I. L. MITCHELL.

CRUSHING MACHINE.

APPLICATION FILED JAN. 14, 1909.

947,737. Patented Jan. 25, 1910.

Fig. 1.

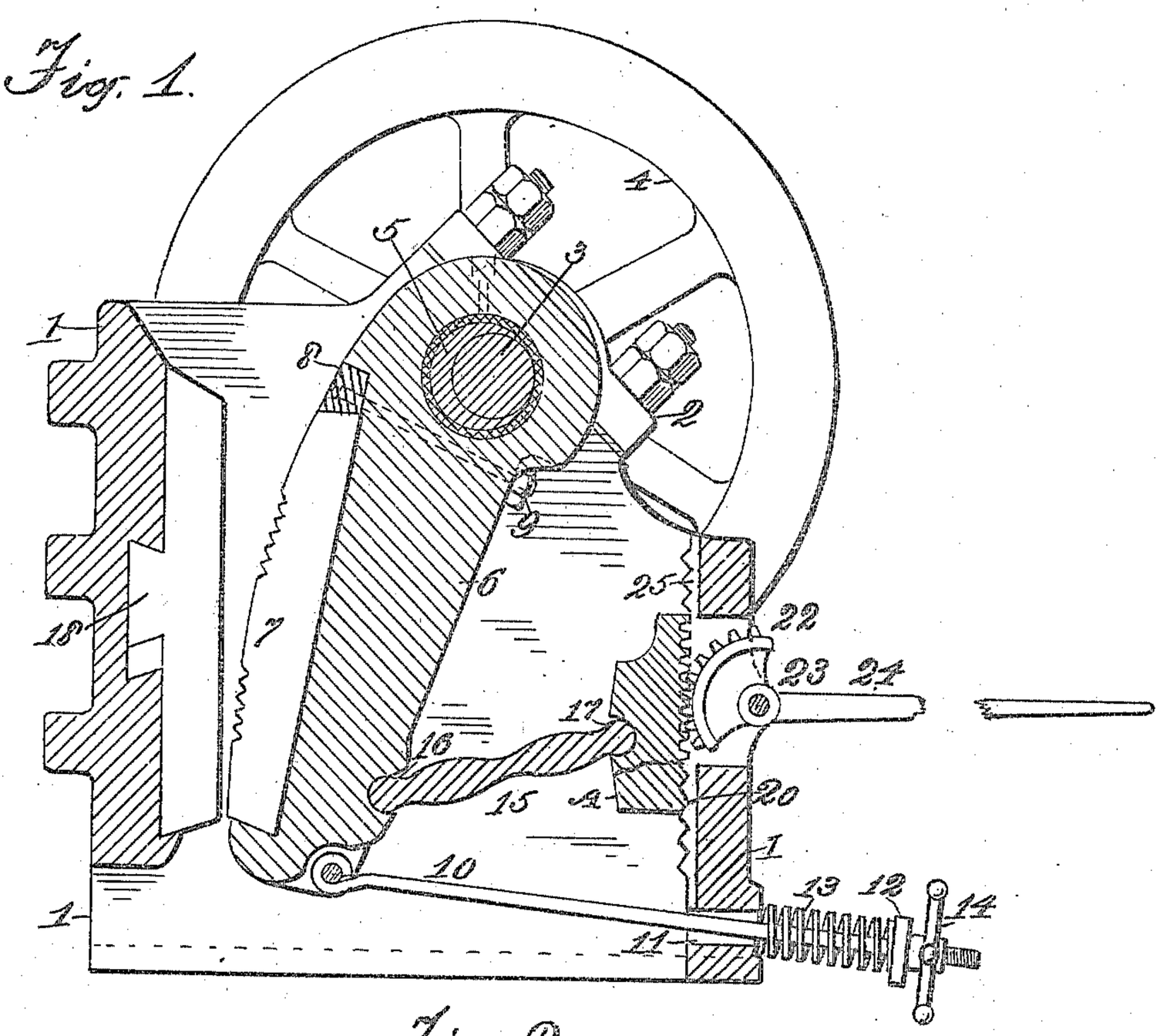
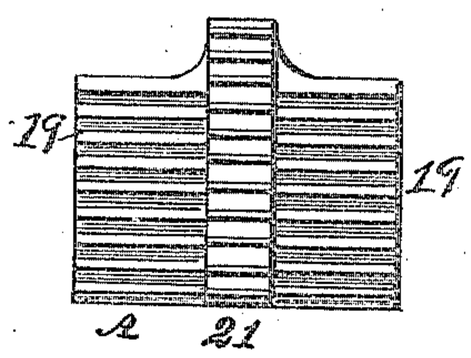


Fig. 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

ISAAC L. MITCHELL, OF CEDAR RAPIDS, IOWA.

