

(No Model.)

W. A. PARRY.  
PUG MILL.

2 Sheets—Sheet 1.

No. 445,703.

Patented Feb. 3, 1891.

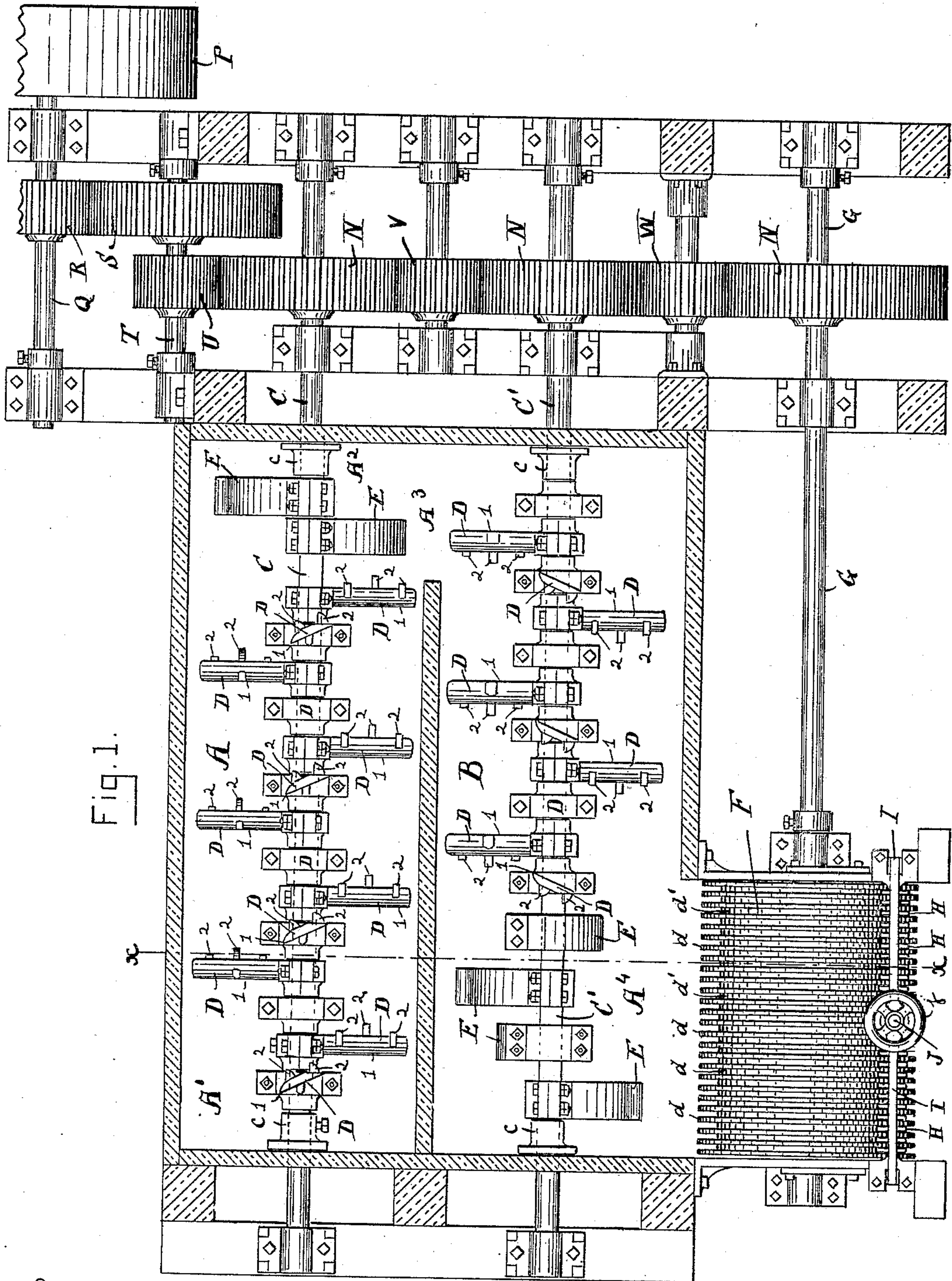


Fig. 1.

Witnesses.  
William G. Kerwin.  
John J. Moore.

