

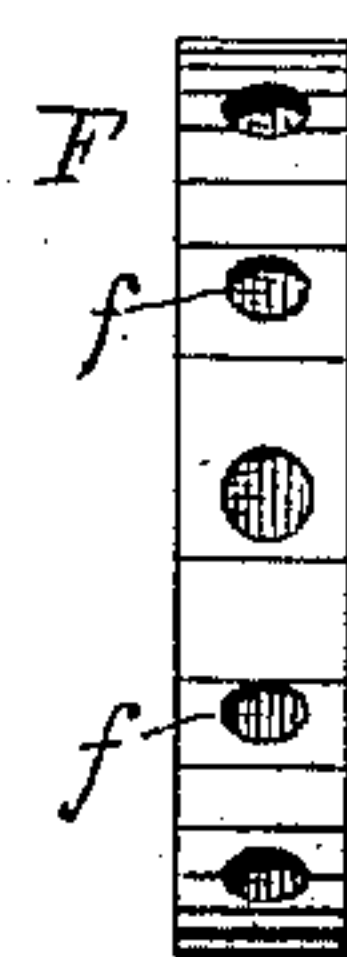
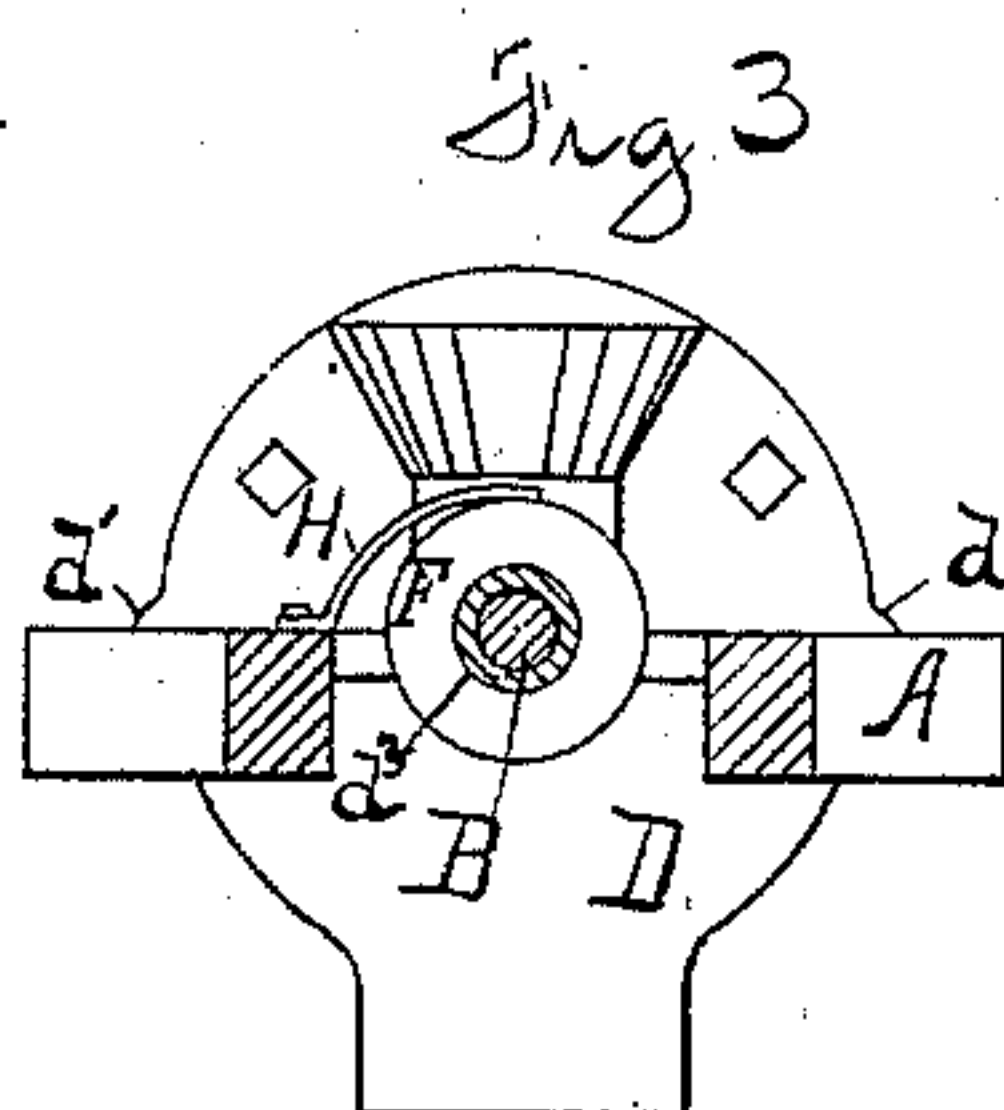
