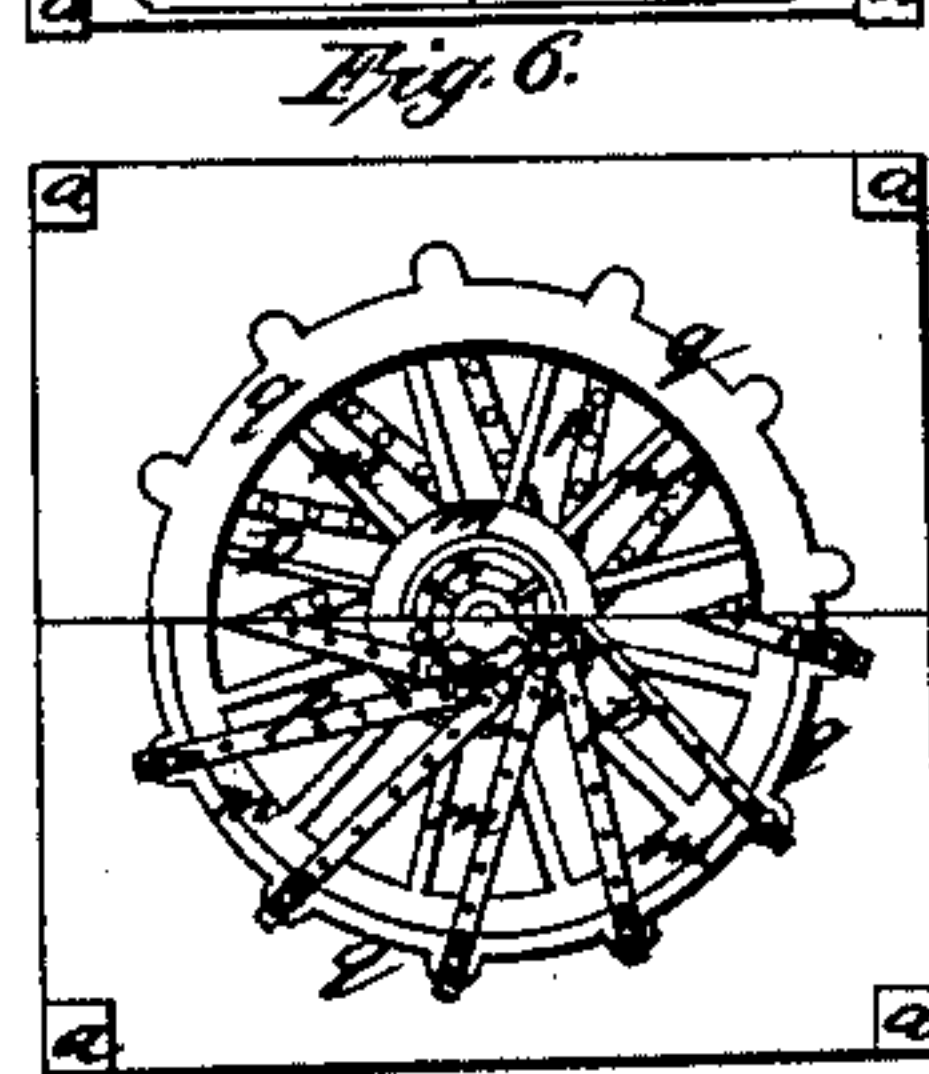