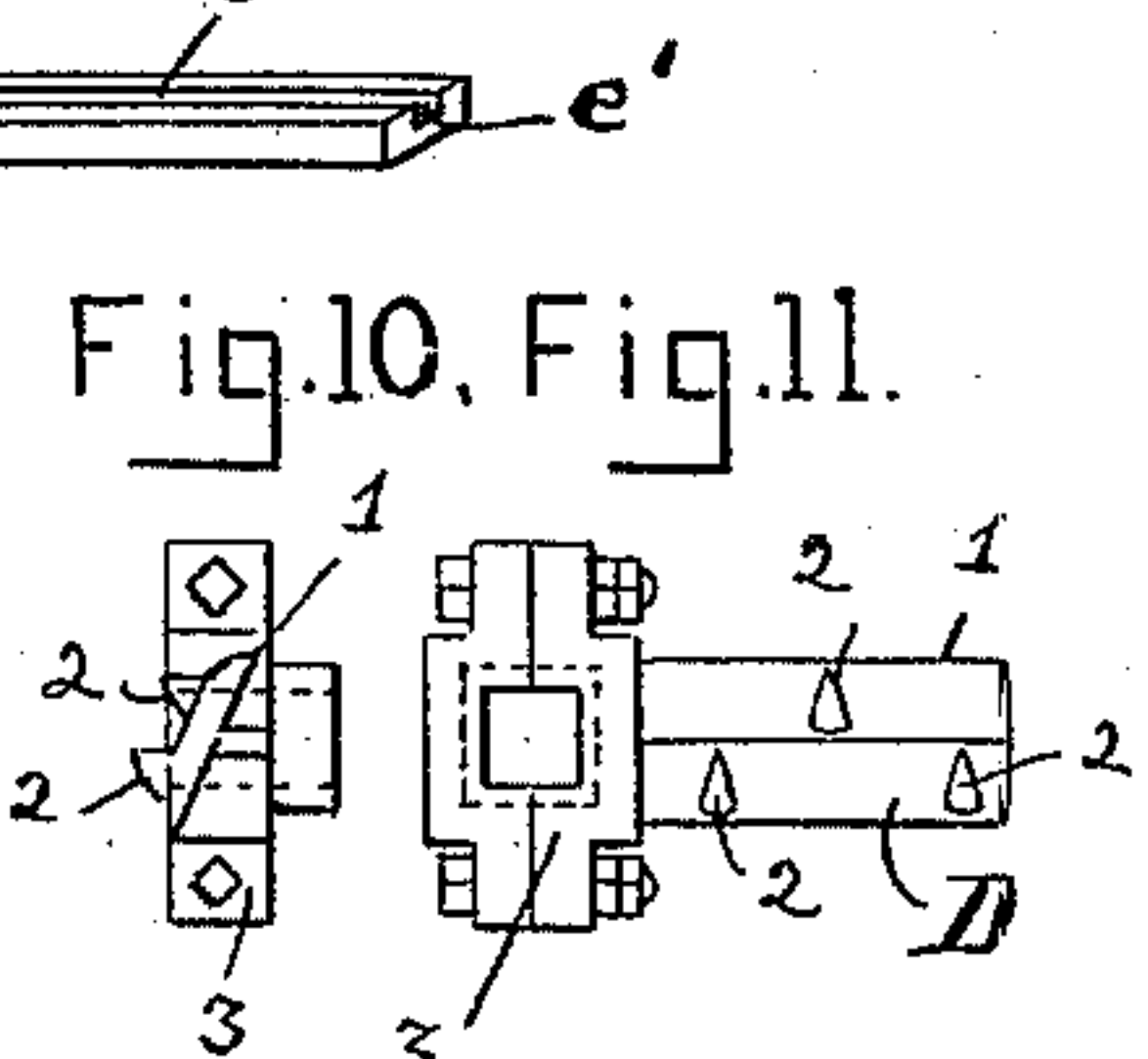
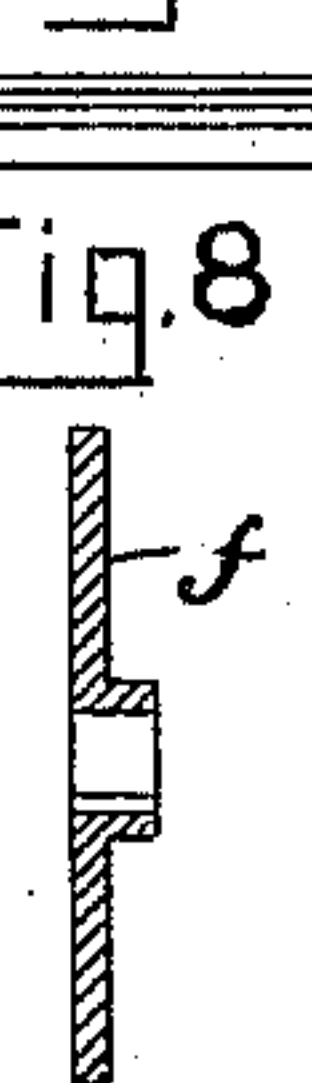
