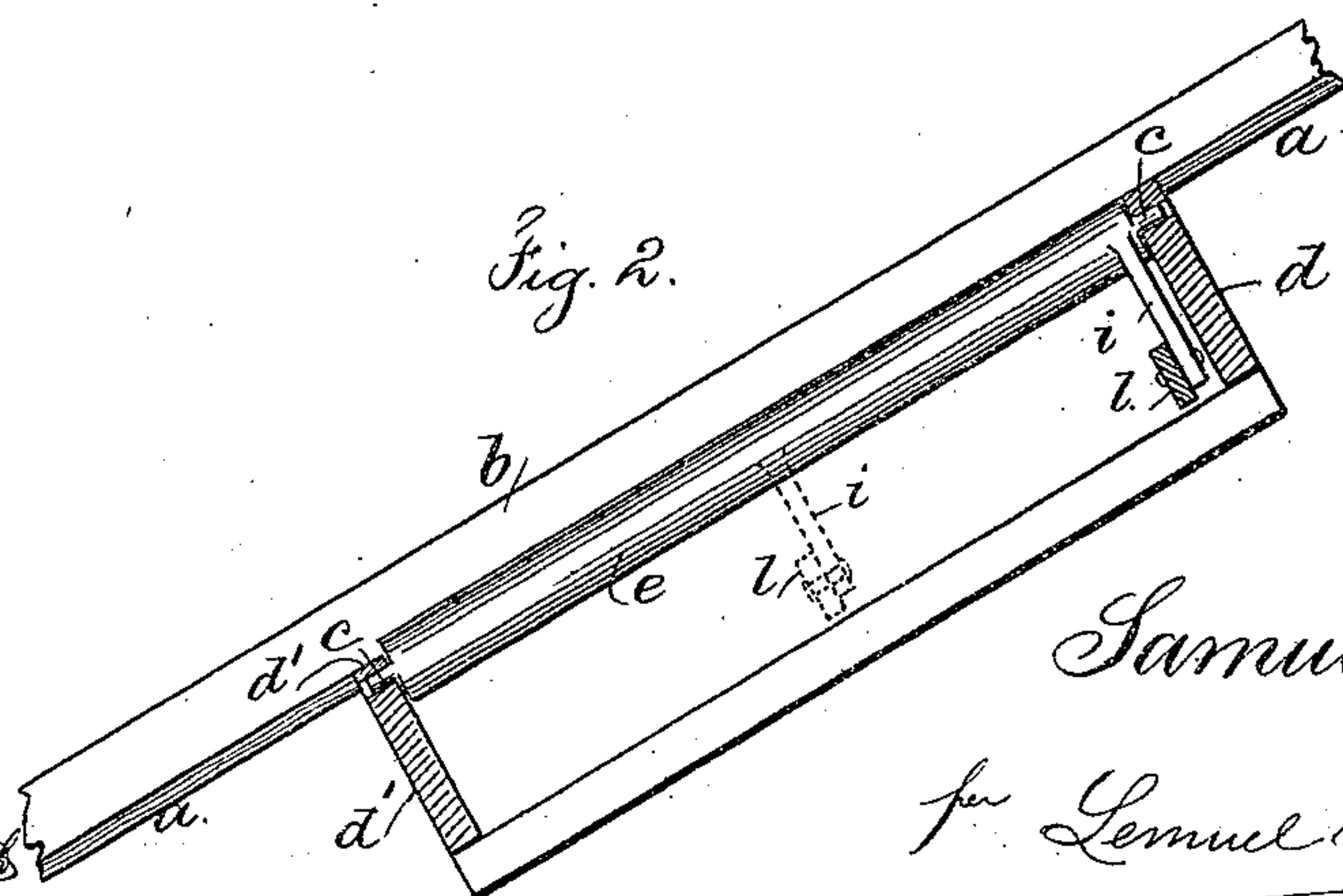
