

United States Patent Office.

CHARLES T. UMFRID, OF STUTTGART, WÜRTEMBERG.

Letters Patent No. 68,263, dated August 27, 1867.

IMPROVEMENT IN GRINDING-MILLS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, CHARLES T. UMFRID, of Stuttgart, in the Kingdom of Würtemberg, Germany, have invented a new and useful Improvement in Grinding-Mills; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which drawing—

Figure 1 represents a longitudinal vertical section of this invention.

Figure 2 is a sectional end view of the same.

Similar letters of reference indicate corresponding parts.

This invention relates to a grinding-mill in which three stones are used, viz, one runner and two bed-stones, said runner being placed between the bed-stones in such a manner that both surfaces of said runner are converted into working surfaces, which act simultaneously against the grinding surfaces of the bed-stones, through the eyes of which the material to be ground is introduced, and that a mill is obtained which produces twice the quantity of work as an ordinary mill of the same size. The bed-stones are secured to standards, which are fitted into guide-ways in the bed of the mill, and made adjustable towards and from the runner in such a manner that the grinding surfaces can be set closer together or further apart, according to the work desired.

a a' represent the bed-stones, which are firmly secured to the standards *s s'*, and those standards are fitted on the bed-plate *F*, so that they can be adjusted backwards and forwards, suitable screws *r r'* being provided, which serve to move and retain said standards in the required position. Between the bed-stones is the runner *b*, which is firmly secured to the shaft *c*. This shaft passes freely through the eyes of the bed-stones, and it has its bearings in the standards *s s'*, as clearly shown in fig. 1 of the drawing. A revolving motion is imparted to this shaft by a pulley and belt from any suitable source of power. From the ends of the bed *F* rise two standards, *e e'*, which contain set-screws *f f'*, bearing on the ends of the shaft *c*, for the purpose of retaining the runner in the required position. The standards *s s'* are provided with channels *t t'*, which communicate at their lower ends with the eyes of the bed-stones, and at their upper ends with funnels *g g'*, which support the traverse *h* in such a manner that the same, together with the standards *s s'*, can be moved back and forth without getting disconnected from said traverse. To the middle of the traverse *h* is secured the conveyer-box *k*, which is provided with two chutes or spouts leading to the funnels *g g'*. The connection between the conveyer-box and the traverse is effected by a swivel-bolt, *i*, and a vibrating motion is imparted to said conveyer-box by an eccentric, *l*, which is mounted on the shaft *c* and acts on a lever, *m*, the upper bifurcated end of which catches over an arm extending from the box *k*, as clearly shown in fig. 1 of the drawing. Above the conveyer-box *k* rises the hopper *n*, which is attached to the traverse *h* by arms *o*, as shown in fig. 2, and which is provided with two apertures, *p p'*, which can be opened or closed by adjustable gates *q q'*. The runner is surrounded by a jacket of sheet metal or any other suitable material.

The operation is as follows: After the grain or other material to be ground has been introduced into the hopper *n*, and the shaft *c* has been set in motion, the gates *q q'* are opened, and the grain or other material runs down through the funnels *g g'* and channels *t t'* into the eyes of the two bed-stones *a a'*, where it comes in contact with the working surfaces of the runner. By the action of the runner the grain or other material is made to pass through between the grinding surfaces of the runner and those of the bed-stones, and after having been ground it is discharged through the spout *u*, which may be provided with a partition, and from which the ground material is conducted to a flour-bolt or separator. By this arrangement a double effect is produced without requiring more power than an ordinary grinding-mill, which fact has been demonstrated by a great many practical experiments. And since all parts of this mill are mounted on the same bed, the construction of the apparatus and the labor of transporting the same and of putting it up are materially reduced. The operation of my mill is easy, since the bed-stones can be readily adjusted, and the whole apparatus is so constructed that it is not liable to get out of order.

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

1. The adjustable standard *s*, to which the open bed-stones are secured, having channels *t* and funnels *g*, supporting the traverse *h*, for the purpose described substantially as specified.
2. Conveying the grain to the stones by means of the channels *t* in the adjustable standards *s*, substantially as described.
3. The grinding-mill, the parts of which consist of the bed-stones *a*, runner *b*, adjustable standards *s*, traverse *h*, and vibrating conveyer *k*, when constructed, arranged, and operating substantially as represented and described.

The above specification signed by me this 2d day of March, 1867.

CHAS. T. UMFRID.

Witnesses:

G. A. HILLER,
CHAS. EHRLAN.