

(Model.)

H. C. STAYER.
DRESS FOR GRINDING RINGS.

No. 464,592.

Patented Dec. 8, 1891.

Fig. 1.

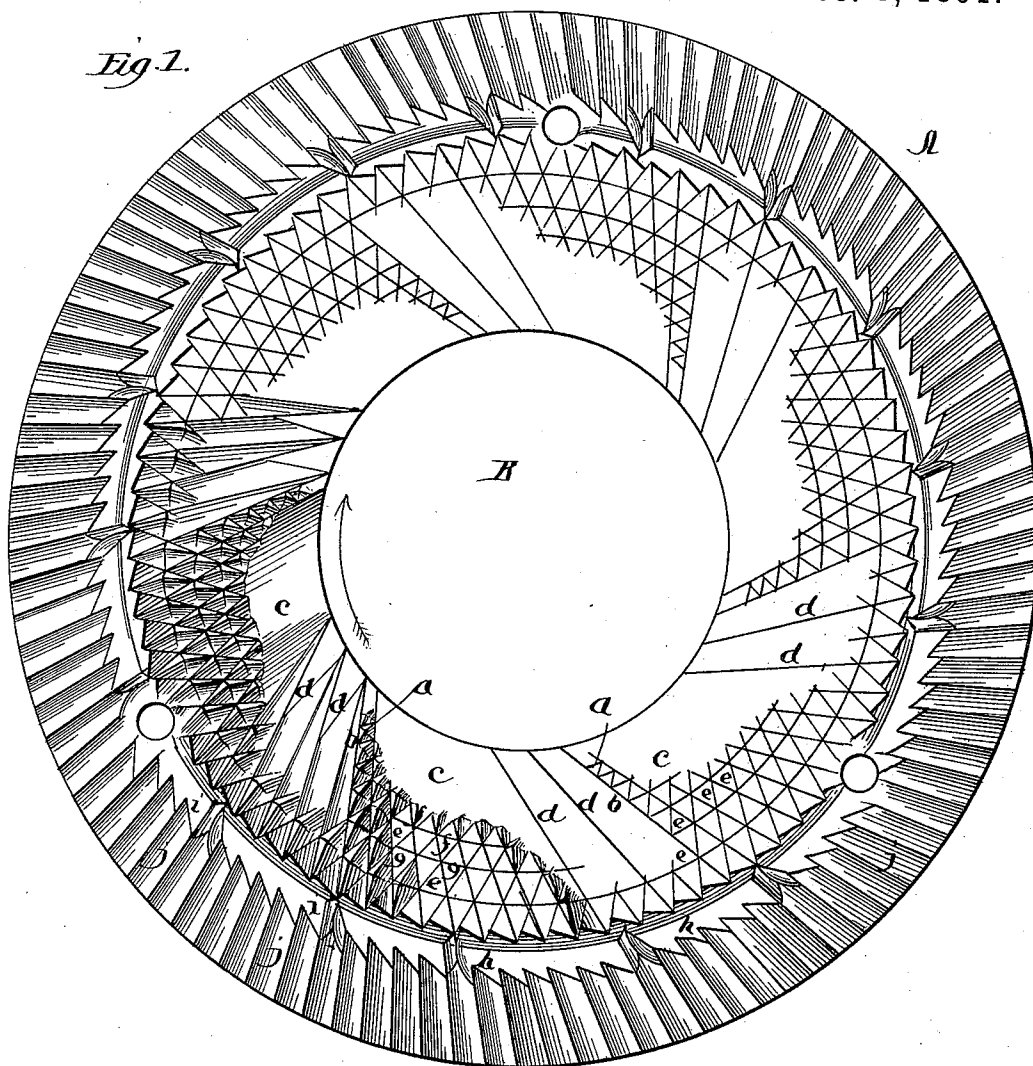


Fig. 2.



Fig. 4.

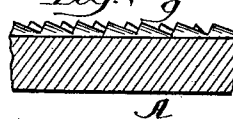


Fig. 3.



Fig. 5.



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DRESS FOR GRINDING-RINGS.

SPECIFICATION forming part of Letters Patent No. 464,592, dated December 8, 1891.

Application filed March 30, 1891. Serial No. 387,049. (Model.)

To all whom it may concern:

Be it known that I, HENRY C. STAYER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Dresses for Grinding-Rings; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, forming a part hereof, in which—

Figure 1 is a plan or face view of one of the grinding-rings. Fig. 2 is a detail, being a cross-section from the eye to the periphery of the ring in front of one of the wings. Fig. 3 is a detail, being an edge view on the inside of the eye. Fig. 4 is a detail in section showing the reducing ridges. Fig. 5 is a detail, being an edge view of the periphery of the ring.

This invention relates to grinding-rings of that class in which two companion rings are employed, one stationary and the other revolving, each ring having a grinding-face; and the object of the invention is to improve the dress of the grinding-face of the rings and insure a continuous feed, a positive reduction, and a final finish of the grain; and to this end the nature of the invention consists in the dress hereinafter more particularly described, and pointed out in the claims as new.

In the drawings, A represents a grinding-ring made of cast metal or other suitable material; B, the eye of the ring. Only one ring is shown; but the companion ring is similar thereto in every respect, so that a description of the dress of the ring shown will be also a description of the dress of the companion ring.

