

T. J. STURTEVANT.
CRUSHER.
APPLICATION FILED MAY 28, 1912.

1,044,596.

Patented Nov. 19, 1912.

3 SHEETS-SHEET 1.

FIG. 1.

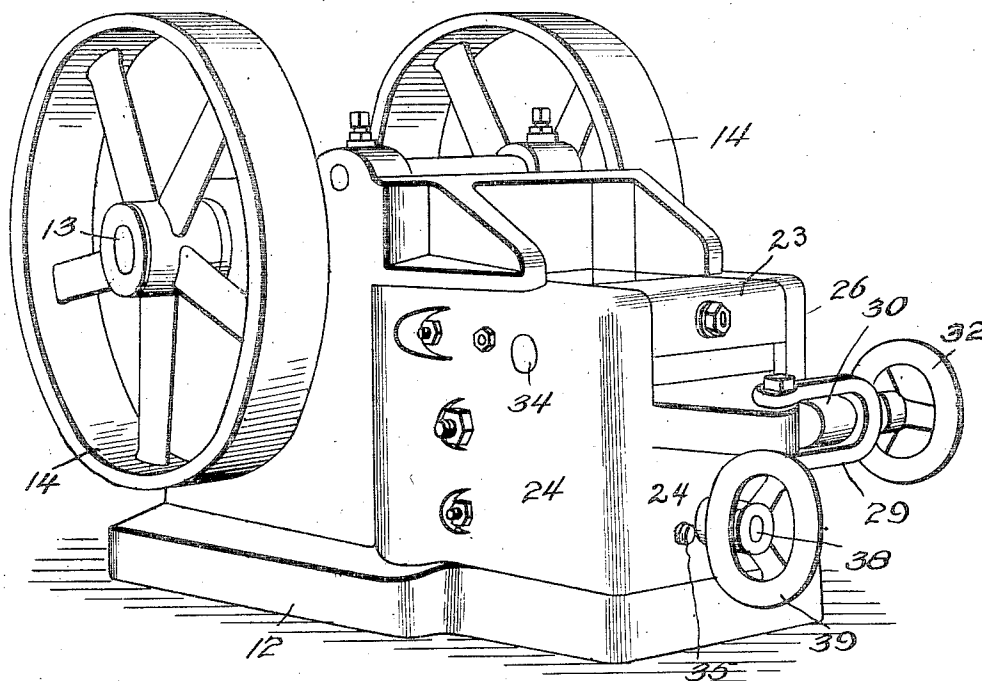


FIG. 5.

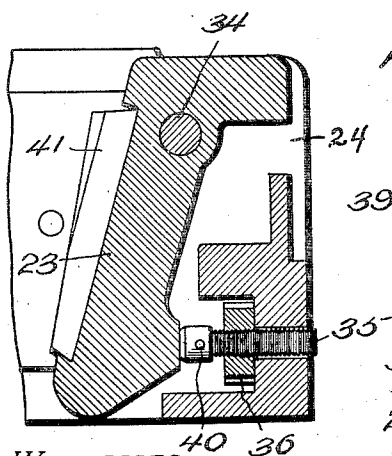
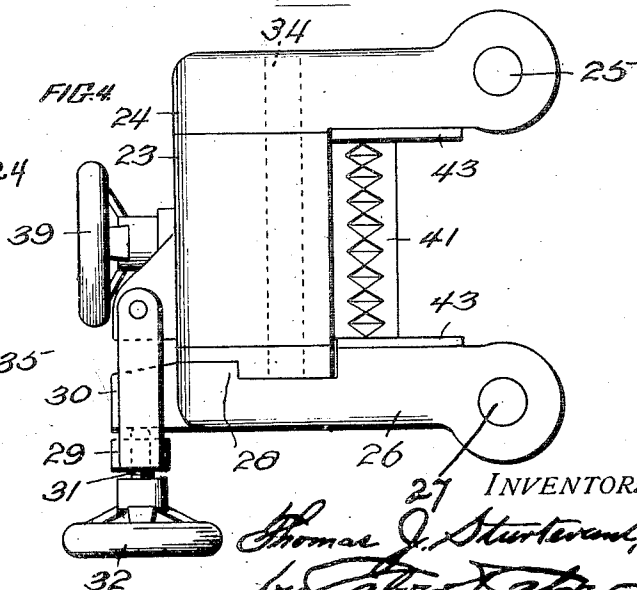


FIG. 4.



