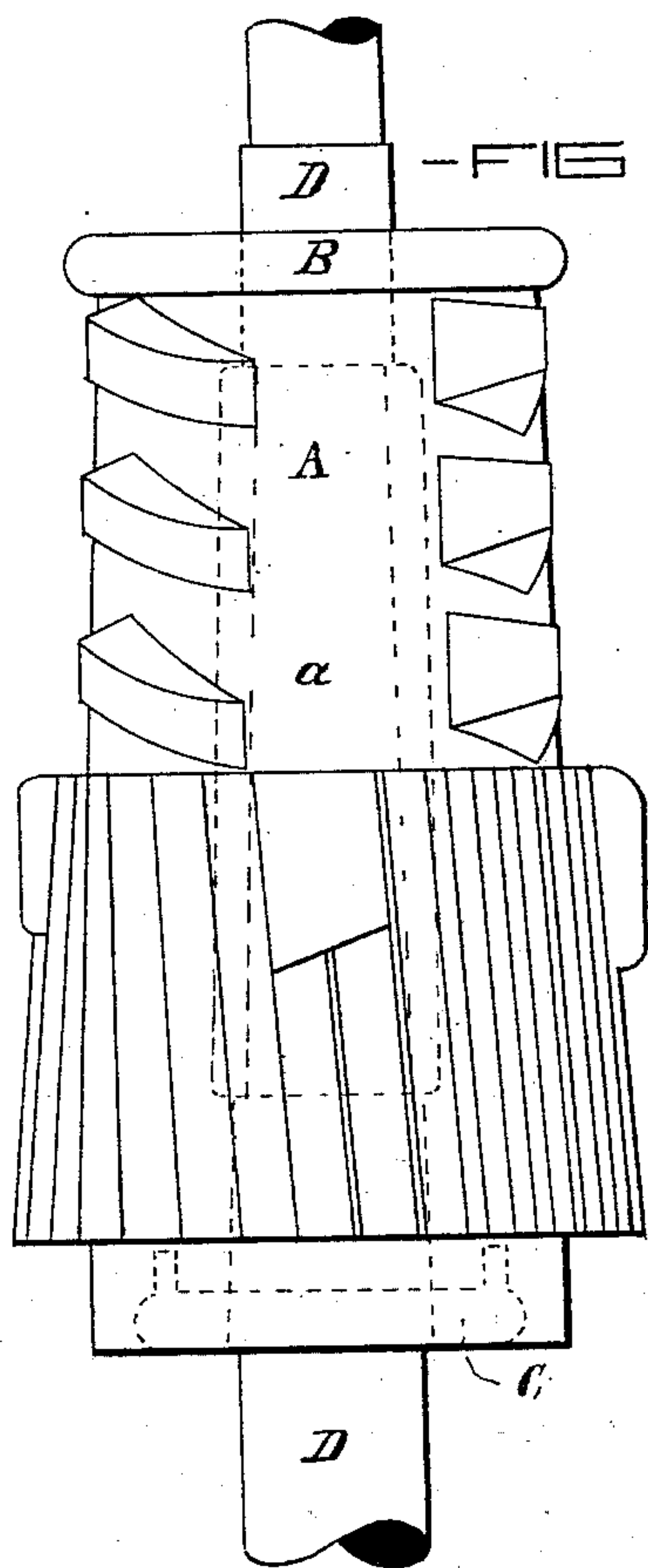


(No Model.)