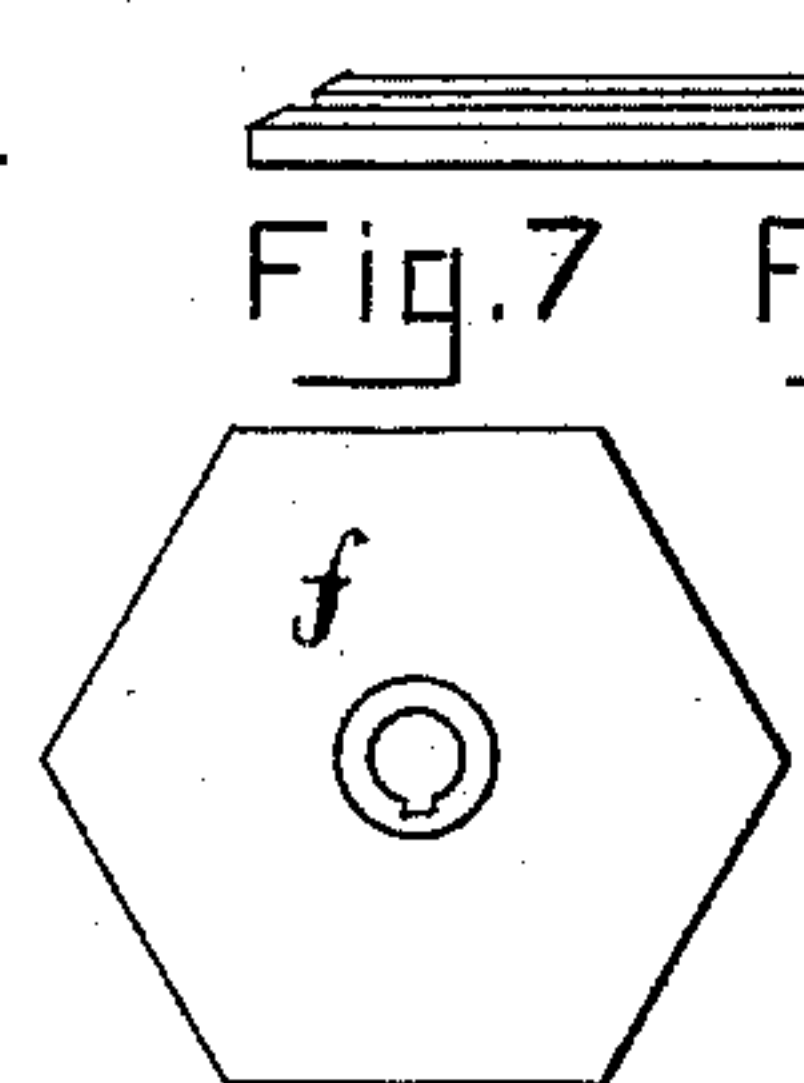
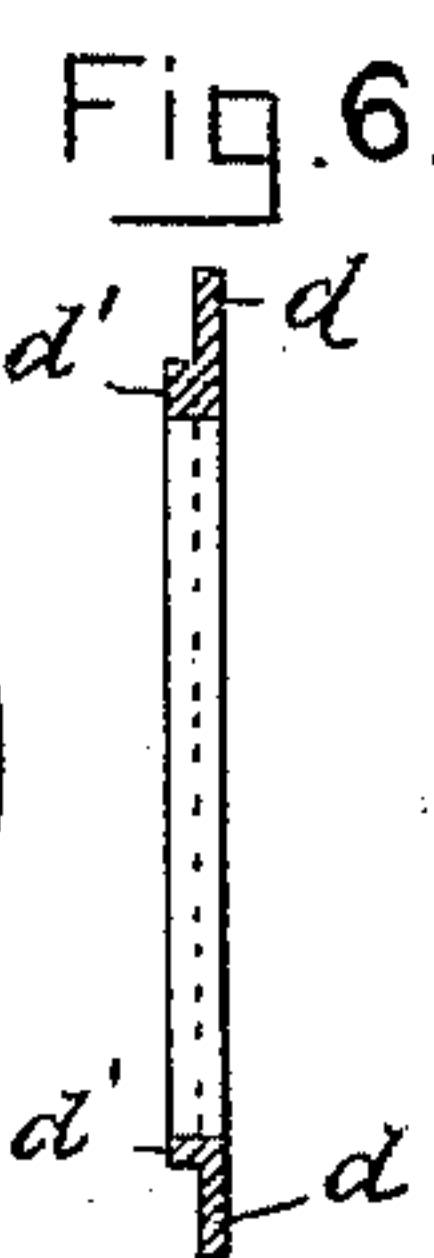
