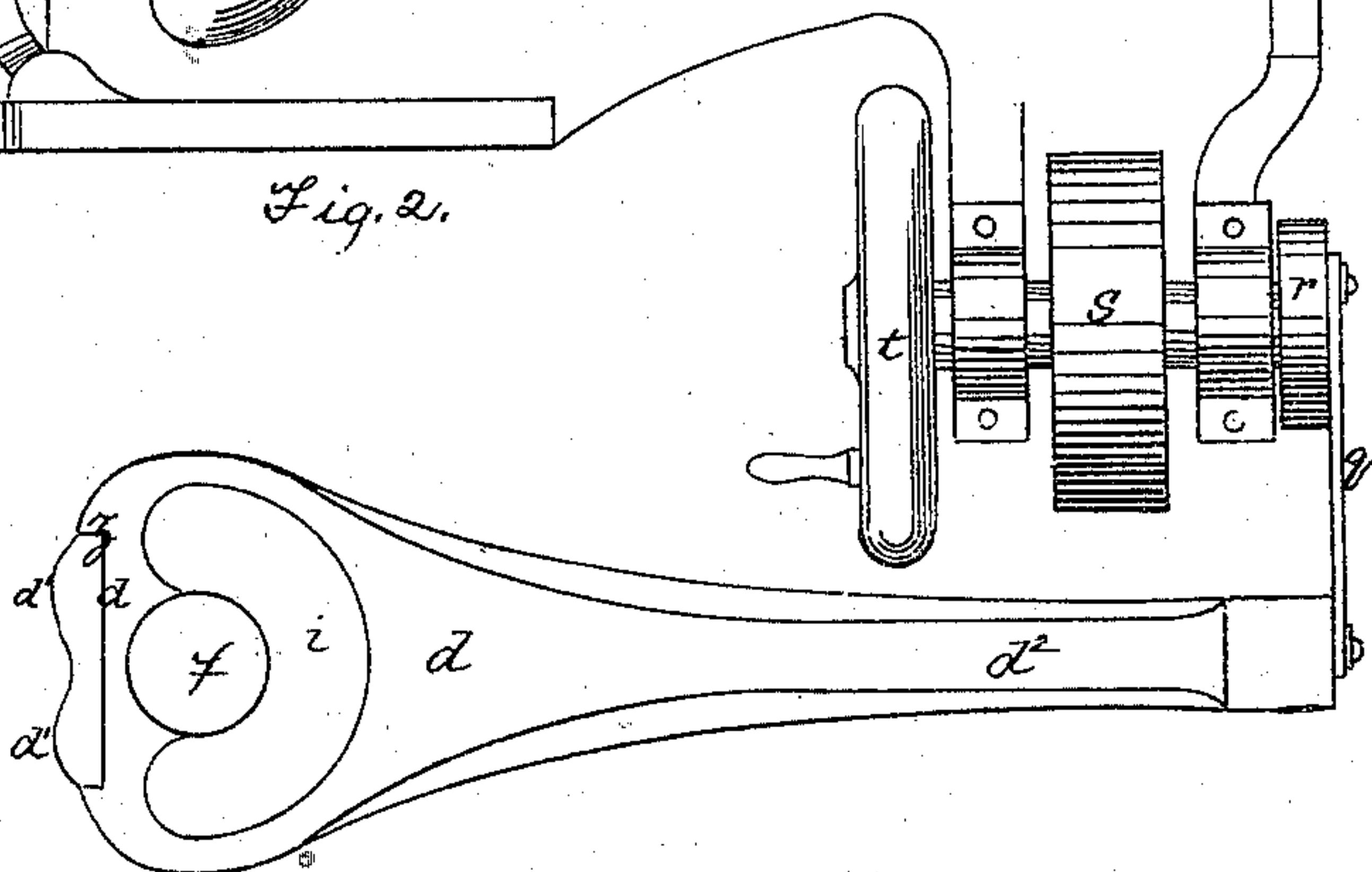
