

J. M. Clark,

Mill Bolt.

No. 2,082.

Patented May 13, 1851.

Fig. 3.

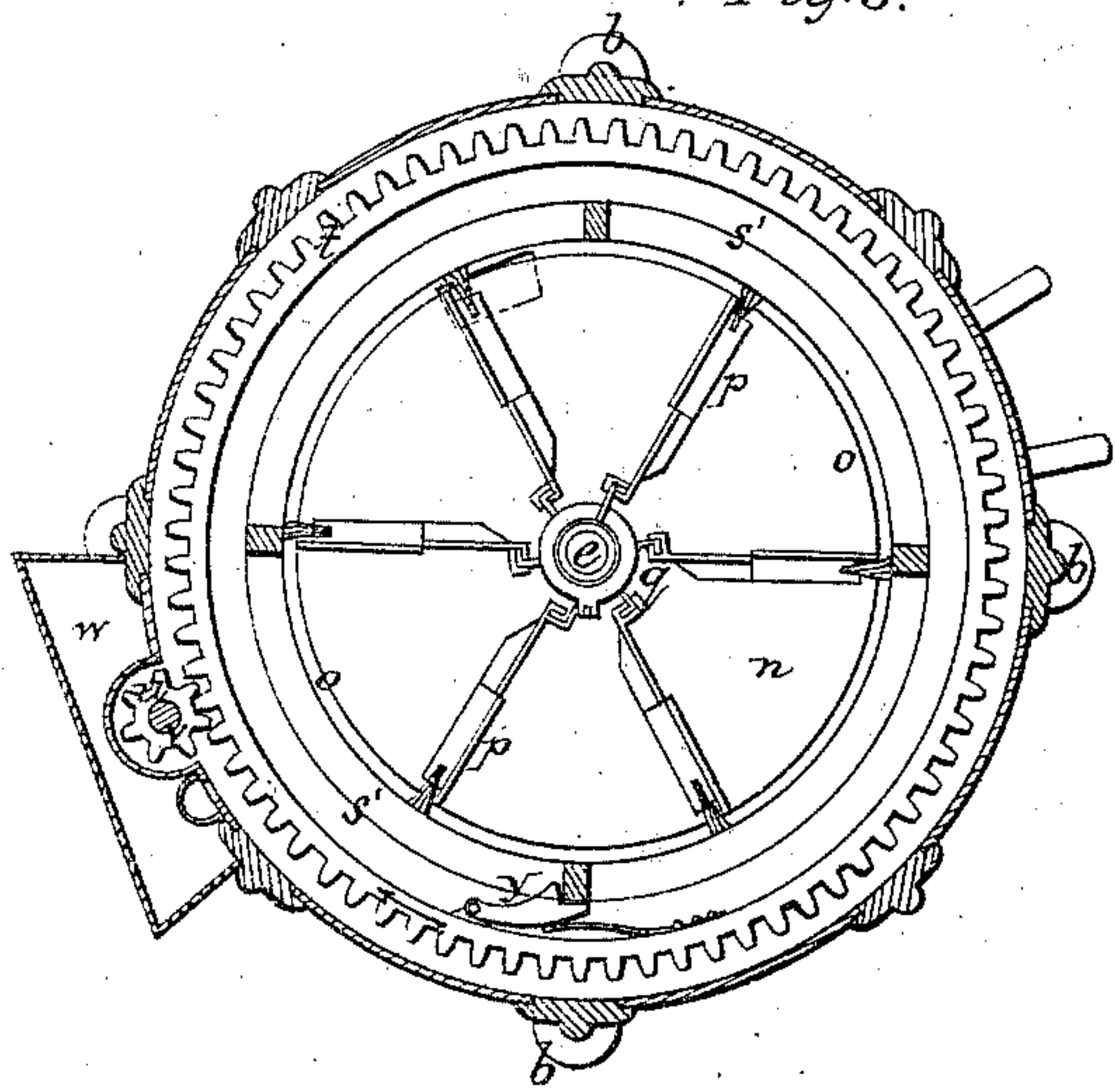


Fig. 2.

