

(No Model.)

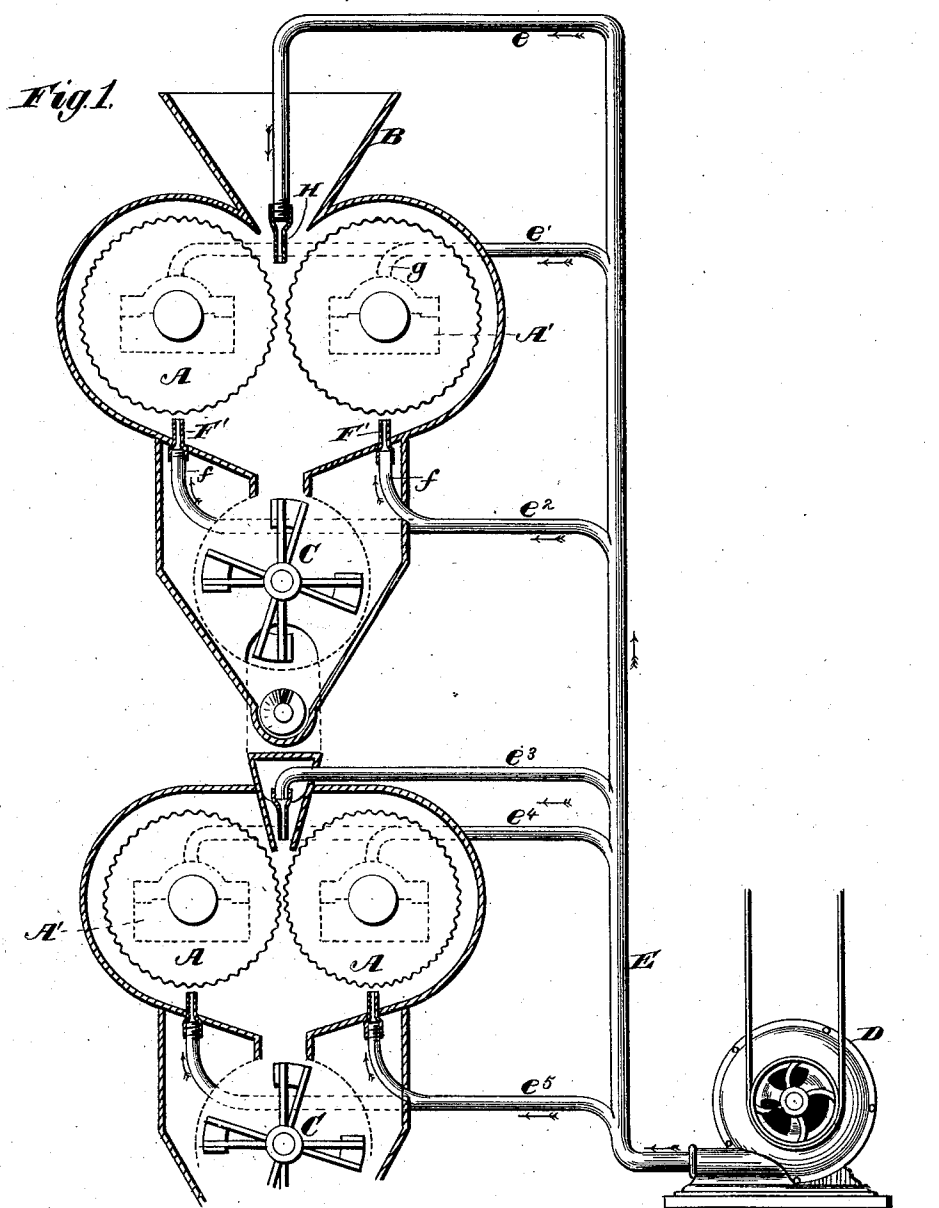
2 Sheets—Sheet 1.

W. AGER.

ROLLER GRINDING MILL.

No. 291,018.

Patented Jan. 1, 1884.



