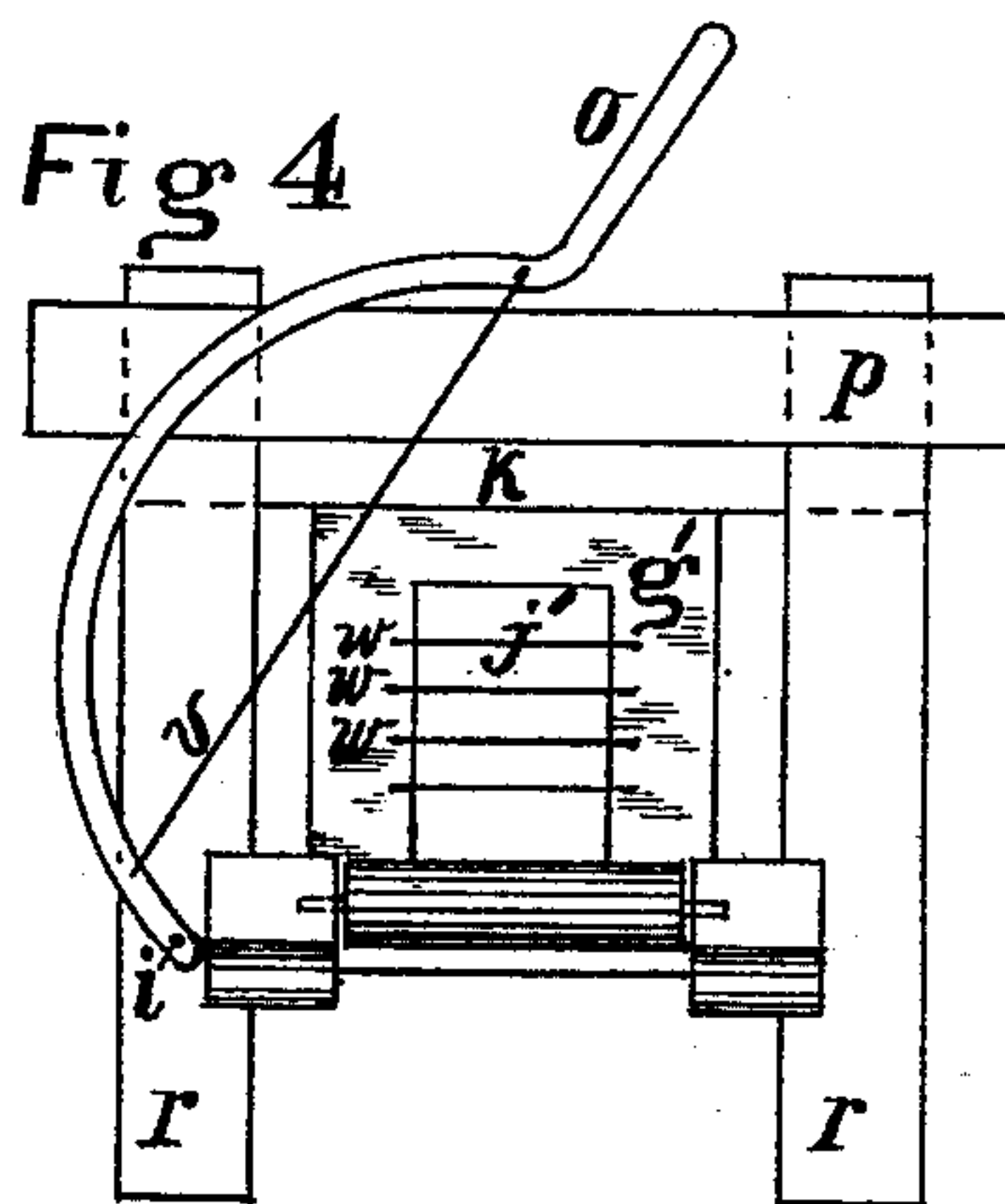
