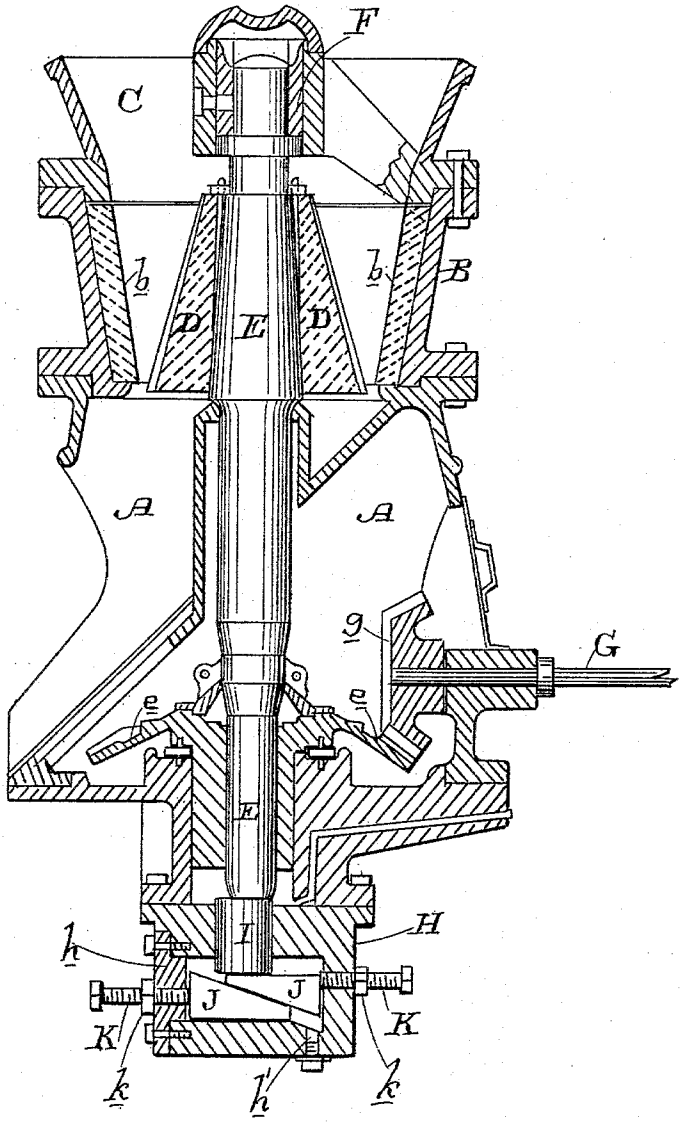
(No Model.)

J. P. SIMMONS & W. J. HOLMES.

ADJUSTABLE ROCK CRUSHER.

No. 490,215. Patented Jan. 17, 1893.



Witnesses,
J. A. Bayless

Inventors,
John P. Simmons
William J. Holmes
By Dewey & Co.
Attys

UNITED STATES PATENT OFFICE.

JOHN P. SIMMONS AND WILLIAM J. HOLMES, OF SAN FRANCISCO, CALIFORNIA.

ADJUSTABLE ROCK-CRUSHER.

SPECIFICATION forming part of Letters Patent No. 490,215, dated January 17, 1893.

Application filed September 22, 1892. Serial No. 446,634. (No model.)

To all whom it may concern:

Be it known that we, JOHN P. SIMMONS and WILLIAM J. HOLMES, citizens of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Adjustable Rock-Crushers; and we hereby declare the following to be a full, clear, and exact description of the same.

Our invention relates to that class of rock-crushers in which an oscillating crusher head is mounted within a shell, said head being carried and driven by a shaft which has a vertical adjustment, to regulate the position of the crusher head within the shell and provide for reducing the rock to different sizes.

Our invention consists in the novel adjusting mechanism for the shaft of the crusher-head, which we shall hereinafter fully describe and specifically point out in the claims.

The object of our invention is to provide a simple, economical and effective adjusting device for the crusher-head shaft which can be readily operated, requiring the removal or change of none of the parts, accessible easily from the outside and preventing the escape of oil from the bearing box of the step on which the shaft rests.

Referring to the accompanying drawing for a more complete explanation of our invention,—the figure is a vertical section of our rock crusher.

A is a frame in the upper portion of which is the shell B protected on its inner surface by the usual liners *b* and having secured to its top the feed hopper C. Within this shell is the conical crushing head D mounted upon the shaft E, the upper end of which is suitably mounted in the usual oscillating box F. This shaft is driven by means of a gear *e* on its lower portion with which engages a pinion *g* on the drive shaft G.

To the lower end of the frame A of the crusher is secured a box H in which is mounted a vertically movable step I upon the top of which the lower end of the shaft E bears. Within the box are the oppositely inclined wedges J, upon one of which the step rests. These wedges are wholly confined within the box and they are moved toward each other, in order to raise the step by means of the screws K passing through the sides of the box from the outside, and properly fitted with nuts *k*. The wedges are inserted in and removed from the box through a side cap or door *h*. A cap controlled outlet *h'* is provided for draining the oil from the box. It will now be seen that by setting up the screws K the wedges J will be forced together and will lift the step thereby vertically adjusting the shaft E to regulate the position of the crusher-head with respect to the shell and regulate the discharge opening from said shell.

The adjustment of the shaft can be readily and quickly accomplished from the exterior, without having to remove any of the parts. It is usual to effect the adjustment by means of interposed washers or bearing plates, or by means of a screw which passes directly through the box and bears up under the step. In the former case, the cap of the box has to be removed and the washer put in place. In the latter case the screw cannot be made so tight but that the oil from the box will escape. In our device, there is no escape for the oil except through the draining tube. The adjustment can be regulated to a nicety and is efficient in its operation.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is—

1. In a rock crusher having a shell and a crusher-head working therein, the combination of a shaft carrying and operating said crusher-head, a vertically movable step upon which the lower end of said shaft is mounted, and movable opposing wedges under said step for vertically adjusting it to regulate the position of the crusher-head in the shell, substantially as herein described.

2. In a rock crusher having a shell and a crusher-head working therein, the combination of a shaft carrying and operating said crusher-head, a vertically movable step upon which the lower end of said shaft is mounted, opposing wedges under said step for vertically adjusting it to regulate the position of the crusher-head in the shell, and adjusting screws for operating said wedges, substantially as herein described.

3. In a rock crusher having a shell and a crusher-head operating therein, the combina-

tion of a shaft carrying and operating the crusher-head, a box at the lower portion of the crusher-frame, a vertically movable step mounted in said box and upon which the lower end of the shaft bears, oppositely movable opposing wedges confined within said box, one of said wedges bearing under the step, and set screws mounted in the sides of the box and bearing against the wedges to force them together whereby the step is raised and the position of the crusher-head in the shell regulated, substantially as herein described.

In witness whereof we have hereunto set our hands.

JOHN P. SIMMONS.
WILLIAM J. HOLMES.

Witnesses:
LEE D. CRAIG,
H. A. GOULD.