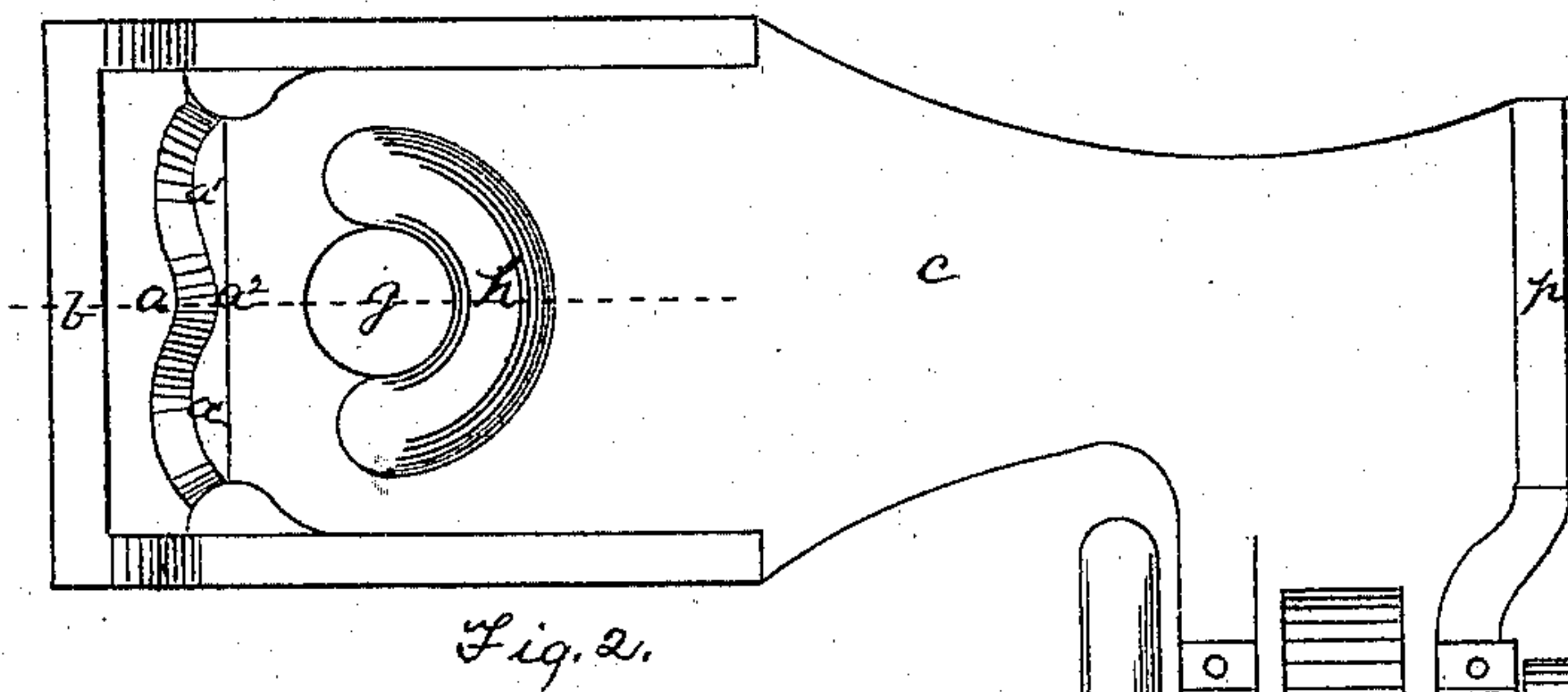