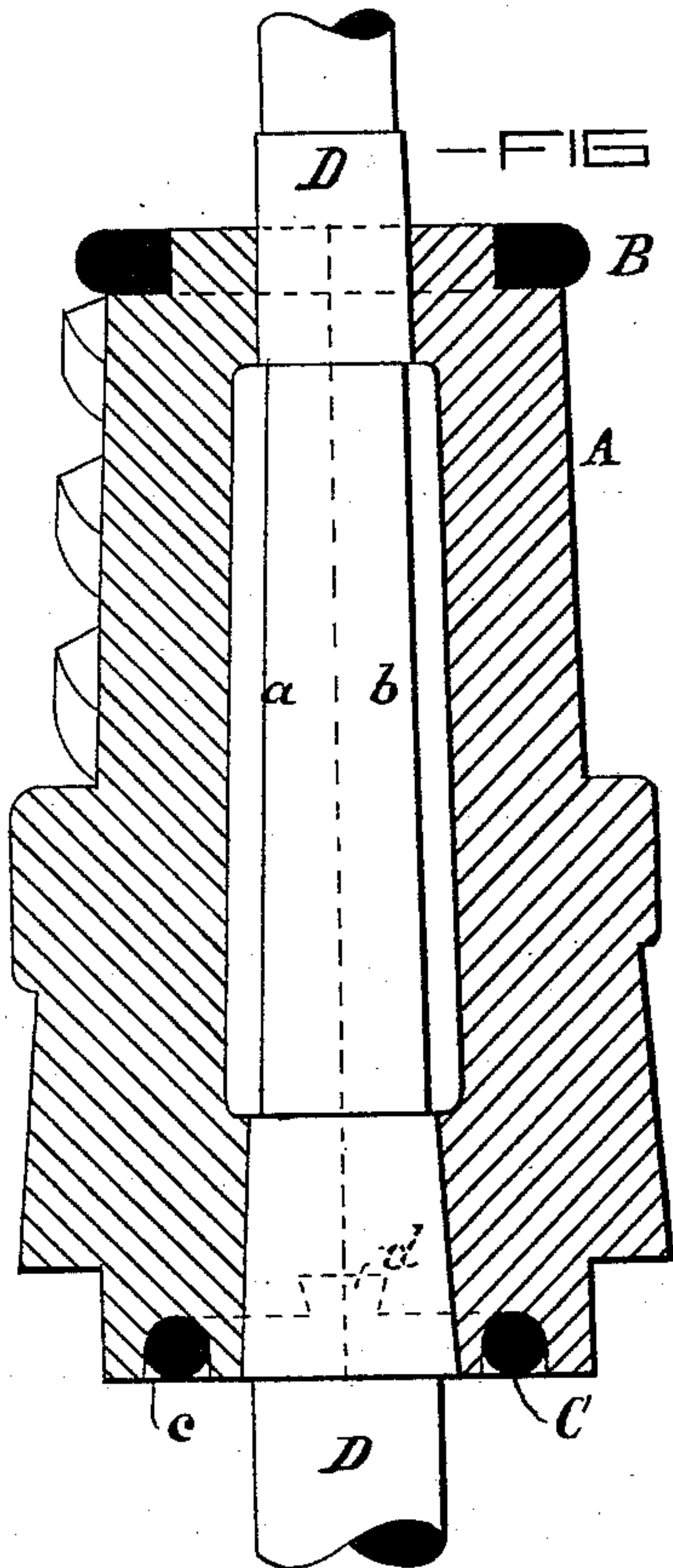
W. CLARK.  
ORE CRUSHING MACHINE.

No. 277,233.

Patented May 8, 1883.

