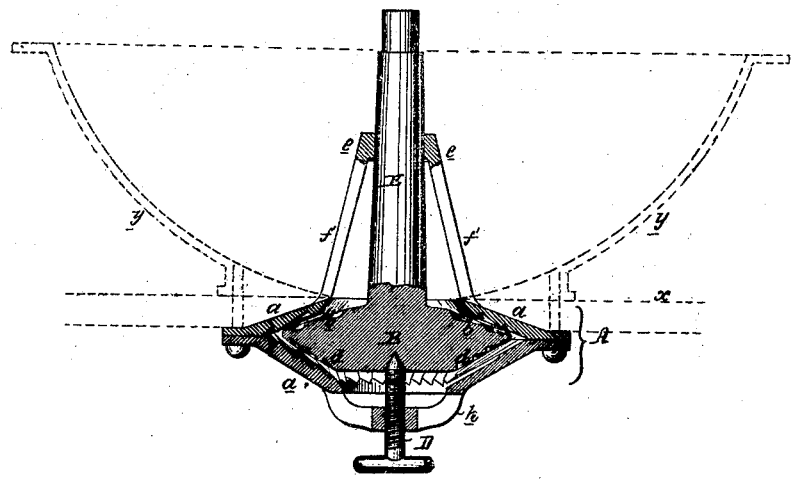


*G. Selsor,*  
*Metallic Burr.*

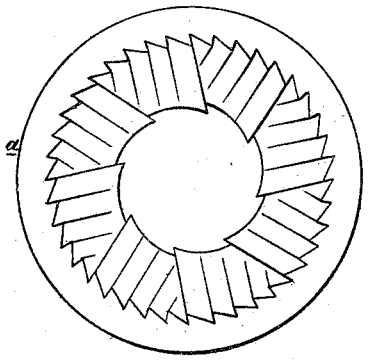
*No. 112,080.*

*Patented Feb. 21, 1871.*

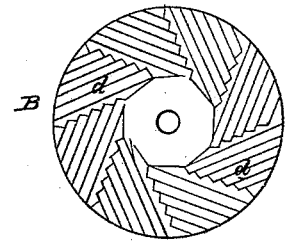
**FIG. 1.**



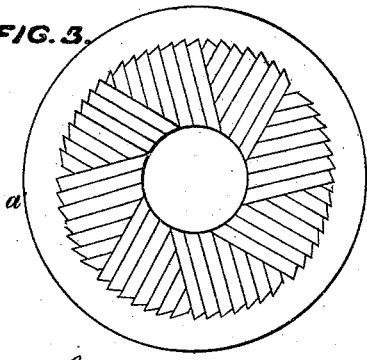
**FIG. 4.**



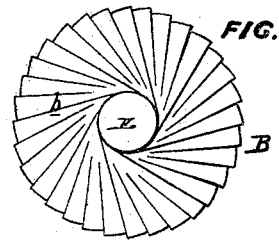
**FIG. 2.**



**FIG. 3.**



**FIG. 5.**



WITNESSES { *Jno. B. Harding*  
*Thos. Pittman*

*George Selsor*  
*by his Atty*  
*Howson and Son.*

# UNITED STATES PATENT OFFICE.

GEORGE SELSOR, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN GRINDING-MILLS.

Specification forming part of Letters Patent No. 112,080, dated February 21, 1871.

*To all whom it may concern:*

Be it known that I, GEORGE SELSOR, of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented an Improved Grinding-Mill, of which the following is a specification.

My invention consists of a grinding-mill, too fully described hereinafter to need preliminary explanation, the object of my invention being simplicity as regards construction and increased grinding efficiency.

In the accompanying drawings, Figure 1 is a vertical section of the shell and burr of my improved grinding-mill; Fig. 2, an inverted plan view, showing the lower face of the burr; Fig. 3, a plan view of the lower portion of the shell; Fig. 4, an inverted plan view of the upper portion of the shell, and Fig. 5 a plan view of the upper portion of the burr.

The sheet A is composed of the two portions *a* and *a'*, inclined in contrary directions, and flanged at their outer edges for attachment to each other by suitable screws or other appropriate fastenings.

The burr B has two grinding-surfaces inclined in contrary directions, one surface, *b*, conforming, or nearly so, in its inclination to that of the upper portion, *a*, of the shell, and the other surface, *b'*, to the lower portion of the same. The burr is rendered adjustable within the shell, in the present instance, by a set-screw, D, on the point of which the burr revolves, the screw passing through a yoke, *f*, attached to or forming a part of the lower portion of the shell.

Either cast with or secured to the burr is a spindle, E, adapted to a bearing, *e*, supported by lugs *f' f'*, connected to the upper portion, *a*, of the shell.

It will be seen on reference to Figs. 4 and 5 that the upper grinding-surface of the burr and that of the upper portion, *a*, of the shell have a comparatively coarse dress, while the lower grinding-surfaces of both shell and burr have a much finer dress. In other words, the material to be ground—coffee, for instance—is broken and crushed by being subjected to the upper grinding-surfaces, but after passing thence to the lower grinders the latter triturate the crushed pieces to the desired degree of fineness.

I have found, after repeated tests, that coffee and other substances can be ground much faster by this duplex operation than in ordinary mills.

One of the most important features of my invention, however, is the readiness with which the burr can be adjusted to grind coarser or finer without impairing the effect of either grinding-surfaces. By lowering the burr, for instance, finer grinding will be insured without in any way detracting from the effective crushing properties of the upper grinding-surfaces. Another advantage of my invention is the economy with which it can be carried out. The two portions of the shell, for instance, admit of being easily cast and secured together, and if it be desirable to make them of steel they can be easily formed by and between suitable dies; and the same may be said of the burr, which can, with its dress, be swaged to the desired shape. It is when the mill is made of cast-iron, however, that its simplicity becomes most apparent, the upper portion of the shell and bearing for the spindle, being cast in one piece, so that the necessity of a cross-piece for supporting the upper end of the spindle is avoided, and the lower portion of the shell having cast on it the yoke for carrying the screw for adjusting and supporting the burr.

In Fig. 1, I have shown the mill as adapted to coffee-grinding, the dotted lines *y* designating [the hopper for receiving the coffee, and the dotted lines *x* the top of the box which contains the drawer for receiving the ground coffee. It will be seen that the mill is secured to the top of the box by the same screws or bolts by which the two portions of the shell are connected together.

Either the upper or lower grinding-surfaces, or both, of the burr may be slightly curved without departing from the main feature of my invention, the surfaces of the shell having a corresponding or nearly corresponding curve.

I claim—

1. The combination, in a grinding-mill, of a burr having two inclined grinding-surfaces, one coarser than the other, and a shell with two inclined grinding-surfaces, the whole being arranged, substantially as described, so

that the material operated on, after being broken by passing over one surface of the burr, shall be further reduced in contact with the other grinding-surface, as set forth.

2. The combination of the shell A, having two inclined grinding-surfaces and arranged horizontally, and a vertical spindle, E, adjusted by a set-screw, D, or its equivalent, and carrying a double-inclined horizontal burr, B, as set forth.

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

GEORGE SELSOR.

Witnesses:

WM. A. STEEL,

FRANKLIN B. RICHARDS.