

(No Model.)

J. B. ALLFREE.
ROLLER GRINDING MILL.

No. 354,031.

Patented Dec. 7, 1886.

Fig. 1.

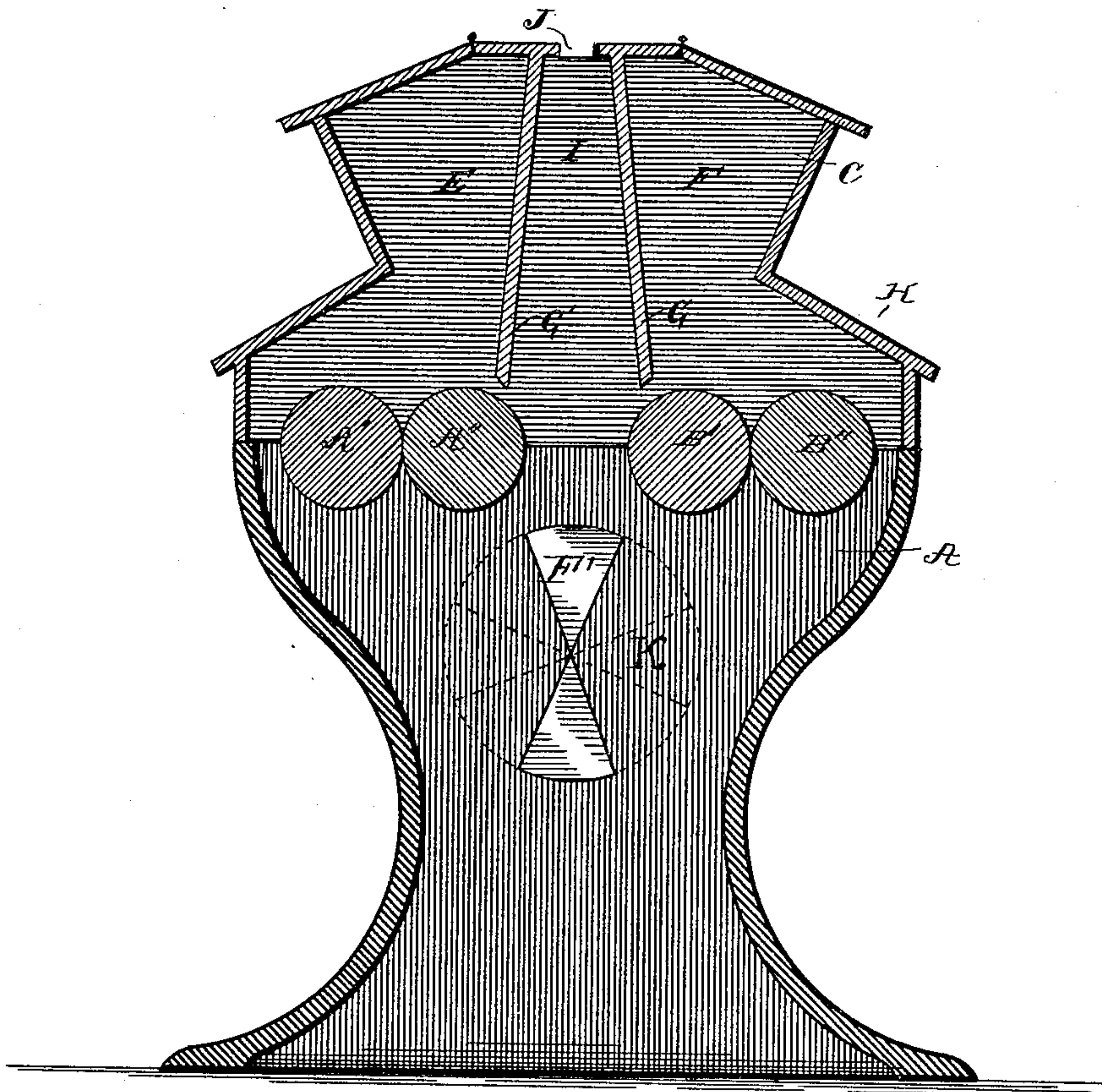
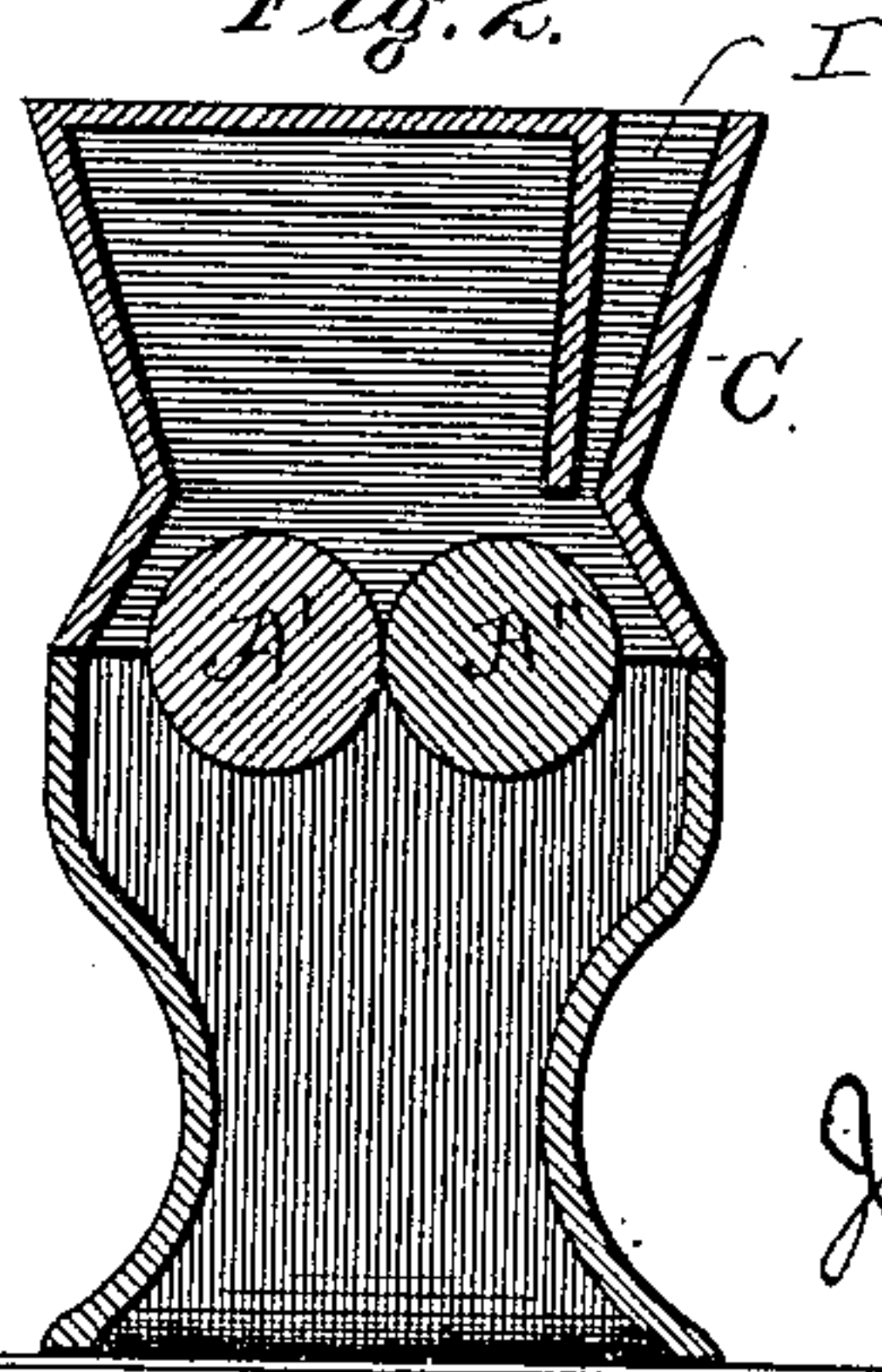


Fig. 2.



