

J. O'Neil,
Pug Mill.

N^o 13,224.

Patented July 10, 1855.

Fig: 2

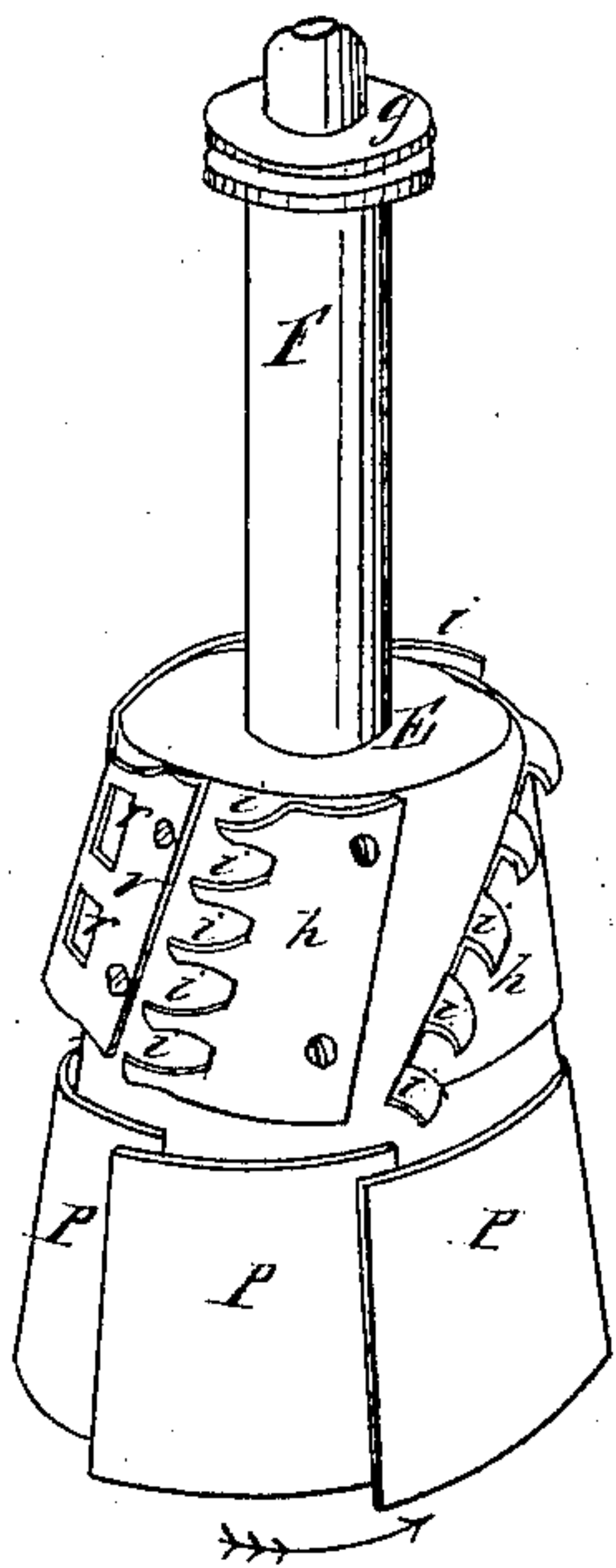


Fig: 1

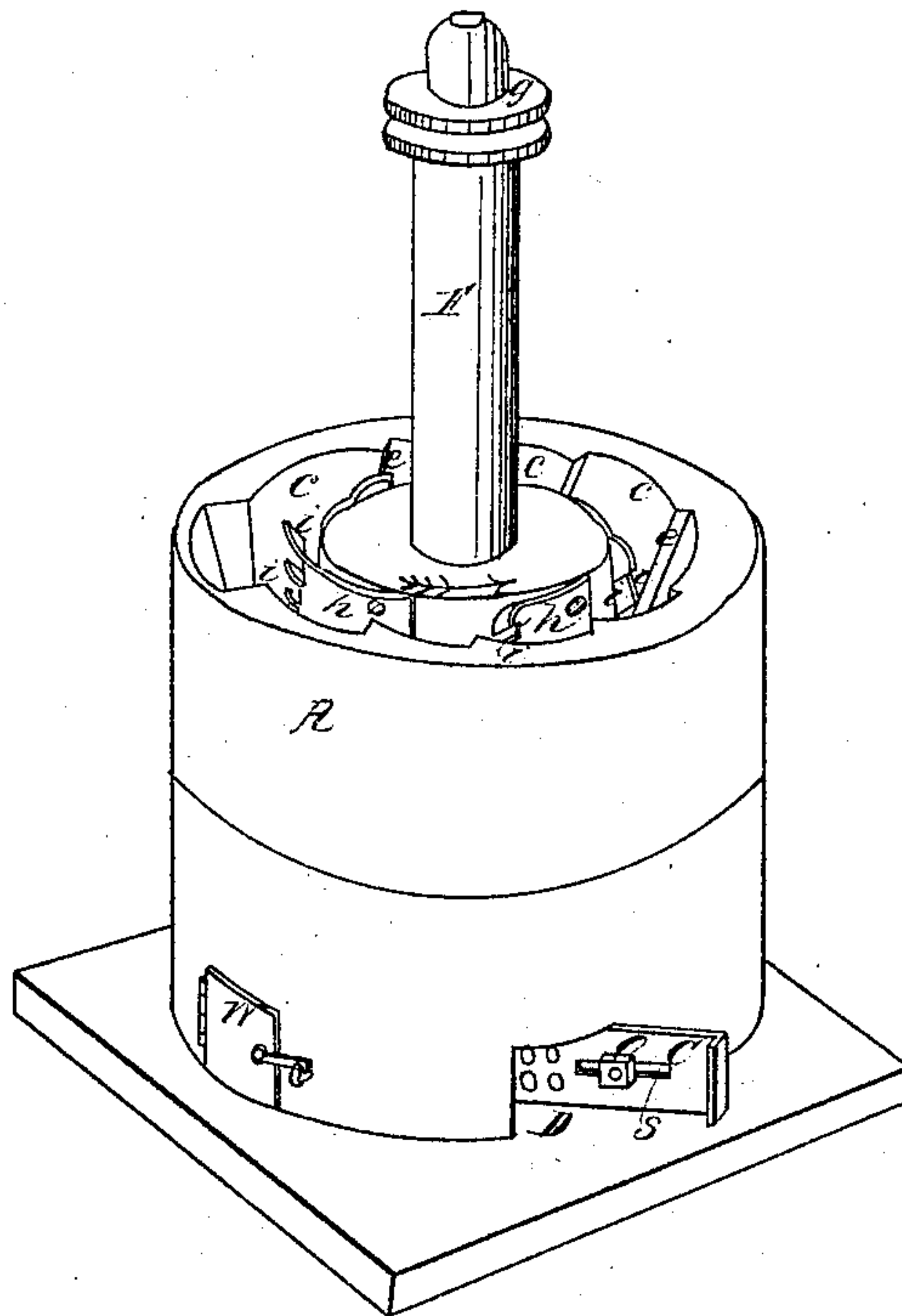


Fig: 3.

