

C. W. BROWN.

Paint Mill.

No. 12,431.

Patented Feb. 20, 1855.

Fig. 1,

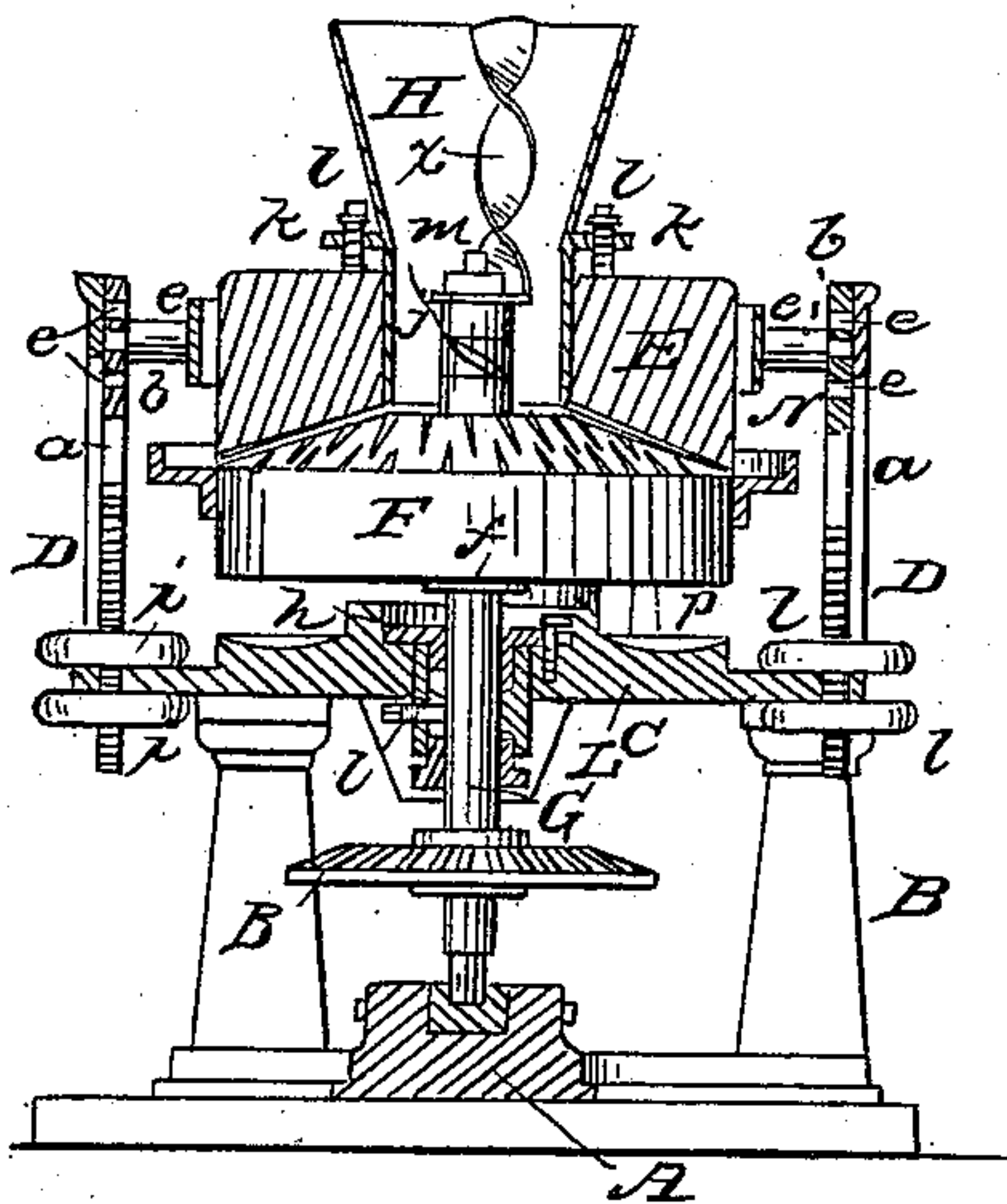


Fig. 2,

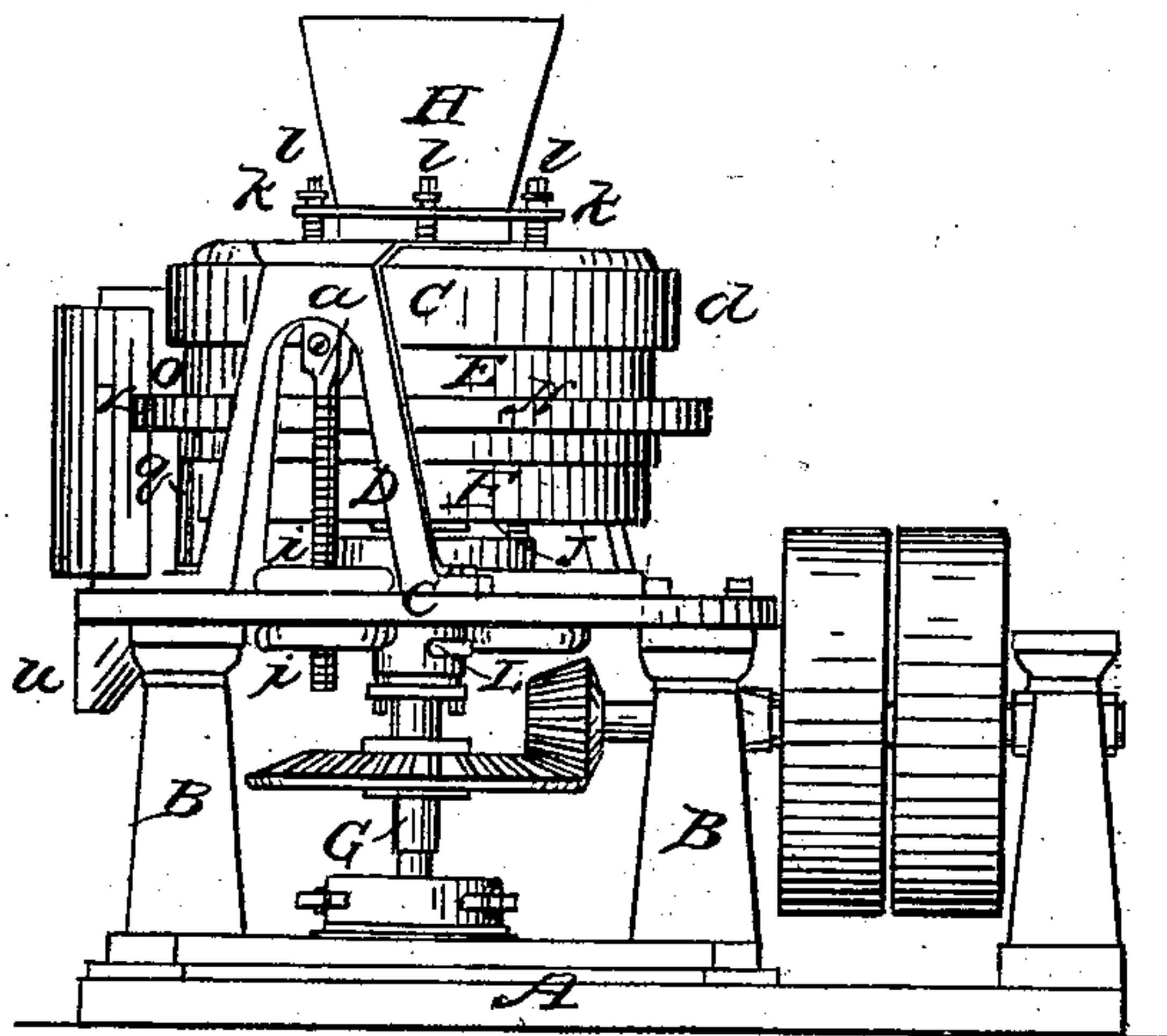