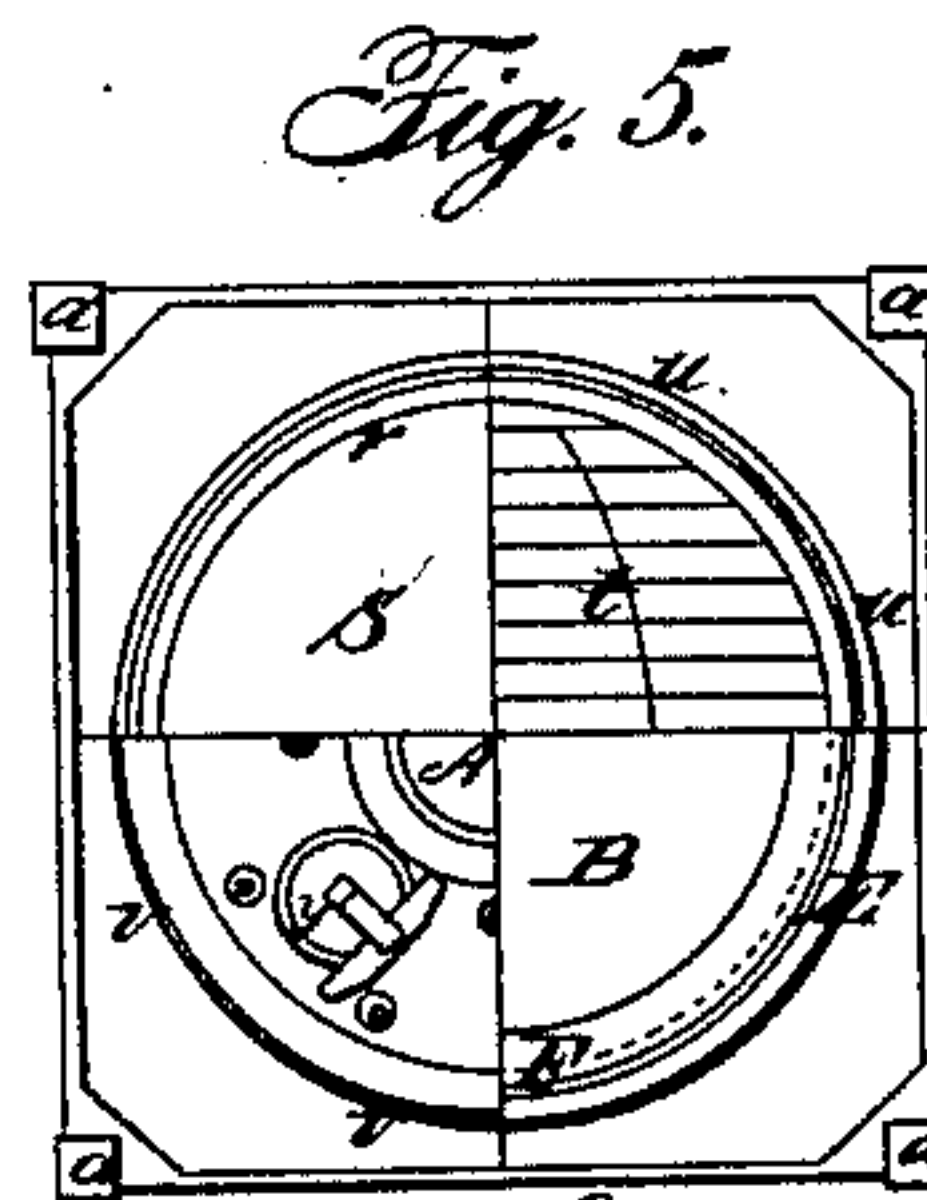
