

(No Model.)

2 Sheets—Sheet 1

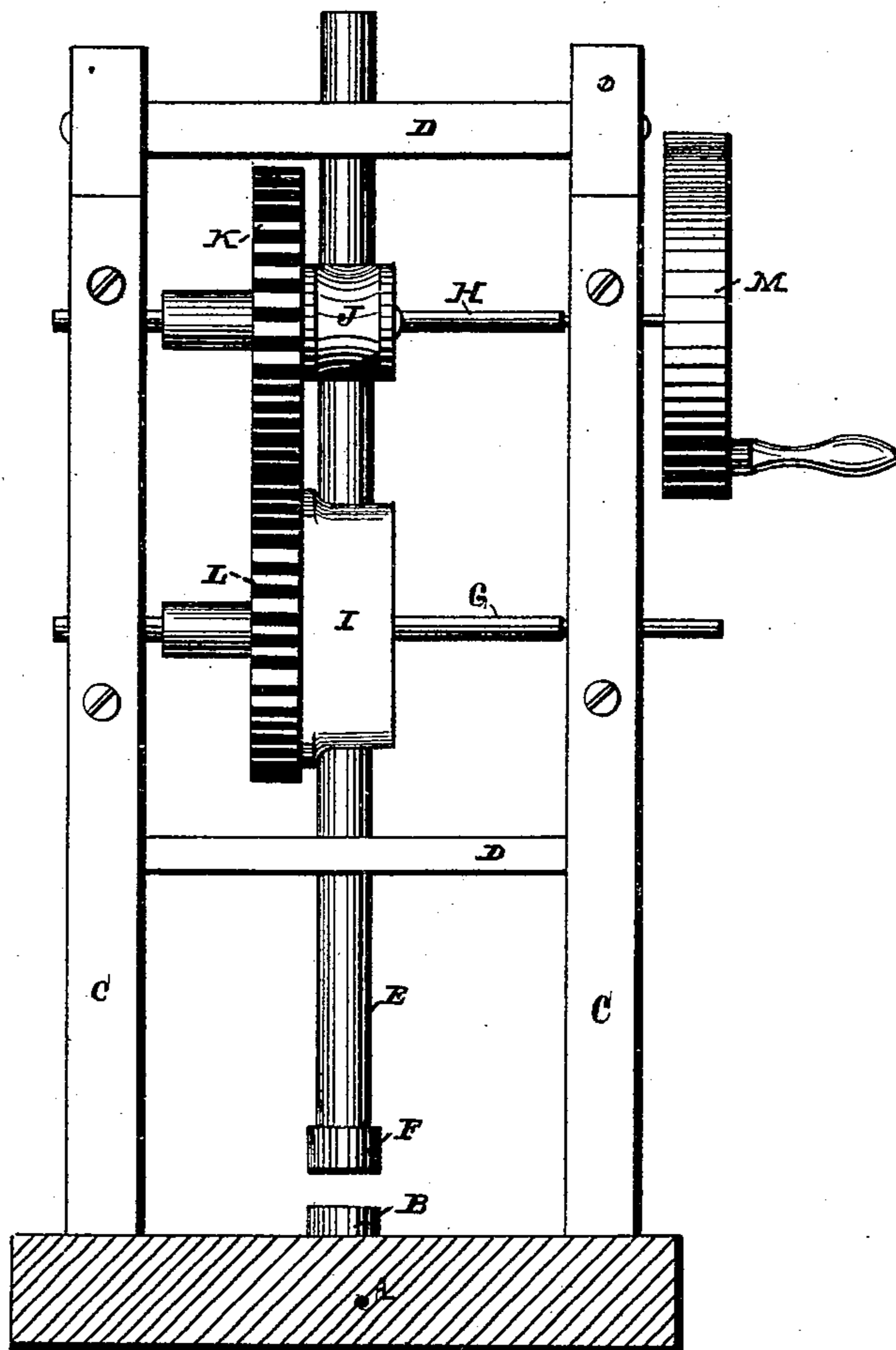
F. A. HUNTINGTON.

STAMP MILL.

No. 267,432.

Patented Nov. 14, 1882.