WITNESSES:

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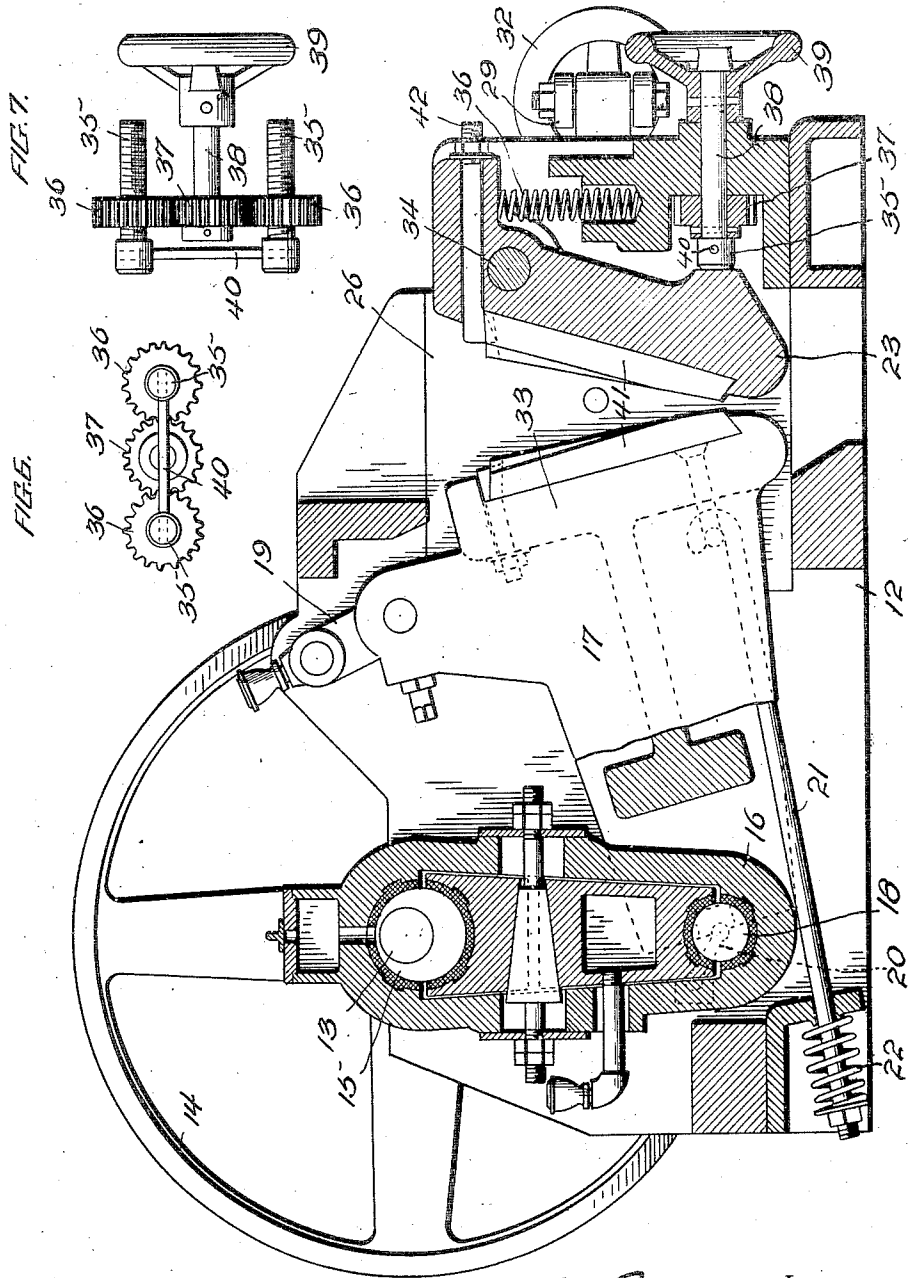
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3 SHEETS-SHEET 2.



WITNESSES:
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FIG. 2.

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3 SHEETS-SHEET 3.

1,044,596.

