(No Model.)

A. MONTGOMERY.

GRINDING MILL.

No. 266,182. Patented Oct. 17, 1882.

FIG. 1.

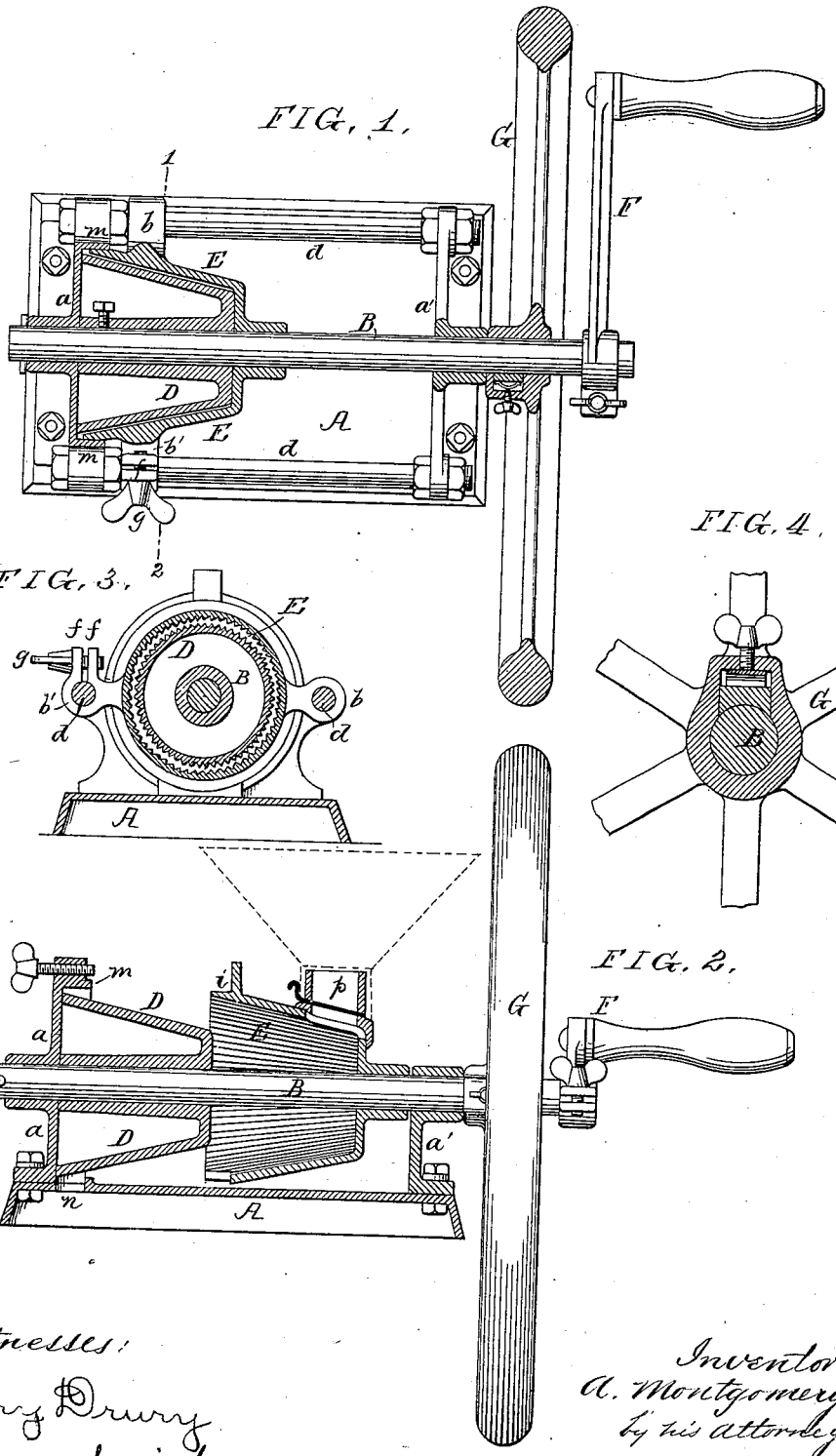

FIG. 4.

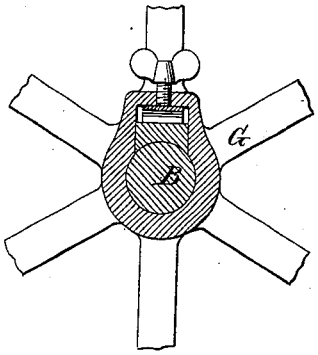

FIG. 3.

FIG. 2.