Fig. 1.



Witnesses

Geo. H. Strong.

Frank A. Brooks

Inventor

Frank A. Huntington
By Dewey & Co. Attys.

(No Model.)

2 Sheets—Sheet 2.

F. A. HUNTINGTON.
STAMP MILL.

No. 267,432.

Patented Nov. 14, 1882.

Fig. 3.

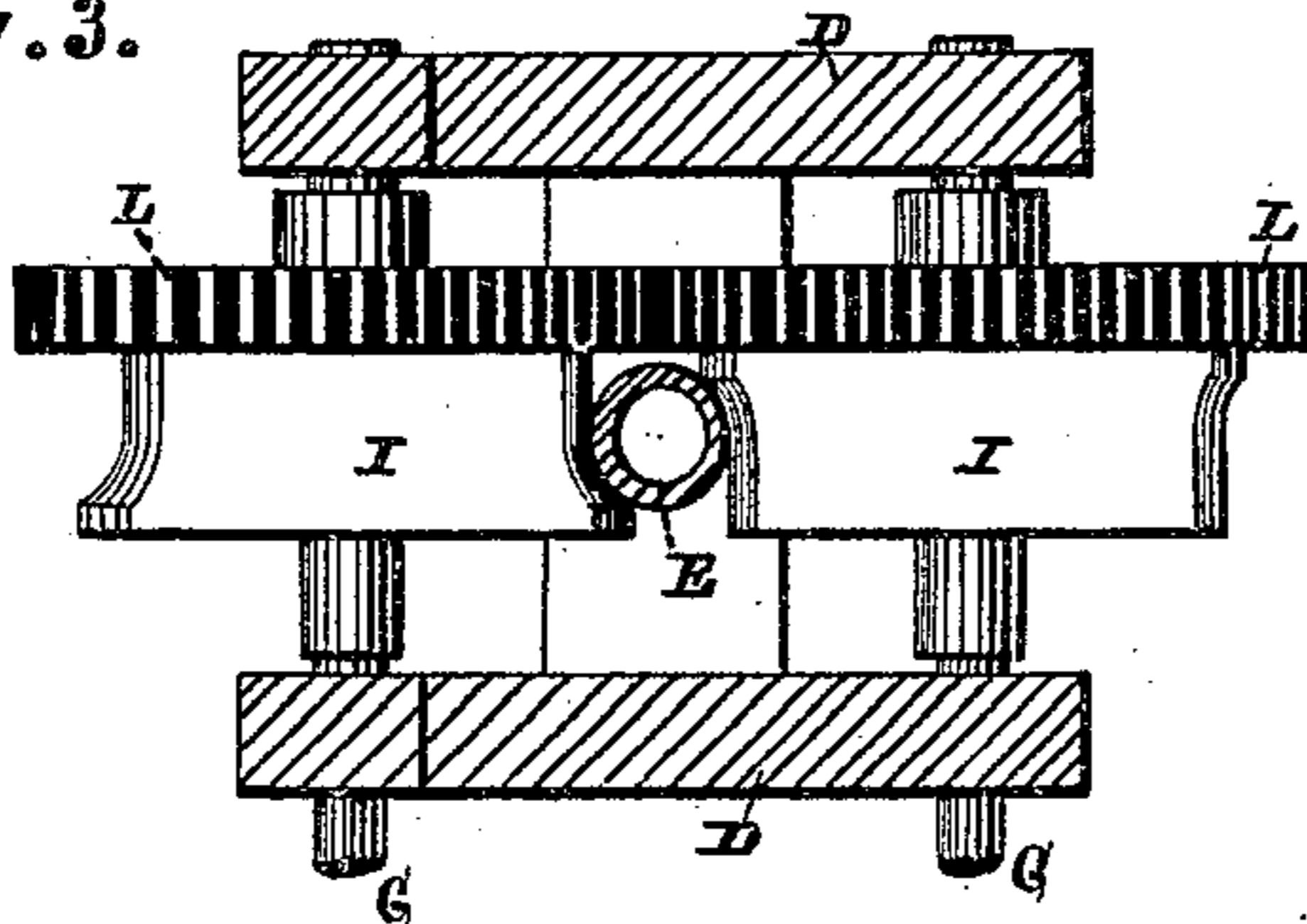
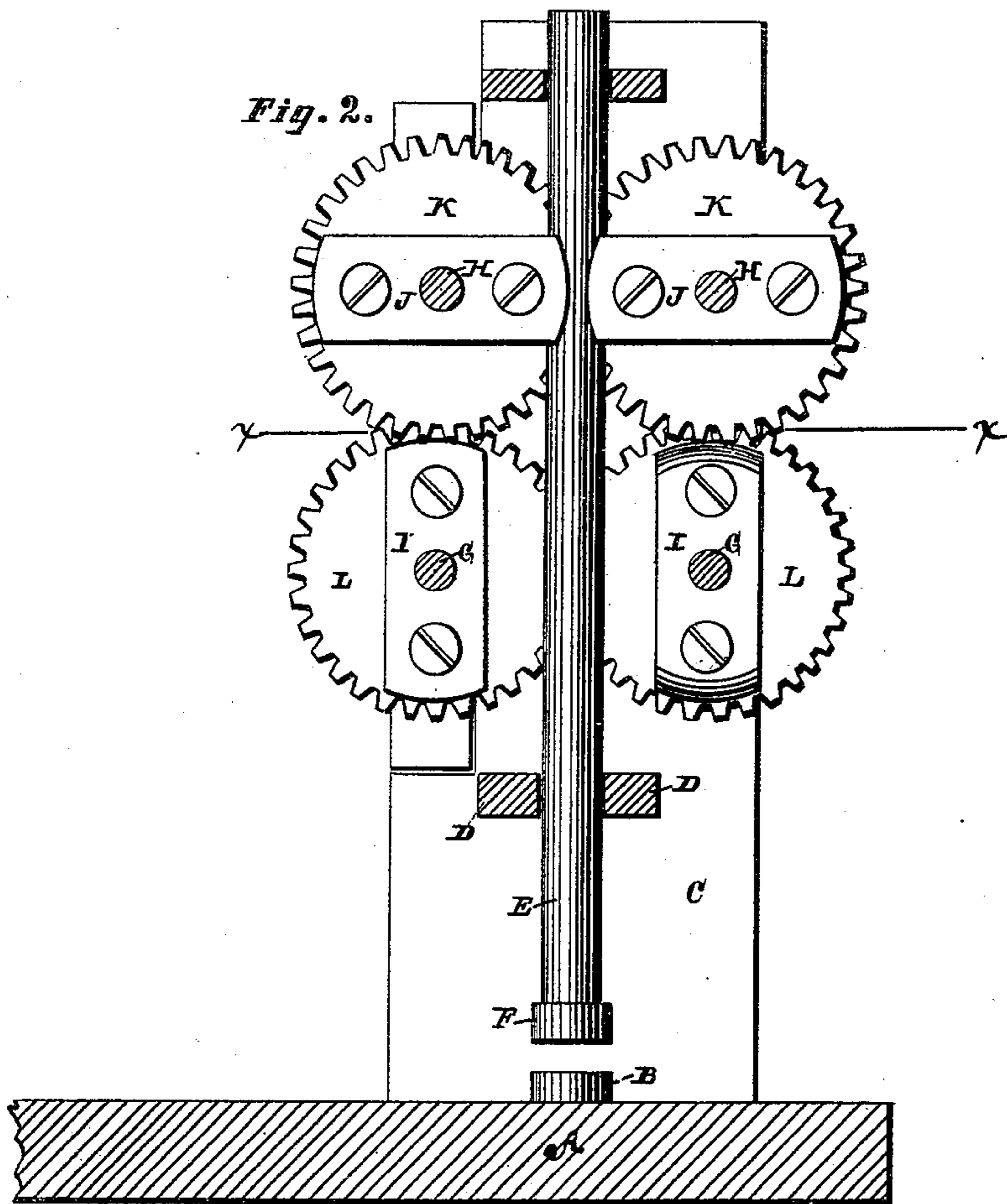


Fig. 2.