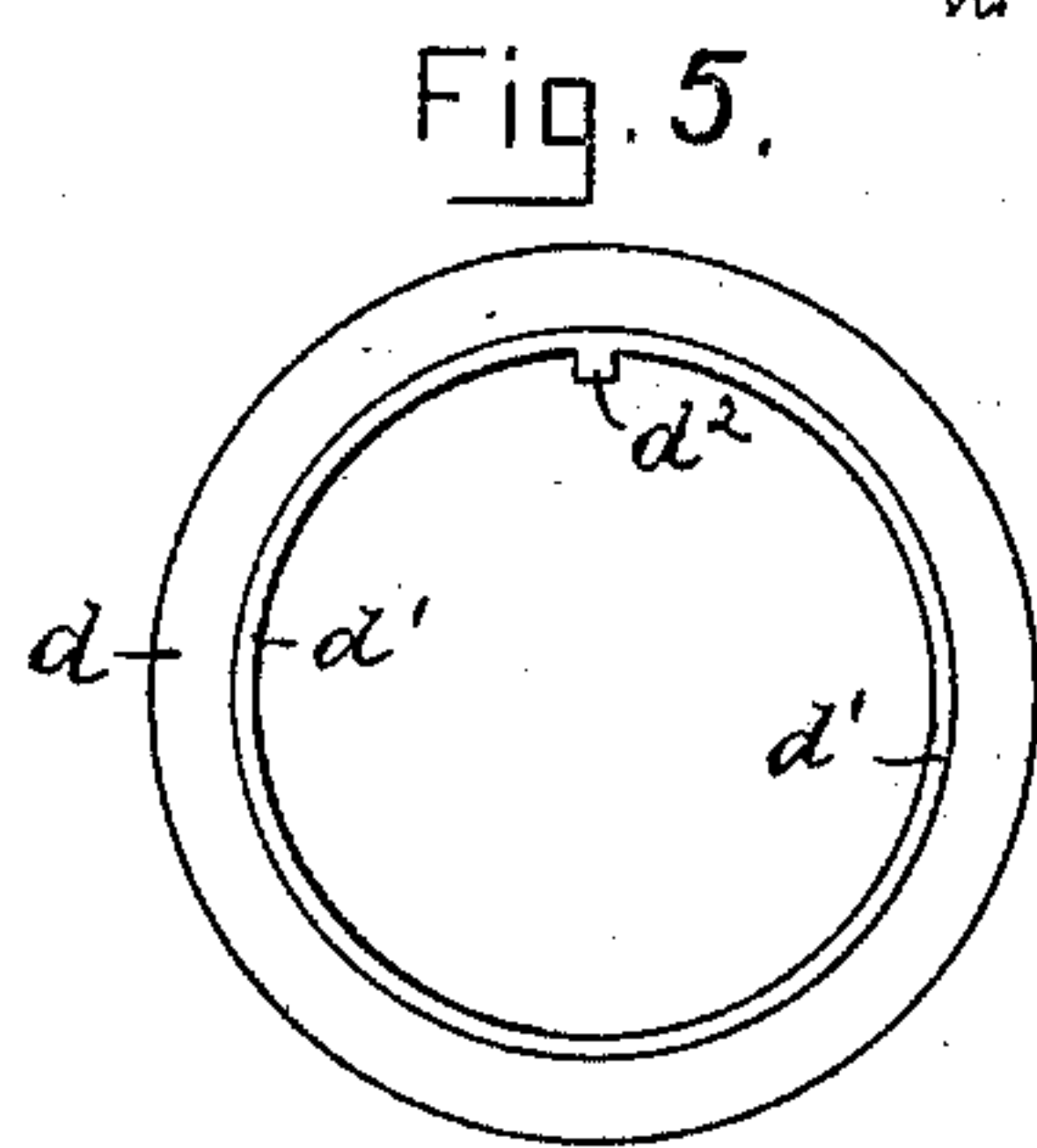
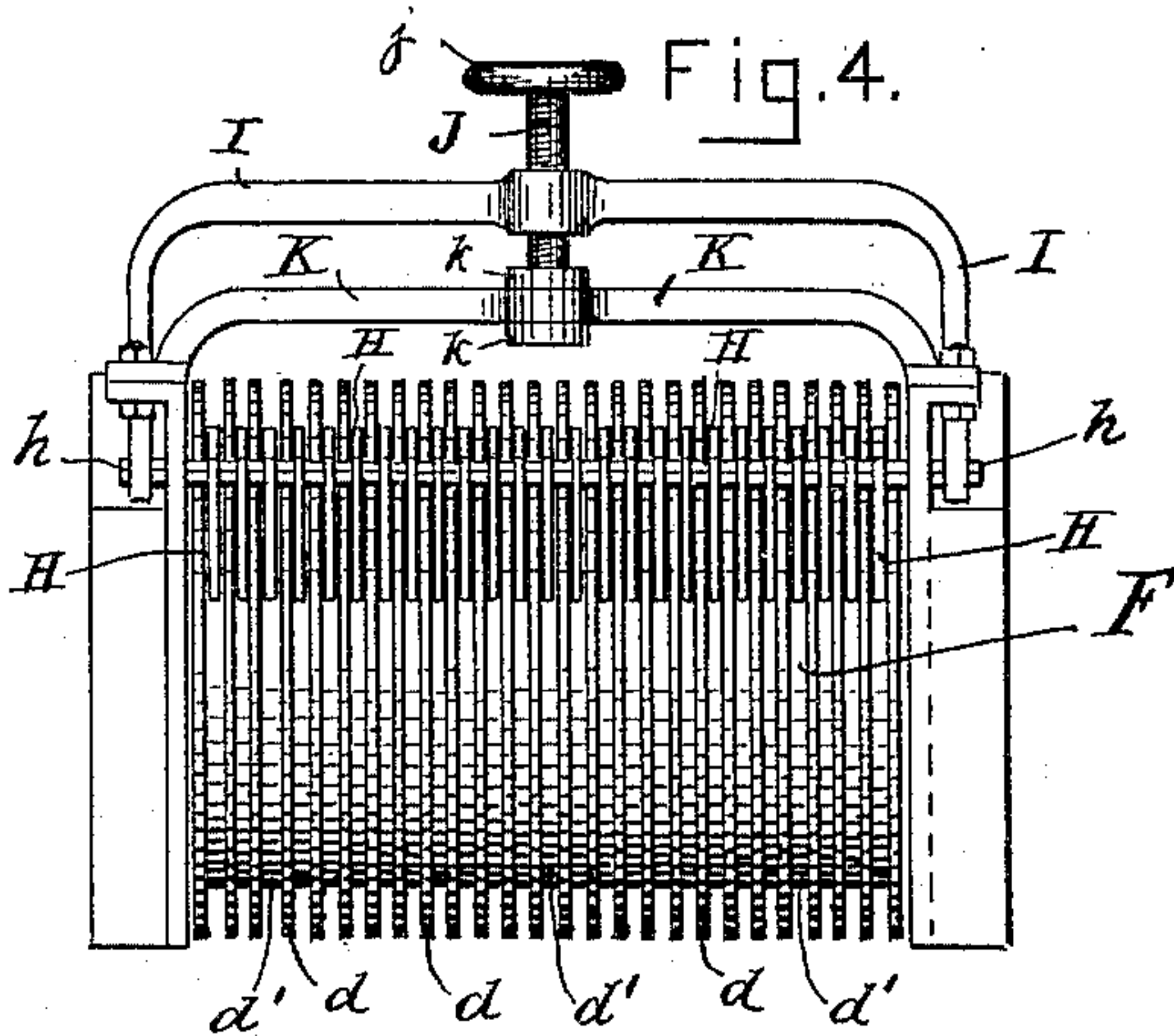
