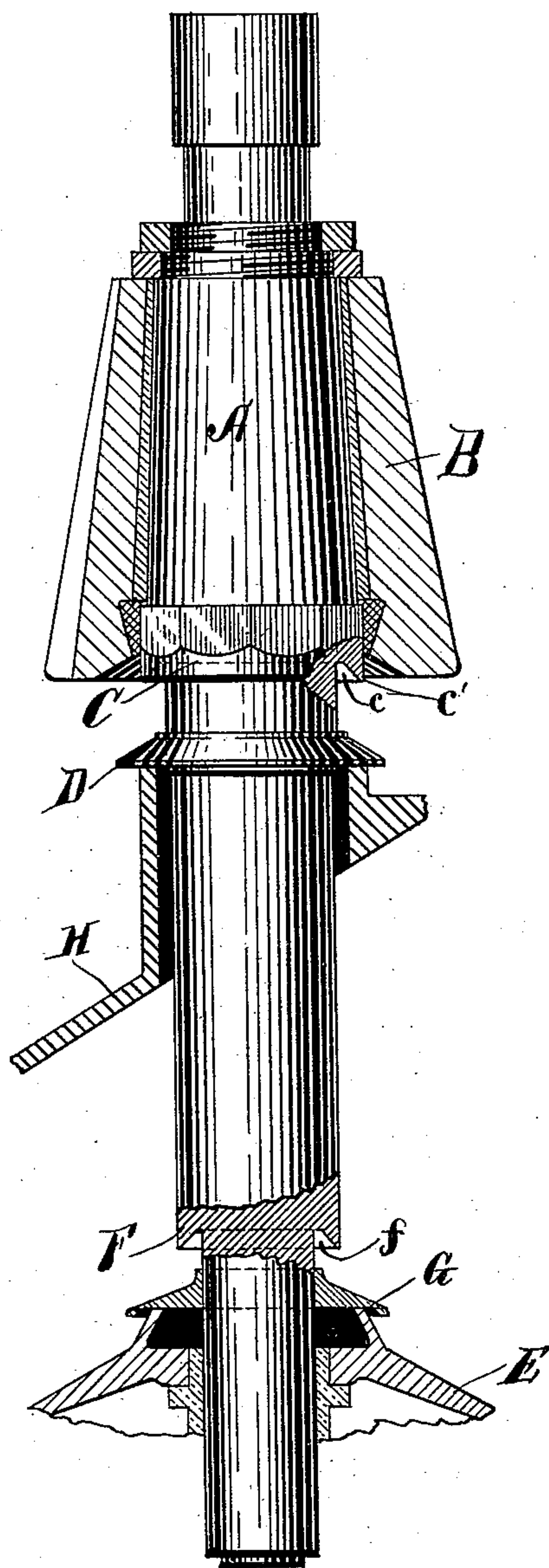


(No Model.)

R. D. GATES.  
STONE BREAKING OR CRUSHING MACHINE.

No. 488,759.

Patented Dec. 27, 1892.



Witnesses.

Thos. O. Reidan,  
Samuel E. Hibben

Inventor.

Roger D. Gates.

By Banning & Banning & Payson,  
Attorneys.

# UNITED STATES PATENT OFFICE.

RYERSON D. GATES, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE GATES IRON WORKS, OF SAME PLACE.

## STONE BREAKING OR CRUSHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 488,759, dated December 27, 1892.

Application filed September 22, 1892. Serial No. 446,521. (No model.)

*To all whom it may concern:*

Be it known that I, RYERSON D. GATES, a citizen of the United States, residing in Chicago, Illinois, have invented certain new and useful Improvements in Stone Breaking or Crushing Machines, of which the following is a specification.

My invention relates more specifically to the gyrating shafts used in connection with stone breakers or crushers, and consists in the features and details of construction hereinafter described and claimed.

In the drawing, the figure is an elevation, partly in section, showing my improved gyrating shaft for stone breakers or crushers.

In using stone breakers or crushers, especially in wet crushing where an upright shaft is used, the water flowing downward continues down along the shaft and enters the oil cups, carrying dust with it, thereby doing serious damage to the bearings of the same, as well as wearing out the shaft very rapidly. To obviate this dangerous feature is the object of my invention.

In making my improved gyrating shaft, I use a shaft A, to which is secured in any well known manner a crusher head B. At the lower end of the crusher head, forming a portion of the shaft, is a shoulder C, having its lower edge *c* undercut, so that should any water or moisture flow down on the outside of the crusher head or between it and its shaft, it will drip off the edge *c'* on to the dust cap of the guard D, and be prevented from con-

tinuing down the shaft. This dust guard D is fitted loosely on the shaft A. At the lower edge of the shaft, and above its lower bearing and driving gear E, is another shoulder F, having an undercut *f*, so that should any moisture or water continue down the shaft, when it reaches this shoulder F, it will drip off, by reason of the undercut *f* on the oil cap or bonnet G, and be prevented from entering the bearing or oil cup, thereby damaging or injuring the same. In the usual shafts now employed, there is no shoulder F or C, and if there is, it is at right angles from the shaft, so that the moisture readily continues down along the shaft much to the detriment of its bearings and driving mechanism. The only portion of the crusher I have shown outside of the shaft and its head is the diaphragm or chute H, and a portion of the driving gear E.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

The combination with a stone breaker or crusher of a gyrating shaft having a crusher head secured thereto, and formed with shoulders, one or more shoulders undercut at their lower edge to prevent or break the passage of water or moisture down along the shaft, substantially as described.

RYERSON D. GATES.

Witnesses:

PHILETUS WARREN GATES,  
SAMUEL E. HIBBEN.