H. R. STACKS.

ROCK AND ORE CRUSHER.

APPLICATION FILED JUNE 15, 1911.

**1,014,532.** Patented Jan. 9, 1912.

Fig. 1.

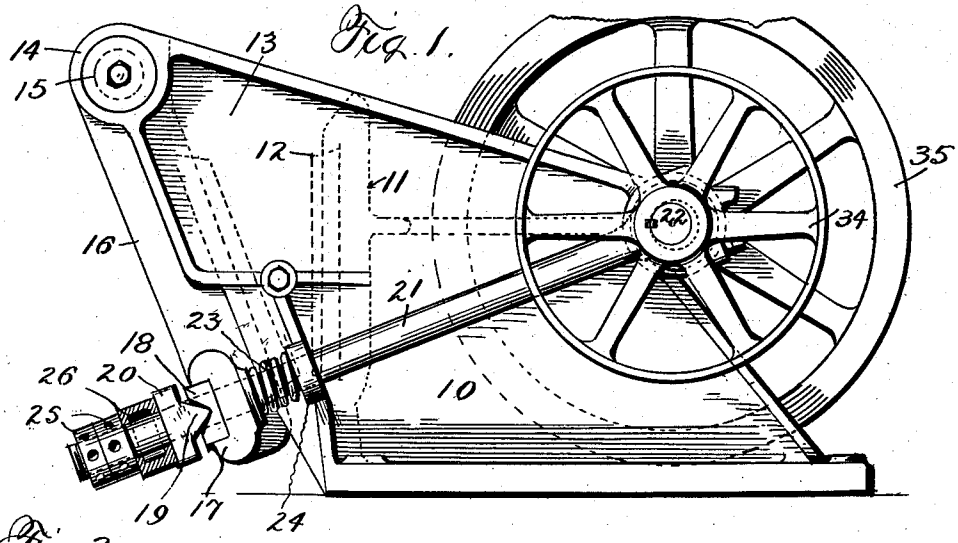



Fig. 2

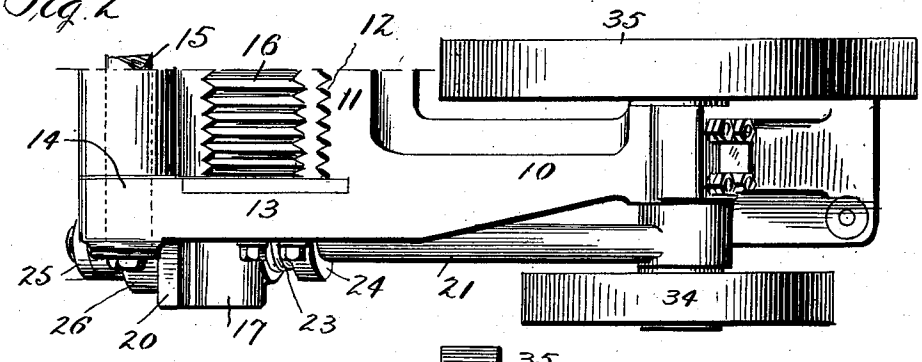
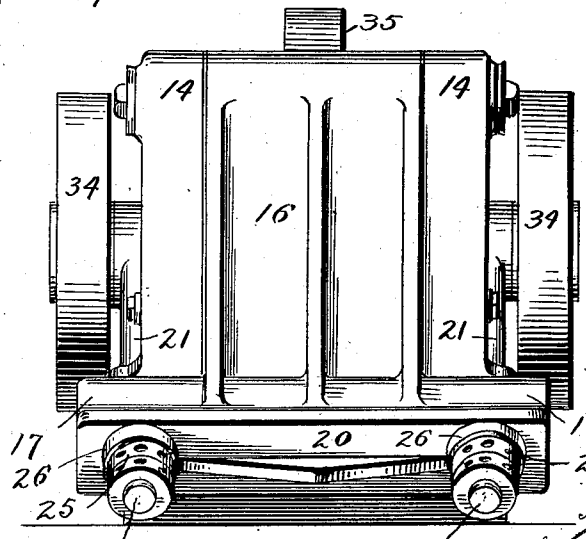



Fig. 3.



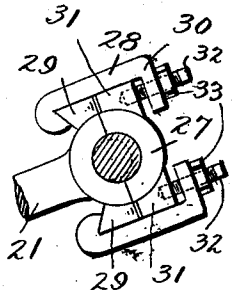




Fig. 4.

WITNESSES

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# UNITED STATES PATENT OFFICE.

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## ROCK AND ORE CRUSHER.

1,014,532. Specification of Letters Patent. Patented Jan. 9, 1912.

Application filed June 15, 1911. Serial No. 633,294.