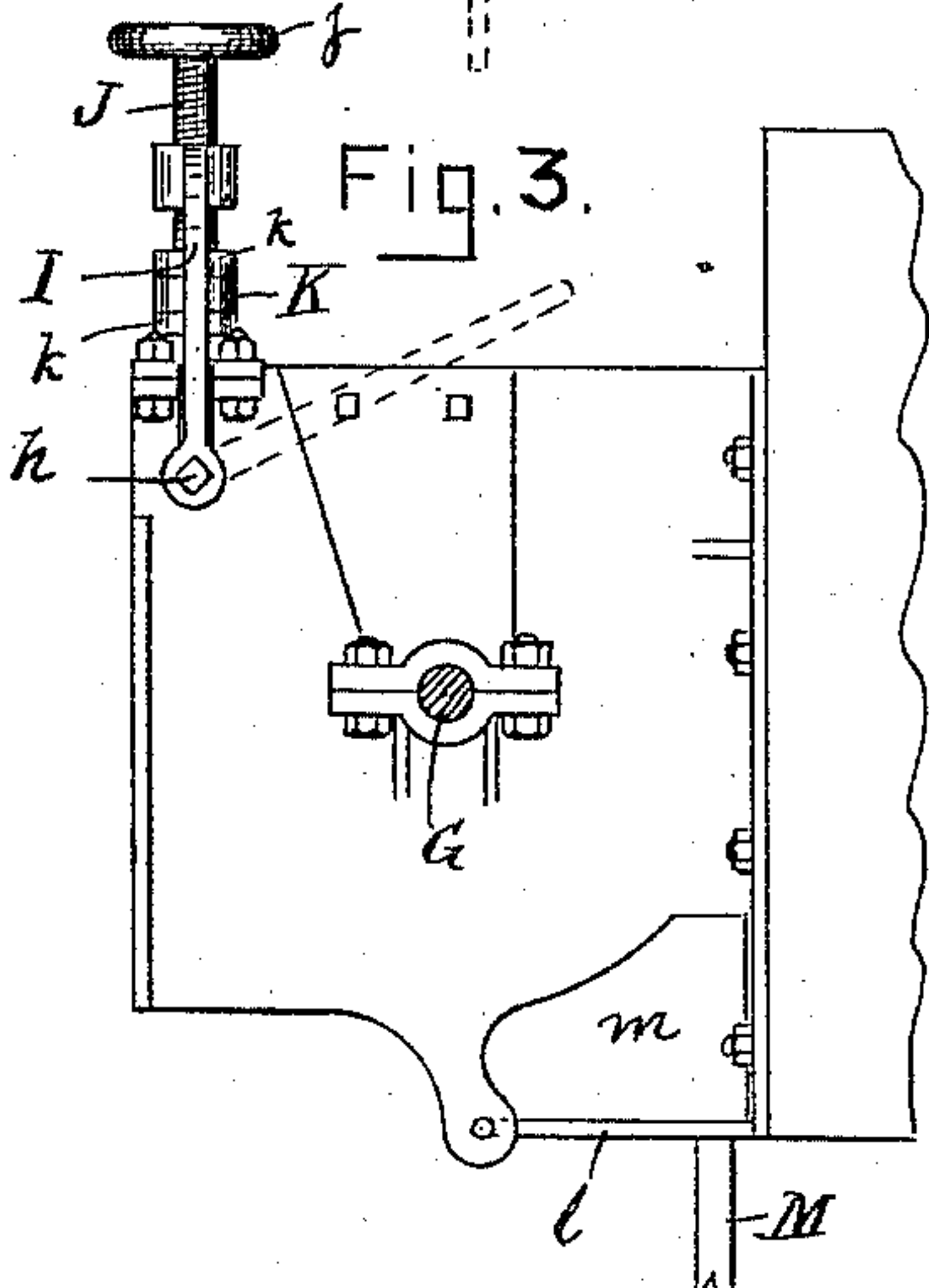
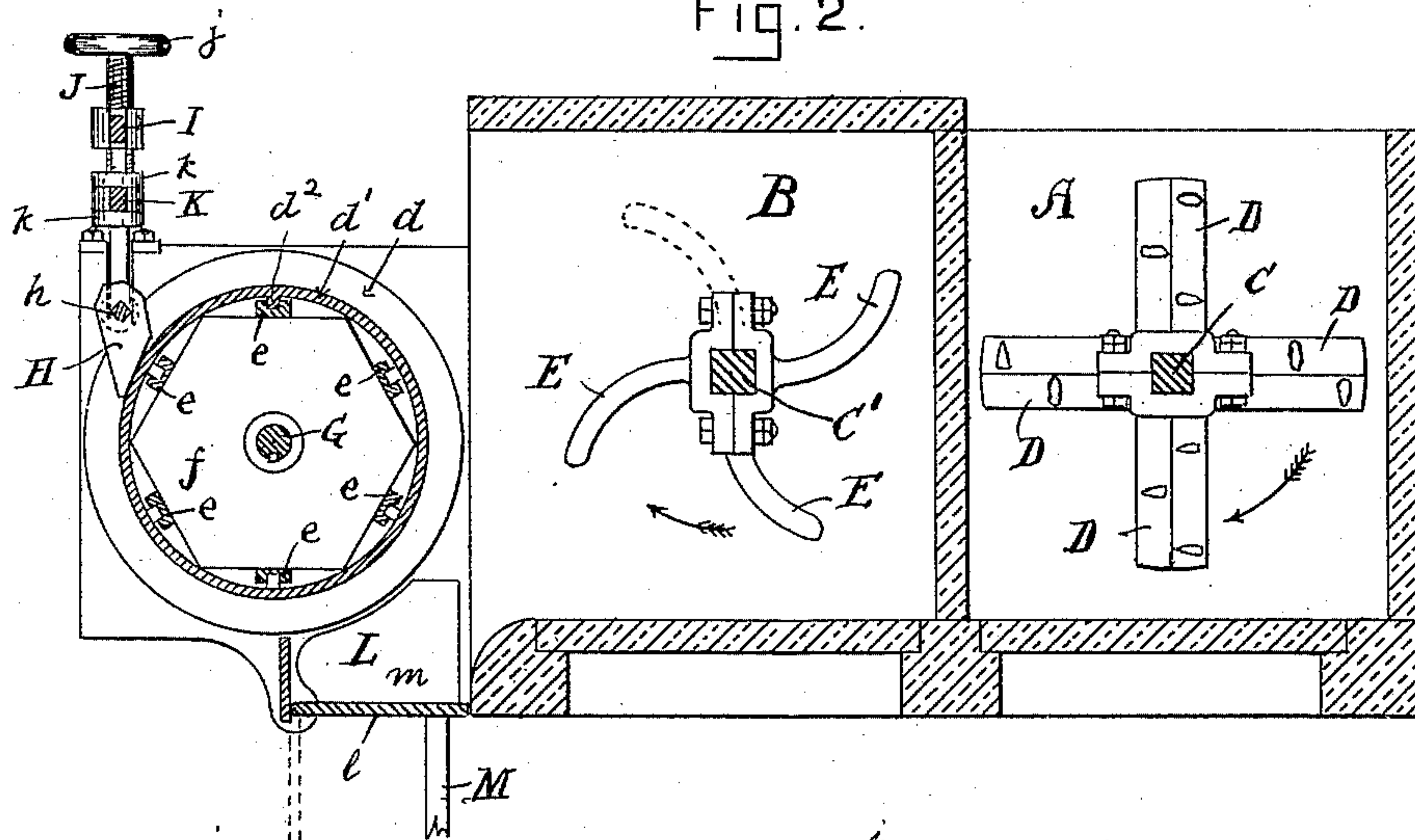
Inventor.  
William A. Parry  
by Edwin Beanta  
attorney.

