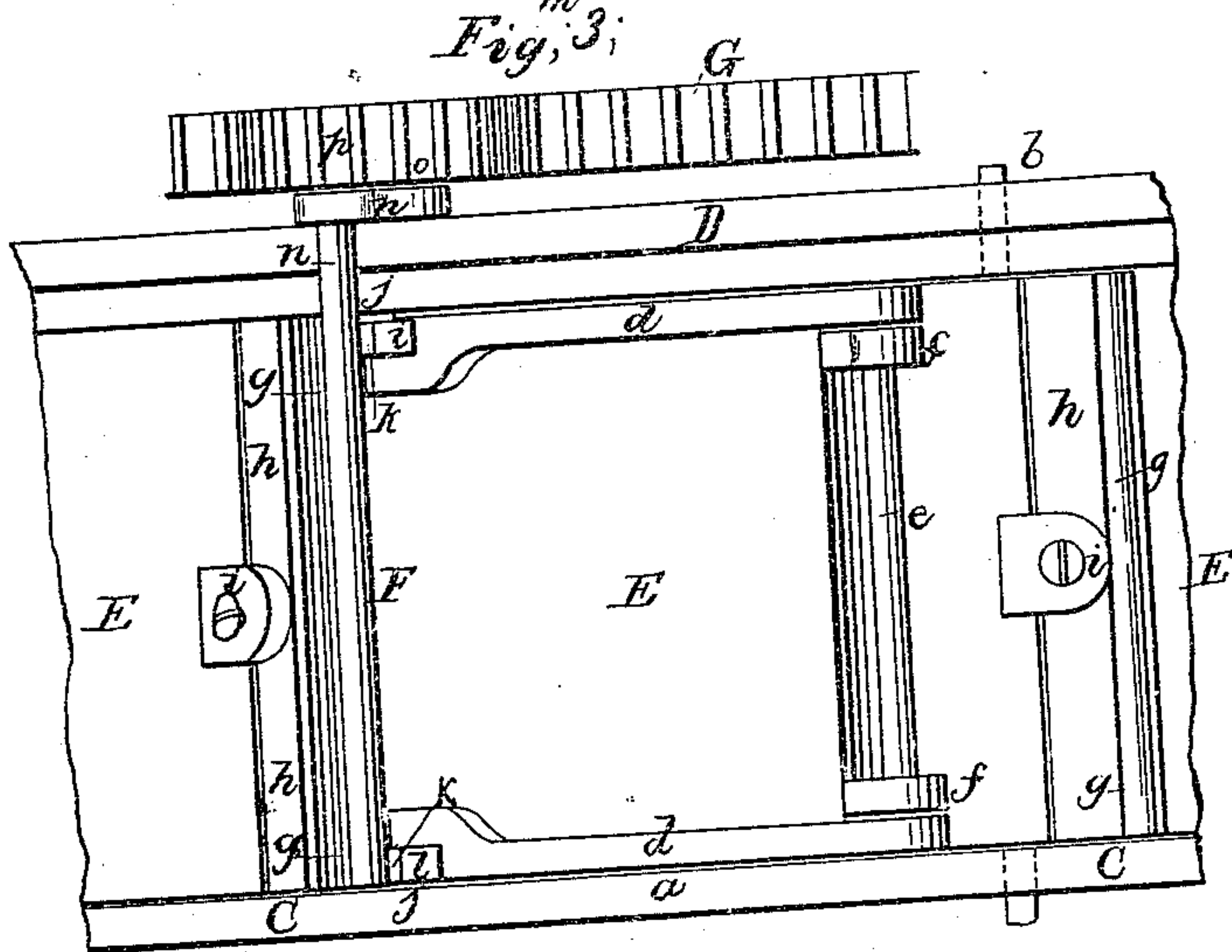