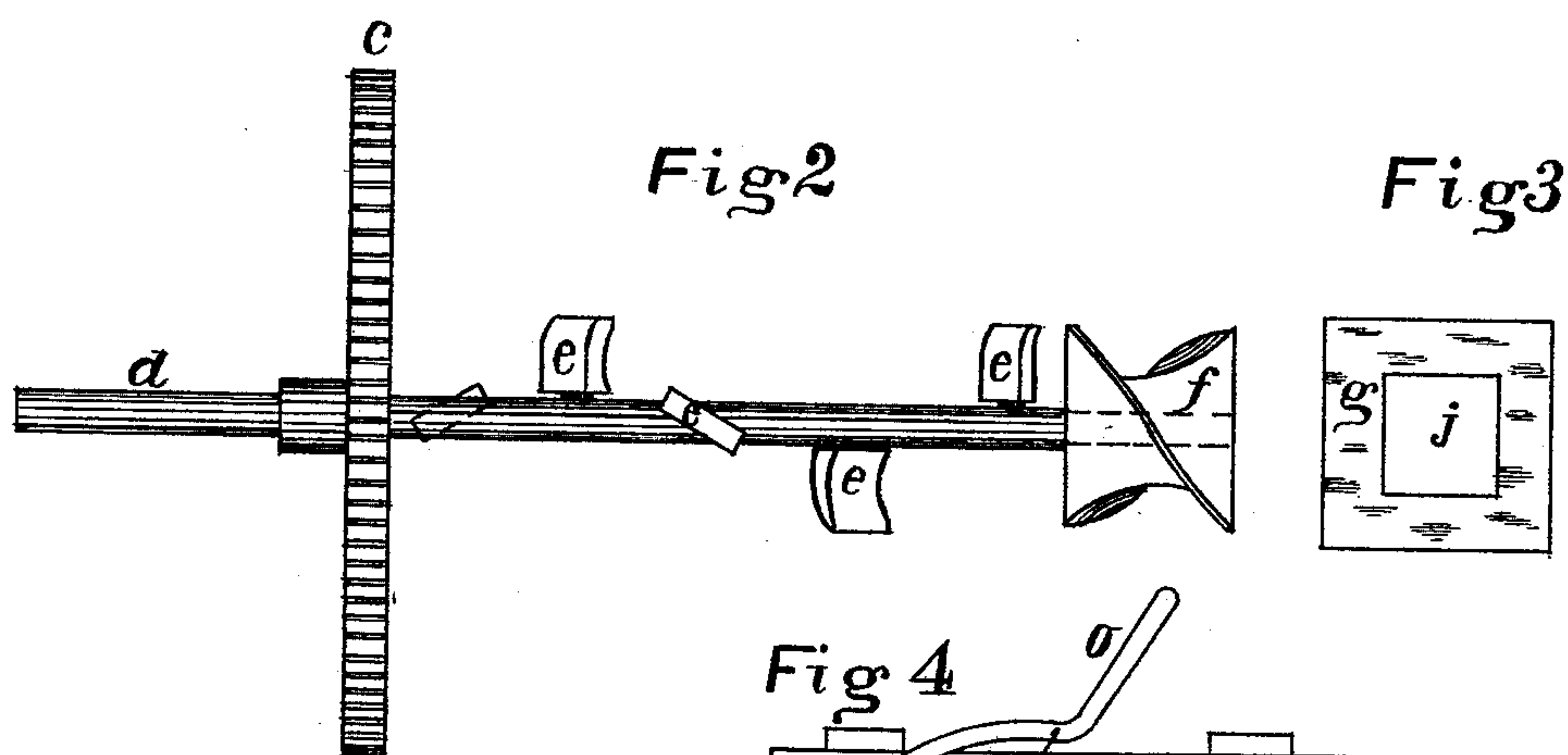