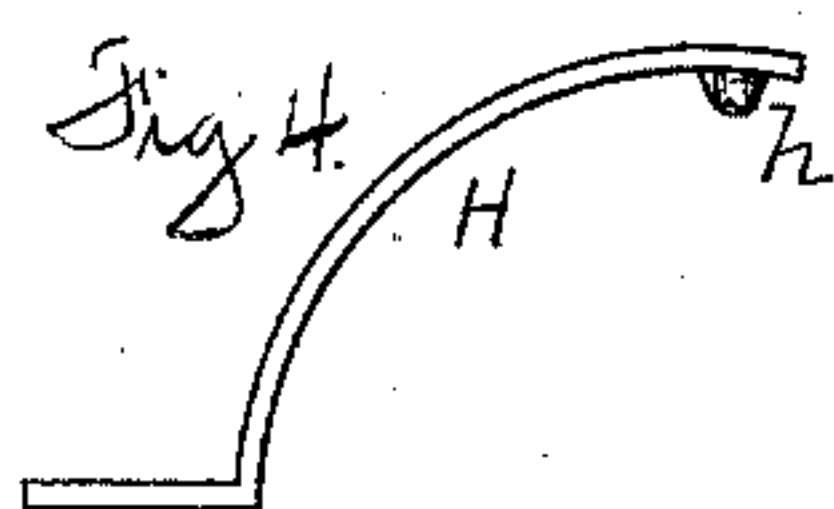
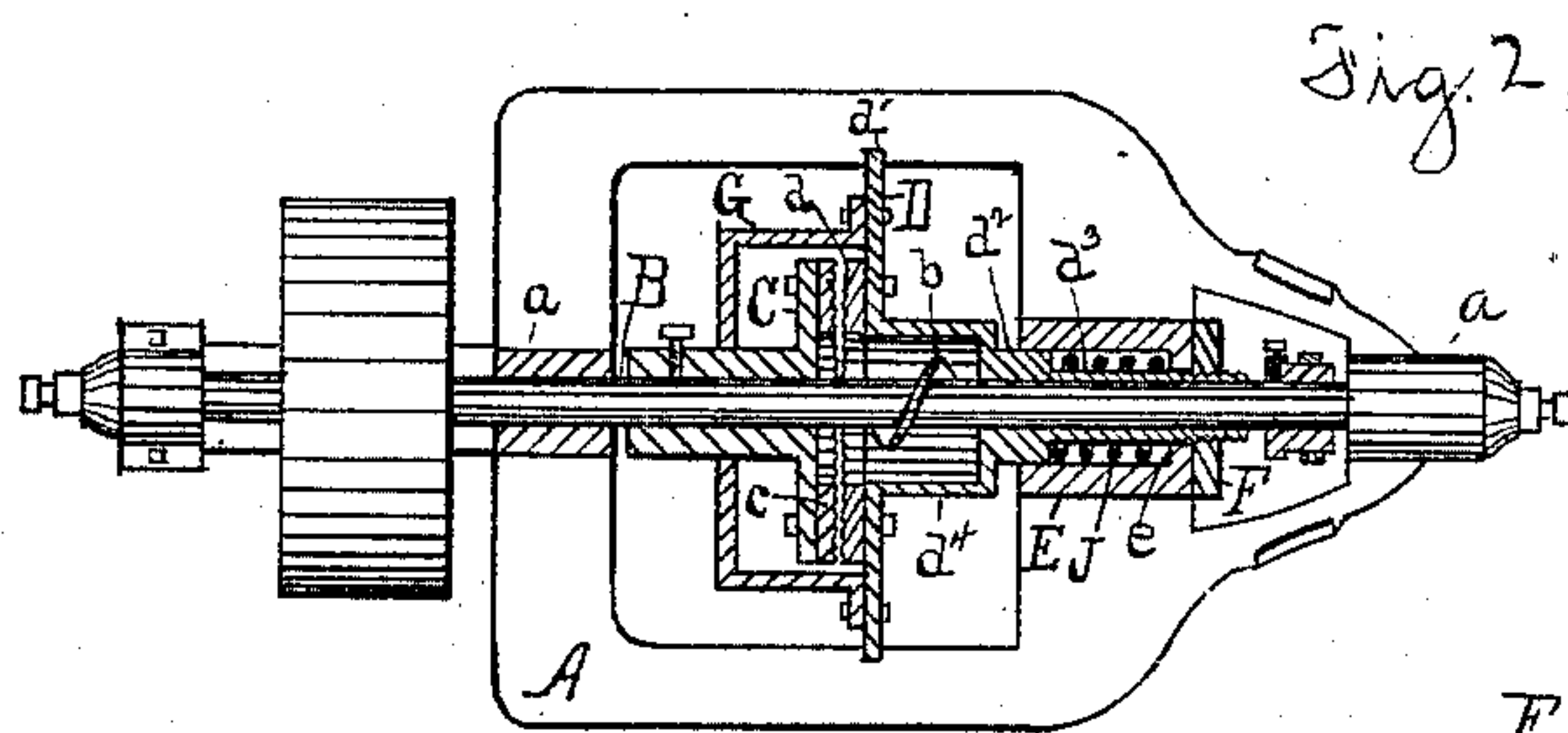
