E. GIMSON.

Ore-Crusher.

No. 198,936. Patented Jan. 8, 1878.

*Fig 1.*

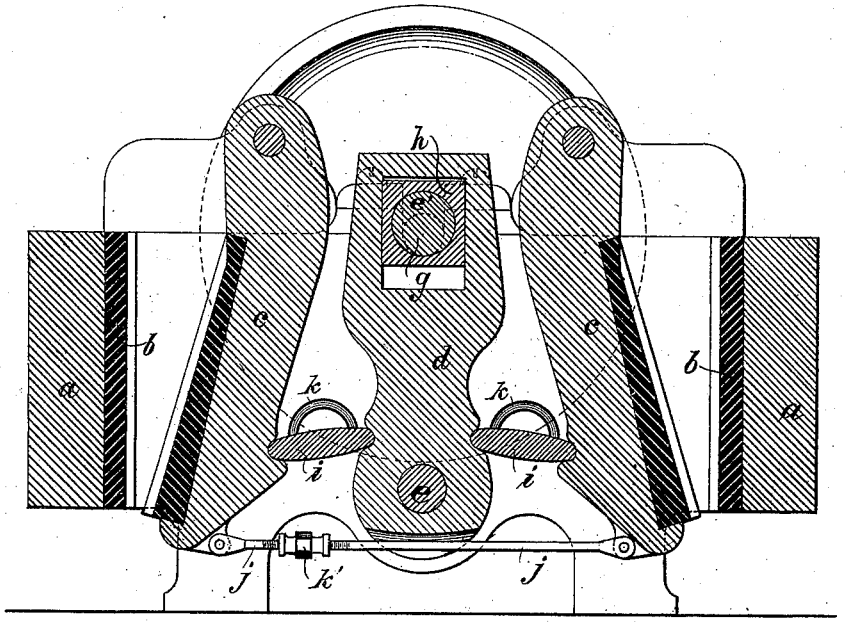
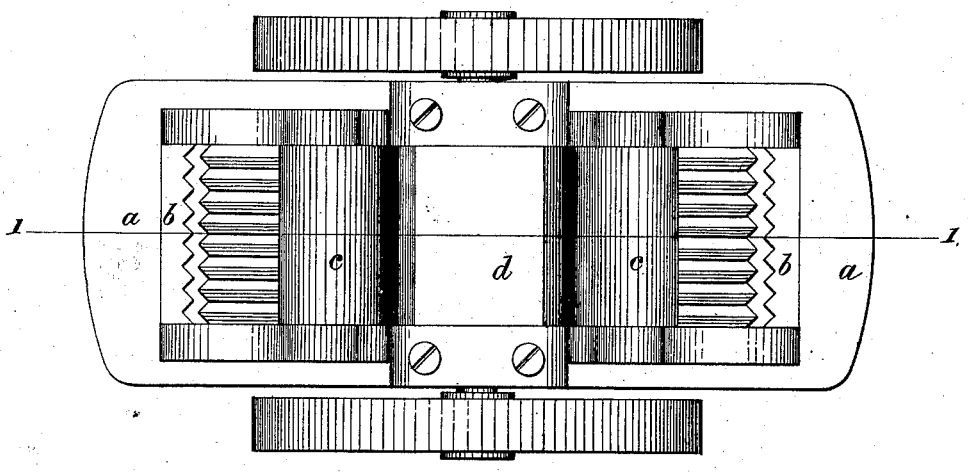



*Fig 2.*




WITNESSES

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# UNITED STATES PATENT OFFICE.

EDWARD GIMSON, OF STALYBRIDGE, ENGLAND.

## IMPROVEMENT IN ORE-CRUSHERS.

Specification forming part of Letters Patent No. **198,936**, dated January 8, 1878; application filed October 15, 1877.