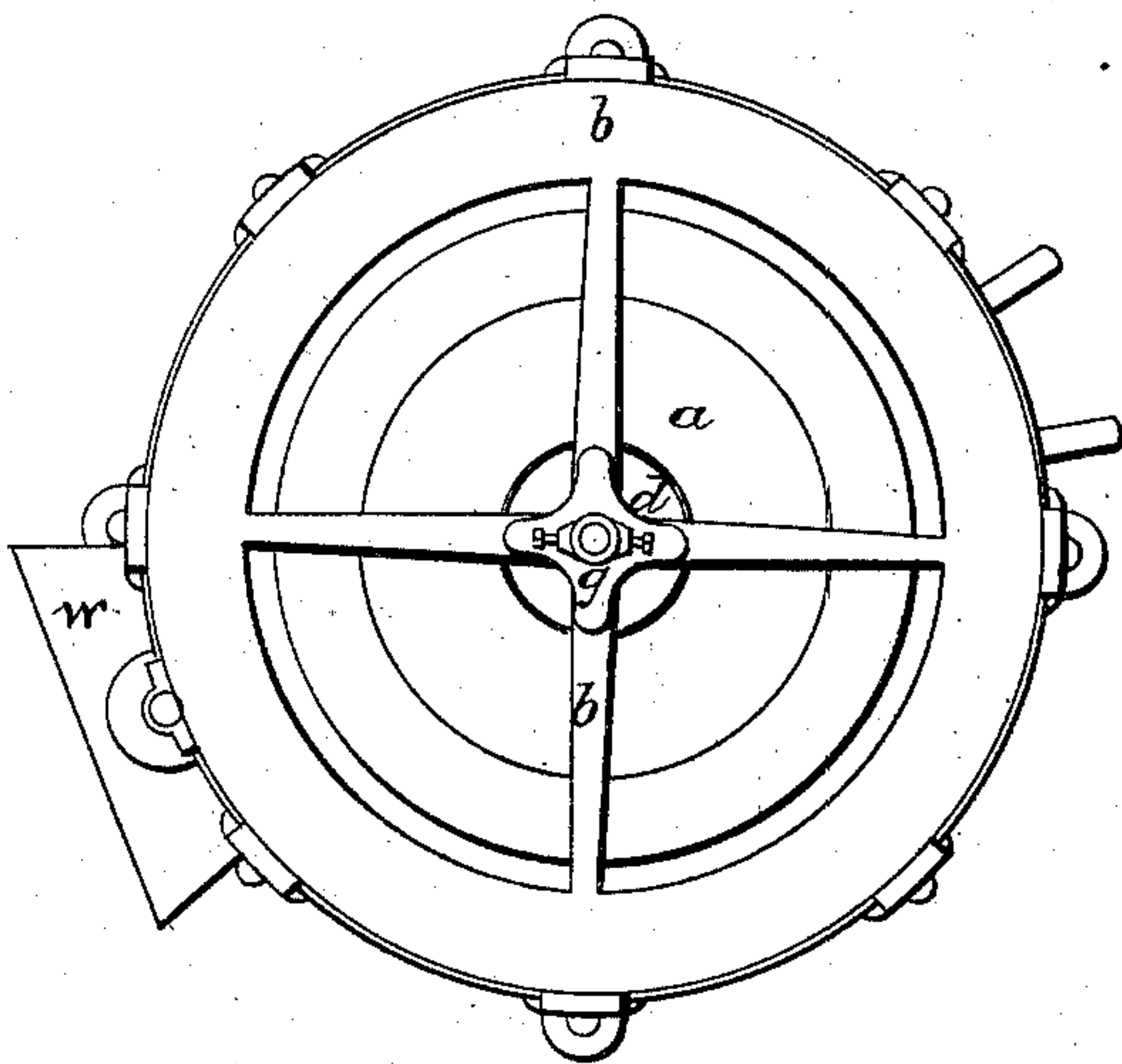


Fig. 4.