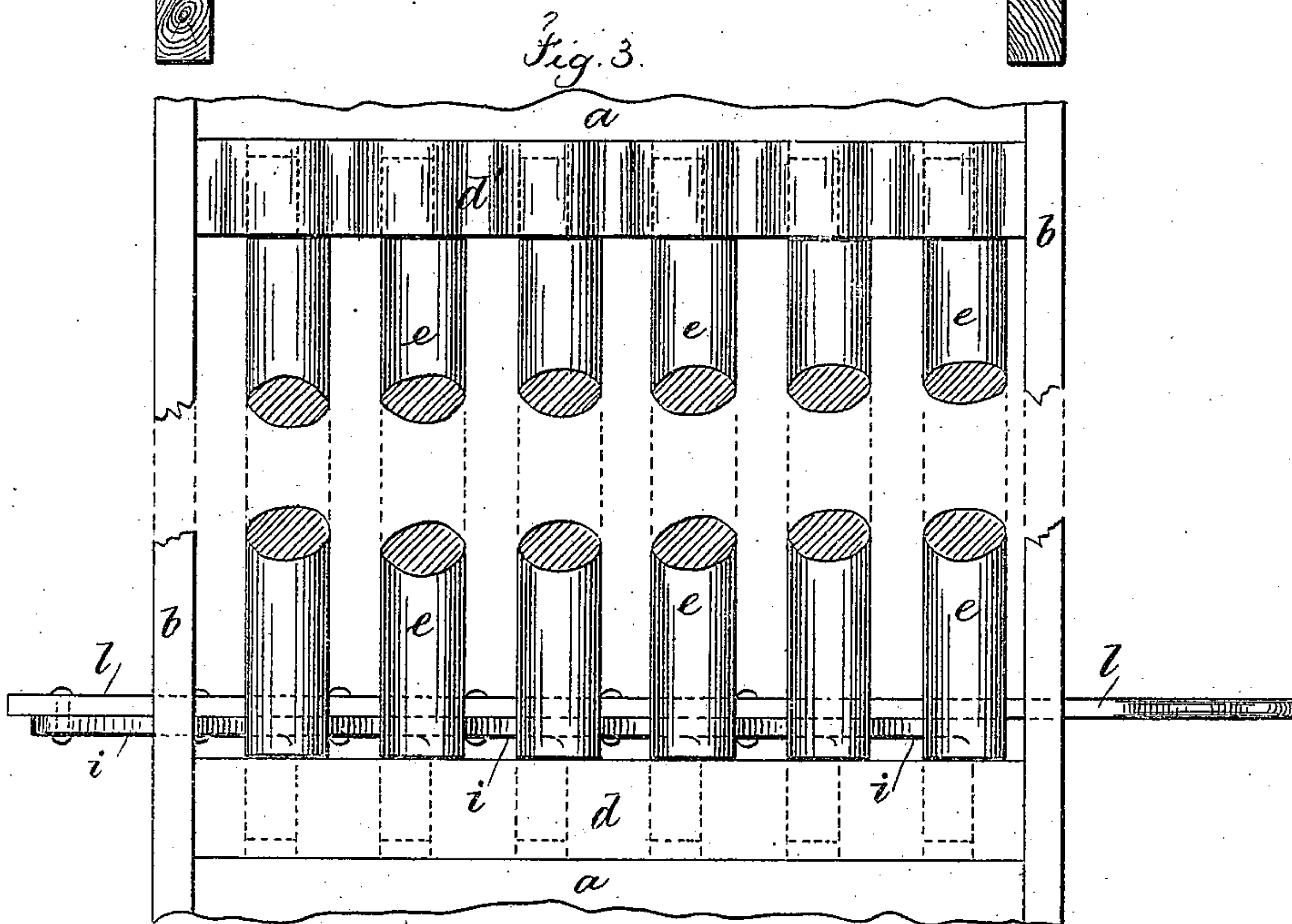
