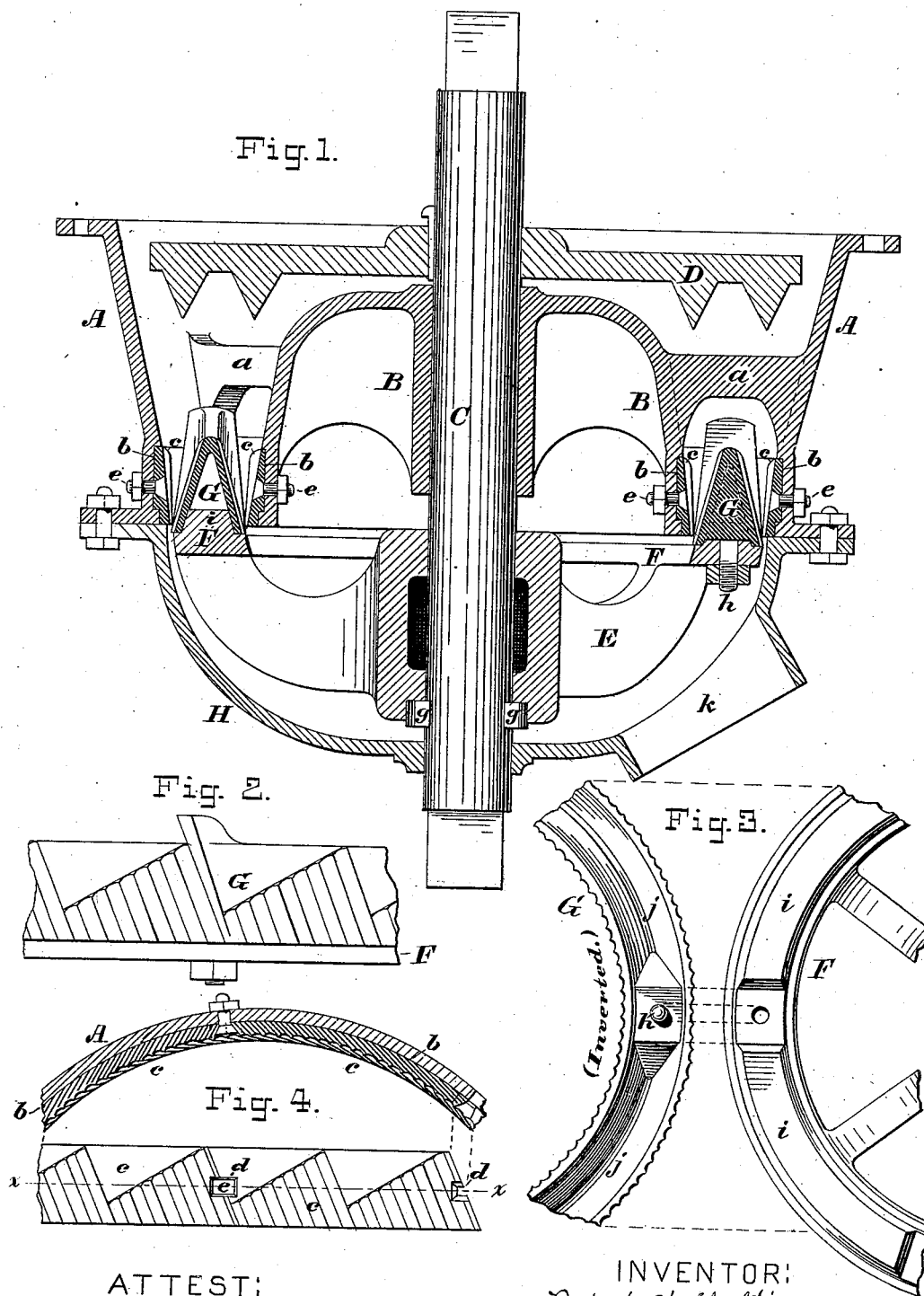


R. H. SHULTIS.
Grinding-Mill for Bark.

No. 206,494.

Patented July 30, 1878.



ATTEST:
T. P. Pemberton.
A. C. Fraser

INVENTOR:
Robert H. Shultis.
By his Attorneys,
Zurke & Fraser

UNITED STATES PATENT OFFICE.

ROBERT H. SHULTIS, OF KINGSTON, NEW YORK.