The acting face of the ring A, starting from the eye B, and extending on a tangent toward the periphery, has a series of wings *a*, the tangential lines of which are from a circle of a less diameter than the circle of the eye of the ring, and each wing *a* on its front side has an abrupt face forming a breast *b*, which breast is highest at its inner end, as shown in Figs. 2 and 3, and gradually decreases in height until it joins the first reducing-face of the ring. The rear face of each wing is concave, forming a depression *c*, which gradually

decreases in depth and width from the eye to the reducing-face of the ring, as shown in Figs. 1 and 3, and between the wings is a depression partly formed by the depression *c* of the rear face of each wing, and this depression has on the face or bottom ridges *d*, with channels running tangentially from a circle of less diameter than the circle of the eye of the ring to and across the reducing-face of the ring. The ridges *d* act to catch and partially break the grain, and the channels or drifts between the ridges *d* furnish a means for feeding the grain in connection with the ridges to the reducing face or dress. The grain is held against the breast *b*, within the depression between the wings *a*, and by the rotation of the ring is forced out from the depressions by the action of the ridges *d* and the drifts between such ridges.

The reducing face or dress of the ring is adjacent to the depression between the wings *a*, and is formed of a series of grooves or drifts *e*, extending across the ring on tangential lines from a circle of less diameter than the circle of the eye of the ring, and a series of grooves or drifts *f*, crossing the grooves or drifts *e*, and also on tangential lines, which grooves or drifts *e* and *f* cut the face of the ring to form a series of diamond-shaped teeth *g*, as shown in Fig. 1, and the grooves or drifts *e* and *f* extend onto and across the face of each wing *a* and enter into the depression between the wings *a*, as shown in Fig. 1.

The dress formed by the grooves or drifts *e* and *f* terminates in an annular groove *h*, extending entirely around the ring, and this groove *h* at intervals has stops or breasts *i*, forming the groove *h* into a series of pockets to receive the reduced material from the diamond-dress and deliver it to the finishing-dress, which dress is formed of a series of teeth *j*, each having its acting face inclined with the direction of rotation of the ring or backward.

The operation is as follows: The grain is entered into the depressions between the wings *a*, and by the rotation of the ring is forced outward into the diamond-dress through the action of the face of the depression *c*, the ridges *d*, and the drifts between the ridges *d*, and such outward carrying of the grain is had by the direction of the tangent of the

ridges *d*, which is backward as against the rotation of the ring, and with this carrying of the grain outward the ridges *d* act to partially reduce the same sufficiently for entering the grooves or drifts *e* and *f*, and the grain entering the grooves or drifts *f* is reduced by the action of the diamond-teeth *g*, and by the rotation of the ring, in connection with the grooves or drifts *e* and *f*, is carried or forced outward in a reduced condition into the pockets of the groove *h*, and the grain entering these pockets by the action of the breasts *i* is held against the rotation of the ring, and is thereby forced into the finishing-dress formed by the teeth *j*, from which dress the material is delivered in its finished condition. The grain when first received by the ring, is held in the depression between the wings *a*, and by the rotation of the ring forward is brought in contact with the breast *b*, and held by such breasts so as to be fed by the action of the face of the depression *c* and the ridges *d* into the grinding-face formed by the grooves or drifts *e* and *f* and the teeth *g*, and these wings *a*, with their breasts *b*, perform no office in the reduction of the grain, but simply furnish a stop against which the grain is forced, and by which the grain is fed outward to the grinding-face. The grain after being reduced in the grinding face or dress formed by the grooves or drifts *e* *f* and teeth *g* enters the pockets of the groove *h*, and the material thus entered is backed against the breasts *i* and there held, so as to be forced outward by the rotation of the ring into the finishing-dress, and this result is had by the breasts *i*, which perform no office in reducing the grain or material, but simply act to force the grain or material into the final grinding-face.

It will thus be seen that a positive feed of the grain to the grinding face or dress is had by the action of the wings *a* and their breasts

b, that the grain is partially reduced between the first grinding face or dress, and that a positive feed to the final grinding face or dress is had by the action of the breasts *i*, the result being a positive feed of the grain and a positive reduction thereof.

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

1. The combination, in a grinding-ring, of a series of wings *a*, located around the eye of the ring, and each having a feeding-breast *b*, a series of depressions around the eye of the ring and between the wings *a* and each having feeding and breaking ridges *d*, and a reducing-dress formed of grooves or drifts *e* and *f*, crossing each other and forming grinding-teeth *g*, substantially as and for the purposes specified.

2. The combination, in a grinding-ring, of a series of wings *a*, located around the eye of the ring and each having a feeding-breast *b*, a series of depressions between the wings, each depression having reducing and feeding ridges *d*, a reducing-face consisting of grooves or drifts *e* and *f* crossing each other and forming grinding-teeth *g*, an annular groove *h*, encircling the grinding-teeth *g*, breasts *i*, dividing the groove *h* into pockets, and a reducing-face formed of teeth *j*, substantially as and for the purposes specified.

3. The combination, in a grinding-ring, of a grinding-face having grooves or drifts *e* and *f*, crossing each other and forming grinding-teeth *g*, an annular groove *h*, encircling the grinding-teeth *g*, breasts *i*, dividing the annular groove *h*, and a finishing-dress formed by teeth *j*, substantially as and for the purposes specified.

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Witnesses:

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