

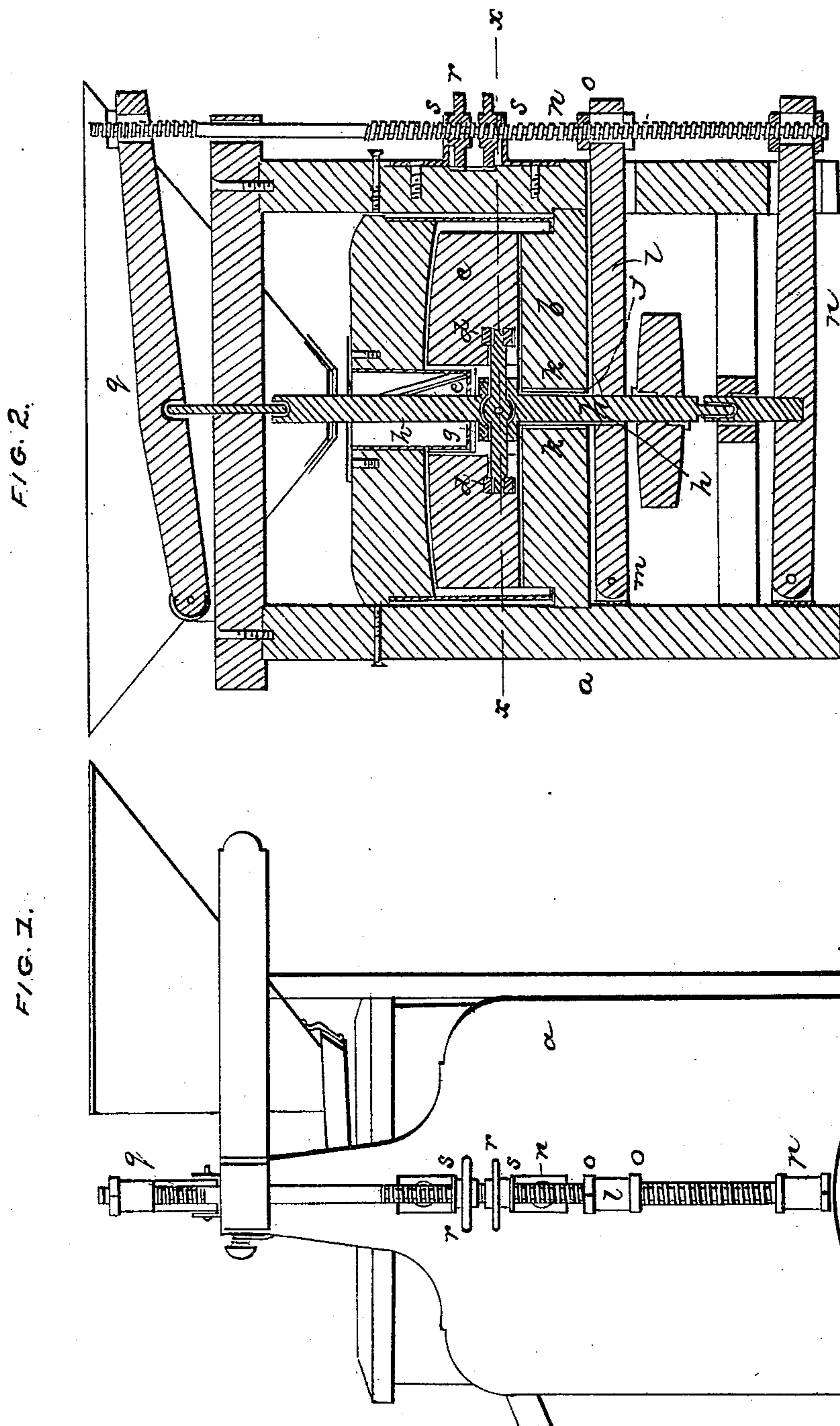
C. W. BROWN.

**2 Sheets—Sheet 1.**

## Grist Mill.

No. 7,016.

Patented Jan'y 15, 1850.



C. W. BROWN.

2 Sheets—Sheet 2.

Grist Mill.

No. 7,016.

Patented Jan'y 15, 1850.

FIG. 4. x. x.

