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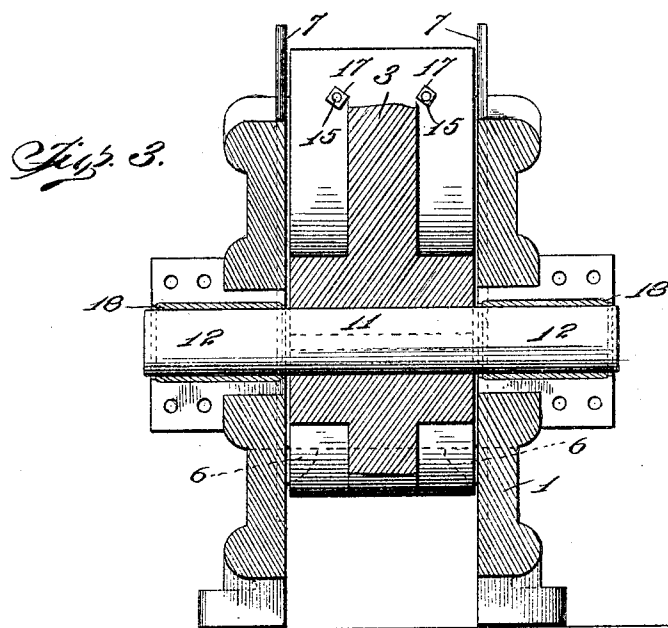
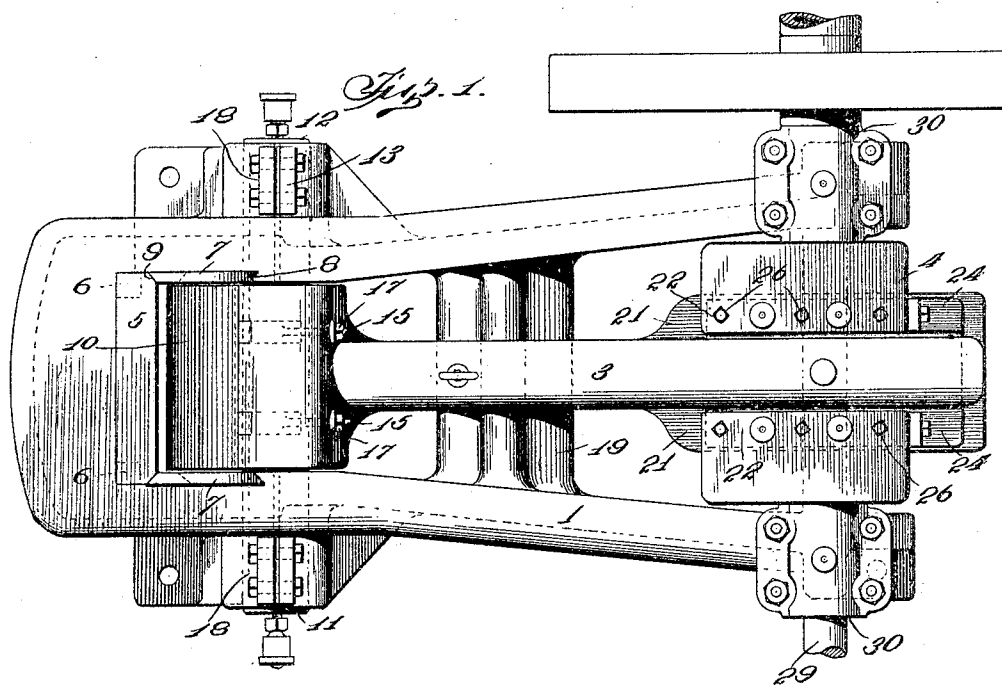
PATENTED OCT. 17. 1905.

A. SCOTT.

ROCK CRUSHER AND PULVERIZER.

APPLICATION FILED MAY 4, 1903.