Witnesses

Geo. H. Strong.
Frank A. Brooks

Inventor

Frank A. Huntington
By Dewey & Co.
Attys

UNITED STATES PATENT OFFICE.

FRANK A. HUNTINGTON, OF SAN FRANCISCO, CALIFORNIA.

STAMP-MILL.

SPECIFICATION forming part of Letters Patent No. 267,432, dated November 14, 1882.

Application filed September 27, 1881. (No model.)

To all whom it may concern:

Be it known that I, FRANK A. HUNTINGTON, of the city and county of San Francisco, and State of California, have invented an Improvement in Stamp-Mills; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

10 Figure 1 is a front elevation. Fig. 2 is a vertical sectional view, and Fig. 3 is a cross-sectional view on the line *x x* of Fig. 2.

My invention relates to certain improvements in rock-crushing apparatus of the class in which a rising and falling stamp is caused to fall upon a body of rock within a mortar to crush it.

For a more particular explanation of my invention reference is hereby made to the following description, and to the accompanying drawings, in which—

A represents a base-block, and B the die which is ordinarily placed in a mortar, and upon which the blow is delivered.

25 C represents a frame having suitable guides, D, through which the stem E passes. F is the stamp.

In the sides of the frame C are journaled shafts G, and above them are other shafts, H. Secured rigidly upon these shafts are cams I and J, respectively. These consist of cross-sections of rollers or segments of circles, having each two groove-faced frictional surfaces at opposite ends, with a plane face between. 35 These are so placed that their frictional groove-faces shall impinge against the stamp-stem in sets of two, holding the stems between them, one set to raise and the other to force down the stamp.

40 To each of the stamps are secured gear-wheels, two being marked K and the other two L. These four gears are all equal in size, and are equidistant from a central point. The lower two mesh with each other and each with the gear above, the upper two also meshing with each other, thus dispensing with any intermediate gearing, and all, having equal diameters, act as drivers, whereby a steady and equal power is transmitted to each cam.

One of the shafts H, I have here shown as 50 having power applied by means of the crank-wheel M.

The arrangement of the gears K and L, meshing with each other, as shown, causes one set of cams to revolve toward each other upwardly and to raise the stem, while the other set are made to revolve toward each other downwardly and force down the stem, and because of the construction of the cams, having two frictional faces, their action upon the 60 stem occurs twice in each revolution, and the stamp is therefore caused to deliver double the number of blows, which is a material advantage in a stamp-battery.

In order to turn the stamp and stem slightly 65 at each blow for the better effect in crushing the rock, I construct the frictional faces of the lower cams as shown in Fig. 3. The faces, instead of being completely grooved, have one edge cut away, the edges to be cut being 70 diagonally opposite each other on opposite cams, this causing the remaining edges to roll the stem around slightly at each impingement.

In the operation of a stamp by frictional 75 contact, as shown, it is desirable to obtain as large a frictional surface as possible, and at the same time not to increase the weight. This I accomplish by the employment of a hollow stem. The stem E, I therefore make of a pipe or tube, 80 and I can have it as large as needed to allow the cams to work to an advantage, and yet preserve its proper weight.

I am aware that it is broadly old to employ hollow stamp-rods, intermeshing gear-wheels, 85 and shafts having two sets of frictional cams for raising and forcing down said stamp-rods; but I am not aware that a stamp-stem has been raised and forced down by the impingement of a series of alternately-acting double cams, 90 twice at each revolution, said cams being operated by four equidistant gears of equal dimensions meshing directly with each other; nor am I aware that the turning of the stems has been accomplished by cutting away the 95 edge of the grooved faces of the impinging cams.

Having thus described my invention, what I desire to secure by Letters Patent is—

In an ore-stamp mechanism, the hollow stamp-rod E, in combination with four inter-meshing gear-wheels, K L, shafts H and G, equidistant from each other and two sets of
5 frictional cams, J and I, for raising and forcing down said stem, the cams I having their impinging faces cut away on opposite sides, as

described, to give the stamp-stem a rolling motion, as set forth.

In witness whereof I hereunto set my hand. 10
FRANK A. HUNTINGTON.

Witnesses:

GEO. H. STRONG,
FRANK A. BROOKS.