W. A. PARRY.  
PUG MILL.

No. 445,703.

Patented Feb. 3, 1891.

Fig. 2.



Witnesses.  
Winifred G. Kerwin  
John J. Moore

Inventor.  
William A. Parry  
by Edwin Blanta  
attorney.



# UNITED STATES PATENT OFFICE.

WILLIAM A. PARRY, OF NORTH CAMBRIDGE, MASSACHUSETTS.

## PUG-MILL.

SPECIFICATION forming part of Letters Patent No. 445,703, dated February 3, 1891.

Application filed September 9, 1890. Serial No. 364,424. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. PARRY, a citizen of the United States, residing at North Cambridge, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Pug-Mills, of which the following, taken in connection with the accompanying drawings, is a specification.

10 My invention relates to pug-mills that are employed in connection with machines for making bricks, tiles, and such like articles, the object being to produce a pug-mill that will render the clay very plastic and supply  
15 the same to the brick or tile machine free from stones or other foreign material.

Referring to the accompanying drawings, Figure 1 represents a plan or top view, partly in section, of a pug-mill embodying my invention. Fig. 2 is a vertical transverse section taken on the line  $x x$  of Fig. 1. Fig. 3 is a side view of the separator. Fig. 4 is a front view of the same. Figs. 5 to 11 are detail views of various parts.

25 The pug-mill proper is divided by a partition into two separate compartments A B, through each of which passes a square shaft C C', carrying rotary knives D and wings or feeders E, and in front of the mill is mounted  
30 what I term a "separator" F for removing stones and other foreign substances.

The separator consists of preferably three hexagon plates  $f$ , having a boss in the center, and which are keyed or otherwise secured to  
35 a shaft G. To each side of these plates are secured by screws or otherwise bars  $e$ , formed with a groove  $e'$  throughout their length. (See Figs. 2 and 9.) Over these plates and bars are passed rings  $d$ , having a flange  $d'$  and a  
40 small projection  $d^2$ , that fits the groove  $e'$  in the bars  $e$ . The projections  $d^2$  are inserted into the grooves of the bars  $e$  alternately, so that the strain is distributed equally on each side of the plates  $f$ , and the rings are placed  
45 upon said bars so that the flange of one ring comes into contact with the next adjacent plate. The separator has the appearance of a drum having a series of projecting flanges, the space between the rings when in operation taking up the clay from the mill (free  
50 from stones) and carrying it to be fed to the brick or other machine. A series of fingers

or scrapers H are arranged upon a square shaft  $h$ , and are capable of being adjusted so as to scrape out all the clay taken up by the separator or only a portion thereof, according to the quantity it is desired to be delivered to the brick-machine.