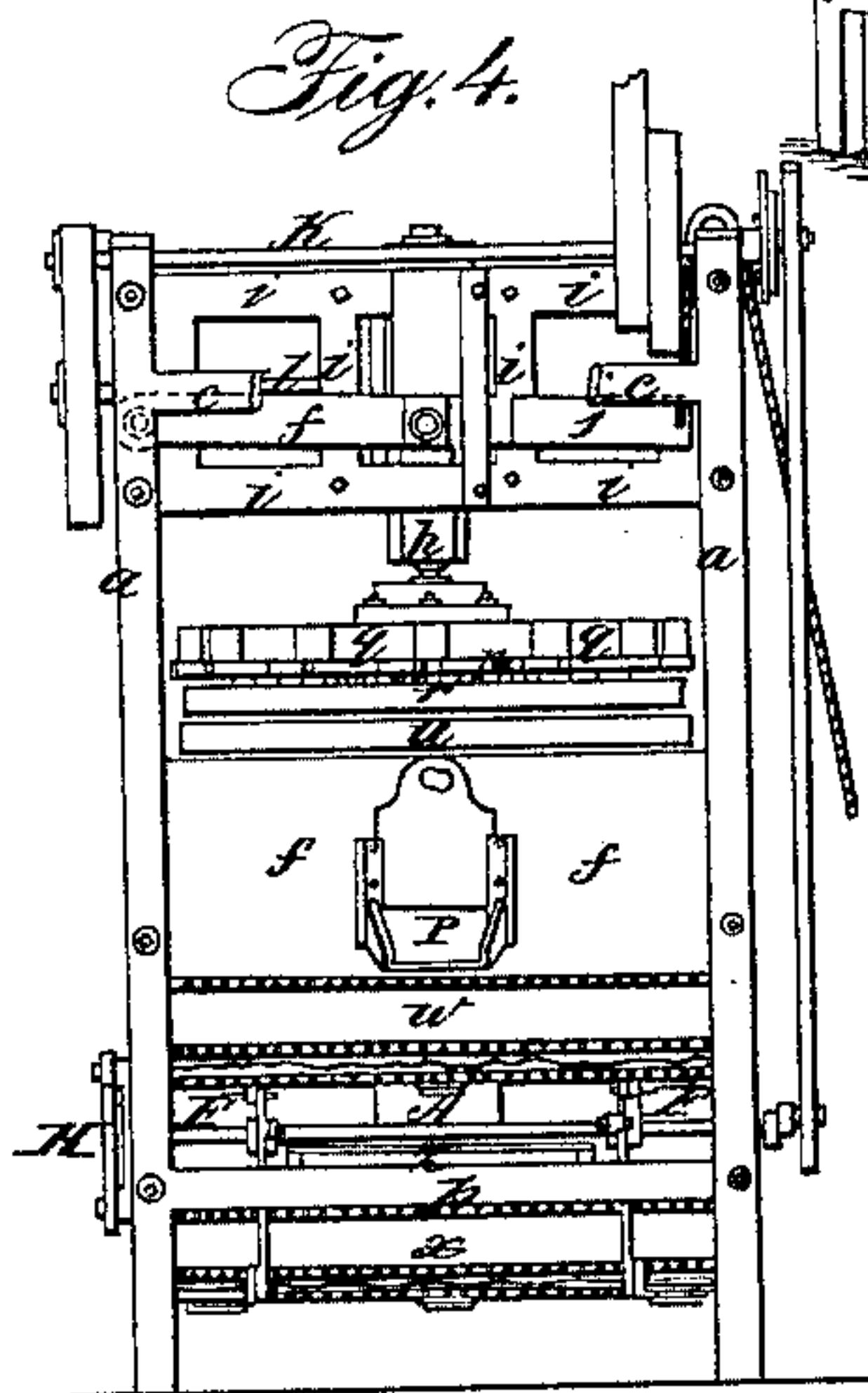