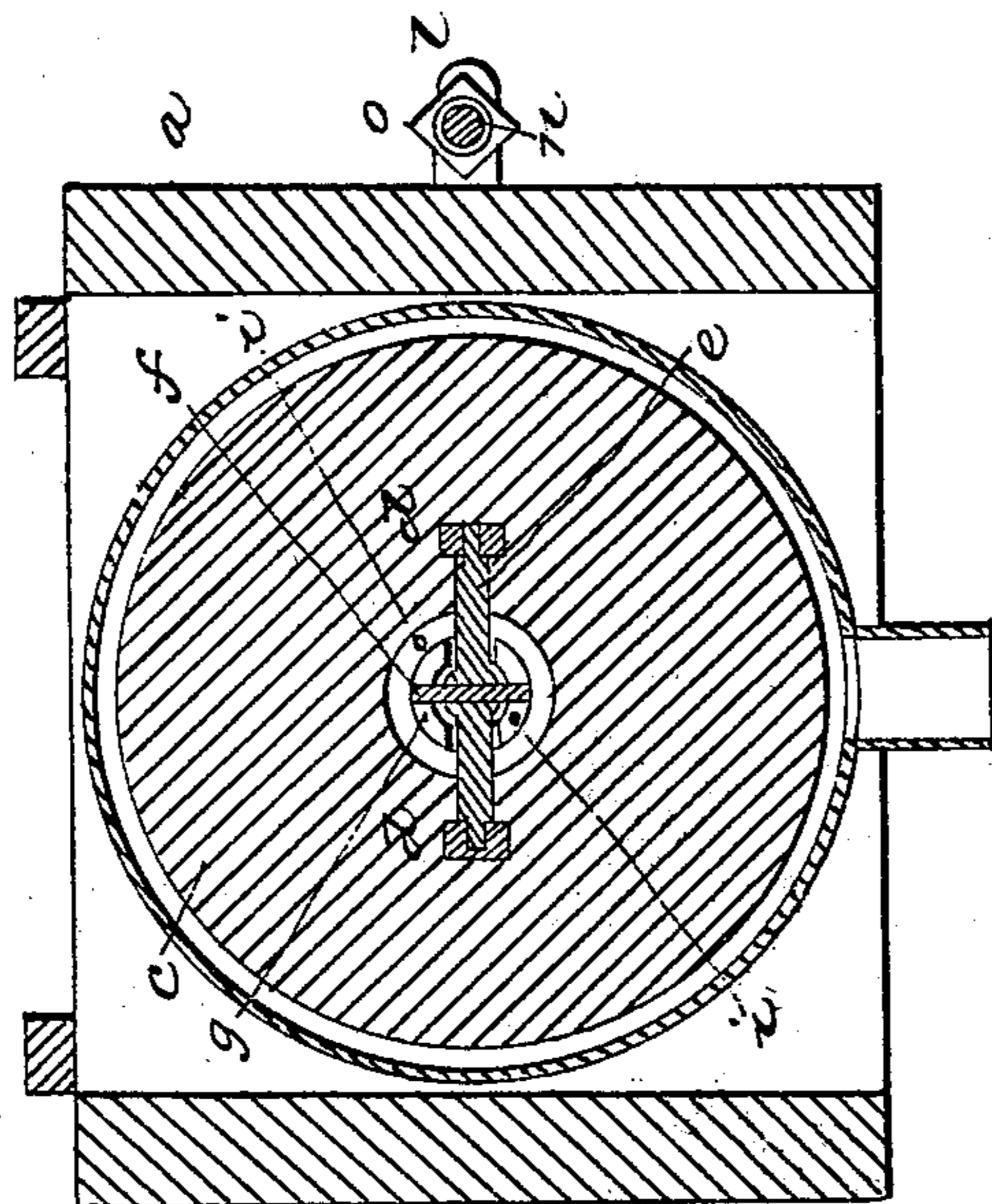


FIG. 5.