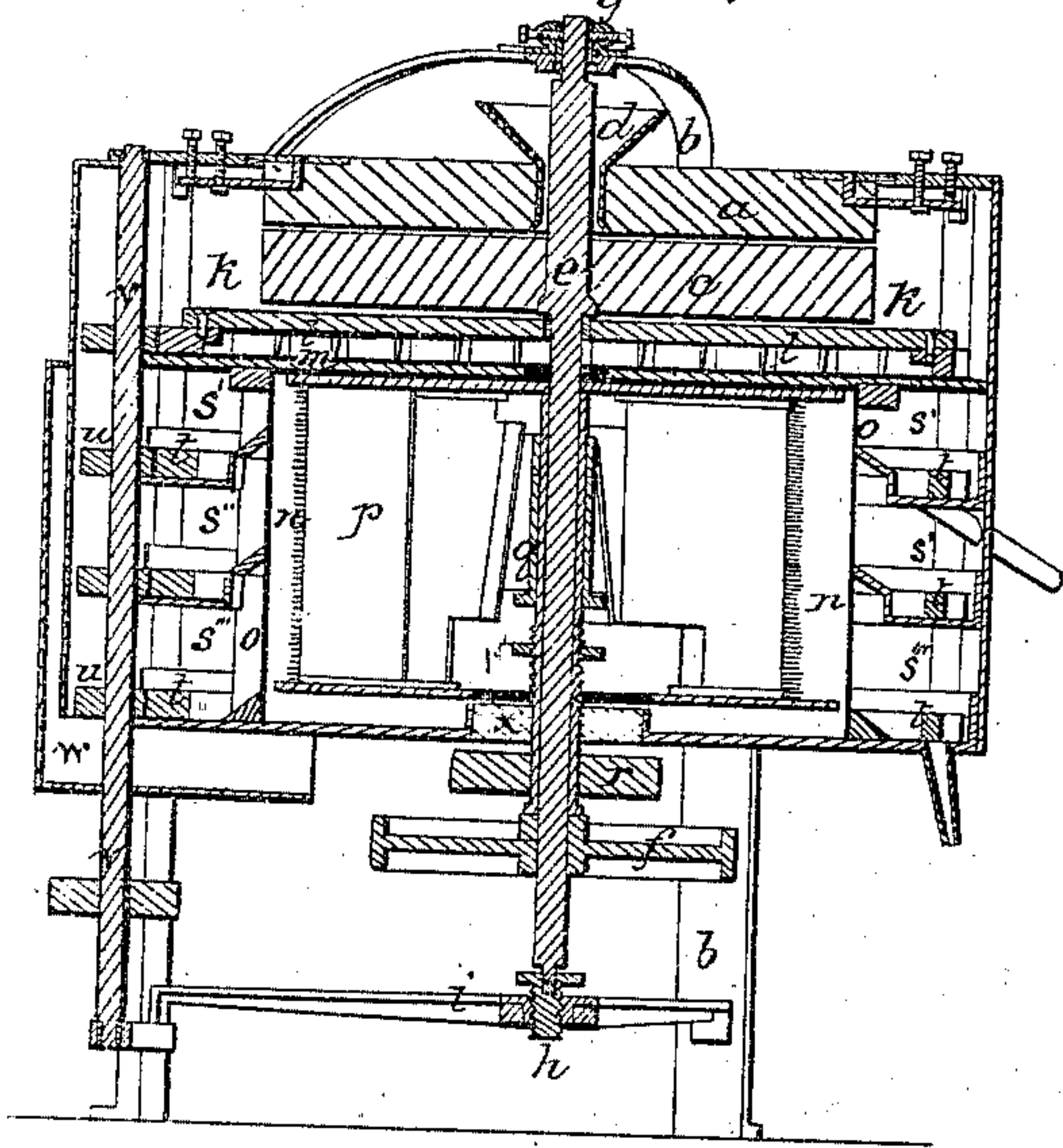