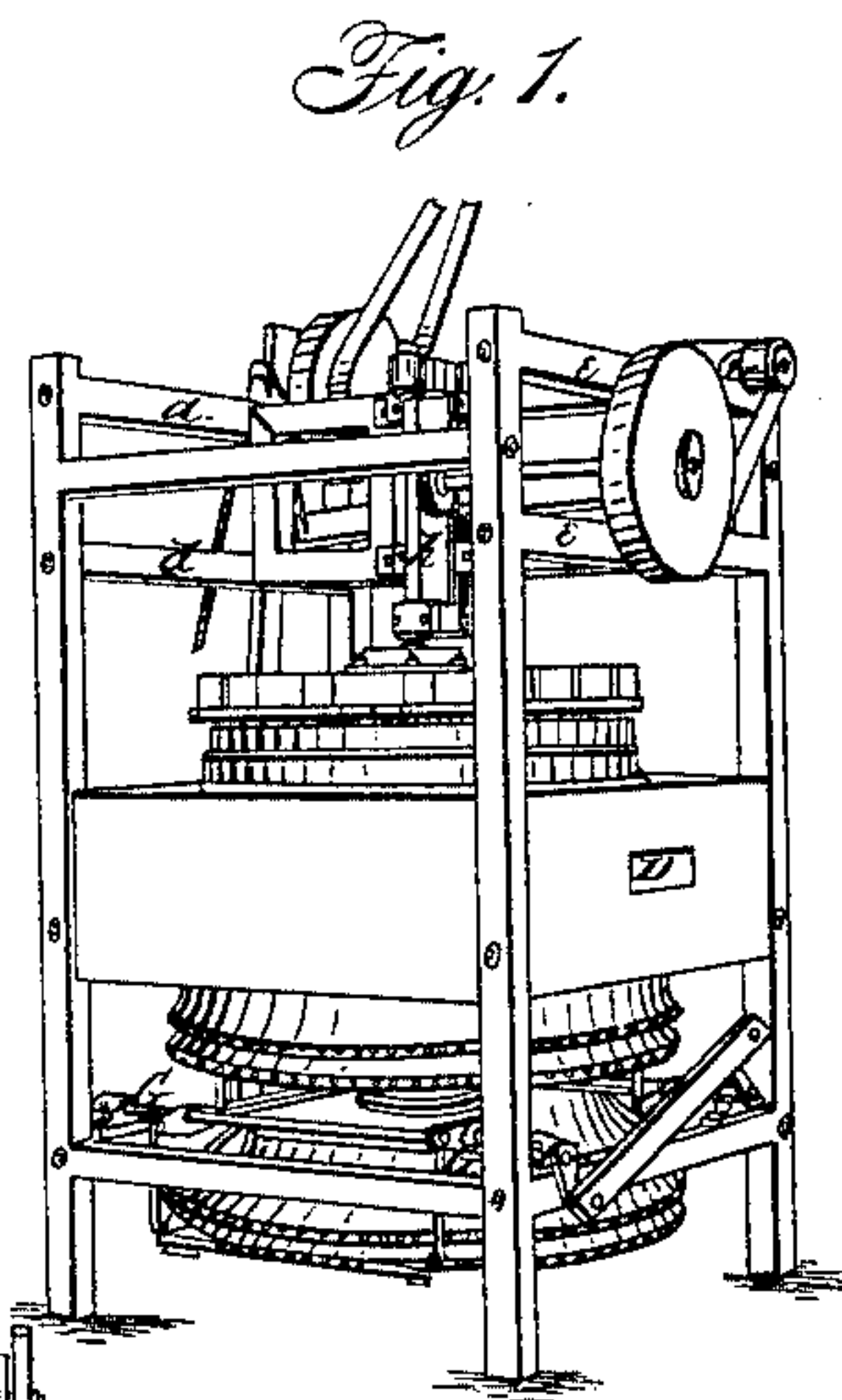