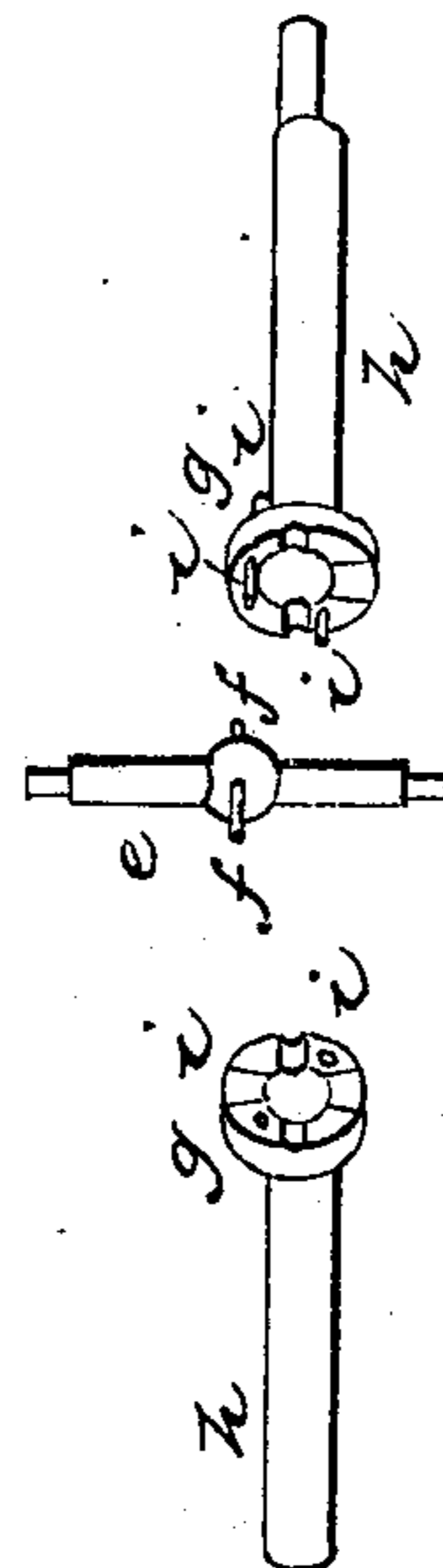
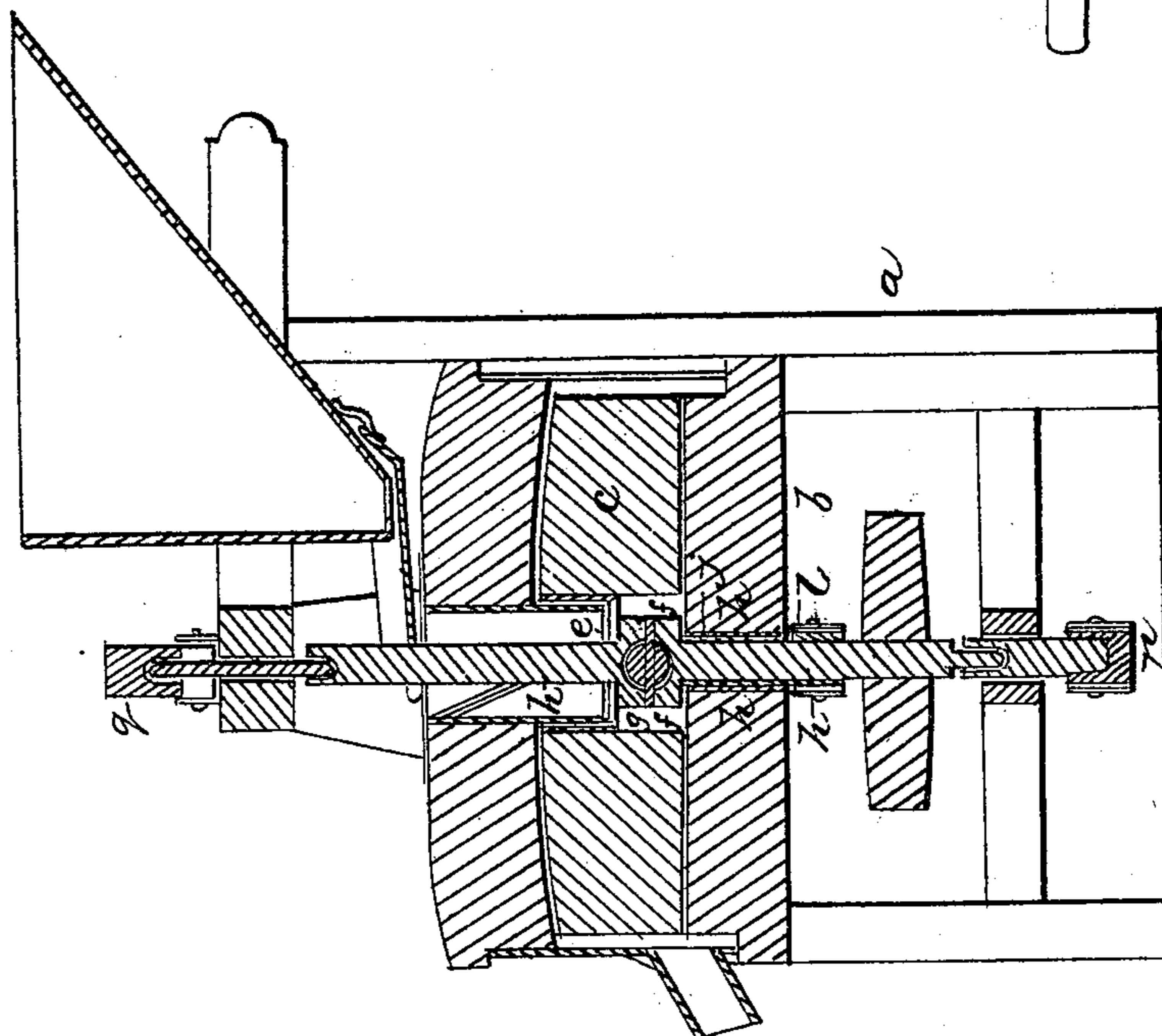


FIG. 3.