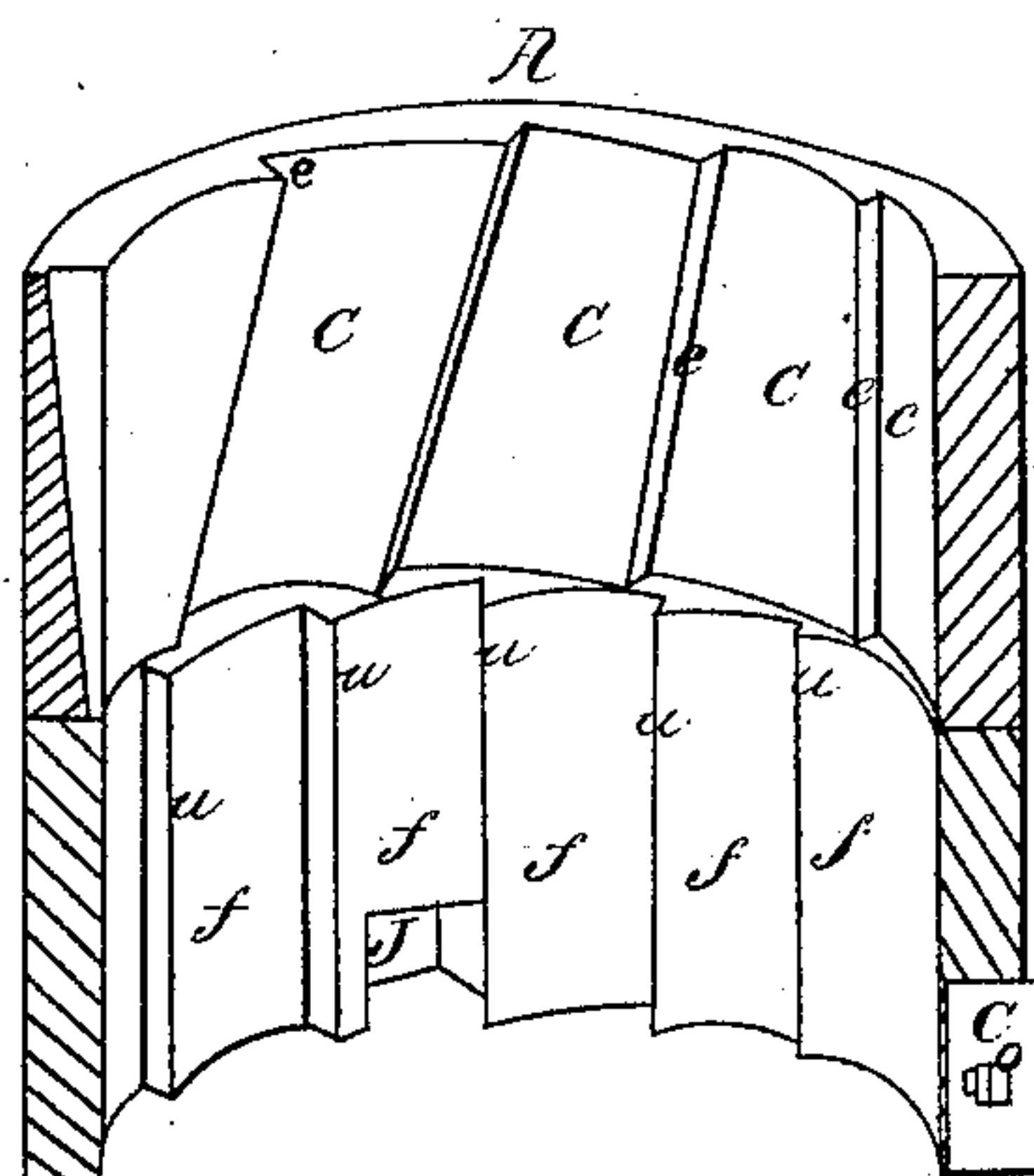
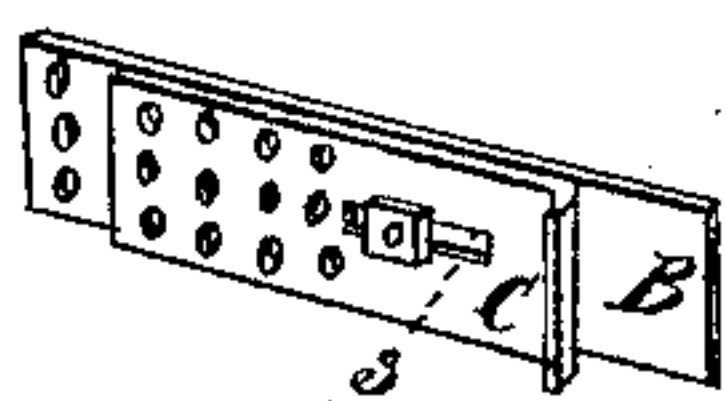


Fig: 4.



UNITED STATES PATENT OFFICE.

JOHN O'NEIL, OF KINGSTON, NEW YORK.

MACHINE FOR PULVERIZING CLAY.

Specification of Letters Patent No. 13,224, dated July 10, 1855.

To all whom it may concern:

Be it known that I, JOHN O'NEIL, of Kingston, county of Ulster and State of New York, have invented certain new and
5 useful Improvements in Machines for Grinding and Tempering Clay in the Manufacture of Brick; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had
10 to the accompanying drawing, forming part of this specification.

The nature of my invention consists in attaching to a cylinder, elastic cutters and rubbing blades for the purpose of pulveriz-
15 ing and tempering clay and other substances.

The same letters indicate the same parts in all the figures.

Figure 1 represents a view in perspective
20 of my improved machine complete. Fig. 2, is a perspective view of the rotating cylinder detached for the purpose of showing more clearly the cutting and rubbing blades. Fig. 3 is a vertical section of the cylindrical
25 hopper or tub for containing the clay, shown also in perspective. Fig. 4, is a perspective view of the perforated door and slide detached.

To enable others skilled in the art to
30 make and use my improved machine for pulverizing and tempering clay and other substances, I will proceed to a description of the same in detail.