*To all whom it may concern:*

Be it known that I, EDWARD GIMSON, of Stalybridge, in the county of Lancaster, England, a subject of the Queen of Great Britain, have invented or discovered new and useful Improvements in the Construction of Stone-Breakers; and I, the said EDWARD GIMSON, do hereby declare the nature of the said invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof, that is to say—

The machines known as "Blake stone-breakers" have only one breaking-jaw; consequently but one size of stone can be broken at a time. To further reduce the stone the jaw has to be reset and the operation repeated. Now, in my improved machine—of which Figure 1 shows a longitudinal section and Fig. 2 a plan—there are two adjustable crushing-jaws, working alternately at each revolution of the eccentric shaft. The working parts of the machine are inclosed in a strong rectangular frame, *a*, the ends whereof form two fixed serrated vertical jaws, *b*, which face inward. Immediately opposite these fixed jaws are two movable serrated jaws, *c*, hung upon transverse shafts extending across the upper part of the frame. Midway between such movable jaws is fitted a vertical rocking lever, *d*, centered upon a transverse shaft, *e*, extending across the lower part of the machine. Rocking motion is communicated to the upper part of this lever by an eccentric, *c'*, formed on the main transverse shaft *g*, and working in a deep brass or other suitable bearing, *h*, which moves vertically in a guide formed in the rocking lever. By this arrangement the rotary motion of the eccentric imparts only a rocking movement to the lever, the bearing *h* simply gliding up and down in its guide. I make the bearing *h* and the bearings of the main and rocking shafts square, so that, when worn on one face, by turning the blocks round a quarter of a revolution fresh wearing-surfaces are obtained, thus effecting a considerable economy of wear and tear. Suitable recesses are formed at the lower part of each movable jaw, to receive the outer ends of a series of toggles, *i*, forming adjustable stays, for giving motion to the jaws. The inner ends of these toggles enter corresponding recesses in the rocking lever, and each toggle has a handle, *k*, for removing it when required. When the rocking lever is working, reciprocatory motion is imparted to each jaw through the toggles, and the size of the broken stone is regulated by the length of the toggle, the longer toggles producing the smaller sizes. The distance between the fixed and movable jaws is regulated by two tension-rods, *j*, or equivalent adjustable connection, extending between the lower inner angles of the movable jaws. The free ends of these rods are united by a right-and-left-hand-threaded nut, *k'*, by turning which in either direction the threaded ends of the tension-rods are brought nearer to or farther from each other, thus proportionately increasing or diminishing the space between the jaws. Such rods, or well-known substitutes which may be employed, also serve to keep the movable jaws tight upon the toggles and rocking lever.

With my improved machine the operation of breaking stone and other minerals is very greatly facilitated, and the product doubled. At the same time the machine is far more economical in use, owing to its wearing parts being so thoroughly protected.

I claim as my invention—

1. The combination, substantially as hereinbefore set forth, of the fixed end jaws, the movable jaws, the rocking lever between the movable jaws, and the stays or toggle-connections between the rocking lever and movable jaws, whereby each of said jaws is operated upon by the rocking lever with the full power of the machine, and they are caused alternately to move toward the fixed jaws, thus doubling the amount of work which could be done in a given time by a single set of jaws.

2. The combination, substantially as hereinbefore set forth, of the frame, the movable jaws, the shafts upon which they are supported at their ends, the rocking lever between said jaws, supported upon a shaft at its end oppo-

site that adjacent to the supporting-shafts of the jaws, the stays or toggles connecting the jaws near their free ends with the rocking lever, and the adjustable connection between the free ends of the jaws.

3. The stone-breaker, constructed substantially as hereinbefore set forth, with fixed end jaws, movable jaws, hung at their upper ends and adjustably connected at their lower ends, the rocking lever supported between the jaws at its lower end, to which lever motion is communicated by the driving-shaft and eccentric at its upper end, and the removable stays or toggles loosely fitting at their ends in the rocking lever and movable jaws to admit of adjustment of the jaws to vary the size of the crushed stone.

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