2 SHEETS—SHEET 1.



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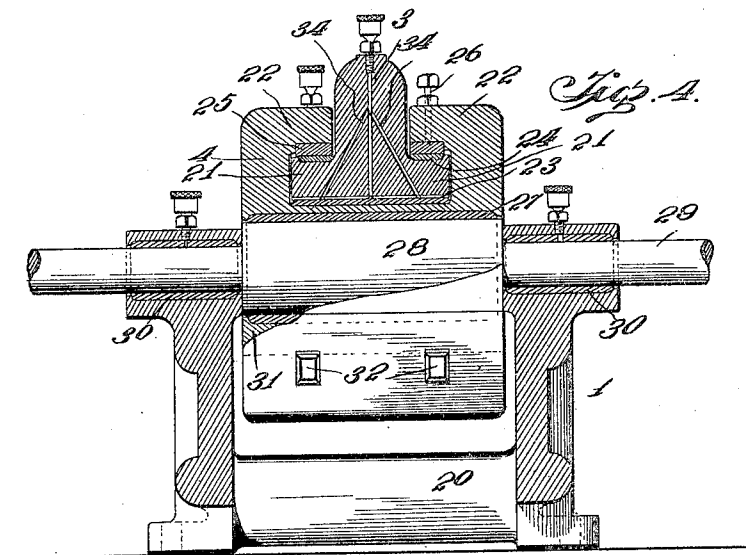
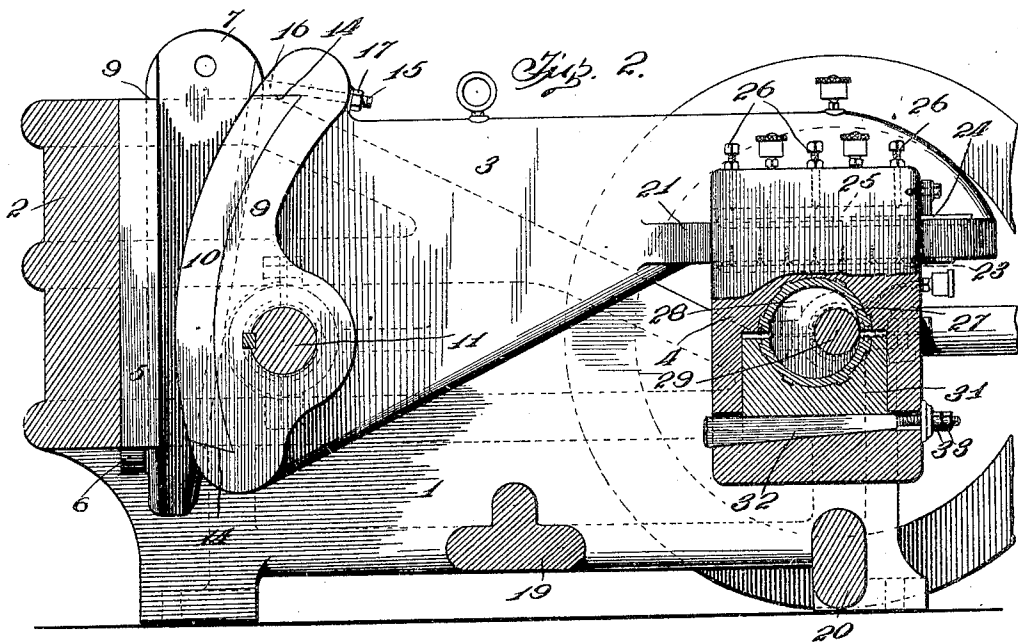
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UNITED STATES PATENT OFFICE.

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ROCK CRUSHER AND PULVERIZER.

No. 801,921.

Specification of Letters Patent.

Patented Oct. 17, 1905.

Application filed May 4, 1903. Serial No. 155,570.

To all whom it may concern:

Be it known that I, ARCHIBALD SCOTT, a citizen of the United States, residing at Carters, in the county of Tuolumne and State of California, have invented certain new and useful Improvements in Rock Crushers and Pulverizers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in rock-crushers, and particularly to crushers in which the material is subject to a crushing and grinding action for crushing rock in a dry condition to any suitable degree of fineness.

It consists in certain novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a top plan view of the crusher constructed in accordance with this invention. Fig. 2 is a vertical longitudinal section through the same, the crushing-faces and the lever being shown in side elevation. Fig. 3 is a transverse vertical section on the line of the shaft which supports the rocking crusher. Fig. 4 is a transverse sectional view taken upon the axis of the eccentric and showing parts of the mechanism in elevation.