Fig. 4,

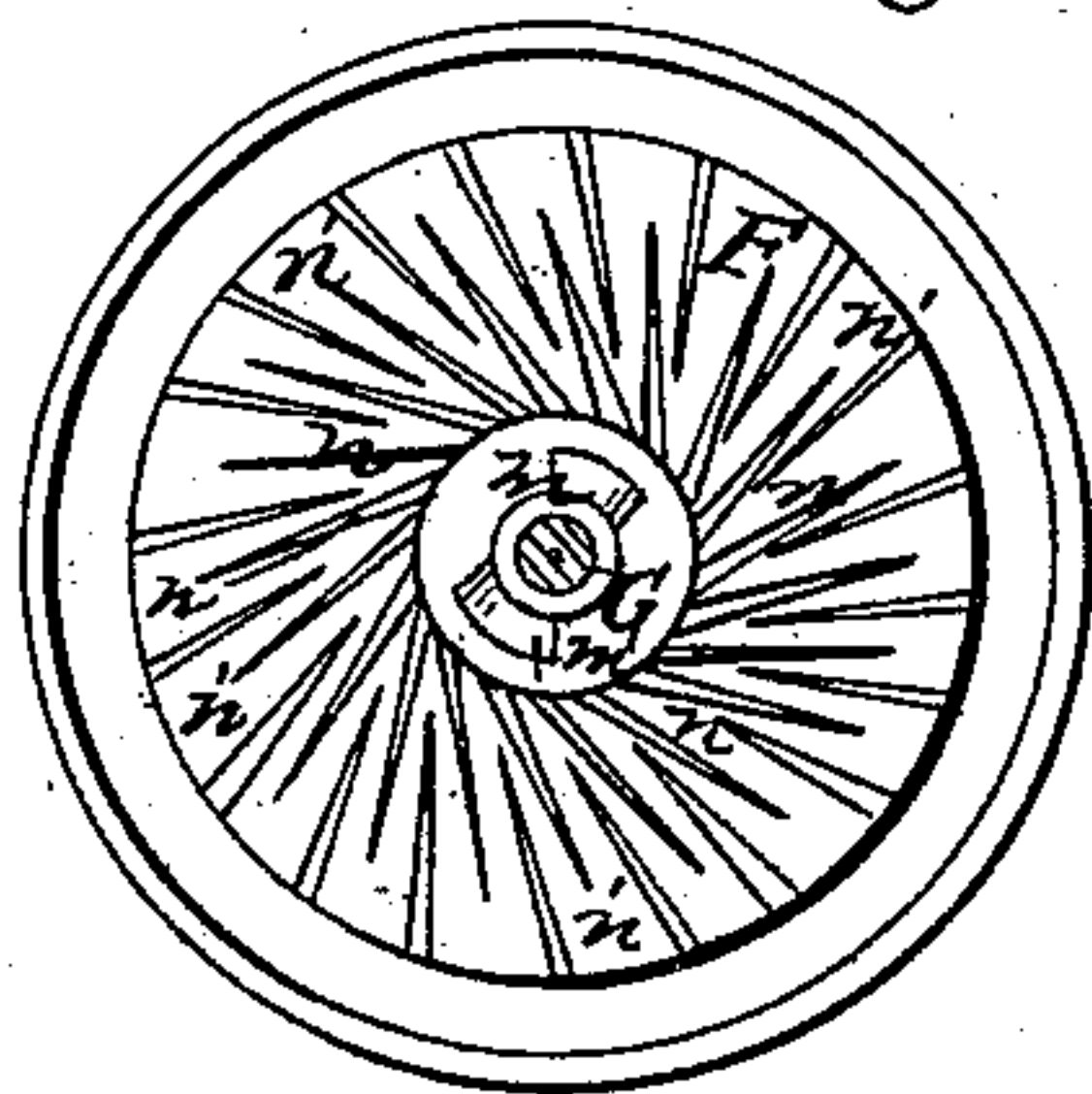


Fig. 3,