In the drawings I have shown the square shaft  $h$  as being carried by a saddle I, having a boss in its center, through which passes a screw J, provided at its upper end with a hand-wheel  $j$ , and at its lower end held by collars  $k$  to a cross-bar K, that extends from one side to the other of the separators and  
65 bolted thereto, so that by turning the hand-wheel  $j$  the fingers can be adjusted so as to regulate the amount of clay fed to the brick-machine; or the fingers might be operated by a lever, as shown in dotted lines in Fig. 3, in  
70 which case they would be swung to a form, the rings to regulate the amount of clay scraped out.

Under the rear portion of the separator I form a box-like receptacle L, the lower portion of which is closed by a flap or gate  $l$ , which  
75 when the mill is in use is supported by a prop M, and on each side is an opening  $m$ , closed by a plate. The stones and other foreign matter are collected in this receptacle, and when full or when desired is emptied by removing the prop M, thus allowing the flap  
80  $l$  to fall. The plates are then removed from the openings  $m$  and bars inserted to loosen the clay, which then falls down.

The knives D are set on an angle and are formed rounding at the point 1, which cuts the clay, and they are also provided on one side with small projecting cutters 2, which very materially assist in mixing the clay and rendering it plastic. The inner end of each knife is formed with a divided box 3, by means of which it can be readily placed upon the shaft or removed therefrom.

The wings or feeders E are curved pieces of metal adapted to force the clay forward, and they are also formed with a divided box for securing them to the shaft.

On each shaft C C' is secured a collar  $c$  next to the frame, so as to prevent the clay from working out.

Upon one end of each of the shafts C C' G is secured a cog-wheel N and connected by pinions, so that when motion is imparted to



the mill all the shafts are rotated in the same direction.

Motion is imparted from any suitable source to the drum P, secured upon a shaft Q, carried by suitable bearings. Upon this shaft is also mounted a pinion R in gear with a cog-wheel S on a shaft T, that also carries a pinion U in gear with a cog-wheel N on the shaft C. The pinion V communicates motion to the cog-wheel N on the shaft C', and the pinion W communicates motion to the cog-wheel N on the shaft G.

The operation is as follows: The mill being put into motion, clay is fed into the rear compartment at the end A', and is by the knives D on the shaft C carried forward to the end A<sup>2</sup>, where it is forced by the wings or feeders E through the opening A<sup>3</sup> into the front compartment. It is then by knives D on shaft C' carried to the end A<sup>4</sup>, and is forced by the wings or feeders E toward the separator F and taken up between the rings *d* and carried round to the scrapers H and being removed fall into the brick-machine, the stones and other foreign matters being retained in the box L.

It will be seen that by the construction of the knives the clay is well mixed and will be rendered very plastic, and the stones being removed by the separator a better quality of brick is obtained and the molds cannot be broken, as is often the case with mills of the ordinary construction, and by having the bearings of the shafts arranged at a short distance from the sides of the mill the clay cannot work into them, thus preserving the bearings.

What I claim as my invention is—

1. In combination with a pug-mill, a separator consisting of a series of flanged rings mounted upon a shaft, the clay being taken up in the spaces between said rings and removed by scrapers, substantially as set forth.

2. A separator consisting of hexagon plates *f*, mounted upon a shaft, cross-bars *e*, each having a groove *e'*, rings *d*, having a flange *d'*, and a small projection *d''*, arranged substantially as shown and described.

3. In combination with a separator having a series of flanged rings mounted substantially as described, a series of scrapers H, mounted upon a square bar *h* and capable of adjustment, substantially as shown and described.

4. The scrapers H, mounted upon a square bar *h*, the saddle-shaped frame I, screw J, wheel *j*, and cross-bar K, in combination with a separator consisting of a series of flanged rings, substantially as set forth.

5. In combination with a pug-mill and separator, a stone-receptacle L, the bottom of which is closed by a flap *l*, and side openings *m*, covered by plates, substantially as and for the purposes set forth.

6. A pug-mill divided into two longitudinal compartments, each having a shaft passing through it, upon which are mounted knives and feeders, and a separator in front of said mill, the shafts of which are driven by a train of gear N U V W, cog-wheel S, pinion R, and pulley P, substantially as set forth.

7. A pug-mill consisting of a rectangular receptacle divided into two longitudinal compartments A B by a partition that extends nearly the whole length of said receptacle, each compartment having a shaft passing through it, upon which shafts are mounted knives and feeders arranged so that the clay being fed at one end of the rear compartment A is forced to the other end of said compartment, and thence by the feeders E through the opening A<sup>3</sup> into the compartment B, and then by the knives forced to the other end of said compartment and out of the mill by the feeders E on the end of said shaft, substantially as shown and described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 21st day of August, A. D. 1890.

WILLIAM A. PARRY.

Witnesses:

L. W. HOWES,  
EDWIN PLANTA.