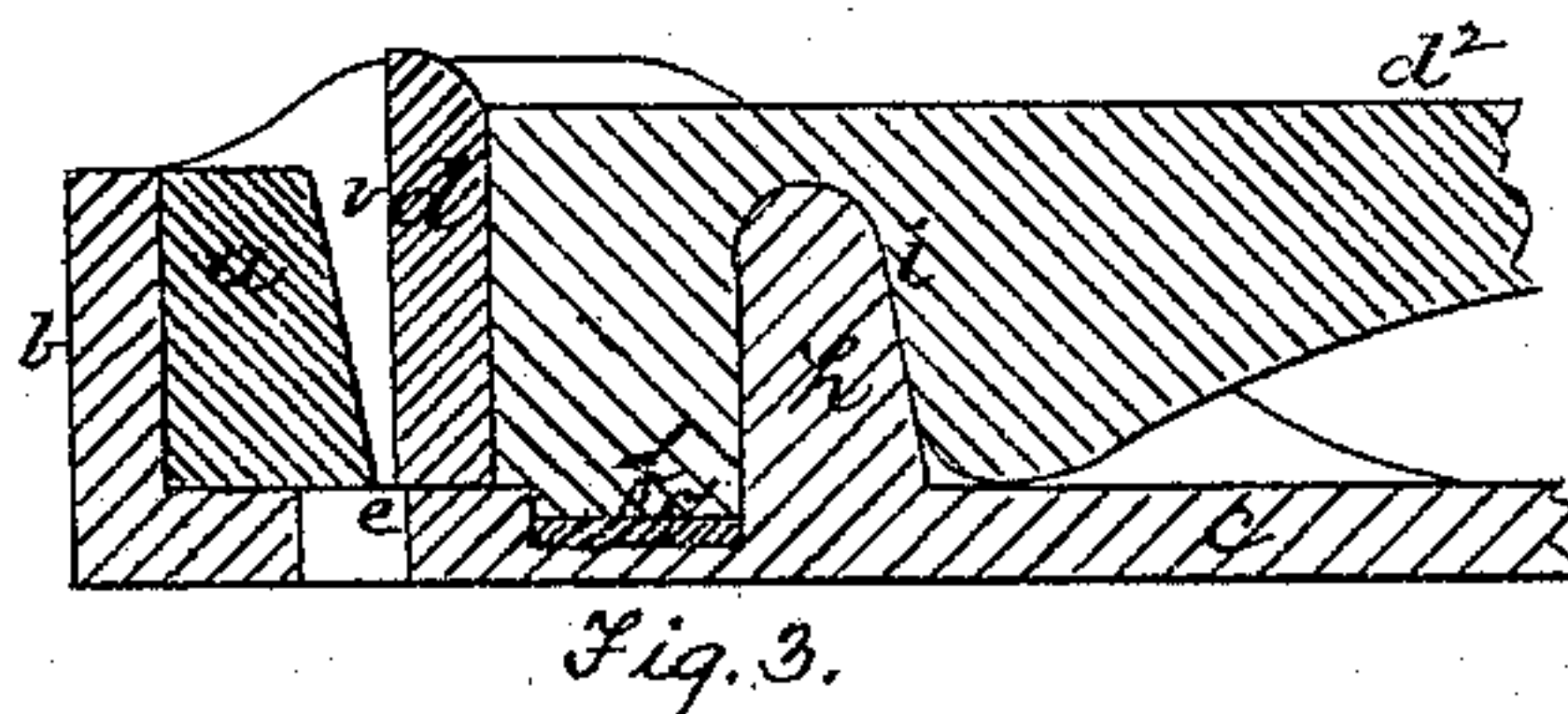
