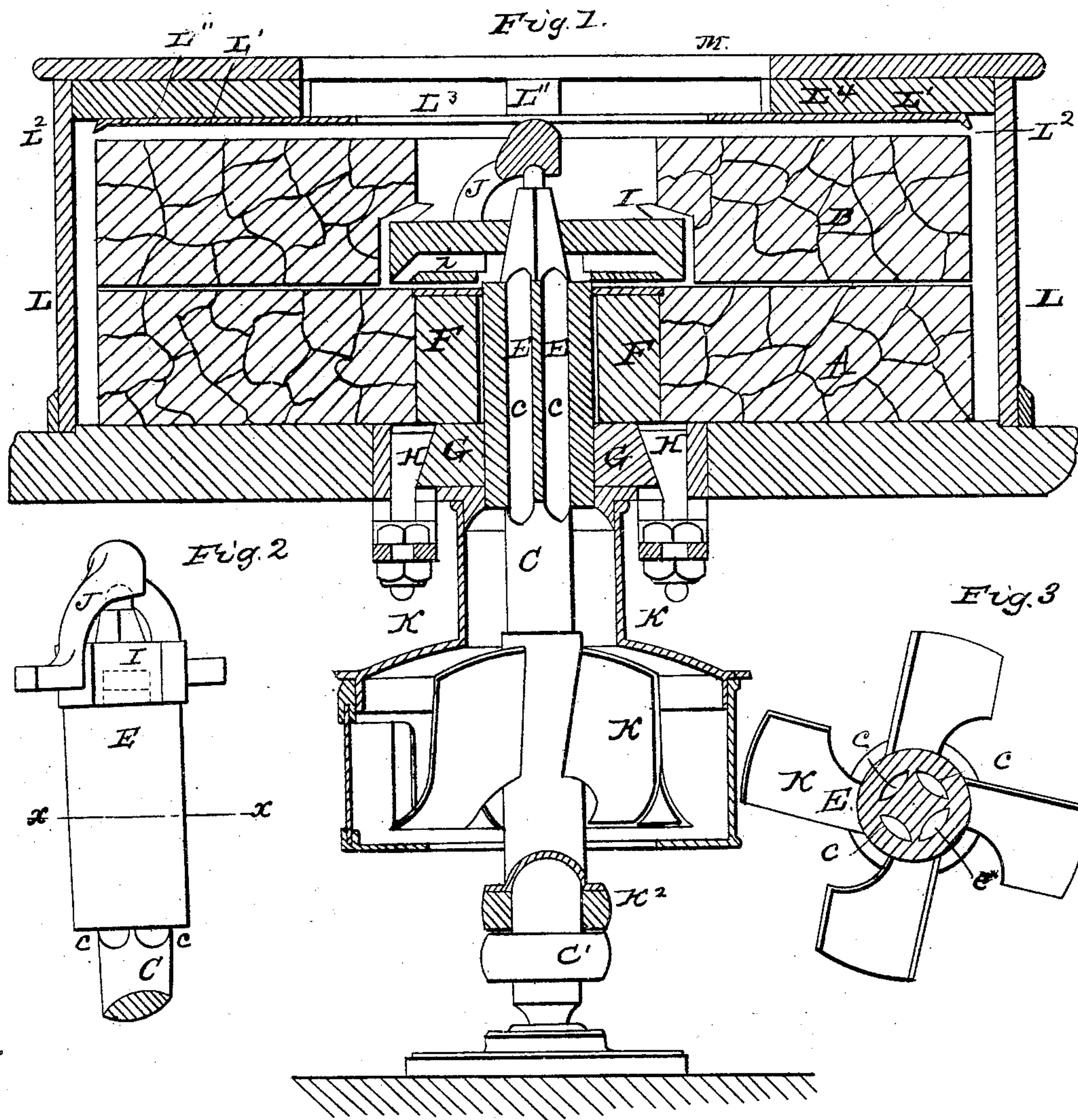


C. BOLLINGER.  
Grinding Mill.

No. 57,667.

Patented Sept. 4, 1866.



Witnesses  
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# UNITED STATES PATENT OFFICE.

CORNELIUS BOLLINGER, OF HARRISBURG, PENNSYLVANIA.

## IMPROVEMENT IN GRINDING-MILLS.

Specification forming part of Letters Patent No. 57,667, dated September 4, 1866.