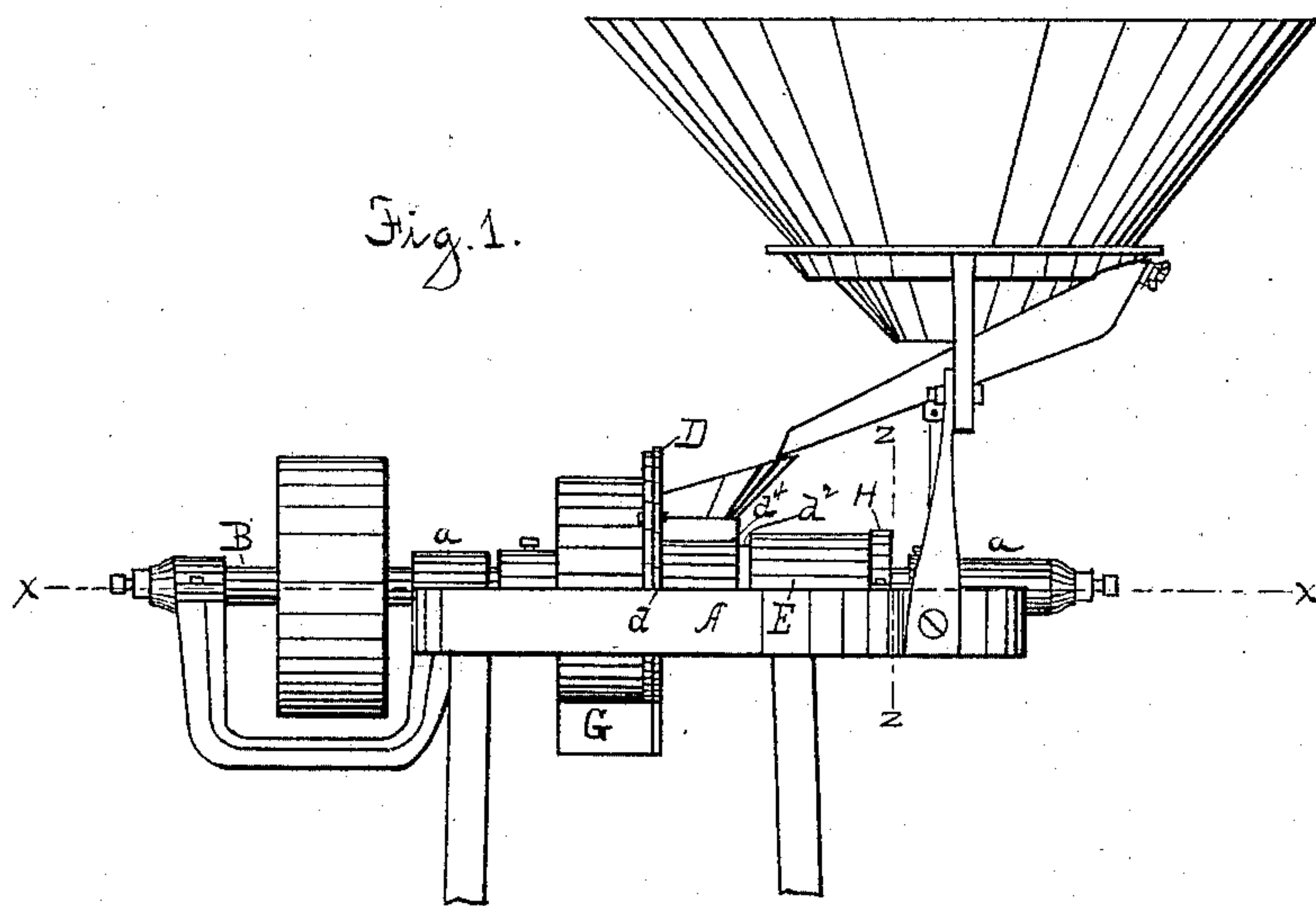
(No Model.)