*To all whom it may concern:*

Be it known that I, HOWARD ROY STAČKS, of Glenside, in the county of Montgomery and in the State of Pennsylvania, have invented a certain new and useful Improvement in Rock and Ore Crushers, and do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to that type of crusher known as the jaw type, and my object is to produce a crusher of this class having among other advantages great power and simplicity of structure; easy access for repair, oiling and adjustment; and incidental to the simplification of the structure, cheapening of the cost of manufacture and freedom from liability to get out of order.

With the object of producing a crusher having these as well as important other advantages, my invention consists in the crusher constructed substantially as hereinafter specified and claimed.

In the accompanying drawings—Figure 1 is a side elevation of a stone crusher embodying my invention; Fig. 2 a top plan view thereof showing but half the machine; Fig. 3 an end elevation; and Fig. 4 a detail view showing the preferred connection between the eccentric shaft and the movable jaw.

In the embodiment of my invention illustrated in the accompanying drawings, I employ a frame 10 comprising side pieces and a partition like end wall 11 that constitutes the stationary jaw, it having its working face provided with a grooved jaw plate 12, and beyond which the side pieces have extensions or prolongations 13 which at the top have each a bearing 14 for a shaft 15 on which is hung the vibratory or movable jaw 16. Said jaw, as clearly shown in Fig. 1, inclines downward and inward so as to provide a wedge-shaped space between it and the stationary jaw 11 in which the wedge-shaped space, at the larger upper end thereof the ore or rock to be crushed is delivered and being reduced by the vibratory operation of the movable jaw 16, it descends and finally emerges in a crushed condition from between the jaws through the narrow space at the bottom thereof. At the bottom of the movable jaw 16, at or near each side thereof, is an ear or lug 17 having in its outer face a bearing lug 18 which has its outer face recessed to form a bearing for a pivot forming lug or projection 19 on a transversely extended bar or plate 20 that reaches from one side of the jaw to the other, to which, at each side of the machine, is connected one end of a pull rod 21 that at its other end is journaled upon an eccentric driving shaft 22 which is supported in bearings provided on the two side pieces of the frame 10. The action of the shaft 22 is to move the movable jaw toward the stationary jaw for the performance of a crushing operation while the movement of the jaw 16 away from the stationary jaw is produced by a spring device which may consist of a coil spring 23 on each of the pull rods 21 interposed between the jaw lug 17, and a bearing 24 on the frame 10. The connection between each pull rod 21 and the movable jaw by which crushing movement is imparted to the latter, includes two nuts 25, one of which is a lock nut, engaging thread on the pull rod, and a frangible or breakable collar 26 that is interposed between the nuts and the bearing plate or bar 20, and which is made hollow so that it will crush or break under a predetermined strain before the costlier parts of the machine can be injured.

The pull rods 21 are on the outside of the frame 10 and all the parts requiring attention, either for repair or adjustment, are on the outside of the structure so that they are very conveniently accessible. It will be observed that the point of application of power to the movable jaw 16 is such that the greatest leverage possible is utilized in acting upon the unbroken stone at the beginning of the crushing operation, at which time the maximum power is required to disintegrate it.

The cap 27 for connecting each pull rod to its eccentric is secured in place by a device that avoids the necessity of boring holes through the cap and thus avoids the weakening of the caps which the boring of holes therethrough for the use of attaching bolts would cause. The device that I employ for this purpose comprises a clamp bar 28 that at one end hooks over a lug 29 on the pull rod half of the bearing, a dove-tailed or undercut formation being employed at such end, and at the other end has a lug 30 extending alongside a lug or offset 31 on the cap 27 through which lug a set screw 32 passes that engages the lug 31. A set nut 33 is applied to the set screw 32.

Upon each end of the driving shaft 22 is a driving pulley 34 and midway between said driving pulleys a flywheel 35 is mounted on the shaft.

A crusher built in accordance with what I have illustrated in the drawings, is the best embodiment of my invention, but, of course, changes in details may be made which will involve no sacrifice of the important and valuable features thereof, and the scope of my claims is to be determined in the light of this statement.

Having thus described my invention what I claim is—

In a crusher of the jaw type, the combination of a frame having guide lugs, a stationary jaw, a movable jaw pivoted at one end to the frame, an eccentric carrying shaft mounted in bearings on the frame, pull rods located on the outside of the frame and extending from the eccentrics to the jaw, and connections between said pull rods and said movable jaw comprising a bearing plate or bar extending crosswise of the movable jaw and engaging the same on one side, and having holes through which the pull rods pass, said movable jaw also having holes through which the pull rods pass, adjustable parts on said pull rods engaging said bearing plate on the opposite side, and a spring on each pull rod between said movable jaw and said guide lugs on the frame.

In testimony that I claim the foregoing I have hereunto set my hand.

HOWARD ROY STACKS.

Witnesses:
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