Witnesses,
Robert Enright,
Newton Doan

Inventor,
Wilson Ager,
By James L. Norris,
Atty

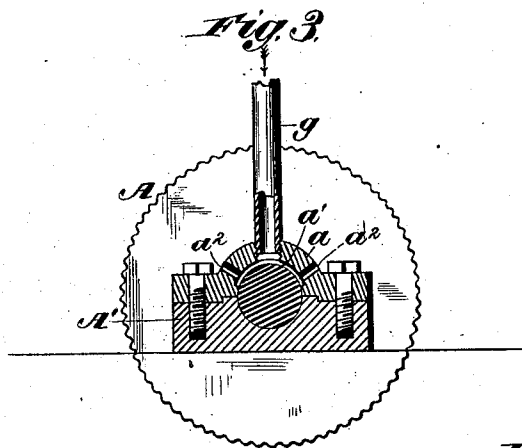
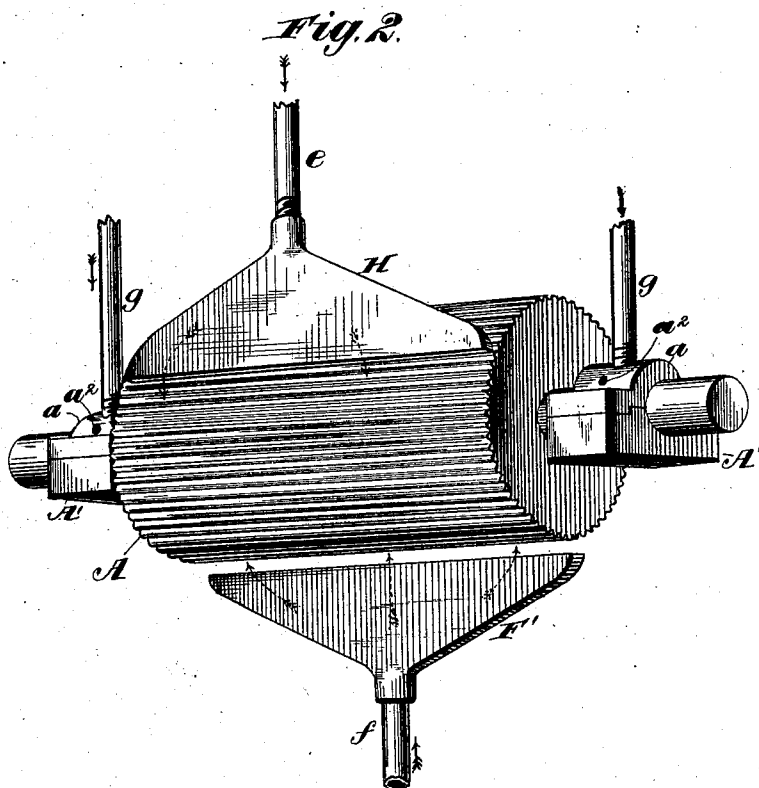
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UNITED STATES PATENT OFFICE.

WILSON AGER, OF NEW YORK, N. Y.

ROLLER GRINDING-MILL.

SPECIFICATION forming part of Letters Patent No. 291,018, dated January 1, 1884.

Application filed August 22, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILSON AGER, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Roller Grinding-Mills, of which the following is a specification.

My invention relates to roller grinding-mills, and the purpose is to prevent the heating of the rolls and their journal-bearings, and the consequent clogging of the former by the adhesion of the glutinous portions of the grain.

It is well known to millers that the expansion of the rolls, due to their heating, necessitates the constant attendance of a force of men to adjust them until the heating and consequent expansion have reached the maximum. As some roller-mills contain five or six pairs of rolls, each pair having a different adjustment, it is evident that the labor of setting these rolls to compensate for an increasing expansion is not only a task for an expert, but requires constant and close attention. There are also mills in which a stationary half-comb is set up to a revolving burr-stone; but in this apparatus the moment the parts become heated the moisture in the grain combines with its gluten and forms a hard tenacious gum, which covers the stone, necessitating the removal, cooling, and cleansing of the latter.