This invention is designed to supply rock-crushers which may be made in a simple and durable manner and yet are capable of having both a crushing and a grinding action upon the rock or other materials passed through them and will reduce the material to a required fineness.

In the accompanying drawings I have illustrated a practical embodiment of the invention, in which a frame 1 is employed, which is closed at one end, as at 2, while its other end is open and adapted to receive between its side walls a crushing-lever 3 and an operating slide-box 4, which actuates it. Upon the inner surface of the end wall 2 is secured a crushing-face 5, preferably of considerable thickness and formed of hard material. This crushing-face is preferably removably mounted in the casing, its lower end resting upon the lugs 6 upon each side of the frame, which support the said crushing-face at a proper height in the frame. The removable crushing face or plate 5 is held in position by side wearing-plates, as 7, which are tapered, as shown in Fig. 2. The edges of these plates

8 upon the frame 1 upon one side and beveled faces 9, formed on the wearing-plate 5 at their other sides. As clearly seen in Fig. 1, when the side wearing-plates 7 are put into place they are in position to lock the crushing face or plate 5 in position.

Within the frame 1 is pivotally mounted the lever 3, carrying a crushing-head 9, the face of which is recessed to receive a wearing-plate 10. The lever is mounted upon a shaft 11, to which it is keyed, the said shaft projecting beyond the crusher-head 9 a sufficient distance to form supporting-trunnions 12, which engage bearings 13, formed in the side walls of the frame 1. The shaft 11 being keyed to the lever 3 is of course rocked by the movement of said lever within the bearings 13. The shaft 11 is located near the crushing-face 10 of the lever and preferably near the lower edge of said lever, as shown in Fig. 2. The surface of the crushing-face is formed upon the arc of a circle struck from some given point as a center, the said point being taken upon a line in a horizontal plane passing through the axis of the shaft 11. The curvature of the crushing-face will be increased or diminished according to the distance of said center from the crushing-face. The crushing-face is thus segmental in form, and the plate 10 may therefore be reversed in position in the recess of the crushing-head when such turning becomes necessary by the uneven wear upon the crushing-face. The recess in the crushing-head is formed with overhanging end flanges 14 for engaging the beveled ends of the plate 10. The plate 10 will be slipped into position endwise from one side of the crushing-head 9. It is clamped into position by means of bolts 15, having elongated tapering heads 16, the said bolts being adapted to be drawn up by nuts 17 at the rear of the crusher-head. The crushing-face 10 can be removed and replaced very quickly at any time by removing the bolts 15. The bearings 13 project some distance beyond the side walls of the frame 1 and are formed with removable caps 18, which are held in position by suitable bolts. The frame 1 is laterally braced by cross-bars 19 and 20 near its lower edge at the center and at the end thereof opposite the closed end 2. The lever 3 at its free end is formed with laterally-projecting flanges 21, preferably extending upon both sides of the web portion of said lever, the said flanges being approximately horizontal. These flanges are engaged by a sliding box 4,

which is formed at the top with inclosing flanges 22 upon each side, which extend around and receive the flanges 21 of the lever. The lower edge of the lever and flanges 21 rest upon a broad bearing-face 23, formed in the recess of the box 4, the said surface being preferably provided with Babbitt metal to receive the wear of the lever. The outer faces of the flanges 21 may also be provided with Babbitt metal, as at 24, if desired, while the inner faces of the flanges 22, which engage the same, may be provided with bearing-plates 25, capable of adjustment by means of screws 26 for taking up any wear in the part. It will thus be seen that the box 4 is capable of longitudinal movement with respect to the flanges 21 of the lever, and it will also be evident that the rising and falling of the box will produce a movement of the outer end of the lever and the rocking of the crusher-head 9 upon the trunnions 12. A gyrating movement of the box 4 is thus produced.