IMPROVEMENT IN GRINDING-MILLS FOR BARK.

Specification forming part of Letters Patent No. 206,494, dated July 30, 1878; application filed May 17, 1878.

To all whom it may concern:

Be it known that I, ROBERT H. SHULTIS, of Kingston, in the county of Ulster and State of New York, have invented certain Improvements in Grinding-Mills for Bark and similar substances, of which the following is a specification:

This invention relates most especially to mills for grinding or pulverizing bark for tanning purposes; and consists, essentially, in the construction and arrangement of the grinding parts and surfaces and their combinations with other parts of the mill.

In the drawings, Figure 1 is a vertical mid-section of a mill embodying my improvements; and Figs. 2, 3, and 4 are detail views, illustrating the construction of the various parts.

A is a hopper, made wholly or partially of cast metal; and B is a central cone or shell, in which is the bearing for the shaft C. The parts A B are cast in one piece and connected by ties *a a*.

The parts A B are circular in plan, and between their lower edges is an annular space for the runner. The casting is put in the boring-machine, and the shaft-bearing bored out true; and while in place recessed seats *b b* are turned truly concentric therewith in both walls of the annular space for the runner to receive chilled or otherwise hardened grinding-sections *c c*. This construction insures the concentricity of the grinding-surfaces, which is of the utmost importance.

I prefer to turn the seats *b b* at right angles to the plane of the bottom edge of the casting or parallel to the bore, as this construction insures greater accuracy, and is effected with greater facility, than when turned to a bevel, as is usual in such machines. If a bevel is desired for the grinding-surfaces, it can then be attained by making the sections *c c* thicker at one edge than at the other.

The sections *c c* are of cast-steel or chilled iron, and are cast with the proper curve to fit into their recessed seats *b b*. They are of uniform length and may be cast from the same pattern, and are aliquots of the circle in which they are set. Each end of each section has formed in it a beveled recess, *d*, and when the sections are put in place and abutted together the head of the retaining-screw *e* rests in the

opening formed by the two adjacent recesses, and holds the sections firmly in their seats. Fig. 4 shows an elevation and horizontal section of one of the grinding-sections *c* and a part of another, showing distinctly the tothing of the surface and the method of fastening.

D is a breaker of the ordinary kind, keyed to the shaft C, and E is a spider on the shaft, which may be driven by lugs *g* engaging recesses in its boss.

F is a rim cast upon the spider-arms and faced up truly concentric with its bore.

G is a double-faced ring-grinder, of chilled iron or cast-steel, which is bolted down upon the ring F of the spider, and rotates between the grinding-faces *c c*. Fig. 2 shows the tothing on the faces of this ring, and Fig. 3 the under side of the ring and the top of the rim F on which it sits.

To prevent the ring from slipping on its seat, and to take the strain off the fastening-bolts *h*, I provide raised parts *i i* on the rim F to engage the recesses or hollows *j j* in the ring G. The ring has a section somewhat like an inverted V, and when in place it forms, with the sections *c c*, two trough-shaped annular cavities to receive the bark from the breaker, as seen in Fig. 1.

The screws *h* are preferably cast in the ring, and when the latter is in place on the rim these pass through holes, and receive nuts on their extremities, as shown.

The mill is provided with an ordinary bowl or receiver, H, and the arms of the spider are made to conform somewhat to the shape of the same, so as to drive the ground bark out at the aperture *k*.

The usual adjusting devices may be applied to lower or raise the grinder and regulate the fineness of the product of the mill.

The grinding-sections *c c* and the ring G must be of very hard material, and I prefer to make them of chilled iron; but they may be of cast-steel, or be case-hardened; or the sections may be of cast-steel and the ring-grinder of chilled iron.

I claim—

1. In a grinding-mill, the combination of the grinding-surfaces *c c*, the spider E, the rim F of the spider provided with raised segments and bolt-holes through the rim between them,

and the grinding-ring G, provided with segmental or partitioned recesses on its under side to engage the segments on the rim, and bolts to engage the bolt-holes, substantially as set forth.

2. The sections *c c*, of hardened cast metal, provided with beveled recesses *d d* in their ends to receive the heads of the fasteningscrews, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

R. H. SHULTIS.

Witnesses:

J. E. OSTRANDER,
M. T. TRUMPBOR.