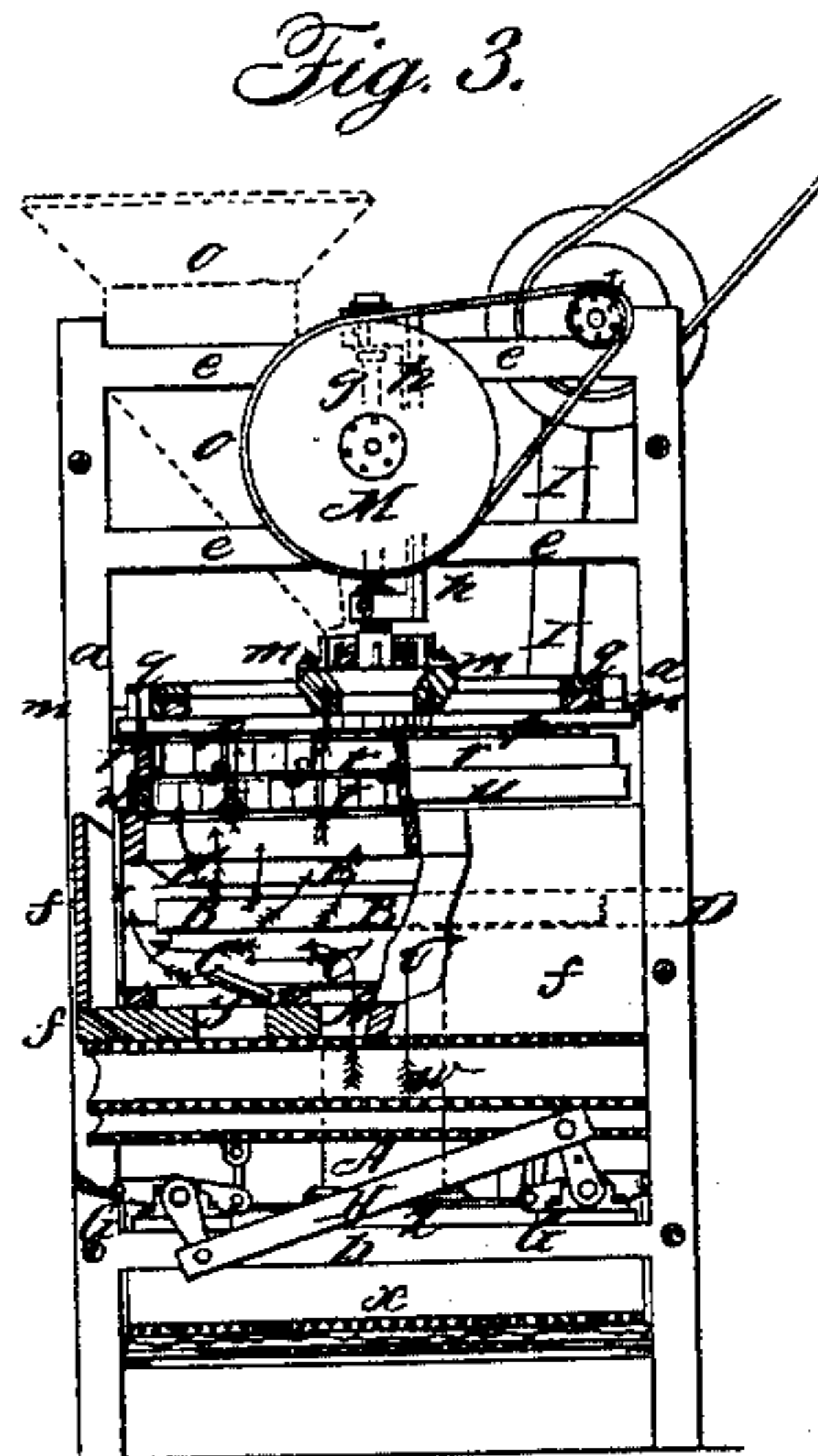