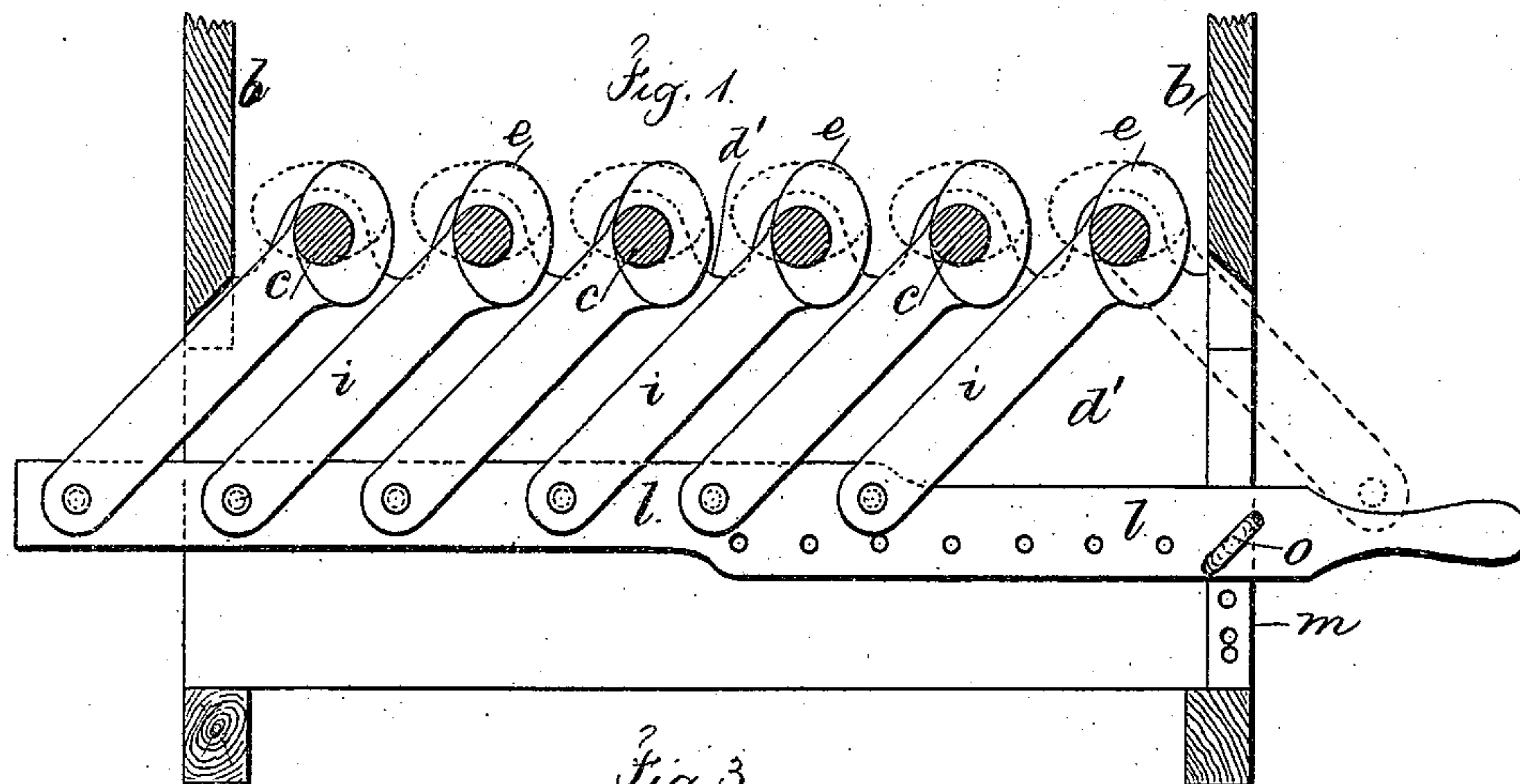