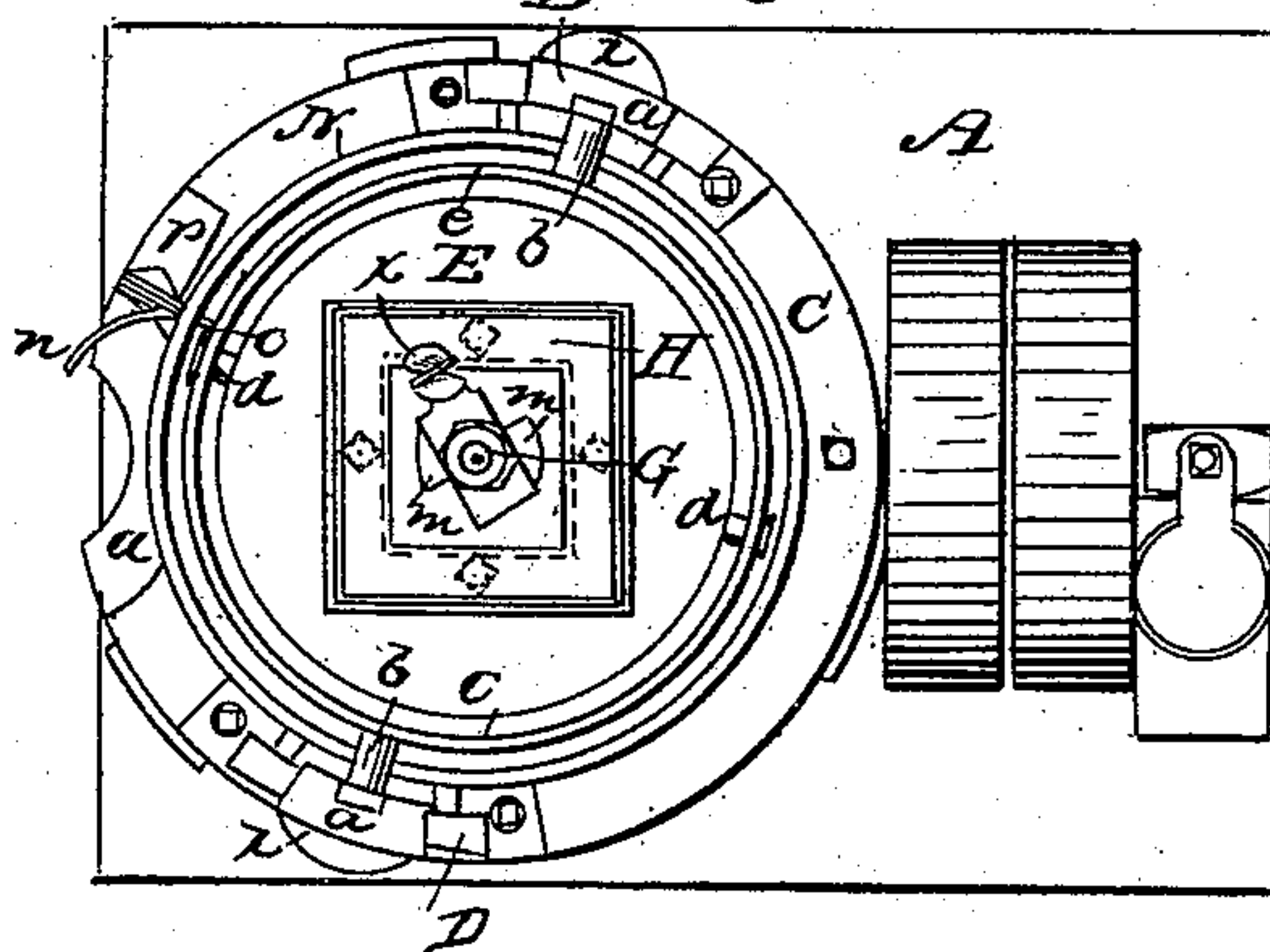
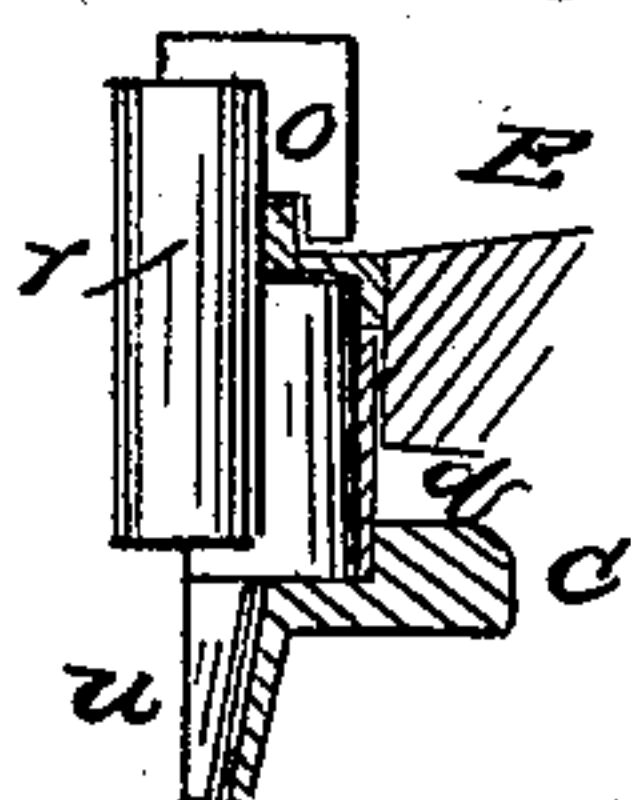