*To all whom it may concern:*

Be it known that I, CORNELIUS BOLLINGER, of Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented a new and useful Improvement in Grinding-Mills; and I do hereby declare the following to be a full, clear, and exact description of the nature, construction, and operation of the same, reference being had to the accompanying drawings, which are made a part of this specification, and in which—

Figure 1 is a vertical central section of a grinding-mill illustrating my invention. Fig. 2 is a detached view, showing in elevation a portion of the spindle and its inclosing hub or bearing. Fig. 3 is a horizontal section in the line *x x*, Fig. 2.

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

This invention relates to certain improvements in the grinding-mill for which I obtained Letters Patent of the United States on the 8th day of September, A. D. 1863.

The present improvements consist, first, in mounting the fan loosely or separately upon the spindle, so that it may be rotated independently of the latter, and thus have its speed increased when it is needful to get sufficient blast; second, in discharging the air between the stones through the driver, whereby it is applied more directly and effectively to the grinding-surfaces; third, in a peculiar manner of providing the hoop or case with ventilating-apertures.

In order that others skilled in the art to which my invention appertains may be enabled to fully understand and use the same, I will proceed to describe it in detail in connection with the accompanying drawings.

A represents the bed-stone, and B the runner; C, the spindle, and D the supporting-frame. The metallic hub or bearing E of the spindle C is bushed within the bed-stone by the wooden chocks F, and held immovably therein by the keys G and adjustable wedges H.

I represents the driver, which is used in connection with the balance-rynd J, in customary manner, to communicate the motion of the spindle to the runner B.

*c c* represent vertical grooves in the spindle C, which extend slightly beyond either end of the hub or bearing E, and which serve as con-

ductors for the current of air which is generated by the fan K within the case K', which latter surrounds the spindle below the supporting-frame D, as represented.

The socket of the fan K is applied loosely to the spindle C, and is provided with a special pulley, K<sup>2</sup>, the spindle C being driven by means of the pulley C'.

The office of the fan is to supply air to the grooves *c c*, and to the space between the stones, to prevent overheating; and the object in mounting the fan independently is to enable it to be driven faster than the spindle, so that a small fan may be made to supply the same blast as a larger one by increasing the velocity.

The belt which is applied to the pulley K<sup>2</sup> to rotate the fan K extends off to a counter-shaft, and is shifted or adjusted to vary the speed as occasion may require.

The driver I is provided with a central longitudinal air-passage, *i i*, which opens at the under side of the driver near either end, as shown in Fig. 1. The grooves *c c* in the spindle C terminate at top within the central opening of the driver I, and the air from the fan is discharged therefrom into the passage *i*, which conducts the air through the driver and discharges it at both ends of the same into the space between the stones A B. In this way the air is more effectively applied to the grinding-surfaces of the stones.

The grooves *c c* in the spindle not only serve to conduct the air to the interior of the driver; but by keeping the spindle surrounded with cool air they prevent the same from becoming unduly heated.

L represents the hoop or case surrounding the millstones. L' is a circular plate, secured to the under side of the top of the hoop L by cleats L''. This plate L' is of somewhat smaller diameter than the hoop L, so as to leave within the hoop and at the skirt of the millstones an annular passage, L<sup>2</sup>, which permits the heated air from the grinding-surfaces to pass freely into the space between the top of the hoop and the plate L and discharge itself around the edges of the feed-opening, to which end the opening L<sup>3</sup> in the plate L' is somewhat smaller than feed-opening M.

It is manifest that if the plate L were not provided to insure the unobstructed passage

of the air, the density of the external air at the feed-opening would have a tendency to crowd the heated air into the upper corners of the hoop L and retain it there.

The plate L', constructed and applied as described, insures a free, unobstructed ventilation.

Having thus described my invention, the following is what I claim as new herein and desire to secure by Letters Patent:

1. Mounting the fan K loosely upon the spindle C, to adapt it to be rotated independently of the latter, substantially as and for the purposes set forth.

2. The driver I, formed with an air passage or passages, *i i*, to enable the air from the fan to be discharged between the stones through the driver, substantially as described.

3. The combination, with the hoop L, of the circular plate L', to form the ventilating-passage L<sup>2</sup>, as and for the purposes specified.

The above specification of my improvement in grinding-mills signed this 20th day of June, 1866.

CORNELIUS BOLLINGER.

Witnesses:

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