The box 4 is formed with a bearing 27 in its lower portion for engaging an actuating-eccentric 28, which is carried by a shaft 29. The shaft 29 is journaled in bearings 30, formed in the sides of the frame 1. The eccentric is inclosed within the bearing 27 by a removable bearing-block, as 31, also adapted to fit upon the said eccentric. Any wear of the bearing upon the eccentric may be taken up by means of wedge-bolts 32, which pass the lower portion of the bearing-box 4. These wedge-bolts are provided with suitable nuts 33 for adjusting the bolts and taking up such wear. The bearing in the box 4 may be provided with Babbitt metal, as illustrated, if desired. Suitable oiling-cups are provided for the various bearings, as illustrated in the drawings. The oil-cup for delivering oil to the lower surface of the lever feeds oil to a series of channels or passages 34, which pass downwardly through the end of the said lever to the said bearing-faces.

It will be evident from the above description that when the eccentric-shaft 29 is rotated the eccentric will be caused to move the box 4 up and down and will thus raise and depress the end of the lever 3, causing a rocking of the crushing-head 9. The sliding engagement of the said box with the flanges 21 of the lever permit the box to accommodate itself to every movement of the eccentric and yet be capable of properly actuating the lever 3. The material on first entering the cavity between the crushing-faces and while thus some distance above the shaft 11 will be subject to a more or less crushing action at the upper end of the crushing-head 9. As the material crushed becomes finer and descends between the crushing-faces to a point opposite the shaft 11 the rocking of the crushing-head will have a decided grinding action and tend to further pulverize the material.

The crushing-faces 5 and 10 can be removed

and replaced at any time or reversed in either position, according to the wear upon them, and the said wearing-plates, which wedge the end wearing-plate 5 in place, may be easily removed at any time.

The mechanism will be found to be exceedingly simple and yet capable of developing any power necessary for crushing rock or other materials and effectively pulverizing the same.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A crusher comprising a stationary crushing member, a rocking crusher-head, an integral lever projecting outwardly from the crusher-head, the said crusher-head being pivoted at a point adjacent to the stationary crushing member, a gyrating bearing-box mounted outside the lever and below the same, the said lever being formed with a vertical web and horizontal flanges projecting therefrom at its lower edge forming a broad bearing having a movable engagement with the gyrating bearing-box, and a cam member for operating the gyrating bearing-box.

2. A crusher comprising a stationary crushing-face, a rocking crusher-head pivotally mounted in front of the crushing-face, a lever projecting outwardly from the crusher-head and formed approximately T-shaped at its upper end; the flanges of the said T-shaped portion being arranged at the lower edge of the lever, a bearing-box supporting the said T-shaped lever end and sliding with respect to the broad bearing thereof, flanges carried by the bearing-box and inclosing the flanges of the T-shaped lever for movably holding the said lever with respect to said box, and an eccentric engaging the said box for imparting a gyrating movement to it and causing the rocking of the crusher-head.

3. A crusher comprising a casing, a stationary crushing-plate mounted in said frame, a rocking segmental crushing-head arranged opposite thereto, pivoted supporting means engaging said head arranged adjacent to the crushing-face thereof fixed bearings for said means, a projecting arm or lever for moving said head, a sliding bearing-box formed with a way for supporting the said lever, flanges carried by the said box and overhanging portions of the lever, and an eccentric for imparting a gyrating movement to the bearing-box and thus producing a rocking action in the crushing-head.

4. A crusher comprising a casing, a crushing-face mounted therein, a rocking crusher-head supported opposite said face by fixed bearings, a lever projecting therefrom, said lever having laterally-extending flanges at its outer end, a bearing-box having inclosing flanges for engaging the flanges of the lever and capable of a sliding movement thereon, and an eccentric for imparting a gyrating movement to the bearing-box.

5. A crusher comprising a stationary crushing-face, a crusher-head mounted in front of said face, a shaft carrying the said crusher-head and journaled in the framing of the crusher, a vertical web extending outwardly from the crusher-head, horizontal flanges extending laterally from the lower edge of said web at the outer end of the lever, a transverse shaft mounted in the crusher below the end of the lever, an eccentric rigidly secured to said shaft, means for movably supporting the end of the lever and connecting the same to

the eccentric made up of a bearing-box surrounding the eccentric and arranged outside the body portion of the lever below the same and flanges carried by the bearing-box and overhanging the flanges of the lever. 15

In testimony whereof I hereunto affix my signature in presence of two witnesses.

ARCHIBALD SCOTT.

Witnesses:

W. H. SCOTT,

E. H. BARTLETT.