

(No Model.)

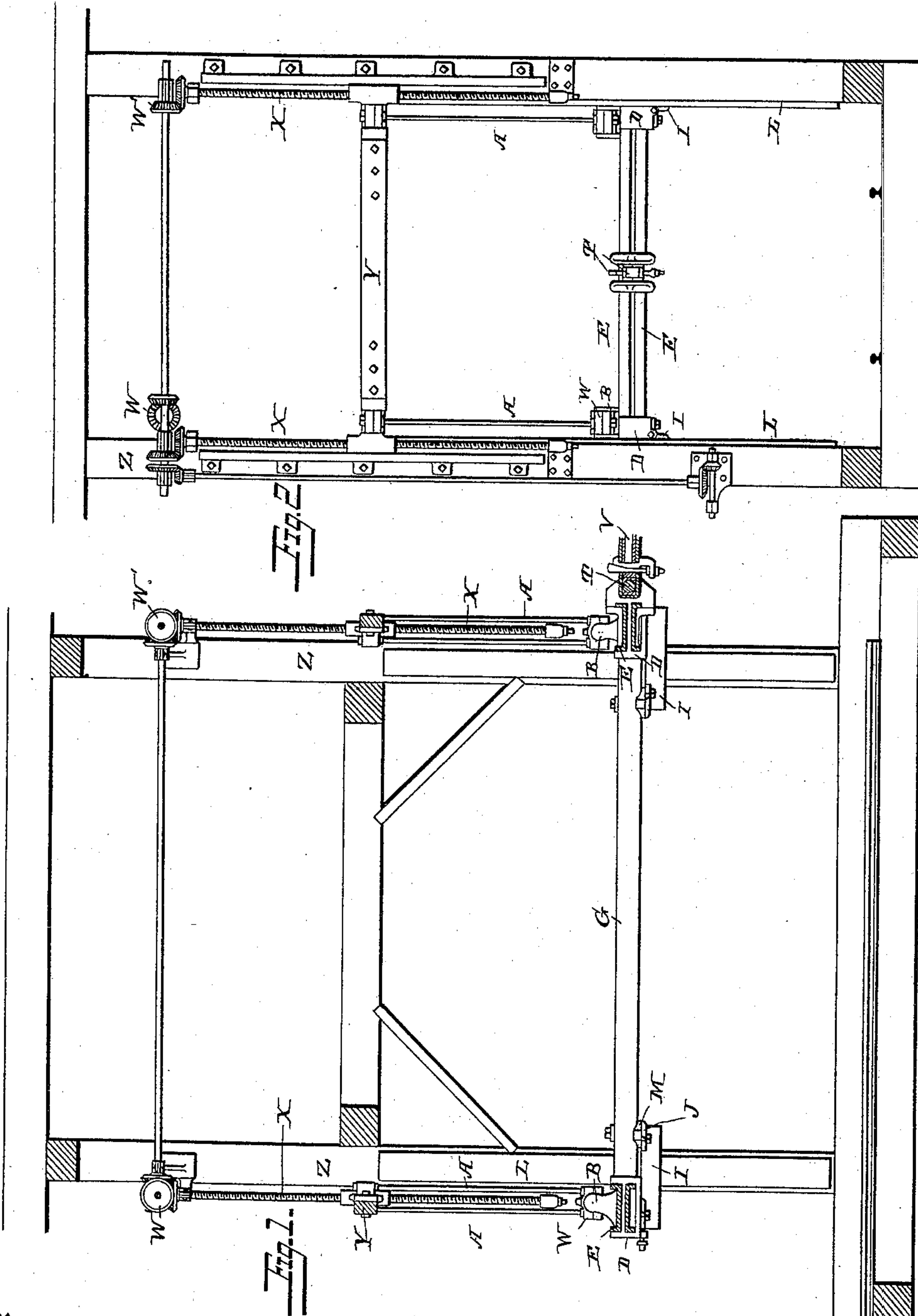
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GANG FOR SAWING STONE.

No. 387,239.

Patented Aug. 7, 1888.