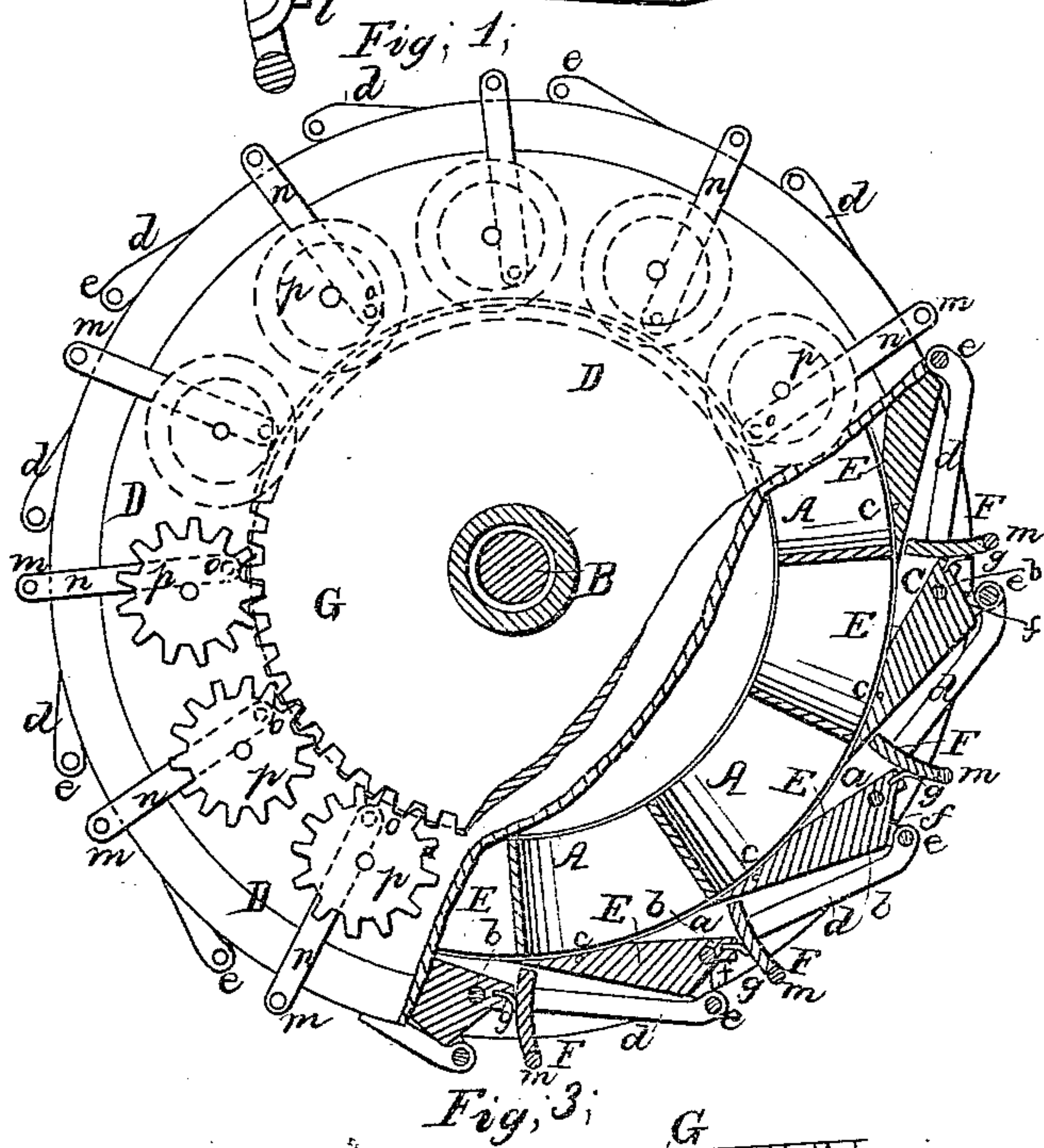