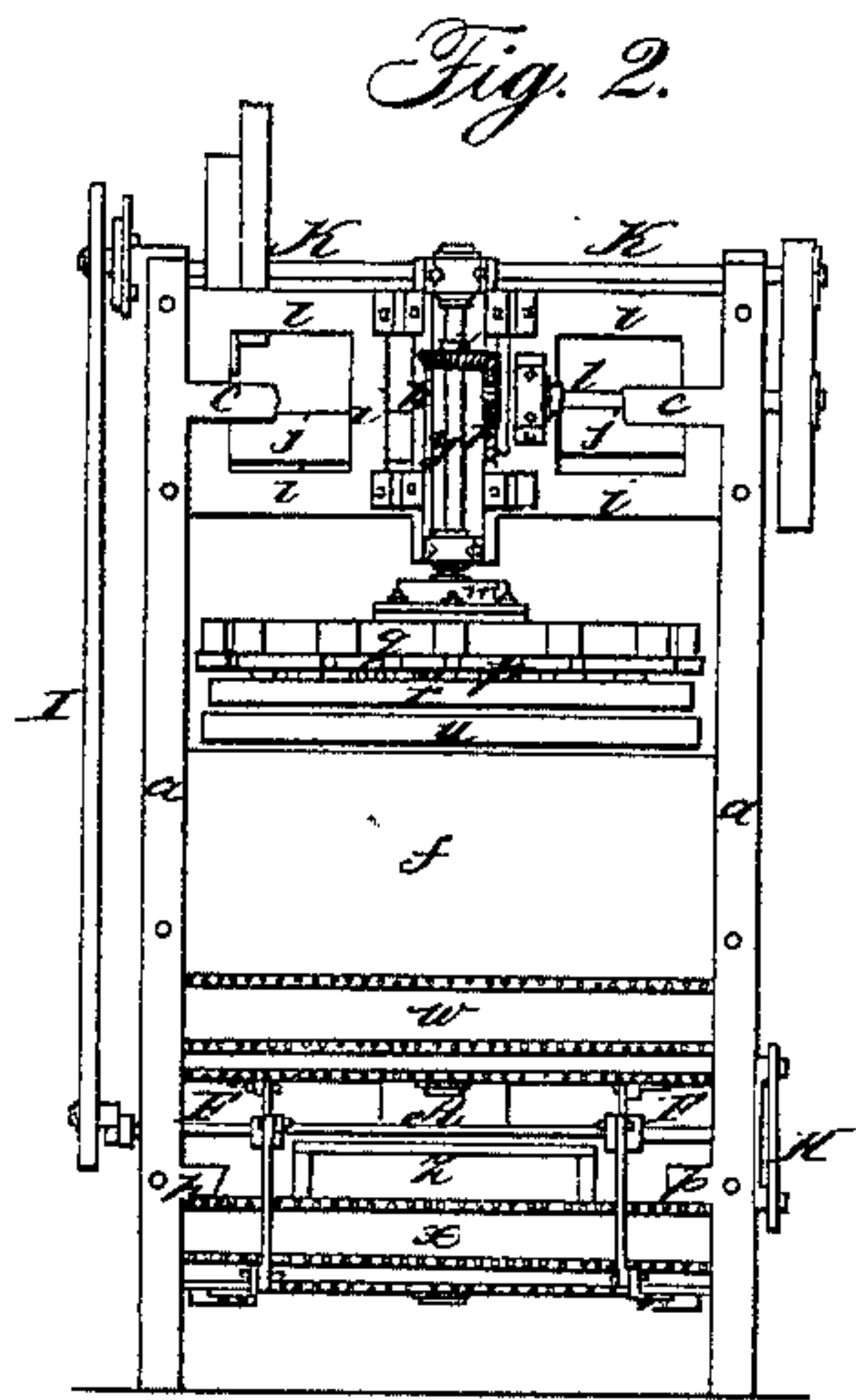


