(No Model.) 3 Sheets—Sheet 1.

F. W. SHETTLEWORTH.

STONE SAWING MACHINE.

No. 598,446. Patented Feb. 1, 1898.

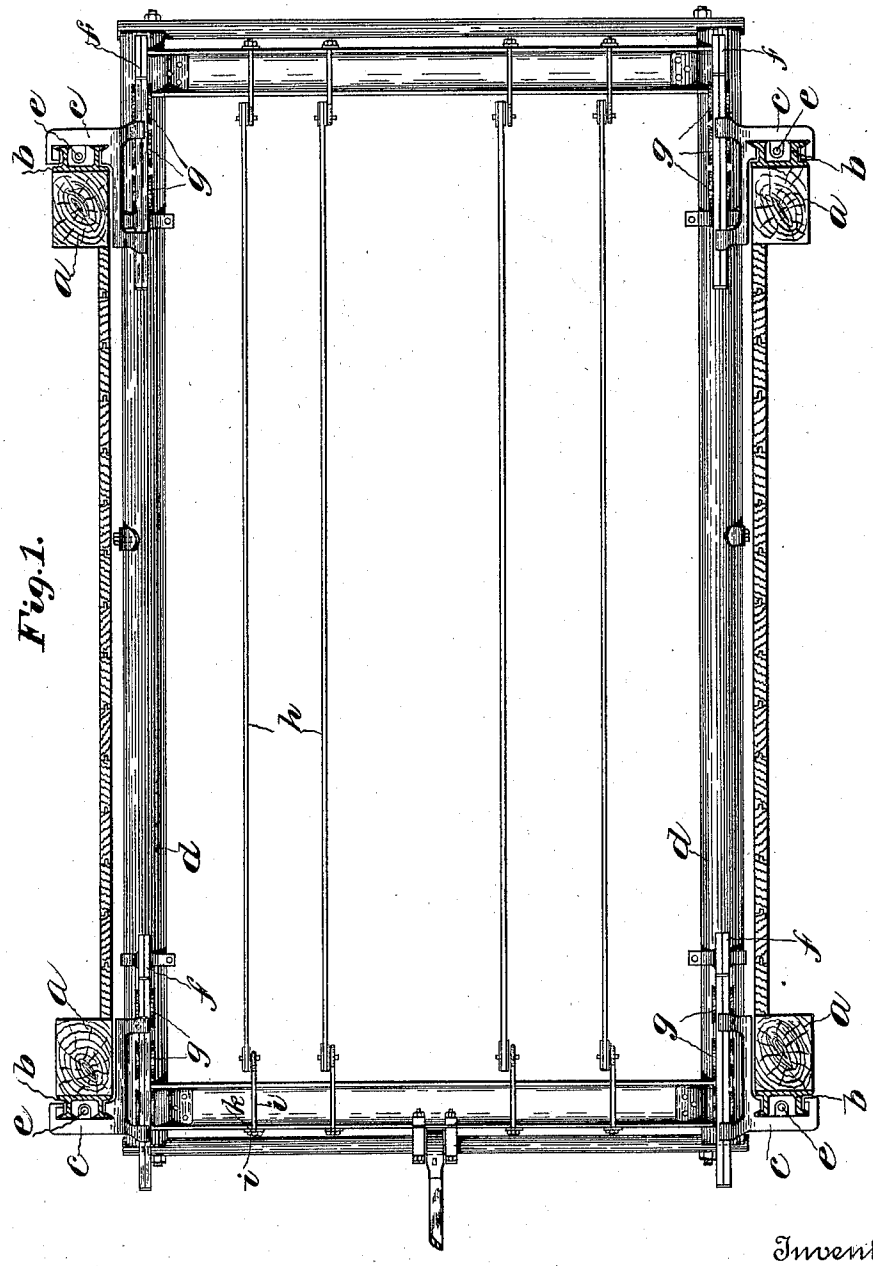


Fig. 1.