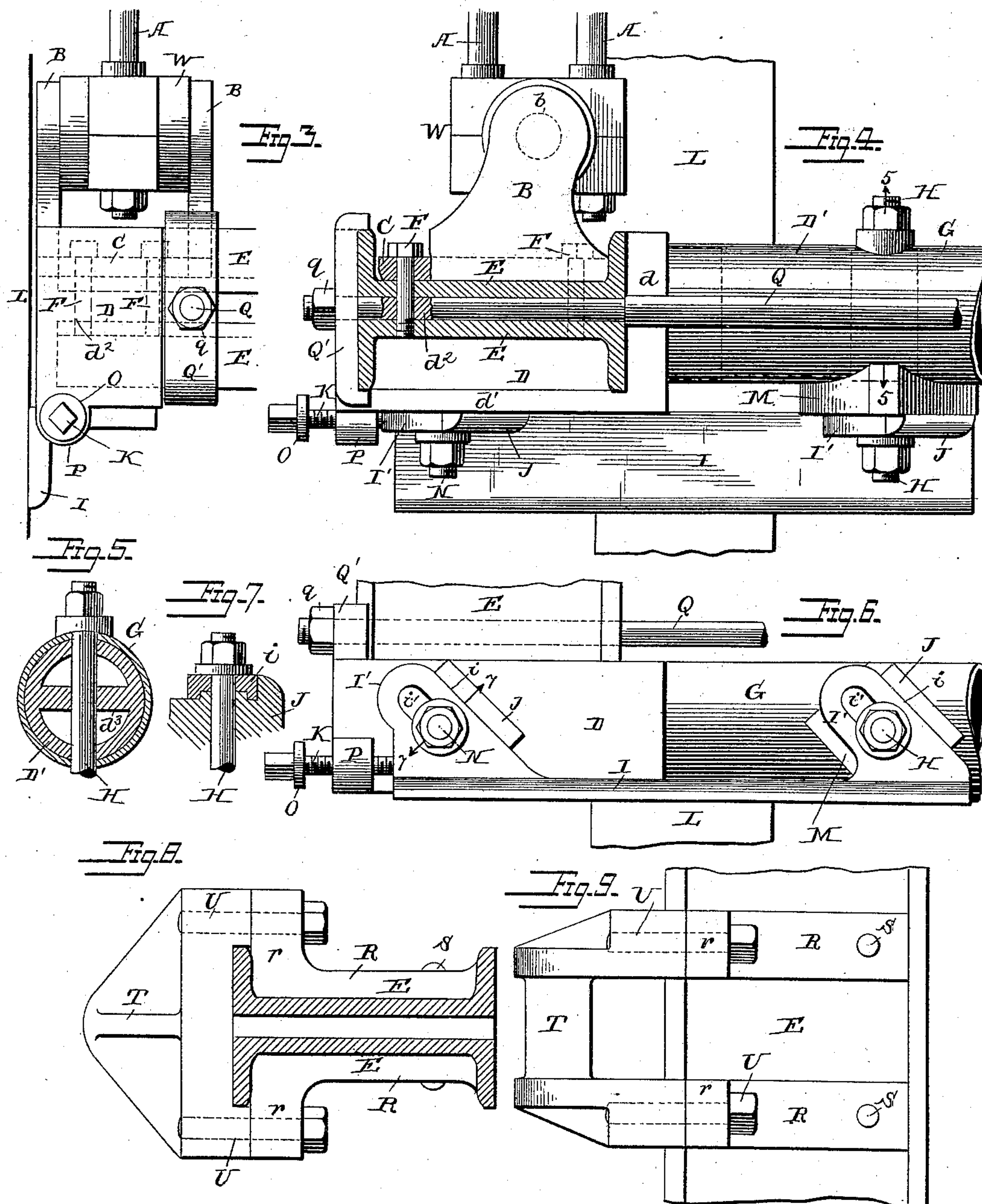
Witnesses,  
Jno. G. Hinkel Jr.  
J. S. Barker.

Inventor,  
James W. Maloy,  
by Foster & Freeman,  
Attorneys.

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J. G. Minkley Jr.  
J. S. Barker.

Inventor.  
James W. Maloy.  
Foster Freeman.  
Attorneys.



# UNITED STATES PATENT OFFICE.

JAMES W. MALOY, OF MARIETTA, GEORGIA.

## GANG FOR SAWING STONE.

SPECIFICATION forming part of Letters Patent No. 387,239, dated August 7, 1888.

Application filed September 8, 1887. Serial No. 249,109. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES W. MALOY, a citizen of the United States, and a resident of Marietta, Cobb county, Georgia, have invented certain new and useful Improvements in Gangs for Sawing Stone, of which the following is a specification.

My invention relates to stone-sawing machines of that class in which a gang of saw-blades held in a common frame is reciprocated across the stone, which is thereby cut into a number of slabs at a single operation; and it consists of certain improvements in the details of construction of the frame, whereby it is rendered stronger and more rigid and the parts are less liable to breakage.

Figure 1 is a side view of a machine embodying my invention. Fig. 2 is an end view thereof; and Figs. 3, 4, 5, 6, 7, 8, and 9 are detail views, enlarged, of the various novel features of the apparatus.