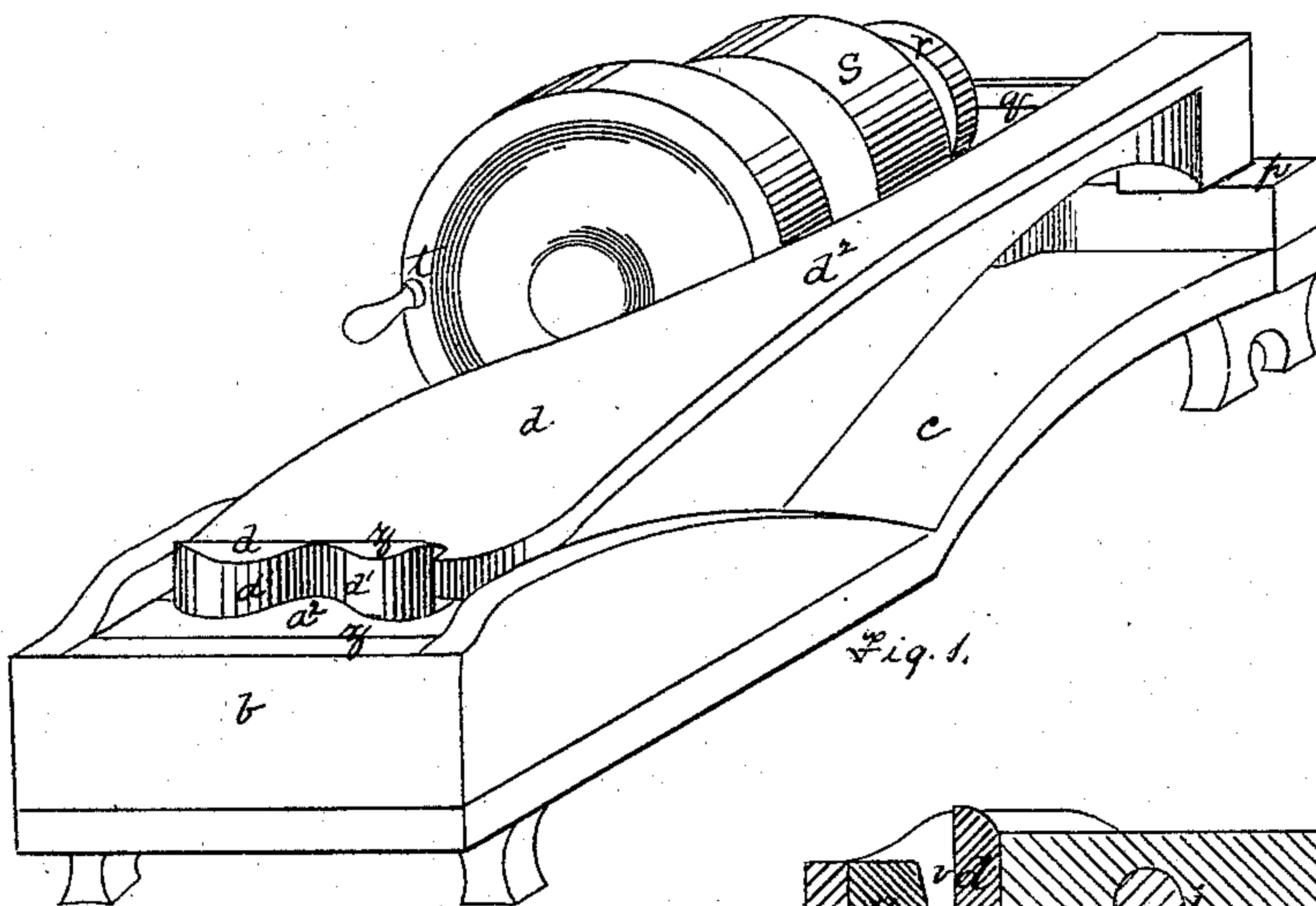