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ROLLER GRINDING-MILL.

SPECIFICATION forming part of Letters Patent No. 354,031, dated December 7, 1886

Application filed September 14, 1885. Serial No. 177,029. (No model.)

To all whom it may concern:

Be it known that I, JAMES B. ALLFREE, a citizen of the United States, residing at Cumberland, Maryland, have invented new and useful Improvements in Roller Grinding-Mills, of which the following is a specification.

This invention relates to certain new and useful improvements in grinding-mills, and particularly to means for creating a draft to carry off the heated air and moisture incident to the friction of the grain against the rolls in the process of reduction.

The object of the invention is to produce a mill so formed that a draft will be maintained between the two pairs of rolls sufficient to carry off the heated air, moisture, and fine dust produced by grinding, particularly in mills where the wheat is reduced to flour or nearly to flour; and, further, the object is to produce a means for accomplishing this end which shall be simple and inexpensive, and shall require very little change in the ordinary form of mill.

In order that those skilled in the art to which my invention appertains may know how to make and use my invention, I will now proceed to describe the same, in connection with the accompanying drawings, in which—

Figure 1 is a central vertical section of so much of a roller-mill as is necessary to illustrate my invention as applied to double sets of rolls, and Fig. 2 is a similar view of a mill where only one set of rolls is employed.

In both figures of the drawings the hoppers are shown with hinged or closed tops; but it will of course be understood that the grain is delivered to the hoppers through the medium of spouts of the usual construction, so that it will pass in suitable manner between the crushing-rolls.

In Fig. 1 of the drawings, A represents the shell of the mill, in which are mounted the two pairs of rolls A' A'' and B' B''. C represents the housing, which is partitioned to form a vertical passage for the escape of the dust and heated air upward through the top of the mill.

When two pairs of rolls are used, as shown

in Fig. 1, the housing C is divided into two hoppers, E F, each leading to its respective pair of rolls. The outer walls of these hoppers are formed by the ordinary casing H, and the inner walls are formed by the partitions G G'. These partitions are situated a sufficient distance apart to leave a space, I, through which the hot air, &c., rises and escapes. The lower ends of these partitions are situated a sufficient distance above the inner rolls to leave a space through which the fine dust made in the grinding will be carried, together with the heated air and moisture, with which the heated air may be burdened. The tendency of the hot air to rise will, I find, generally create a draft sufficient to carry off the objectionable matter; but in case a sufficient draft be not caused in this way air having a lower temperature than that contained in the case may be admitted through the opening F' in the side of the mill, and the size of this opening and consequently the quantity of air admitted may be regulated by means of the plate K, which is mounted and free to turn on a pin mounted in the side of the mill.

If it be found necessary to materially increase the draft over what may be made by allowing the entrance of air through the side of the casing below the rolls, I may attach an exhaust-fan to the top of the conduit I by means of suitable pipes, and in this way form a convenient means of conducting the dust and creating a draft to raise the same from the rolls.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is—

1. In a roller-mill, a hopper arranged immediately over the grinding-rolls and having an air space or passage between the lower edge of one of its walls and the periphery of one of the grinding-rolls, in combination and direct communication with the vertical air-passage I, substantially as and for the purpose set forth.

2. In a roller grinding-mill, the double hopper E F, arranged immediately over the rolls and provided with an air-space at or near one

roll of each set, in combination and direct communication with a central vertical air-passage, I, substantially as and for the purpose set forth.

- 5 3. A roller grinding-mill having one or more sets of grinding-rolls and one or more hoppers, as described, and a vertical air-passage above the rolls, an air-inlet, F', in the case, and a regulator, K, substantially as and
10 for the purposes set forth.

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

JAMES B. ALLFREE.

Witnesses:

DAVID H. MEAD,
CURTIS LAMMOND.