In the drawings, wherein similar letters of reference refer to like parts in all the figures, ZZ represent the frame-pieces, upon which are supported the operated parts of the device.

Y Y designate cross-bars, from which are suspended the links supporting the gang-frame, these bars being supported at the ends by vertical screw-rods X, wherein they are adjustable in any desired manner—as by gearing W—to move the gang toward or from the stone.

The frame in which the gang of saws is supported consists of the longitudinal beams G, preferably formed of wrought-iron tubing, and the end channel bars or beams, E.

The first part of my invention relates to novel means for uniting the end and longitudinal beams of the frame and for connecting them with the cross-bars Y, these parts being illustrated in detail in Figs. 3, 4, and 5. The corner connecting-pieces each consist of a channel portion, D, in which are seated the end bars E, and a projecting cylindrical or tubular portion, D', adapted to extend into and be connected with the longitudinal bars or beams G. The channel portion of this corner-piece consists of upward-projecting flanges d, a bottom web, d', and connecting-web d<sup>2</sup>, uniting flanges d about midway between their tops and bottoms. The flat faces of the two

bars E lie upon opposite sides of webs d<sup>2</sup>, to which they are secured and which serve to properly space them. The cylindrical portion D' of the corner-piece extends a considerable distance into tubular longitudinal side piece, G, in order to secure a long bearing between the two and make the union rigid, they being fastened together by a bolt, H. The portion D' may be solid, but is preferably hollow and provided with a transverse strengthening-web, d<sup>3</sup>, as seen in Fig. 5, which is a section on the line 5 5, Fig. 4. Resting upon the upper bar E, between its flanges, is a metal plate, C, carrying at each end an upward-projecting support, B, for the journal b of the boxes W, carried by the lower ends of the suspension-links A.

F F are bolts passing through plate C, upper bar E, web portion d<sup>2</sup> of the corner connecting-piece, and into the lower bar E, with which it has a screw-connection, these bolts, preferably four in number, securely uniting these parts.

The above-described connection I have found very rigid and secure, avoiding all liability of the part D breaking away from part C, as often occurred in earlier constructions, wherein part D was made with but a single flange, d, which carried a web, d<sup>2</sup>, to which bars E were bolted, and also carried a top plate extending over the top of the upper bar E, bolted to plate C by different bolts from those which unite web d<sup>2</sup> with bars E.

Q Q are brace bolts or bars, there being preferably two of them, one on each side of the gang-frame extending lengthwise thereof, and connecting the end beams, E. They give rigidity to the frame and serve to hold it together if from any cause the castings D D' should break away from the beams G. The ends of these rods lie between the two beams E at each end of the frame and extend through plates Q', against which bear nuts q, engaging with the screw-threaded ends of the bolts.

Heretofore single suspension bars or links have been employed to form each connection between the swinging gang-frame and bars Y, such links screwing into bosses carried by the boxes and arranged centrally over the journals, which they surround; but it has been found that such single suspension-links are liable to



break off at their junction with the boxes W, to overcome which objection I employ two or more links, A A, whereby danger of breakage is not only reduced, but these links also serve to unite the two parts of the boxes W, thus rendering separate bolts therefor unnecessary.

I I represent guide-plates carried by the swinging gang-frame, and adapted to bear against rubbing boards L, secured to the upright pieces Z of the main supporting-frame. These guide-plates are situated beneath the connecting-piece D instead of above, as heretofore, in order that the four parts C, D, E, and E' may be directly connected, as hereinbefore described. Each plate is secured to the gang-frame by bolts N H, passing through slots *i'* in plates or lugs I' I', resting, respectively, on the under face of piece D, and a support, M, therefor carried by beam G. The plate is kept perfectly in line with the motion of the frame, whatever be its adjustment, by means of inclined projections J, carried by parts D and M, respectively, against which the inclined edges *i* of plates I' bear.

K is an adjusting-screw bearing against the end of the bearing-plate I, having a screw-thread engagement with a lug, P, carried by corner-piece D or some other part of the gang-frame. By turning screw K the plate is moved longitudinally of the frame, and is at the same time forced either toward or from the rubbing-plate, accordingly as the screw is turned, by reason of the engagement of edges *i* of the plates I' with inclined projections J, which insure that the plate shall at all times be in proper alignment with the motion of the gang-frame, as will be best understood by an examination of Fig. 6.

The plates I' and their supports have interlocking tongue and groove connections, which insure that the edge *i* shall always bear against projection J, as seen in Fig. 7, which is a section on line 7 7, Fig. 6.

The screws K are provided near their headed ends with collars O, which afford a means for readily determining the distance the plates have been forced outward, and enable the operator to adjust them equally on both sides the frame, as by measuring the distance between collar O and lug or bearing P the position of the plate may be readily and accurately determined.