Fig. 5,



WITNESSES

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# UNITED STATES PATENT OFFICE.

CHARLES W. BROWN, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO GEO. W. BANKER AND GEO. O. CARPENTER.

## PAINT-MILL.

Specification of Letters Patent No. 12,431, dated February 20, 1855.

*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 certain new and useful Improvements in Mills for Grinding Paint and other Moist Substances; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, is an elevation of a paint mill, having my improvements. Fig. 2, is a vertical section of the same, taken nearly at right angles to Fig. 1, but shows the runner and spindle entire. Fig. 3, is a plan of the same. Fig. 4, is a top view of the lower stone. Fig. 5, is an elevation of the scraper and guard with a section of a portion of the trough, which receives the ground paint.

Similar letters of reference indicate corresponding parts in the several figures.

The mill which forms the subject of these improvements, consists of two horizontal stones, of which the lower stone is the runner, and is secured firmly to the spindle, and the top stone is suspended above it.

My first improvement consists in attaching the trough which receives the ground paint or material as it leaves the stones, to the running stone so that it may rotate therewith. The attachment of this trough to the running stone obviates the great difficulty experienced in paint mills whose lower stone is the runner, of keeping the paint from running over the sides of the stone, and setting between the stone and the curb surrounding it, where it soon makes a hard bed which produces great friction on the runner.

My second improvement consists in combining with the rotating paint trough, a fixed scraper and guards to cause the paint to flow over and out of said trough and into any suitable receptacle as will be described.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A, is a bed plate, upon and some distance above which, is supported by pillars B, B, a circular table C, of cast iron, upon opposite sides of which are erected two standards D, D. These standards receive and form guides for two vertical sliding rods, *a, a*, the lower parts of which are screwed and

pass easily through the table C, above and below which they are furnished with nuts *i, i*, by which they can be adjusted and secured at various elevations. The rods *a, a*, contain the bearings to receive the journals 60 of two pivots *b, b*, which are attached diametrically opposite each other to a circular frame or ring *c*, of metal, which surrounds the top stone E, and in which the said stone is hung by pivots *d, d*, at right angles to 65 the pivots *b, b*. The stone E, is thus hung in the same manner as the mariner's compass, and is free to oscillate, to a limited extent, in any direction.

