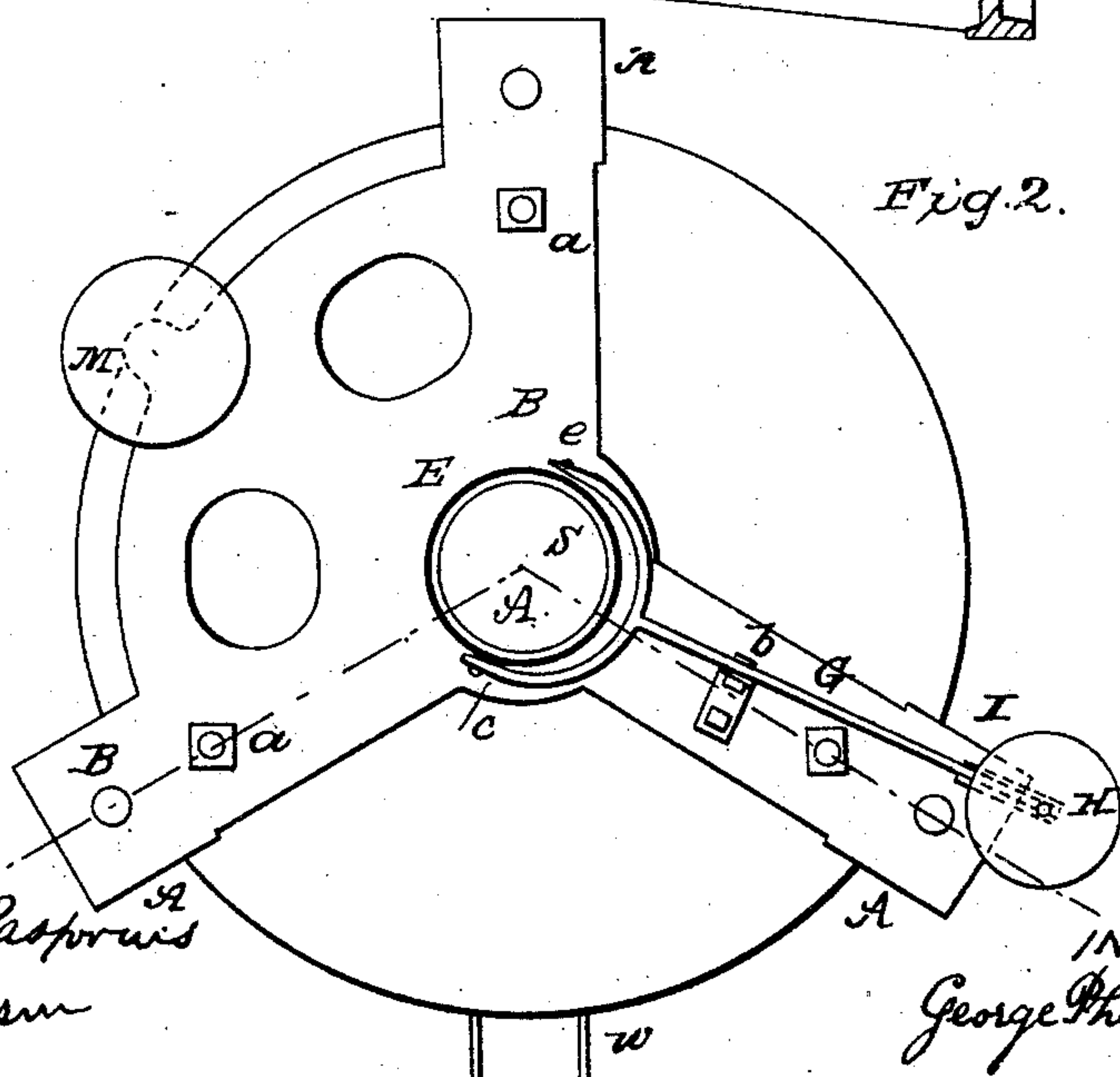