G. W. RUNDLETT.

GRINDING MILL.

No. 331,087.

Patented Nov. 24, 1885.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## GRINDING-MILL.

SPECIFICATION forming part of Letters Patent No. 331,087, dated November 24, 1885.

Application filed January 23, 1885. Serial No. 153,785. (No model.)

### *To all whom it may concern:*

Be it known that I, GEORGE W. RUNDLETT, of the city of Freeport, in the county of Stephenson and State of Illinois, have invented certain new and useful Improvements in Grinding-Mills, of which the following is a description, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of my improved grinding-mill. Fig. 2 is a cross-section on the line  $xx$ . Fig. 3 is a cross-section on the line  $zz$ . Fig. 4 is a detailed view of the locking-spring, and Fig. 5 is an edge view of the adjusting-nut, both of which will be hereinafter described.

My invention relates to that class of grinding-mills in which the grain or other material is fed in at the center between two vertical grinding-surfaces, one of which revolves while the other remains stationary. It is designed especially as an improvement upon the device shown in Letters Patent of the United States No. 302,826, granted to J. J. Clark and B. Clark, July 29, 1884; and it has for its object the accurate and stable adjustment of the grinding-surfaces relative to each other, whereby the mill may be made to grind uniformly coarse or fine, as desired.

To this end it consists in the construction and combination of parts hereinafter fully described, and definitely pointed out in the claims, whereby the position of the longitudinally-moving grinding-disk is adjusted from the center instead of from the side thereof, as shown in the afore-mentioned Letters Patent No. 302,826, and also in the novel mechanism, whereby the said disk can be locked at any desired point so securely that no jarring of the machinery can disturb its position, while at the same time it will automatically unlock itself when it is necessary.

In the drawings, A represents the main frame of the grinding-mill, which is provided with the bearing  $a a$ , in which the driving-shaft B is mounted.

C represents the revolving disk, which is rigidly mounted upon the driving-shaft B, and which has secured to its inner face the grinding-surface  $c$ .

D represents the non-rotating or stationary head, having the fixed grinding-surface  $d$ , se-

cured to its inner face, and having the ears  $d' d'$  upon the sides, which rest upon the main frame A, and thereby serve to prevent the revolution of said head, and also serve as guides for its longitudinal movement.

G represents a casing, which incloses the grinding-surfaces  $c d$ , and which has an aperture at its lower side through which the ground material escapes.