I have devised a novel method of attaching to the gang-frame the pin to which the main reciprocating pitman V is connected. Heretofore it has been commonly secured to bars E by bolts passing through the flanges thereof, and such connection frequently resulted in cracking the beams, the cracks starting from the holes in the flanges thereof. The connection shown in Figs. 8 and 9 overcomes this danger. Referring to such figures, R R indicate brackets lying on opposite sides of the beams E, between the flanges thereof, where they are secured by bolts S, passing through

the same and the central webs of the beams. Each bracket carries a lug, *r*, through which passes a bolt, U, uniting the plate or plates carrying pin T thereto. There are preferably four of these brackets—two on each side of the end beams—and by means thereof and their connection with the beams the danger of cracking or breaking the latter at this point is greatly reduced.

What I claim is—

1. In a reciprocating saw-carrying frame, the combination, with the tubular side bars and the end bars, E, of corner connecting-pieces secured to the end bars, and having hollow cylindrical portions D', provided with transverse strengthening-ribs *d'*, adapted to extend into the ends of the tubular side pipes, and bolts passing through the side pieces and the hollow cylindrical portions D', thereby uniting them, substantially as described.

2. In a reciprocating saw-carrying frame, the combination, with the side bars and the end bars, of corner connecting-pieces secured to the side bars and having seat portions, in which rest the end bars, plates C, arranged above the seat portions of the corner-pieces and carrying journals for the suspension-links, and through-bolts uniting plate C, the end bars, and corner-pieces together, substantially as described.

3. In a reciprocating saw-carrying frame, the combination, with the side bars and the end bars, consisting at each end of two bars, E E, of corner connecting-pieces secured to the side bars and having seat portions D, which receive the end bars, which are separated by a web portion, *d*<sup>2</sup>, of part D, a plate, C, carrying journals for the suspension-links resting upon the upper end bar, and through-bolts F, uniting plate C, the bars E, and part *d*<sup>2</sup> of the corner connecting-piece, substantially as described.

4. In a reciprocating saw-carrying frame, the combination, with the side bars, the end bars, and the connecting corner-pieces, of the brace-rods Q Q, extending longitudinally of the frame by the sides of the side bars and connected to the end bars independently of the corner-pieces, substantially as described.

5. In a stone-sawing machine, the combination, with the supporting-frame having cross-bars Y, and the swinging saw-frame, of journals and boxes carried by the saw-frame, and two suspension-links uniting each journal-box with bar Y, substantially as described.

6. In a stone-sawing machine, the combination, with the supporting-frame having cross-bars Y, and the swinging saw-frame carrying journals *b*, of boxes surrounding said journals, consisting of the separable parts W W and two suspension-links for each box, uniting it with one of the bars Y, and also uniting parts W of the boxes, substantially as described.

7. In a reciprocating saw-carrying frame, the combination, with the side bars and the end bars, of corner connecting-pieces having seat



parts, in which rest the end bars, plates C, carrying connections for the suspension-links, bolts uniting said parts together, and bearing-plates I, secured below the corner connecting-pieces, substantially as described.

8. In combination with the swinging saw-carrying frame of a stone-sawing machine, a bearing-plate, I, adjustably secured thereto and having inclined edges *i*, and inclined projections carried by the frame, and against which the edges *i* of the bearing-plate rest, whereby it is maintained in line with the motion of the frame at different adjustments, substantially as described.

9. In combination with the swinging saw-carrying frame of a stone-sawing machine, a bearing-plate, I, adjustably secured thereto, inclined projections J, carried by the frame against which the bearing-plate rests, and an adjusting-screw, K, substantially as described.

10. In combination with the swinging saw-carrying frame of a stone-sawing machine, an adjustable bearing-plate, I, supports for the plate carried by the frame, inclined projections J, against which the plate rests, and in-

terlocking projections between the plate and its supports, whereby the plate is held against projections J whatever its position of adjustment, substantially as described.

11. In combination with the swinging saw-carrying frame of a stone-sawing machine, having end channel-bars, E, brackets R, bolted to the webs of the channel-bars and having lugs *r* projecting beyond the flanges thereof, and pitman-pin T, bolted to the lugs of said brackets, substantially as described.

12. In combination with the swinging saw-carrying frame of a stone-sawing machine, a bearing-plate carried thereby, an adjusting-screw therefor, a lug carried by the swinging frame, in which said screw is mounted, and a collar carried by the screw, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES W. MALOY.

Witnesses:

SIDNEY L. JOHNSON,  
A. E. HANSMANN.