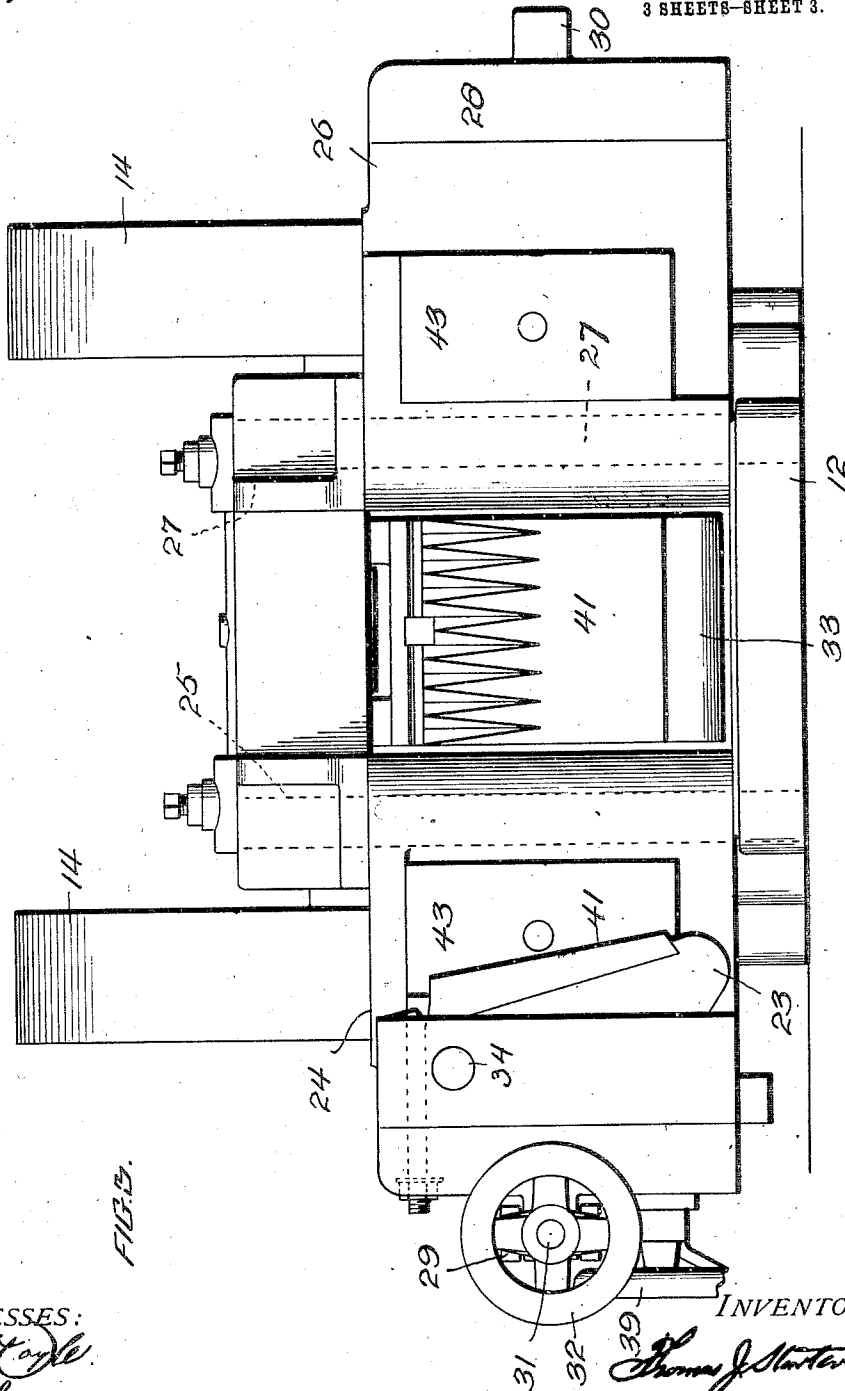


FIG. 3.

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UNITED STATES PATENT OFFICE.

THOMAS JOSEPH STURTEVANT, OF WELLESLEY, MASSACHUSETTS, ASSIGNOR TO
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CRUSHER.

1,044,596.

Specification of Letters Patent.

Patented Nov. 19, 1912.

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To all whom it may concern:

Be it known that I, THOMAS J. STURTEVANT, a citizen of the United States, residing at Wellesley, in the county of Norfolk and State of Massachusetts, have invented or discovered certain new and useful Improvements in Crushers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain improvements in that class of crushers covered by U. S. Patents No. 588,618, August 24, 1897, No. 607,575, July 19, 1898, and No. 777,227, December 13, 1904, and has for its object to provide a crusher of this class which, on account of its accessibility for cleaning and convenient adjustability for different grades of output, is more especially suitable for laboratory work.