C. FORSTER
Rock and Ore Crushers

No. 138,240.

Patented April 29, 1873.



WITNESSES
R. C. Henderson
James L. Kay

INVENTOR
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by Barwell, Crisby & Kerr
his attys

UNITED STATES PATENT OFFICE.

CHARLES FORSTER, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN ROCK AND ORE CRUSHERS.

Specification forming part of Letters Patent No. **138,240**, dated April 29, 1873; application filed March 29, 1873.

To all whom it may concern:

Be it known that I, CHARLES FORSTER, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Rock and Ore Crusher; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a perspective view of my improved rock and ore crusher; and Fig. 2 is a plan view of the working-faces of the different parts, showing their connection, &c.; and Fig. 3 is a sectional view through *x x*, Fig. 2.

Like letters of reference indicate like parts in each.

In rock and ore crushing machines as heretofore made several different movements have been imparted to one or both of the crushing-jaws: First, they have been caused to approach each other by a vertical movement; second, they have been operated by a forward and backward movement; third, one or both jaws have been pivoted and caused to swing forward by a vertical vibration against the other; and, fourth, two or more of these movements have been combined in various ways.

My invention consists in the construction of a crushing-machine in which a moving jaw is pivoted in front of and works across the face of a fixed jaw by a lateral vibration.

To enable others skilled in the art to make and use my invention, I will describe its construction and mode of operation.

The stationary jaw *a* is fixed in the frame *b* at the outer end of the bed *c*. The working-face of the jaw is slightly inclined down to the discharge-opening *e*. In front of the stationary jaw *a* is the movable jaw *d* provided with a stem or pivot, *f*, which extends down into the seat *g* in the bed *c*. A loose disk, *c'*, is inserted in the seat *g* to relieve the friction of the working-face of the stem *f*. Around the rear side of the seat *g* is a semicircular guide or bearing, *h*, which extends up into the jaw *d*, which is chambered out around the rear and sides of the stem *f*, as shown at *i*, for the reception of the guide *h*. The working-face of the movable jaw *d* stands in a vertical position. The width of the opening *v* between the two

jaws at the lower or discharging point is just sufficient to permit the passage of the pieces of ore which have been broken up to the desired size. By the inclination of the fixed jaw *a* the opening *v* is sufficiently wide at the top to receive the large or unbroken pieces of ore. The jaws *a* and *d* are corrugated, as at *a'* and *d'*, so that by the lateral vibration of the jaw *d* the pieces of ore or stone shall be nipped or crushed between the center rib *a''* of the fixed jaw and the cheek *d'* of the moving jaw. These corrugations may be repeated as the jaws are widened, the full parts of one being opposite to the hollow parts of the other jaw. In addition to the crushing motion the jaws have a grinding motion, so that the ore is not only crushed but ground between their working-faces. The moving jaw *d* has a rigid arm, *d''*, extending back to the guide-plate *p*, upon which it rests and moves. A reciprocating movement is imparted to the arm *d''* by the link *q* and wheel *r*. Power is applied to the wheel *r* by means of the band-wheel *s* or crank *t*, or by any other known mechanical device suitable for that purpose. By means of the arm *d''* and its power-connections a lateral vibration is imparted to the jaw *d*, which causes its working-face to grind and crush the ore against the face of the fixed jaw *a*. The ore, as it is broken, sinks in the opening *v*, until finally it is discharged therefrom. The bits or faces of the jaws are removable, as is seen by the joints *z*, and are keyed into the jaws in any desired manner. The jaw *a* is adjustable to enlarge or reduce the width of the opening *v* by means of liners inserted between it and the frame *b*. The guide-plate *p*, upon which the rigid arm *d''* moves, prevents the jaw *d* from being "canted" over backward so as to throw the stem *f* out of its socket by the pressure on its working-face.

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

1. The jaws *a* and *d*, one of which is movable, such movable jaw having a grinding motion laterally across the face of the other jaw, as distinguished from an up-and-down grinding motion, substantially as and for the purposes described.

2. The jaws *a* and *d*, corrugated as shown—that is, with the full parts of the corrugations

in one jaw opposite to the hollow parts of the corrugations in the other jaw—when one of such jaws is arranged for operation laterally across the face of the other, and at right angles, or nearly so, to the line of the corrugations, for the purpose of securing a crushing motion between the full parts of the corrugations, substantially as and for the purposes described.

3. The jaw *d*, chambered out at *i* and pro-

vided with a pivot or journal, *f*, in combination with the gearing *h*, substantially as and for the purposes described.

In testimony whereof I, the said CHARLES FORSTER, have hereunto set my hand.

CHARLES FORSTER.

Witnesses:

A. S. NICHOLSON,
THOS. B. KERR.