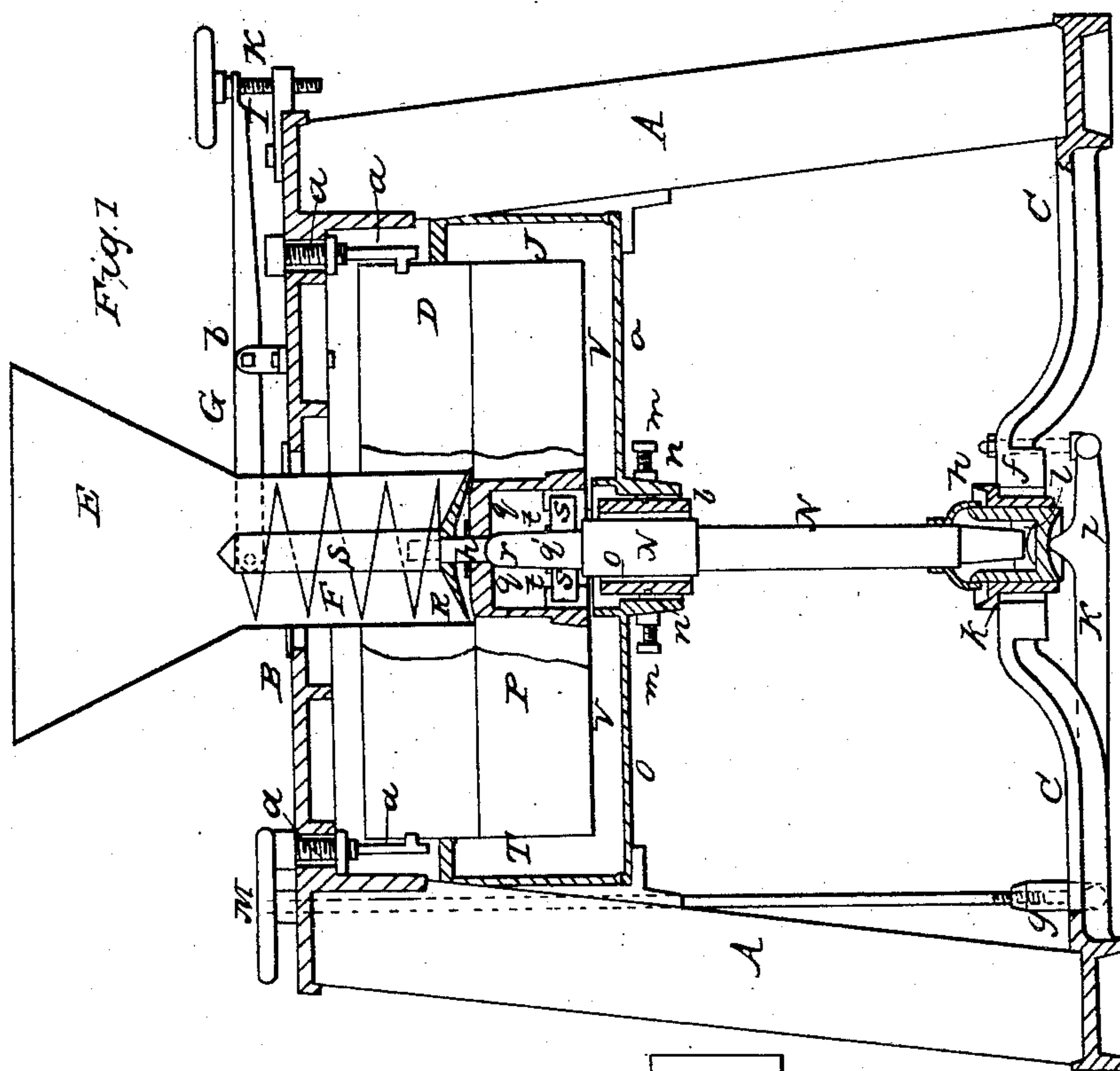