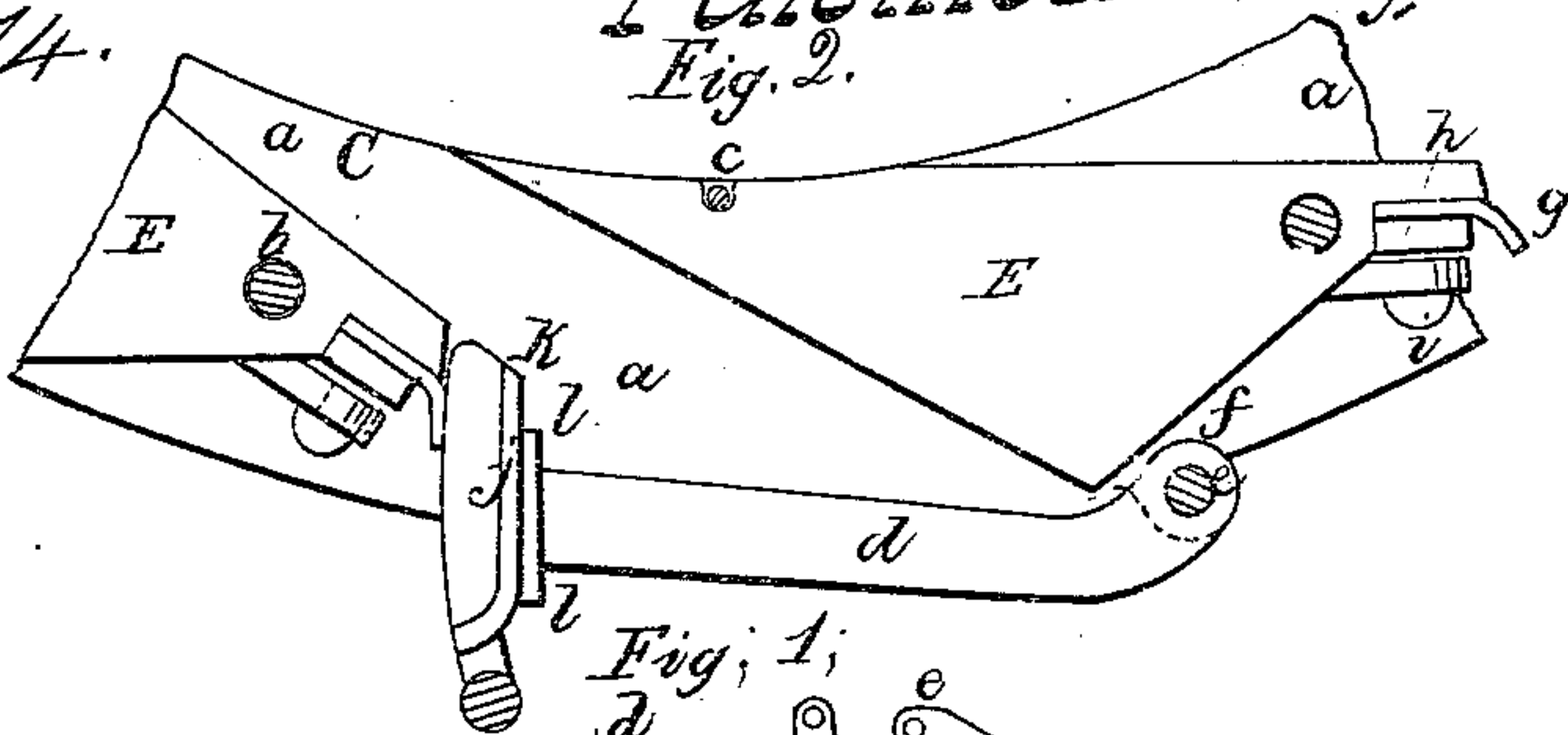