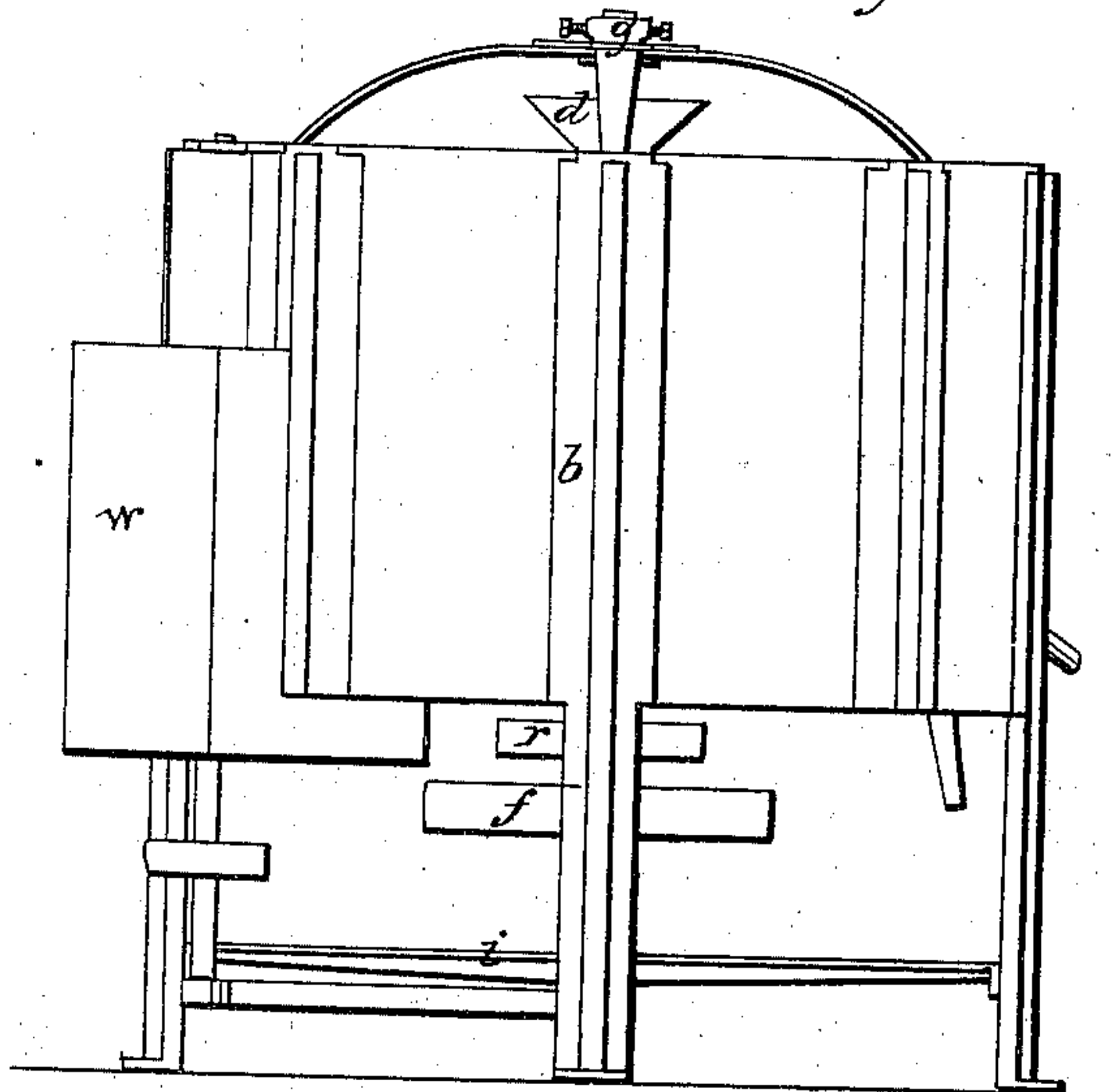