The object of my invention is to avoid these objections; and to this end my invention consists in the novel combinations and arrangements of parts hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a central vertical section taken through an ordinary roller-mill, with my invention attached. Fig. 2 is a perspective of one of the rolls shown in Fig. 1 detached, showing the fish-tails or spreaders connected therewith, and the air-pipes leading to the journals. Fig. 3 is a view partly in section and partly in elevation, showing the journal-bearing with the air-pipe attached.

A in said drawings represents the rolls of an ordinary roller-mill, of which I have shown two pairs only with their scalping-reels. These rolls, which are of the usual form, are arranged side by side, their shafts carried by journal-boxes A', with a hopper, B, above the upper pair, through which the grain is fed.

C indicates the scalping-reels arranged beneath each pair of rolls, and as these parts are of the usual construction no specific description is needed.

D represents an ordinary air fan and drum, by which an air-blast is created. A pipe, E, leads from said drum, and is carried upward to a point a little above the hopper B, said pipe being provided with lateral branches e , e' , e'' , e^3 , e^4 , and e^5 , by which air is conveyed to the following points: The upper branch, e , is carried down through the hopper B, and to its extremity is attached a spreader, H, having a length about equal to the length of the corrugated periphery of the roll. The open edge of this spreader is arranged at a point just above that at which the rolls act upon the grain, and the air from it is driven downward between the rolls together with the grain, the continuous current keeping both the rolls and the crushed grain from heating. The branch e'' is carried from the main pipe beneath the rolls, and has arms f f , one for each roll, and each having a spreader, F', its open edge being in close proximity to the corrugated body, and delivering a blast upward at a point not far from where the chop leaves the roll, as shown in detail in Fig. 2. The branch e' is carried from the main pipe over the journal-boxes A', and has arms g g leading to each box. As the bearing upon the roll-shafts is downward, the cap a of the journal-box is cut away to form an air-space, a' , from which lead escape-openings a'' a'' , as shown in Fig. 3. As the branch g enters the center of the cap a , the air will flow therefrom over the journal and pass off through the openings a'' . The branch e^3 is substantially a duplication of the pipe e , with its spreader, and the pipe e^4 is similar to e' , while the branch e^5 is essentially the same as the pipe e'' .

By this invention the heating of the rolls and the consequent gumming and clogging, as well as the necessity of constant watching and adjustment, are effectually obviated.

Having thus described my invention, what I claim is—

1. In a roller grinding-mill, the combination, with a pair of grinding-rolls arranged side by side to receive the grain between them, of an air-blast device arranged to deliver a blast of air upon the rolls between their ad-

joining surfaces at or near a point where they receive the grain, and means for delivering blasts of air to the respective journals of the rolls, substantially as described.

5 2. In a roller grinding-mill, the combination, with a pair of grinding-rolls, of means for delivering air upon the rolls at a point at or near which they receive the grain, and means for delivering air beneath the rolls at
10 or near the point or points where the chop leaves the rolls, substantially as described.

3. In a roller grinding-mill, the combination, with pairs of grinding-rolls, of blast mechanism, a pipe leading therefrom, and
15 branches extending from said pipe and arranged to deliver blasts of air downward upon the rolls at or near a point where they receive the grain, upward upon the rolls at or near the point where the chop leaves the rolls, and
20 upon the journals of the rolls, substantially as described.

4. The combination, with the rolls of a roller-mill, of a pipe delivering an air-blast downward between said rolls, and separate pipes

arranged beneath each and throwing air upward against said rolls at or near the point where the chop leaves them, substantially as described.

5. In a roller grinding-mill, the combination of the grinding-rolls having end journals, 30 the journal-boxes supporting the journals, the caps arranged over the journals and having air-escape perforations, and blast-pipes passing into the caps for delivering air upon the journals, substantially as described. 35

6. The combination, with the roll-shafts of a roller-mill, of journal-boxes having air-spaces formed in the caps, and air-openings at each end of said spaces, air-pipes tapped into said caps, and means for forcing a continuous blast 40 through the same, substantially as described.

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

WILSON AGER.

Witnesses:

JAMES L. NORRIS,

J. A. RUTHERFORD.