# UNITED STATES PATENT OFFICE.

CHARLES W. BROWN, OF BOSTON, MASSACHUSETTS.

## MILL FOR GRINDING.

Specification of Letters Patent No. 7,016, dated January 15, 1850.

*To all whom it may concern:*

Be it known that I, CHARLES W. BROWN, of Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Grist-Mills, and that the following is a full, clear, and exact description of the principle or character which distinguishes them from all other things before known and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification; in which—

Figure 1, is an elevation of the mill; Fig. 2, a vertical section passing through the axis of the mill spindle; Fig. 3, another vertical section taken at right angles to Fig. 2; Fig. 4, a horizontal section taken at the line (X, X,) of Fig. 2, and Fig. 5, a separate view of the two parts of the spindle separated.

The same letters indicate like parts in all the figures.

In the construction of grinding mills the runner has been, by various modes, suspended between the spindle and damsel so as to admit of adjusting the grinding surface of the runner to that of the stationary stone; but as the runner must have free play on the spindle that its surface may adjust itself to run true during the rotations it has been hung by a ball on the spindle, the damsel being made to rest on the bale above its connection with the spindle, or on the end of the spindle, in which latter case the bale is made to embrace the spindle. These various modes have been found in practice to be defective for the reason that when the bale is pivoted between the spindle and damsel the bearing points of the two are one above the other and prevent the free play of the runner, and if the bale be made to embrace the end of the spindle then the runner can only play on this connection against the friction due to the driving power, for the whole driving power is communicated to the runner through this connection. And finally as the spindle, bale and damsel are separate and only held together by drawing together the bridge tree and upper lever, great care must be observed to keep all these in proper condition.

The object of the first part of my invention is to avoid these defects and consists in constituting the mill spindle one arm of a universal joint; the other arm of the said

joint being pivoted to the runner so that the runner has free play to adapt itself to the grinding surface of the stationary stone.

The second part of my invention consists in employing a sliding tube between the bush of the stationary stone and the spindle, the upper end of the said tube being fitted to the under surface of a collar on the spindle, and the lower resting on a secondary bridge tree which moves with the main bridge tree, so that the tube shall move up and down with the spindle when the runner is adjusted, the lower or second bridge tree being also adjustable relatively to the main bridgetree, so that the tube shall move up the collar of the spindle to prevent the passage of meal, &c., into the tube.

In the accompanying drawings (a) represents the frame of a portable mill, (b) the stationary stone, and (c) the runner which has two metal boxes (d, d,) let in from the face and outside of the eye, which boxes receive the journals of the second arm (e) of a universal joint. The fulcrum of this arm are two journals (f) at right angles which turn freely but accurately in sockets made for that purpose in an enlarged boss or collar (g) of the mill spindle (h), the said boss or collar being cut out to receive the arm (e) of the said universal joint and of sufficient size to allow the requisite vertical play of the said arm. For the purpose of inserting the arm of the joint in the boss or collar of the spindle it is made in two parts, as shown in the separate section Fig. 5, and after the arm has been inserted the two parts are united by screws (i). In this way it will be seen that the arm of the joint has a free play in one direction on the spindle, and the runner has a free play at right angles thereto, on the arm, thus constituting a universal joint which will admit of the free self adjustment of the runner to the face of the stationary stone, and this too without the binding which exists in other plans before known.

The spindle passes through a tube (j) which slides freely in the bush (k) of the stationary stone, its upper end being fitted to the under surface of the collar or boss of the spindle, and its lower end resting on a second bridge tree or lever (l) which is hung on a fulcrum (m), the other end of the said lever being pierced so that the adjusting screw rod (n) passes through it there being two adjusting nuts (o, o,) one

above and the other below the lever by means of which the sliding tube can be accurately adjusted to the under surface of the said collar.

- 5 The lower end of the spindle is pivoted and turns in a step on the main bridge tree (*p*) connected with the adjusting screw rod (*n*) and the upper end of the said spindle is in like manner connected with a top pres-  
10 sure lever (*q*) also connected with the adjusting screw rod. All the levers or bridge trees are connected with the rod by means of nuts to admit of separate adjustment; and on the screw rod there are two adjusting  
15 nuts (*r, r,*) which work between collars (*s, s,*) on the frame, so that after the various parts have been adjusted relatively to each other the surface of the runner can be

adjusted to the face of the stationary stone by the nuts (*s, s*) to regulate the degree of grinding, while the universal joint connection of the runner with the spindle admits of the free play that the two grinding surfaces may be self adjusting, and without binding or strain. 20

I claim— 25

The employment of a sliding adjustable tube within and in combination with the bush of the stationary stone and the spindle, for the purpose and in the manner substantially as described. 30

CHARLES W. BROWN.

Witnesses:

C. W. M. KELLER,  
M. GRANDIN.