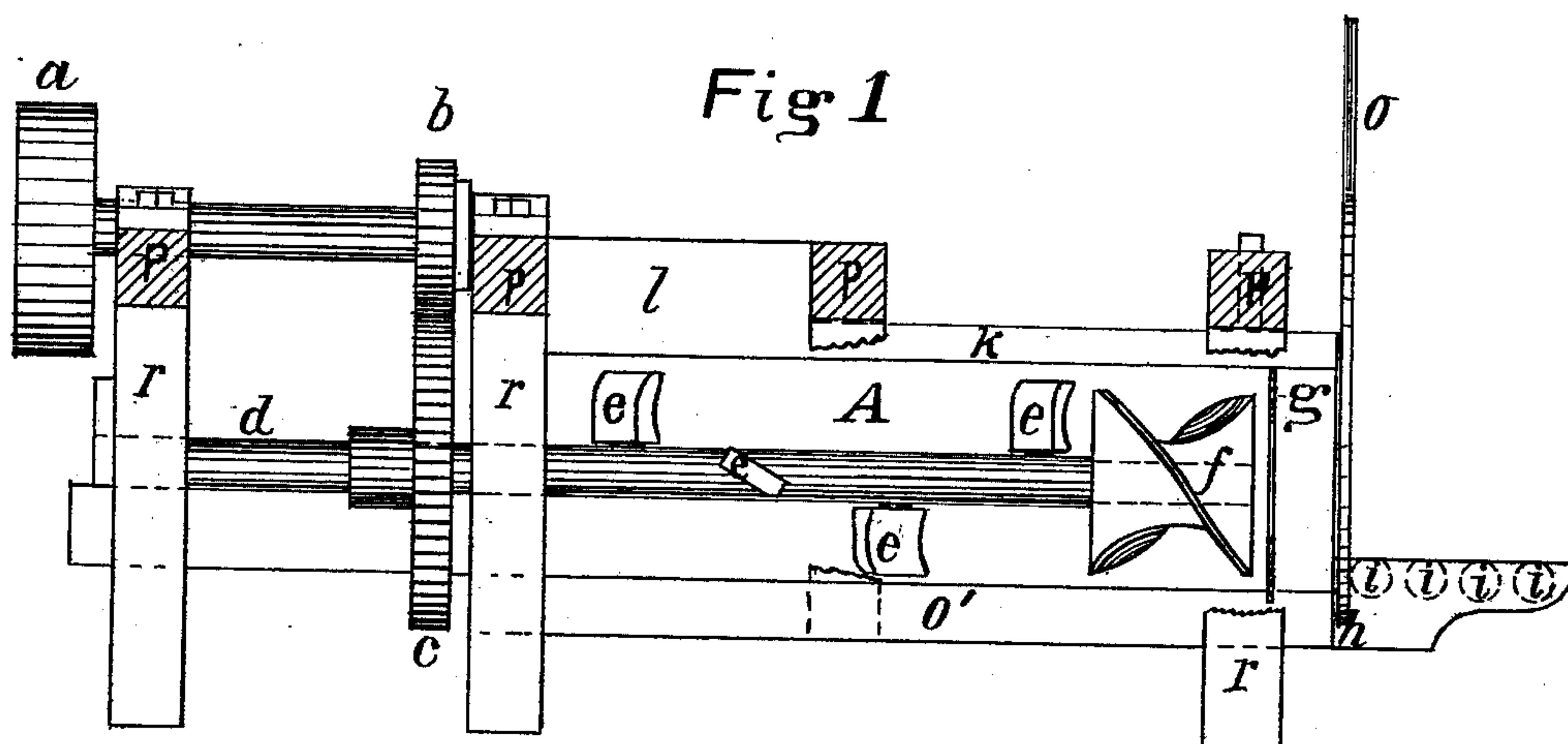