In order to provide for a considerable 70 variation in the elevation of the stone, I make in the rods *a, a*, several bearings *e, e*, to receive the journals of the pivots *b, b*. The lower stone or runner F, rests upon, and is secured to a flange *f*, on the spindle 75 G, and stands a short distance above the table C. The bottom of the spindle rests in a step bearing *g*, on the bed plate A, and works in a guide box *h*, secured to the table C. The height of the stone F, is fixed, 80 and the faces of the stones are adjusted at the proper distances apart, to grind to the required degree of fineness, by raising or lowering the rods *a, a*, as may be necessary, by means of the nuts *i, i*. The suspension 85 of the top stone by the adjustable rods *a, a*, enables another important duty to be performed in addition to the adjustment of the stones to grind at any desired degree of fineness, viz: the raising of the upper stone 90 to admit air between the faces of the stones to cool them off quickly when they become heated, as they sometimes unavoidably will, during the grinding process. In grinding 95 paint, this is very important, as the heating of the stones is highly injurious, if the grinding be continued, and to some kinds of paint, would be almost entirely destructive; and if no facility were afforded for admitting air freely between the stones, the grinding operation would require to be stopped 100 a long time to enable them to cool every time they became heated, and much delay would be the consequence, but when the stones are separated to some distance apart, and plenty 105 of air allowed to circulate between them, the time occupied in cooling will be short.

H, is the adjustable hopper, by which the paint mass is supplied to the mill stones to be ground. The throat *j*, of the hopper is 110



of a depth a little greater than the thickness of the top stone, to the opening or eye, in the center of which it fits easily. A flange *h*, extends all around outside the top of the throat of the hopper, and in this flange are cut a number of female screws to receive a corresponding number of male screws *l*, *l*, which rest upon the top stone, and support the hopper. By turning the screws *l*, *l*, the hopper can be raised or lowered to increase or diminish the space between its bottom edges and the face of the runner *F*, and thus regulate the feed; or by allowing the hopper to come right down on the stone, the feed may be entirely stopped.

*m*, *m*, are the spiral blade feeders, such as are frequently attached to the sides of mill spindles, for the purpose of forcing the mass between the stones. Above these feeders *m*, *m*, is a spiral or twisted blade *x*, which is secured to the top of the mill spindle and a little eccentric thereto. This feeder extends nearly, or quite, to the top of the hopper, and feeds the mass gradually down the hopper, and at the same time, opens the mass to admit air into and among it, which is very desirable.

*N*, is the trough which surrounds the lower stone, and receives the ground paint. Its bottom is nearly level with the top of the sides of the lower stone; and it is fitted closely to the stone all around and firmly secured, so that no paint can escape except at the proper point of discharge where it receives a fixed oblique scraper *o*, which is secured to a fixed standard *p*, erected on the table *C*. This scraper fits to the interior of the trough, and nearly close to the side of the stone. To the same standard *p*, are at-

tached two guards *q*, and *r*, made of metal plate; the former guard fitting nearly close to the periphery of the stone *F*, and preventing the discharged material from running on to the periphery of, and under the stone *F*, and the latter being arranged as represented in the drawing, for the purpose of preventing it from being thrown off by centrifugal force, as it is caused by the action of the scraper *o*, to flow over the trough, and both serving to conduct it downwards to a spout *u*, cast on one side of the table *C*, down which it passes to any suitable receptacle.

The mill spindle receives motion by level gearing from a horizontal driving shaft *P*.

What I claim as my invention, and desire to secure by Letters Patent, is:—

1. Attaching the trough *N*, which receives the ground paint or material, to the running stone *F*, so that it may rotate therewith, for the purpose of obviating the difficulty experienced in paint mills whose lower stone is the runner, of keeping the paint from running over the sides of the stone, and setting between the stone and the curb surrounding it, where it soon makes a hard bed which produces great friction as set forth.

2. In combining with a paint trough rotating with the runner, a fixed scraper *o*, and guards *q*, and *r*, to cause the paint to flow over and out of said trough, and be guided into any suitable receptacle, while the mill continues to run, substantially as described.

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Witnesses:

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