In carrying the present invention into effect the fixed or normally stationary anvil jaw, which coöperates with the rocking jaw, is mounted in a head-block which is hinged to the frame of the machine in such a manner that it may be swung aside horizontally or opened out like a door, so that both of the jaw plates, as well as the side plates or shields of the crushing chamber or receptacle, will be readily accessible for cleaning. The hinged or swinging head-block, carrying the anvil jaw, is locked in working position by means of a hinged side plate constructed to engage the said head-block in such a manner as to hold the latter rigidly in place, said side plate and head-block being locked together, when the parts are in their operative positions, by a suitable latch and set screw. The said anvil jaw, and to which the normally stationary jaw plate is secured, is preferably hung on the swinging head-block by a pivot near the upper end of the said jaw, the lower part of the latter abutting against the heads of screws which may be turned to vary the position of this jaw relative to the rocking jaw, for the purpose of regulating the fineness of the output of the crushing mill or crusher; suitable convenient means being provided for turning the screws for the purpose of effecting the adjustment referred to.

In the accompanying drawings Figure 1 is a perspective view of the improved crusher. Fig. 2 is a central longitudinal section thereof. Fig. 3 is a front end view thereof with the side plate and head block

open or swung aside for the convenient cleaning of the parts. Fig. 4 is a partial plan view illustrating the swinging head block and side plate and their locking connections. Fig. 5 is a detail sectional view showing one of the screws for varying the working position of the pivotally mounted anvil jaw. Figs. 6 and 7 are detail views illustrating the gearing for turning the adjusting screws.

Referring to the drawings, 12 denotes the frame in which is mounted the driving shaft 13 provided with suitable fly wheels or pulleys 14 and carrying an eccentric 15 which is joined by the connecting rod 16 with the rocking-jaw frame 17 by means of the pin 18. The rocking-jaw frame 17 is suspended by means of said connecting rod 16 and a link or links 19, said link or links loosely connecting the forward end of said rocking jaw frame with the frame of the machine through the pivot pins or joints of the said link or links. The rear end of the rocking-jaw frame 17 is braced against the frame 12 by means of toggles 20, and is also provided with a pull-back rod 21 and coöperating spring 22, as in the machines of the patents hereinbefore referred to.

The normally fixed or anvil jaw 23, coöperating with the rocking jaw 33, is mounted in a right angular head-block 24 which is attached to the machine frame by means of a vertical pivot-pin 25, the said head-block being held in its working position by means of a hinged side-plate 26 mounted on a vertical pivot-pin 27 and having a hooked portion 28 which engages in a suitable recess in the head-block, for the purpose of holding the latter in place. The said hinged side plate is locked to the head-block by means of a U-shaped latch 29 pivoted to the said head-block and overlapping a projection 30 in the said side plate, said latch being secured in place by means of a screw 31 engaging said projection and provided with a hand wheel 32 by which it may be conveniently turned. The hinged head-block 24 and the hinged side plate 26 afford two pivoted or swinging door-like parts which form, when closed, the sides of the crushing chamber, each of said parts being preferably provided with a removable side-plate 43.

The anvil jaw 23 is hinged near its upper end to the head-block 24 by means of a pivot-pin 34, the lower part of said jaw

resting against the heads of screws 35 against which it is urged by a coil spring 36 interposed between a horizontal part of said block and a stationary part of the machine frame. Rotating on the screws 35 are gear nuts or pinions 36 meshing with an intermediate pinion 37 attached to a shaft 38 provided with a hand wheel 39 by which the said shaft 38 may be turned, for the purpose of adjusting the screws 35. The adjustment of the screws 35 will serve to move the normally stationary jaw 23 toward or from the rocking jaw 33 for the purpose of regulating the output of the crusher. The said screws 35 are locked by a cross rod or wire 40 which will prevent them from turning, and they will therefore be moved endwise when the pinions thereon are rotated. The jaws 23 and 33 are provided with removable jaw plates 41 attached thereto by locking pins 42, as in crushers of this class previously in use.