(A) in the accompanying drawing repre-
35 sents the hopper or tub for containing the clay which in this instance is made cylindrical but may if found expedient be constructed of any desired number of sides. For convenience I have constructed the
40 hopper (A) in two sections equally divided as shown in Figs. 1 and 3. The upper section of this hopper on its inner surface is formed into a series of inclined planes (c) as represented in Figs. 1 and 3. By thus
45 forming the inner surface of the upper section of the hopper into a series of inclined planes a corresponding number of shoulders or surfaces (e) at right angles to the center of said hopper will be formed for the
50 purpose of resistance to the clay so that the elastic cutters may thoroughly grind or pulverize the clay previous to its passing into the lower section; these shoulders may also be inclined or perpendicular as seen in Fig.
55 3. The inner surface of the lower section is also formed into a series of inclined planes

opposite to those of the upper section, the object of which will hereinafter be described.

(D) is an opening formed in the side of the lower section at or near its base for the
60 egress of tempered clay. This opening is provided with a perforated or grated door (B) and slide (C) for the purpose of regulating the discharge of tempered clay and also to close if necessary the perforations
65 by which means the untempered clay is confined within the hopper (A) and subjected to the action of the rubbing blades until it shall have been reduced to the proper consistency. The perforated door (B) is se-
70 cured to the hopper (A) in any convenient manner. The perforated slide (C) which surmounts the perforated door (B) and whose perforations correspond therewith is secured to the hopper by a bolt (o) passing
75 through a slot (s) by means of which the egress of the clay is graduated or entirely cut if necessary.

(J) represents a recess formed in or attached to the hopper (A) for the reception
80 of stone or other hard substances which may withstand the action of the cutting and rubbing blades. This recess is closed by a strong door (w) in order to prevent the escape of clay and also for the purpose of re-
85 moving the deposits of stone, &c., as often as necessary.

(E) represents a rotating cylinder, to which are secured the cutting and rubbing
90 blades hereinafter referred to. This cylinder is provided with a shaft (F) and pulley (g) through which motion is imparted. To this cylinder are secured two sets of spring blades (h and P) for the purpose of pulver-
95 izing and tempering the clay to a proper consistency. A portion of the outer edges of the upper set of blades (h) are formed into a series of hooked curved teeth (i) for the purpose of pulverizing and forcing the clay
100 into the lower section. It will be seen that by curving these teeth cutting edges are presented to the clay while the lower surfaces are formed into inclines whereby the clay is forced downward into the lower section.

(v) represents a modified form of cutter
105 with oblong slots (r) which may be used if found expedient.

(P) represents a series of spring blades attached to the lower extremity of the cyl-
110 inder (E). These blades being plain present to the previously pulverized clay a smooth, flat surface, by which means the

clay is thoroughly prepared for molding. These blades may, however, be corrugated if found expedient, a further description of which either in drawing or specification I do not deem necessary. The cutting and rubbing blades are secured to the cylinder at the sides opposite to those which perform the pulverizing and rubbing, and are of greater radii than that of the cylinder. In thus forming the blades of a greater radius than that of the cylinder, and attached thereto at the sides opposite to those which perform the pulverizing and rubbing or tempering, they are rendered elastic which permits them to yield in passing over stone or other hard substances without injury.

In order to reduce the clay to a plastic condition suitable for molding, I place the blades (P) at such angles to the cylinder, that they shall bear firmly upon the inclined planes (f) on the lower section of the cylinder. By reference to the drawing it will be understood, that the rotation of the cylinder, the direction of which is indicated by arrows, causes the rubbing blades to yield in ascending the inclined planes (f) until they shall have reached the highest points (u) from which, by their elasticity, they resume their extreme position bearing against the lowest points of the inclined planes.

From the foregoing description and drawing it will be readily understood, that the clay is first pulverized by the yielding cutters (i) and at the same time forced by their

inclined surfaces into the lower section, where it is subjected to the friction produced by the plain or corrugated blades, whose surfaces bear upon the inclined planes formed on the inner periphery of the hopper (A) and thence permitted to escape in such quantities as desired through the perforated door (B) and slide (C).

Having thus fully described my improved machine for pulverizing and tempering clay and other substances, what I claim therein as new and desire to secure by Letters Patent is—

1. The combination of the spring blades with the ridged surface of the cylinder against which they act, substantially as and for the purpose above set forth and described.

2. The combination of the aperture (J) in the depressed part of one or more of the ridges (f), with the spring blades which eject or force out the stones, substantially as above set forth and described.

3. The combination of the cutting or pulverizing blades with the ridged surface of the cylinder substantially as and for the purpose herein described.

4. The perforated or grated door and slide for the purpose of regulating the discharge of tempered clay as set forth.

JOHN O'NEIL.

Witnesses:

JOHN L. SMITH,
H. HOLT.