J. Buzzby.

Turbine Water Wheel.

Patented Aug. 24, 1869.

No. 94,074.



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JOSIAH BUZBY, OF CROSSWICKS, NEW JERSEY.

Letters Patent No. 94,074, dated August 24, 1869.

IMPROVEMENT IN WATER-WHEELS.

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, JOSIAH BUZBY, of Crosswicks, in the county of Mercer, and State of New Jersey, have invented a new and improved Water-Wheel; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 represents a plan or top view, partly in section, of my improved water-wheel.

Figure 2 is a detail horizontal section, on an enlarged scale, of a chute-plate and gate.

Figure 3 is a detail side elevation of the same.

Similar letters of reference indicate corresponding parts.

The object of this invention is to construct a water-wheel so that impurities passing through it will not be able to injure any of its parts, and which will automatically regulate its chute-openings, so that the same will, for a suitable pressure, be always proportionate to the outlet, and to the friction of the shaft; also, to so construct the gates that the crevices between them and the wheel-case will be water-tight, so that no unnecessary loss of power, by water passing through such crevices, is incurred.

The invention consists, first, in pivoting the chute-plates to the wheel-case, so that they can be forced outward by impurities carried by the wheel, and, in case the pressure within the case should exceed that from the outside, the chute-openings will thereby be automatically regulated.

The invention consists, secondly, in providing packing-strips on the gates, and on the opposite edges of the chute-plates, so that water can only pass toward the wheel through the chute-openings, and not through any other crevices or apertures.

The invention finally consists in making the gates of segmental form, or rather, in making their outer faces curves of circles, described from their respective pivots, so that they will always be the requisite distance from the opposite edge, to work without any material friction, and always reliable.

A, in the drawing, represents a water-wheel of suitable construction.

B is its shaft.

C, the case.

D, the plate.

Between the outward flange *a*, of the case, and the cover D, are arranged the chute-plates E E.

These are of triangular, or nearly such shape, tapering toward their discharge-ends, and are, by means of pins *b b*, that project from their upper and lower edges, pivoted to the cover D and flange *a*, as shown.

Each chute-plate can thus swing on its pivots, *b*.

On the inner ends of the chute-plates, project from the flange *a* and cover D, or either, small pins, *c c*, against which the inner sides of the chute-plates strike, to be held in their most inward position.

The inner faces of the chute-plates are notched, as in fig. 2, so that the pins *c* will be concealed in such notches, so that they will not be in the way of the water.

It is evident, that when the pressing of the water within the case exceeds that on the outside, the chute-plates will be swung out to regulate the chute-openings, and to thereby automatically adjust themselves to the power applied. In case any impurities or solid matters are carried into the wheel, and held on the outer parts of the wheel buckets, the chute-plates will yield to them, and no parts of the wheel or chute will be injured, the chute-plates falling back to their original position as soon as such matter has passed.

F F are the gates.

They are plates with curved outward faces, and are, by means of arms *d d*, connected with the vertical shafts or pivots *e e*, that are supported in ears, *f*, of the chute-plates.

The curve of the outer face of each gate is described from the axis of the pins *e*, of each gate, as centre.

The face of each gate plays against the back edge of the next chute-plate, said back edge containing a leather or other packing-strip, *g*, as shown.

The face of the gate working against this packing-strip, will not produce much friction when made, and will still close tight.

The packing-strip *g* is fastened to the chute-plate by a rib, *h*, which is fastened, by means of a screw or screws, *i*, as shown, so that the strip, when worn, can be readily removed and replaced.

The upper and lower edges of the gates contain, also, packing-strips *j*, made of leather or other suitable material, and fastened in grooves of the gates, by plates or bars *k k*, that are fastened by means of wedges, *l*, or their equivalents.

From the outer part of each gate projects a pin, *m*, which is, by means of a rod, *n*, connected with a wrist-pin, *o*, that projects from a pinion, *p*, hung on the top plate D of the wheel-case.

These various pinions mesh into a gear-wheel, G, that is fitted loose around the shaft B. By turning this gear-wheel by suitable mechanism, the gates will all be properly adjusted.

The device for operating the gates may, however, be of different construction, to operate to equal advantage.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The turbine water-wheel, having arranged around the periphery thereof, a series of pivoted vibrating chutes E and stops c, whereby the said chutes are rendered adjustable and yielding to the passage of any unusual substance, without breakage or injury to any of the parts, and yet without possibility of coming in contact with the buckets, all as described.

2. The said chutes, with their discharge-ends drawn to a sharp edge, and arranged in close proximity to the buckets, while the plane of the chute-face is at right angles, or nearly so, to that of the bucket-face, thus

causing the current of water to impinge with all its natural force, substantially as set forth.

3. The combination, with the described chutes E, of the swinging gates F F, with packing-strips, arranged as described, so as to regulate the ingress of water, or to shut it off entirely, in the manner specified.

JOSIAH BUZBY.

Witnesses:

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