The head D is provided with a rearwardly-projecting hub varying in diameter at different points, as hereinafter described, and having a central bore, through which the shaft B passes, and in which it revolves freely. Directly behind the head D is the largest part of the hub, marked  $d^4$ , (which is a hollow cylinder in form,) and has an opening at its upper side, into which the grain passes, and is thence conveyed by the screw-conveyer  $b$  upon the shaft B to the grinding-surfaces. The portion  $d^2$  of the hub is directly behind the part  $d^4$ , and should be smaller in diameter and should fit as accurately as practical in the box E upon the frame A. Back of the part  $d^2$  the hub again grows smaller, forming the thimble or part  $d^3$ , which has a screw-thread upon its outer end.

E represents a box upon the frame A, having at its outer end the inwardly-turned annular flange  $e$ . Within this box E a portion of the hub of the head D rests, as shown in Fig. 2. Inclosed within the box E, and surrounding the hub at  $d^3$ , is the coiled spring J. This spring J thrusts against the annular flange  $e$  upon one side, and against the shoulder formed upon the hub by the part thereof marked  $d^2$  on the other, thereby exerting a constant tendency to force the head D toward the revolving head or disk C. This spring is made strong enough to hold the head D to its work, but will yield and permit the head D to move backward, so that any hard foreign bodies which may get between the grinding-surfaces  $c$  and  $d$  may pass through without injury to said grinding-surfaces.

F represents a nut, preferably of the form shown in Figs. 3 and 5, which screws onto the outer end of the hub  $d^3$ , and by bearing against the outer end of the box E draws the head D away from the head C to any desired point. This device for adjusting the position



of the head D acts centrally upon said head, and its advantage is clearly to be seen by a comparison with the said Letters Patent No. 302,826. In that patent the adjustment, it will be seen, is made by a rod acting upon one side of the center of said head, and the tendency therefore is to tilt or cant the head. If there be any looseness between the hub and the bearing in which it rests, the hub will be drawn out of the perpendicular and the grinding-surfaces will be nearer upon that side of the center opposite the adjusting-rod; and this improvement is designed to overcome this difficulty developed by practice and experience.

The preferable form of the nut F is shown in Figs. 3 and 5, and consists in a flat circular disk provided with the peripheral apertures *f f* at suitable intervals. The nut is revolved by means of a pin or key, one end of which is put into one of the apertures *f f*, thereby forming a hand-lever.

Secured to the frame A by a bolt or other suitable means is the flat spring H, having the downwardly-projecting tapering or rounded nipple or stud *h* attached to the under side of its upper end. The spring H presses downward and forces the nipple *h* into the peripheral aperture in the nut beneath it. The spring is strong enough to prevent any jar of the machinery from shaking the nipple *h* out of the opening *f* in which it rests, and the nut is thus held stationary, and the adjustment of the grinding-surfaces thus remains undisturbed. When it is desired to alter the adjustment, a key or pin is inserted into one of the apertures *f*, and the nut thereby revolved in the desired direction. In beginning the revolution of the nut F the side of the aperture *f* in which the nipple rests presses against the tapering side of said nipple, thereby forcing it up and out of the hole, when the nut is permitted to revolve. When the revolution of the nut ceases, the

nipple again enters the aperture *f* beneath it and locks the nut.

Another important advantage of this form of nut-lock in a grinding-mill is that when any hard body gets between the grinding-surfaces the head D, and with it the nut F, is forced backward. The lateral pressure against the tapering sides of the nipple *h* forces it up and out of the aperture and permits the necessary longitudinal movement of the head. When the foreign substance is removed and the spring J returns the head D to its former position, the nipple *h* again enters the aperture *f* and locks the nut.

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

1. In a grinding-mill, the combination of the non-rotating head with a rearward-extending hub having a shoulder thereon and a threaded end attached centrally thereto, substantially as and for the purpose set forth.

2. The combination of the non-rotating head having a rearward-extending hub having a shoulder thereon and a threaded end, a stationary box upon the main frame, having an inwardly-turned annular flange with a spring surrounding said hub and inclosed within said box, and a nut upon said hub which bears against said box, substantially as and for the purpose set forth.

3. In a grinding-mill, the non-rotating longitudinally-moving head having a rearward-extending hub with a threaded end, in combination with a nut having a series of peripheral apertures and a spring attached to the main frame having a tapering nipple near its upper end, substantially as and for the purpose set forth.

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