Fig. 1.



UNITED STATES PATENT OFFICE.

JAMES M. CLARK, OF LANCASTER, PENNSYLVANIA.

FLOURING APPARATUS.

Specification of Letters Patent No. 8,089, dated May 13, 1851.

To all whom it may concern:

Be it known that I, JAMES M. CLARK, of Lancaster, in the county of Lancaster and State of Pennsylvania, have invented certain Improvements in Grinding and Bolt-
5 ing, 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 usual
10 manner of making, modifying, and using the same, reference being had to the accompanying drawings, of which—

Figure 1 is an elevation, Fig. 2 a top plan, Fig. 3 a horizontal section, and Fig. 4 a ver-
15 tical section.

My several improvements have for their objects the production of a compact flouring mill in which all the operations of grinding, bolting, &c., are perfectly performed and the
20 different products of the wheat separated and delivered at different openings; and the whole apparatus being contained in a few cubic feet, and from the small number of parts and their concentric arrangement a
25 great saving of power is experienced by obviating friction and at the same time each part is made capable of accurate adjustment.

In the drawings (*a*) is the upper bur stone which is fixed to a cast iron frame (*b*)
30 which also supports and contains the whole apparatus.

(*d*) is the hopper through which the wheat falls between the stones.

(*e*) is the lower bur stone which revolves
35 upon the upright shaft (*e*) which is driven by a belt around the pulley (*f*). The upper end of the shaft (*e*) runs in an adjustable collar (*g*) and the lower end in a step (*h*). This step has a screw cut on its exterior
40 which works in a female screw in the cross bar (*i*). As the stones wear away the shaft (*e*) is elevated by turning the step, by means of a wrench, at the same time a new surface of the step is brought to sustain
45 the lateral wear of the end of the shaft which is always in one direction owing to the tension of the driving belt. The wheat escapes at the periphery of the stones into the chamber (*k*) in which is a revolving
50 "hopper boy" (*l*) which collects and slowly conveys the flour to the center hole in the floor (*m*); at the same time the wheat becomes cooled by the air passing over it to supply the fan below. After grinding and
55 cooling the flour falls into the chamber (*n*)

which is surrounded by an upright cylinder of wire gauze (*o*), which may be composed of cylinders of different degrees of fineness those lowest in position being the coarsest. Within the bolting cylinder (*o*) is the re-
60 volving fan (*p*) having adjustable arms which may be furnished with brushes on their outer edges. The arms of the fan (*p*) are attached by adjustable fastenings to a tubular shaft (*q*) which revolves on the
65 shaft (*e*) and is driven by a pulley (*r*). By this means I am enabled to drive the two shafts at different rates suited to the several operations they perform; and there is inci-
70 dentally a great saving of friction by running one shaft upon another which is also running in the same direction. The exterior of the bolting cylinder (*o*) is divided horizontally into several compartments (*s*)
75 which serve to assort the different products of the wheat, the lighter and finer particles of which (the superfine flour) passing through the upper part of the bolt into the chamber (*s'*) and the coarser and inferior
80 products passing through the bolt in to the lower compartments, (*s'' s'''*) of which there may be as many as there are different quali-
ties desired, such as fine flour, middlings, ship stuff &c. The bran alone remains be-
85 hind in the chamber (*n*) from which it escapes by a spout. The several chambers (*s*) are provided with spouts to convey away their contents, which contents are carried to the spouts by annular carriers (*t*), being in
90 the form of rings with coggled edges by which they are made to revolve by pinions (*u*) on an upright shaft (*v*), which also gives motion in a similar manner to the hop-
per boy (*l*). The annular carriers (*t*) have projections at intervals which push the flour
95 round till it comes to the spout where it falls through. A passage for the escape of the air which is forced with the flour through the bolting cylinder, is provided by the chamber (*w*) into which are openings from
100 the annular chambers (*s*); this passage is continued under the floor of the bolting chamber, to near the center hole thereof, and any flour which may not have settled in the annular chambers, is thrown underneath,
105 and is drawn again into the bolting chamber by the draft through the center hole (*x*) which supplies the fan with air.

The wings of the fan may be made with or without the brushes at their extremities,
110

as it is found that in some instances a better effect may be produced without the brushes in which case the blast alone carries the flour through the bolt. The upper stone in
5 this mill may be made the running one if desired. In some instances I attach to the annular carriers pieces which rap on the posts which support the bolting cloth, and thereby jar the cloth, and detach any flour which
10 may adhere to the cloth. I either use revolving knockers which are operated by stationary detents on the posts, or knockers attached to the posts and operated by detents on the annular carriers.
15 (y) is a revolving knocker attached to one of the carriers (t) and pressed inwards by a spring. As the carrier revolves the knocker is lifted by the inclined part coming in contact with the posts, and when the notch
20 comes to the edge of the post, it suddenly springs inwards and the head of the knocker jars the bolting cloth for the purpose before mentioned.

Having thus described my improvements

what I claim as new therein and desire to 25 secure by Letters Patent is—

1. I claim, the arrangement of the “hopper boy” revolving on the same center as the stone, and the chamber beneath the stone by which the flour is cooled as it is conveyed 30 to the center opening of the bolt substantially as set forth.

2. I claim, the annular or endless conveyers for conveying the flour &c in the several annular chambers to the spouts, the 35 same being operated in the manner herein described.

3. I claim, in combination therewith the air passage (w) for returning the particles 40 of flour which would otherwise escape, to the center hole of the floor of the bolting chamber, to be drawn in again by the draft substantially in the manner set forth.

JAMES M. CLARK.

Witnesses:

THOMAS MATEE,
AND. McMASTER.