(No Model.)

S. T. VARIAN.
SCREEN FOR COAL, &c.

No. 313,262.

Patented Mar. 3, 1885.



Witnesses
Chas. H. Smith
J. Stair

Inventor
Samuel T. Varian
per Lemuel W. Serrell
att

UNITED STATES PATENT OFFICE.

SAMUEL T. VARIAN, OF EAST ORANGE, NEW JERSEY.

SCREEN FOR COAL, &c.

SPECIFICATION forming part of Letters Patent No. 313,262, dated March 3, 1885.

Application filed November 3, 1884. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL T. VARIAN, of East Orange, in the county of Essex and State of New Jersey, have invented an Improvement
5 in Screens for Coal and other Materials, of which the following is a specification.

In delivering coal from the bin or from a car into a cart or vessel for transportation it is usual to allow the coal to run down a chute,
10 and to make use of a screen in the bottom of said chute to separate the dust and finer sizes of coal from that which is being loaded to the vessel. In many instances the same vessel will be loaded up with two or three different
15 sizes of coal; hence it becomes necessary to change the screen in the chute or to move the vessel to some other chute in which the screen is adapted to the particular size of coal with which the vessel is being loaded. Sometimes
20 this cannot be done without great loss of time and expense, and the screen is temporarily boarded over and the coal is not freed from dust, and is likely to be objected to by the consignee.

25 My improvement relates to a screen composed of elliptical bars that are capable of partial rotation upon end pivots, so as to open or close the spaces between the bars, and thereby adapt the screen to the removal of
30 dust and small coal from various sizes of coal passing over such screen.

In the drawings, Figure 1 is a cross-section of the chute, showing the bars, their pivots in section, and the arms by which they are
35 adjusted. Fig. 2 is a section longitudinally of the chute, and Fig. 3 is a plan view, partially in section.

The chute is composed of a bottom, *a*, and sides *b*, and it is at an inclination, so that
40 the coal or other material will run down the same, and it is to be of any desired size. The bars *e* of the screen are preferably in line with the chute, and each bar has two pivots, *c*—one at each end—and these pivots are received
45 into holes or sockets in the end bars or frames, *d d'*. Each bar *e* is elliptical or eccentric to its pivots, so that one edge of the bar is at a greater distance from the axis than the other edge. The sectional shape of each bar may be
50 a flattened cylinder, or elliptical or polygonal;

but I prefer the elliptical shape represented. When the bars are swung so that their conjugate diameters are horizontal or in line with each other, as seen by dotted lines, Fig. 1, the spaces between the bars will be the narrowest. 55 When said bars are turned so that their primitive diameters are in line with each other, as shown by the full lines, Fig. 1, the spaces between the bars are the widest. The bars are therefore to be shaped and proportioned so 60 that the openings will be within the required ranges of width for the various sizes of materials to be screened or separated from the materials passing over the bars. I provide each bar with an arm, *i*, at an angle of forty-five 65 degrees to the conjugate diameter, or nearly so, and the arms *i* are connected by pivot pins or screws to the bar *l*, and this bar *l* can be moved endwise and held in any desired manner—such, for instance, as by the pin *o*, in- 70 serted through a hole in the bar into one of the holes upon a cross-piece or segment, *m*. These arms may be near the upper ends of the bars, as shown by full lines, or else near the middle, as shown by dotted lines, Fig. 2. 75 By this construction I am able to vary the width of the openings between the bars, and thereby allow dust or small coal or other material to pass through and separate from the larger materials that slide down the chute and 80 over the bars of the screen. The lower cross-bar or frame, *d'*, is made with a corrugated or undulating upper surface, corresponding, or nearly so, to the bars *e* near their lower ends, so that there are not any portions that 85 project above the upper surfaces of the bars to interfere with the coal as it slides down the screen.

I am aware that movable bars have been combined with intermediate stationary bars; 90 but by my improvement all the bars are similar, and the screening operation is rendered uniform on any size of material to which the bars may be set.

I claim as my invention—

1. The screen for coal and other material, 95 having an inclined range of bars, each bar having pivots at the ends that are eccentric to the bars, in combination with a frame receiving the pivots, an arm to each bar, and a con- 100

necting-bar, by means of which all the bars can be partially turned to vary the openings between the bars, substantially as set forth.

5 2. The bars *e*, having eccentric pivots *c* at the ends, and the arms *i*, projecting from such bars, in combination with the bar *l*, pivoted to the arms, the chute, and the bars *d d'*, that receive the pivots at the ends of the bar, the surface of the bar *d'* being undulating to in-

clude the pivots, but not to obstruct the material passing off the bars *e*, as set forth.

Signed by me this 31st day of October, A. D. 1884.

SAMUEL T. VARIAN.

Witnesses:

GEO. T. PINCKNEY,
WILLIAM G. MOTT.