From the foregoing it will be understood that when it is desired to clean the jaw plates and the side plates or shields of the chamber or receptacle in which the material is crushed, the screw 31 on the latch 29 will be released from the projection 30 on the side plate 28, by turning the hand wheel 32 on said screw; and when said latch is swung aside the said side plate 28 will be released so that it may be opened outward, thus releasing the head-block 24 which may then be swung aside or opened outward so that the parts will be in convenient position for thoroughly cleaning the jaw plates and the side plates or shields of the crushing chamber. Such cleaning operation is frequently necessary in laboratory work, owing to the nature of such work in changing to different materials or samples. Also in laboratory work it is frequently desirable to vary the degree of fineness of the output of the machine by varying the relative working positions of the crushing jaws, and this may readily be effected, in this improved machine, by turning the screws 35 through the medium of the hand wheel 39, the shaft 38, and the pinion gearing connecting said shaft with said screws.

Having thus described my invention I claim and desire to secure by Letters Patent:

1. In a crusher, a normally fixed or stationary jaw and a vertically pivoted head-block or support on which the said jaw is mounted so that said head-block or support may be opened out or swung aside for convenient access to the crushing parts or chamber, combined with means for securing said head-block in working position.

2. In a crusher, a normally fixed or stationary jaw and a vertically pivoted head-block or support on which the said jaw is mounted so that said head-block or support

may be opened out or swung aside for convenient access to the crushing parts or chamber, combined with a hinged side plate and locking means by which said head-block may be secured in working position.

3. In a crusher, a normally fixed or stationary jaw and a vertically pivoted head-block or support on which the said jaw is mounted so that said head-block or support may be opened out or swung aside for convenient access to the crushing parts or chamber, combined with means for securing said head-block in working position, said jaw being pivotally mounted on said head-block, and adjusting means by which the position of said jaw may be varied.

4. In a crusher, a normally fixed or stationary jaw and a head block or support on which the said jaw is pivotally mounted, combined with adjusting screws by which the position of said jaw may be varied, gear nuts adapted to turn on said screws, a pinion connecting said gear nuts, means for turning said pinion, and means for locking said screws from turning so that they will be moved endwise when said gear nuts are turned.

5. In a crusher, a normally fixed or stationary jaw and a head block or support on which the said jaw is pivotally mounted, combined with adjusting screws by which the position of said jaw may be varied, gear nuts on said screws, means for turning said gear nuts, and a spring acting on said pivotally mounted jaw and serving to hold the free end of the latter against said screws.

6. In a crusher, a normally fixed or stationary jaw and a head block or support on which the said jaw is pivotally mounted, combined with adjusting screws by which the position of said jaw may be varied, gear nuts on said adjusting screws, means for locking said screws when said gear nuts are turned, and a shaft provided with a hand wheel and carrying a pinion meshing with said gear nuts.

7. In a crushing machine, the combination with a movable jaw, of a normally stationary anvil jaw mounted on a vertically pivoted part so that it may be swung aside for cleaning.

8. In a crushing machine, the combination with a movable jaw, of a normally stationary anvil jaw mounted on a vertically pivoted part so that it may be swung aside for cleaning, said anvil jaw being pivotally attached to the part on which it is mounted, so that it may be adjusted toward and from said movable jaw.

9. In a crusher, the combination with the frame thereof, of two vertically pivoted or door-like parts at the front end of said frame and both of which parts are adapted to be opened or swung aside, an anvil jaw mounted on one of said vertically pivoted

or door-like parts, and means for locking the said parts together.

10. In a crusher, the combination with the frame thereof, of two vertically pivoted or door-like parts at the front end of said frame and both of which parts are adapted to be opened or swung aside, an anvil jaw mounted on one of said vertically pivoted or door-like parts, and means for locking said parts together, said locking means comprising a swinging latch mounted on one part, and adapted to engage a projection on the other part, a screw for securing said swinging latch in place, and a hand wheel for turning said screw.

11. In a crusher, the combination with the frame thereof, of two pivoted door-like parts at the front of said frame and both

of which parts are adapted to be opened or swung aside, each of said door-like parts carrying a side plate of the crushing chamber.

12. In a crusher, the combination with the frame thereof, of two pivoted door-like parts at the front of said frame, and both of which parts are adapted to be opened or swung aside, one of said door-like parts forming the anvil jaw, and the said door-like parts, when closed, forming the sides of the crushing chamber.

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

THOMAS JOSEPH STURTEVANT.

Witnesses:

L. H. STURTEVANT,
W. H. ELLIS.