CRUSHING-MACHINE.

947,737. Specification of Letters Patent. Patented Jan. 25, 1910.

Application filed January 14, 1909. Serial No. 472,357.

To all whom it may concern:

Be it known that I, ISAAC L. MITCHELL, a citizen of the United States, residing at Cedar Rapids, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Crushing-Machines, of which the following is a specification.

My invention is an improvement in that type of coal, ore, and stone-crushing machines in which a movable jaw is pendent from, and operated by, an eccentric shaft, and arranged opposite a fixed jaw so that they form practically a V-shape hopper for reception of the material to be crushed.

The improvement relates particularly to the means for adjusting and locking the movable jaw relative to the fixed jaw, to adapt the machine for crushing material finer or coarser.

In the accompanying drawing Figure 1 is a central section of the machine embodying my invention. Fig. 2 is a face view of the adjustable fulcrum-block of the movable jaw.

1 is a rectangular frame provided with suitable bearings 2 to receive a shaft 3 having belt wheels 4 and an eccentric 5 whereon the movable jaw 6 is hung. This jaw is provided with a crushing plate or face 7 and the fixed jaw with a plate or face 18. The plate 7 is reversible, it being removably secured by means of a wedge block 8 and bolt 9. A rod 10 is attached to the lower end of the movable jaw and passes through an opening 11 in the frame and is provided exteriorly with a collar 12, spring 13, and hand-nut 14. This device, which is a common attachment in machines of this class, serves to hold the swinging jaw in close engagement with a strut 15 whose ends fit in sockets 16 and 17 provided in the said jaw and the fulcrum or pivot block A.

In order to adapt the machine for quick adjustment for crushing coarsely or finely, the block A is adjusted higher or lower by means of a lever 24 having a toothed segment head 22, which engages the rack 21 formed in the center of the back of said block A, as shown in Fig. 2. If the lever be depressed, the block A is raised, and vice versa. In order to lock the fulcrum block A in any position to which it may be adjusted by the lever and segment head, it is provided on its back, as shown in Fig. 2, with two series of horizontal ribs 19, the same being arranged on opposite sides of the rack 21; and a corresponding series of ribs 20 is formed on the back wall of the main frame. These two sets of ribs 19 and 20 interlock, as shown in Fig. 1, and the pressure of the movable jaw 6 against the fulcrum block A is sufficient to hold the ribs thus engaged, and consequently the block A is locked or held firmly in any position to which it may be adjusted. In brief, by forcibly throwing the lever 24 up or down, the pivotal or fulcrum block A will be forced out of engagement with the ribbed back of the frame against which it is held with elastic pressure by means of the rod-and-spring attachment before described. It is thus possible for the operator to adjust the movable jaw instantly as required to crush material to any desired degree of fineness or coarseness. In practice, this is a great advantage in the operation of crushing machines of this class, in which any adjustment for this purpose is usually made by means which operate with extreme slowness. In fact, it often happens that material to be crushed is run through coarse and then immediately returned to the machine and run through again and recrushed to a much finer grade. It is requisite that the adjustment of the movable jaw for this purpose shall be made with extreme rapidity. Furthermore, it often happens that clay or other sticky material passes between the jaws along with the rock or other material and tends to clog and fill up the grooves or other indentations in the crushing plates. In such cases, it is desirable to throw the movable jaw open as widely as possible in order to relieve the machine at once of the choking material and then the jaw may be quickly re-adjusted to its work. Also, in case an unbreakable body such as a hammer, wrench, or block of hard wood should accidentally get between the jaws, the operator may be able to open the latter so quickly as to allow the obstruction to pass through without injuring the machine.

What I claim is:

1. In a crushing-machine of the type indicated, the combination with the movable jaw, a strut, a vertical frame having transverse corrugations, a fulcrum block having corresponding corrugations and a central rack, a toothed segment pivoted in said frame and engaging said rack and provided with a

handle for operating it, and a spring attachment for holding the strut engaged with the fulcrum block, as shown and described.

2. The combination with the movable jaw, a vertical frame having a transverse corrugation, a strut, and a fulcrum block provided with corrugations adapted to engage those of the frame, a pivoted lever engaging and adapted for adjusting such fulcrum block higher or lower, and a spring attachment for holding the strut engaged with the jaw and block respectively, substantially as described.

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

ISAAC L. MITCHELL.

Witnesses:
J. M. St. John,
L. A. St. John.