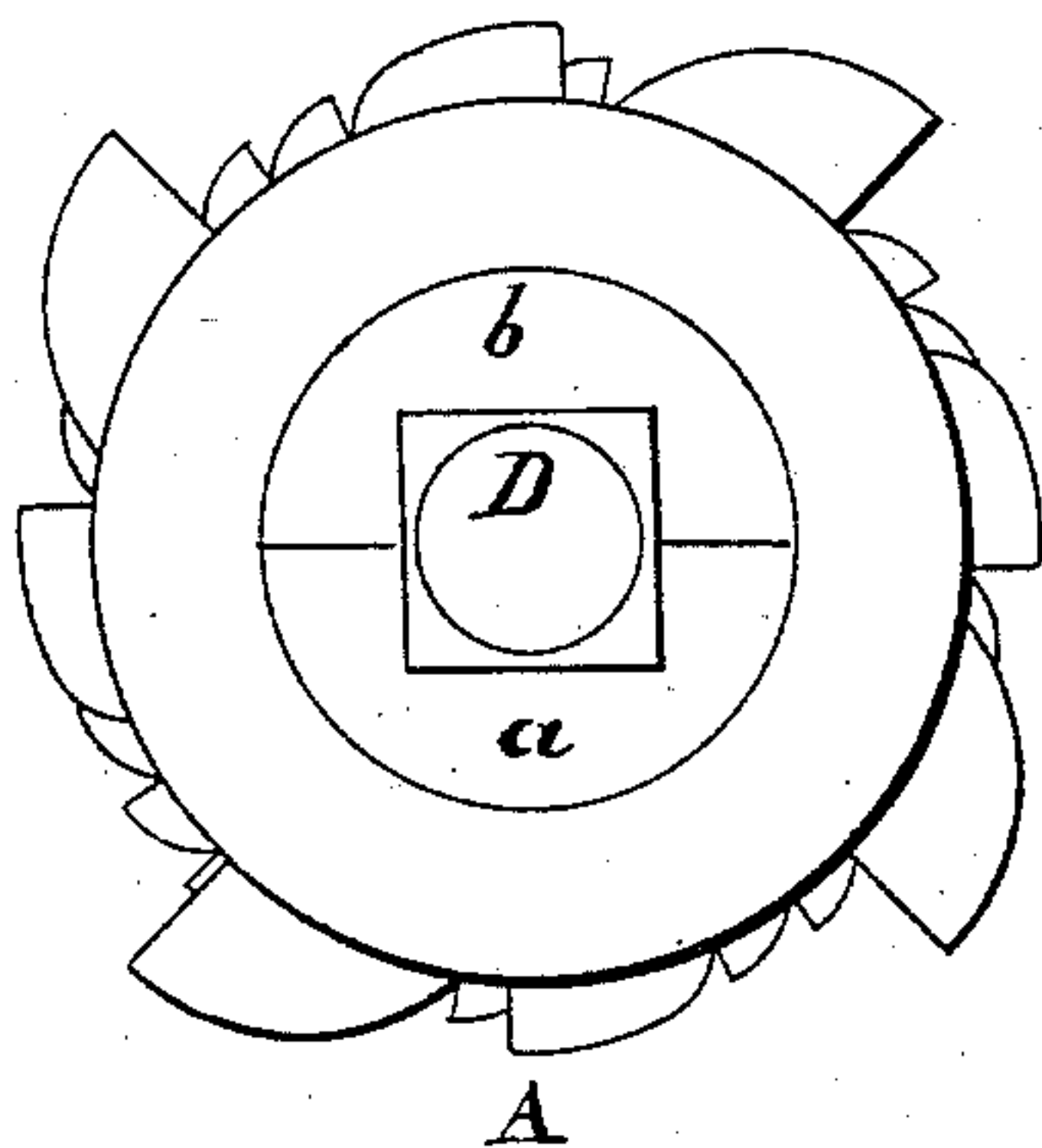


—FIG I—



—FIG II—

—FIG III—



—WITNESSES—

*Danl Fisher*  
*Edward J. Riggs*

—INVENTOR—

*William Clark*  
*by E. H. Howard*  
*Atty.*

# UNITED STATES PATENT OFFICE.

WILLIAM CLARK, OF BROOKLYN, MARYLAND.

## ORE-CRUSHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 277,233, dated May 8, 1883.

Application filed December 28, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM CLARK, of Brooklyn, in the county of Anne Arundel and State of Maryland, have invented certain Improvements in Ore-Crushing Machines, of which the following is a specification.

The object of this invention is to facilitate the attachment and detachment of the crushing-head to and from the central spindle, and that without interfering with the gearing and other devices, which are secured permanently to the ends of the said spindle.

In the description of my said invention, which follows, reference is made to the accompanying drawings, forming a part hereof, and in which—

Figure I is an exterior side view of the crusher-head and the spindle. Fig. II is a longitudinal section of the same. Fig. III is a top view of the invention.

Similar letters of reference indicate similar parts in all the views.

A is the crusher-head, in two parts or sections, respectively represented by *a* and *b*, which are cast of iron separately and placed with the flat sides together. (See particularly Fig. III.)

B is a plain circular band, of wrought-iron, to connect the upper ends of the sections *a* and *b*, and it surrounds the end of the crusher, which is reduced in size.

C is a similar band, also of wrought-iron, which secures together the lower ends of the sections *a* and *b* of the crusher-head. The band C is inclosed in a groove or recess, *c*, and is preferably provided with dovetail pins to prevent its falling from the groove when the said sections are united and before the tightening of the spindle D in the central aperture of the head.

By reference to the drawings it will be seen that the central aperture of the crusher-head is tapered and the spindle similarly shaped.

To connect the crusher-head with the spindle the lower ends of the sections *a* and *b* are placed around the said spindle and inserted in the lower band, C, in which operation the dovetailed pins enter the recesses provided for them. The upper ends of the sections *a* and *b* are then brought together and around the central spindle, when the upper band, B, is applied to keep the said ends together. At this time the spindle is loose in the central aperture, and the lower band, C, is sustained or prevented from falling by means of the dovetailed pins. After the sections *a* and *b* are connected by the bands B and C, as described, the driving in of the spindle or the forcing down of the head forces the said sections slightly apart, and the bands are thus held firmly in place. By continued driving the spindle is tightened within the crusher-head and a rigid attachment produced.

In mills for crushing ore, phosphate-rock, and other similar materials—a use to which my mill is especially adapted—the spindle is provided with gearing, which has to be removed before the spindle can be withdrawn from the crusher-head when the said crusher is in a single piece; but in my mill a broken crusher may be taken off the spindle and a new one substituted for it without disturbing the gearing, removing the bands B and C from the spindle, or passing the same entirely through the head.

I claim as my invention—

In a machine for crushing ore and phosphate-rock, the crusher-head constructed in two parts or sections placed with their flat surfaces in contact, and having a central tapering aperture and securing-bands, combined with a tapering spindle, substantially as specified.

WM. CLARK.

Witnesses:

ED. J. DIGGS,  
JOHN WILLIAMS.