W. O. BOURNE.
Ore Separator.

No. 18,672.

Patented Nov. 24, 1857.



Witnesses:

Albert Gilbert
Samuel Clark

Inventor:

Wm O Bourne

UNITED STATES PATENT OFFICE.

WM. O. BOURNE, OF NEW YORK, N. Y.

ORE-SEPARATOR.

Specification of Letters Patent No. 18,672, dated November 24, 1857.

To all whom it may concern:

Be it known that I, WILLIAM OLAND BOURNE, of the city, county, and State of New York, have invented a new and useful machine, which I name and designate as a "rotary ore-separator," and parts of the same for separating ores from lighter substances and materials of different specific gravity; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, the same formed letters referring to the same parts in all the figures.

Figure 1 is a perspective view of the machine; Figs. 2, 3 and 4 are as many side elevations; and Figs. 5 and 6 are sections in the plane of the machine.

Letters *a* are four posts, connected by rails, letters *b*, *c*, *d* and *e*; and the discharge box *f*; letter *g* is a vertical shaft working in journaled bearings on the slide *h*; which is attached to a frame *i*, by guides and binders in such a manner that it can be raised or lowered when desired by means of the lever *j*; the frame *i* being connected to rails *d* and *e*, in such a manner as to bring the shaft *g* in the center of the main frame; keyed to the shaft *g* is a driven bevel gear wheel *k*, working into a driver on the end of the shaft *l*; on the lower end of the shaft *g* is keyed a circular frame *m*, with apertures *n*, at the center through which the material worked is fed into the machine from the hopper *o*; connected to the under surface of the frame *m*, are scrapers *p*, with prongs or teeth projecting downward so as to form a rake; the inner ends of the scrapers *p* are attached to the frame *m*, and the outer end to a ring *q*, which is fastened to the periphery of the frame *m*, by set screws by slacking which the ring *q*, can be partially revolved and the scrapers, *p*, made to assume either a radius position to the frame, *m*, or any desirable angle from it.

Letter *r* is a ring to the bottom edge of which is attached a seive cloth, letter *s*, which is supported with its burden by the frame work *i*, which is connected to a ring, letter *u*; the rings *u*, and *r* being connected in such a manner that they can be moved as a whole; letter *v* is a cylinder the lower end of which is attached to the upper surface of the bottom of discharge box *f*, and extends to its upper edge, and is the support of the ring *u*; letters *w*, and *x* are two bellows;

the upper surface of *w*, being fastened to the under surface of the bottom of discharge box *f*, with outlet valves on its upper surface at letter *y*, and the upper surface of *x*, to the under surface of rails *b*, with outlet valves in a valve chest *z*, which is connected by a passage way *A*, to the upper surface of the bottom of discharge box *f*, through an aperture in the center of the bellows lettered *w*.

Letter B is a tub, with a passage way C, for the air from the bellows between its bottom and that of the discharge box *f*, and its periphery and the cylinder, letter *v*, over its top edge. The object of the tub B is to receive and to prevent any material which may get through the sieve cloth, letter *s*, from obstructing the bellows valves; letter D is a passage way from the tub B to the outer surface of the discharge box *f*, by which any collection of the material can be removed from the tub.

Letter E is a flange connected to the upper edge of the cylinder *v*, so as to throw the blast from the bellows downward and cause a uniform action under the sieve cloth *s*, and also to keep any material from getting outside of the top edge of the tub B.

Letters F are two parallel shafts working in journal bearings on the upper surface of the rails *b*, with two levers G on each the inner ends of which are connected by connecting rods to the bottom of the upper bellows, letter *w*, and the outer ends by connecting rods to the bottom of the lower bellows *x*; a simultaneous and parallel motion being obtained by the connecting rod H.

Letter I is a connecting rod from a rotating crank on one end of driving shaft K to a vibrating lever on one end of one of the shafts F.

Letter L, is a driving pulley on one end of the driving shaft K connected by a belt to a pulley, letter M, on the end of the shaft *l*.

The operation of the machine is, that the material is fed from the hopper O, through the center apertures *n*, onto the sieve cloth *s*, where it is constantly irritated by the rake teeth and the lighter parts forced to the surface by the action of the blast from the bellows through the sieve cloth, and then scraped by the scrapers over the periphery of the sieve frame into the discharge box and by the action of an arm attached to and revolving with the frame *m*,

is carried around to the discharge outlet P, the scrapers being adjusted at such an angle as will create a proper centrifugal action, in proportion to the feed and speed
5 of the machine or as may be desired. The same effect is produced by feeding the material into a solid tub without a blast of air, instead of the sieve r, s, but in less quantity.

10 I do not claim the use of air for the purpose specified, either forced in continuously or in vibrating strokes, as I am aware that such methods have been used. But

What I do claim as my invention, and 15 desire to secure by Letters Patent, is,

1. The arrangement of a rake with scrapers, alternating and revolving over a body of ore upon a sieve as herein described.

2. The arrangement of the tub B, with the 20 bellows below the sieve, in relation to each other for the purposes and as herein set forth.

WILLIAM OLAND BOURNE.

Witnesses:

SAMUEL CLARK,
ALBERT GILBERT.