W. L. DRAKE.  
Clay Tempering Machine.

**No. 229,810.**

**Patented July 13, 1880.**



*Witnesses*

Wallace L. DeWolf.

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# UNITED STATES PATENT OFFICE.

WEAR L. DRAKE, OF CHICAGO, ILLINOIS.

## CLAY-TEMPERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 229,810, dated July 13, 1880.

Application filed August 23, 1879.

*To all whom it may concern:*

Be it known that I, WEAR L. DRAKE, of the city of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Horizontal Clay-Tempering Machines, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part thereof, in which—

Figure 1 represents a side elevation, the front of box A being cut away; Fig. 2, the shaft *d* detached; Fig. 3, the die-plate *g*; Fig. 4, an end elevation, showing the cutter *o* and the screen *g'* in detail.

P P P P and *r r r r* represent the bridge-tree pieces and frames, respectively.

*a* is the driving-pulley; *b*, the pinion-wheel, by means of which power is transferred to large wheel *c*, which is fastened rigidly to shaft *d*. *e e*, attached to shaft, as shown, are the concave tempering-knives, and *f*, at the end of the shaft, and immediately behind the die-plate *g*, is the concave tempering-auger.

*l* is the hopper, and *k* and *o'* are the top and bottom, respectively, of the tempering-box A.

*j*, the opening in die-plate *g*, should be of such size that the clay as it is forced out will issue in a compact stream.

The cutter *o* is provided with a single steel wire *v*, and is pivoted as shown at *i*.

*g'* is a wire screen, which is provided with the aperture *j'* and the steel wires *w w w*. *g'* is placed, in large machines, about four inches from the die-plate, and is used for taking stones and other substances out of the clay and preparing it for pottery and terra-cotta work. When stones accumulate the screen is raised, and the end of the stream of clay mingled with the stones is cut off and rejected. The screen may thus be raised as often as required without stopping the machine, while other machines must be stopped when their screens are cleaned.

The aperture *j'* of the screen should be larger than the aperture *j* of the plate *g*.

After the clay passes through the screen it is in laminae, which may be made of any thickness by adjusting the steel wires of the screen.

These laminae adhere together, so that the blocks do not fall apart when handled.

Sometimes it may be necessary, in preparing the clay for fine work, to look it over by hand and reject such foreign substances as may escape the screen. This work is greatly facilitated by having the clay in thin layers, which may be lifted up one after another, and a whole block may thus be looked over nearly as rapidly as it can be handled.

The machine should be placed so that the clay can be dumped into the hopper from a wheelbarrow.

The number and position of the knives may be varied; but they must always be arranged spirally upon the shaft, and so as to turn toward their concave surfaces, so that the concave surfaces will come against the clay. The concave auger *f* corresponds with the knives, as shown. Thus the clay is gradually worked along from the hopper toward the plate *g*, and at the same time it is pressed toward the shaft. On account of this centripetal pressure the strain is almost wholly taken away from the box, and hence there is a great saving in the cost of its construction. It is found, also, that clay worked with concave knives, as described, is more evenly tempered than when the knives are straight and the clay is forced against the sides of the box.

My concave knives, in connection with the concave auger, accomplish also a great saving in the working power required, since the resistance is almost wholly removed from their ends.

Prior to my invention knives had been arranged spirally upon the shaft; but in none of the machines that I have seen were the knives concaved and set so as to relieve the tempering-box of the strain of the centrifugal force of the clay during the process of tempering in the manner herein described, whereby about one-half less power is required to force the clay through the die-plate and shape it in form for handling.

I claim—

1. In a horizontal clay-tempering machine, the combination and arrangement of the con-

cave knives with the shaft and concave auger, operating substantially as and for the purpose specified.

2. Within the box of a horizontal clay-tem-  
5 pering machine, concave knives arranged spirally upon a shaft, so as to revolve toward their concave surfaces and force the clay toward the shaft, and at the same time horizontally along and from the box.

3. In combination with the die-plate *g*, the 10 screen *g'*, provided with steel wires, arranged substantially as and for the purpose specified.

WEAR L. DRAKE.

Witnesses:

WALLACE L. DE WOLF,  
GEORGE P. BARTON.