Witnesses:
Harry Drury
Harry Smith

Inventor:
A. Montgomery
by his attorneys
Howson and Sons

UNITED STATES PATENT OFFICE.

ARCHIBALD MONTGOMERY, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HENRY TROEMNER, OF SAME PLACE.

GRINDING-MILL.

SPECIFICATION forming part of Letters Patent No. 266,182, dated October 17, 1882.

Application filed May 5, 1882. (No model.)

To all whom it may concern:

Be it known that I, ARCHIBALD MONTGOMERY, a subject of the Queen of Great Britain and Ireland, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Grinding-Mills, of which the following is a specification.

The object of my invention is to so construct a grinding-mill that ready access may be had to the interior of the same for the removal of obstructions.

In the accompanying drawings, Figure 1 is a plan view, partly in section, of my improved grinding-mill; Fig. 2, a longitudinal section of the same, with some of the parts in a different position; Fig. 3, a transverse section on the line 1 2, Fig. 1; and Fig. 4, a section of part of the fly-wheel and driving-shaft.

A is the base-plate of the mill, having at opposite ends plates *a a'*, in which are formed bearings for the shaft B, the latter carrying the hollow conical shell or burr D of the mill.

E is the outer shell, which is furnished with projecting wings *b b'*, adapted to embrace rods *d d*, the latter being secured at the ends to the plates *a a'*, and thus forming guides, on which the shell E may be moved back from the burr D, as shown in Fig. 2, so as to permit ready access to the interior of the mill when it becomes necessary to remove obstructions therefrom. The wing *b'* of the shell E is split, as shown in Figs. 1 and 3, and has ears *f f*, which can be contracted by means of a thumb-screw, *g*, so as to cause the said wing *b'* to bind tightly upon the rod *d* and retain the shell E in its proper position in respect to the burr D, as shown in Fig. 1, during the grinding operation, the shell being released from the rod on loosening the thumb-screw, so as to permit said shell to be moved back, as shown in Fig. 2. I also avail myself of the movement of the shell E to regulate the fineness of the grinding by enlarging or contracting the space between the burr and shell, the shell E having a portion, *i*, turned or otherwise trued, so as to fit snugly to a flange, *m*, on the end plate *a*, and thus permit longitudinal adjustment of the shell E in respect to the burr D, while preventing the escape of any of the ground material, except at the outlet *n*. The proper adjustment of the shell E may be governed by means of a lug on the shell and a set-screw on the end plate *a*, as shown in Figs. 1 and 2. The shell E carries a hopper-neck, *p*, which is furnished with a suitable valve, so as to cut off the flow of material when the shell is moved back, as shown in Fig. 2.

In order to prevent injury to the burr and shell, owing to a continued application of power to the shaft B, either directly or by the momentum of the fly-wheel, after the rotation of the burr D has been stopped by an obstruction in the mill, I connect the driving-crank F and fly-wheel G to the shaft by means of a friction-clutch, so that when the rotation of the shaft is suddenly arrested the friction will be overcome and the movement of the crank or wheel independently of the shaft permitted. The clutch on the crank comprises a split hub and thumb-screw, and that on the fly-wheel consists of a block adapted to a box in the hub and acted upon by a thumb-screw and spring, as shown in Figs. 1 and 4. The crank alone may be used on the shaft in some cases, or the fly-wheel alone may be employed, the latter in such case, however, being provided with a handle for the application of power thereto, or being adapted for the reception of a driving-belt.

In carrying out my invention other means than the rods *d* may be used for guiding the shell E, and a fastening device other than the split wing *b'* may be employed. For instance, the shell may have a projection bearing on the base A and slotted lugs adapted for the reception of bolts hung to the end plate *a*, said bolts being furnished with nuts adapted to bear upon the lugs and hold the shell E in proper position in respect to the end plate.

I claim as my invention—

1. The combination, in a grinding-mill, of a fixed frame and a shaft, B, adapted to bearings therein, and having a burr, D, with a longitudinally-guided shell, E, capable of sliding toward and from the burr D to permit access to the interior of the mill, and devices, substantially as described, whereby the said shell E may be secured in position for grinding, as set forth.

2. The combination of the plates *a a'*, the

rods *d d*, connecting said plates, the shaft B, the burr D, and the shell E, having wings *b b'*, adapted to the rods *d*, as set forth.

3. The combination of the shaft B, burr D, plates *a a'*, rods *d*, and shell E, with wings *b b'*, said wing *b'* being slitted and provided with a tightening-screw, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ARCHIBALD MONTGOMERY.

Witnesses:
HARRY DRURY,
HARRY SMITH.