G. P. ZINDGRAF.

Paint Mill.

No. 55,572.

Patented June 12, 1866.



WITNESSES.
Francis D. Pasporius
John Anderson

INVENTOR
George Philip Lindgraf

UNITED STATES PATENT OFFICE.

GEORGE PHILIP ZINDGRAF, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN PAINT-MILLS.

Specification forming part of Letters Patent No. 55,572, dated June 12, 1866.

To all whom it may concern:

Be it known that I, GEORGE PHILIP ZINDGRAF, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented an Improved Mill for Grinding Paint, &c.; 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, and to the letters of reference marked thereon.

My invention relates to balancing the runner-stone of a mill for grinding paint, &c., and to the peculiar arrangement of a feed-screw.

To enable skilled mechanics to make and use my invention, I will proceed to describe its construction and operation.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a sectioned elevation through the lines A' B' A' C', and Fig. 2 is a top view.

Similar letters refer to similar parts in the several parts.

A A A are the uprights or frames of the mill, which are connected together at the top by the plate or entablature B, and at the bottom by the radial stays C C, &c. D is a stationary millstone, carried by the bolts *a*, &c., passing through and supported by the entablature. E is a regulating-hopper, the cylindrical part or waist F of which is received into and fits snugly the eye of the stationary stone.

G is a lever vibrating on the pin *b*. One end of it is slotted to embrace the adjusting-screw H, which screws through the plate I or a projection of the entablature. The other end is forked to embrace the waist F of the hopper, it having bolts *c c* oppositely on its surface, which are received in openings in the prongs of the fork. As the screw H is screwed down or up the hopper is raised or lowered.

K is an adjusting-lever vibrating on the pin *e*, attached to the center piece *f*, of the radial stays. L is a lighter rod screwed into a vibrating nut, *g*, at the end of the lever. It is furnished with a wheel or handle, M, so that on turning the rod by the same the lever is elevated or depressed. *h* is a step supported on the tip or point *i* of the lever K. It fits snugly in a loose gland, *k*, in the center *f*. It is centered by set-screws in the same. The mill-spindle N is received into the step, turning

on a friction-button, *l*. It is centered by the loose gland *k* and by the set-screws *m m*, &c., which pass through the hub *n* of the holder O, and are inserted into the boxes *o o*, &c., which encircle the spindle.

P is a runner-millstone. Q is a rynd, firmly and securely fitted in the eye of the same. The mill-spindle N passes through the top of the rynd into the hopper, to cause it to balance and carry the runner-stone. I make that length *p* of it which projects through the rynd of less diameter than the length *q'* and round the shoulder *r* thus formed, (shown in dotted red lines, Fig. 1,) to fit in a corresponding rounded recess or cup in the top of the rynd.

To facilitate distributing the paint or other material to be ground, a conical-shaped cap, R, is attached to the part *p* of the spindle resting on the rynd or the stationary stone. A feed-screw, S, of size to correspond with the waist of the hopper, is also fixed to the spindle. *s s* are drivers attached to the spindle. They take against the wings or radial projections *t t* of the rynd. T is a shield surrounding the stones, which prevents the ground material from wasting.

Motion is communicated to the spindle by a belt and pulley, or other known mechanical device, which it transmits to the runner-stone P through the medium of the drivers *s s*, the cap R, and the feed-screw S revolving with the spindle. The paint or other material being thrown into the hopper, the feed-screw S carries it down onto the inclined surface of the cap, and forces it out through the opening made by the edge of the hopper and the surface of the cap to between the stones, where it is ground and carried by centrifugal force to the circumference of the stones, and drops onto the holder O. The sweeps *v v*, fixed to the runner-stone, sweep it through the spout *w* into any receptacle.

In case the stones should grind too fine or too coarse, they may be removed farther from or brought closer to each other by the lever K and the lighter rod L; or in case the opening between the edge of the hopper and the cap does not permit the necessary feed, it can be remedied by raising or lowering the hopper by means of the screw H and the forked lever G.

By my ball-balance or method of balancing the runner-stone I gain the great advantage of

being able to make a connection on the spindle with a feed screw or rigging, so that the upper stone can remain stationary and that the working of the screw can in no way interfere with the balancing of the runner-stone. By the old method of balancing the stone on a point to make a connection with a feed rigging or screw, a projection or spindle had to be made on the top of the rynd or the runner-stone, so that a regular and even feed or pressure on all parts of the feed-screw was absolutely necessary to the perfect balancing of the runner-stone.

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

1. Rounding the shoulder *r* of the part *q'*

of the mill-spindle *N*, and forming a rounded recess or cup in the top of the rynd *Q*, into which the rounded shoulder *r* is received, substantially as and for the purpose as herein specified and described.

2. The extension of the mill-spindle up through the balance-rynd of the lower running stone, so as to attach the feeding-screw thereto, as specified.

In testimony whereof I hereunto set my hand in presence of two subscribing witnesses.

GEORGE PHILIP ZINDGRAF.

Witnesses:

FRANCIS D. PASTORIUS,

JOHN ANDERSON.