Witnesses
Wm. H. Barker.
Michael J. Dacey

Inventor
Frederick W. Shettleworth
By W. E. Simonds
Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 2.

F. W. SHETTLEWORTH.

STONE SAWING MACHINE.

No. 598,446. Patented Feb. 1, 1898.

Fig. 2

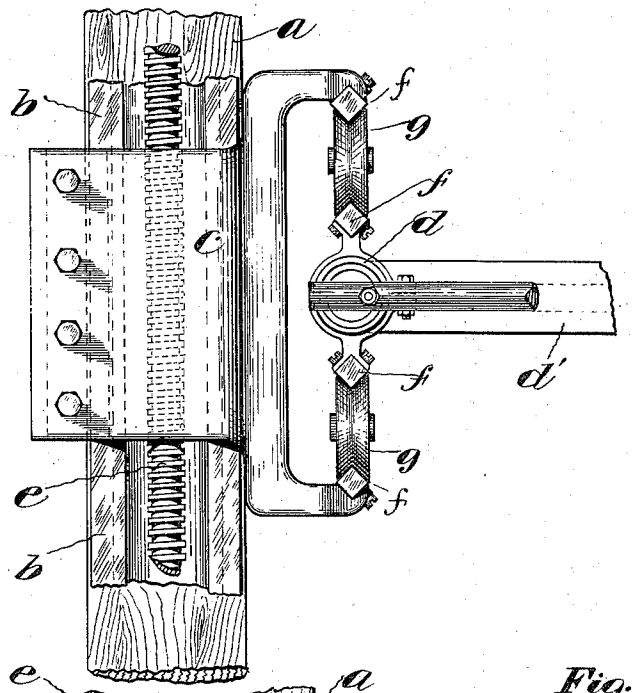
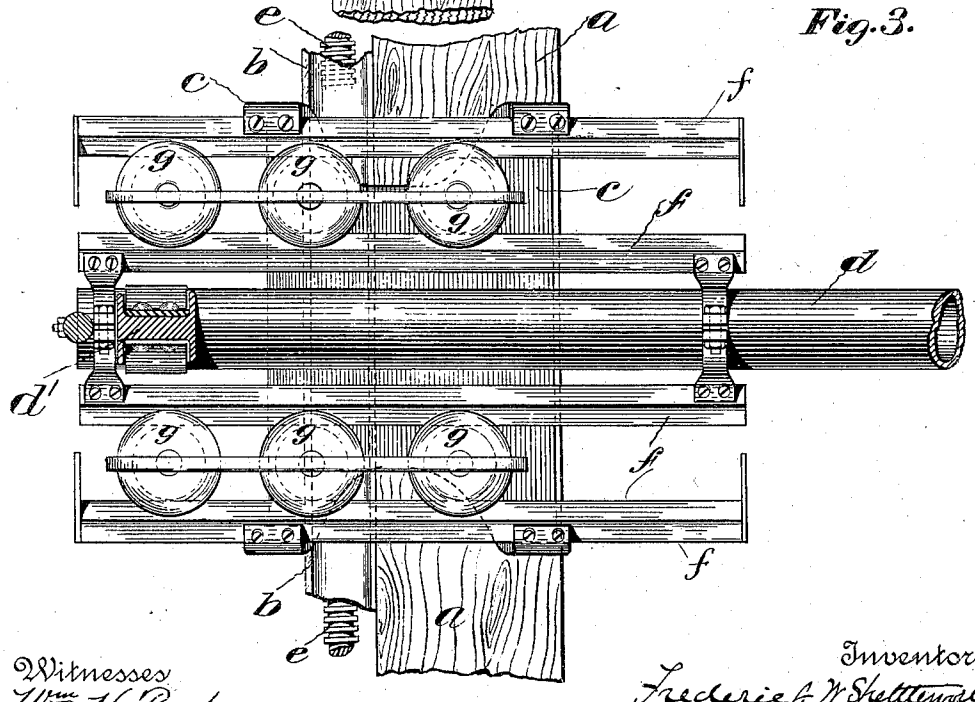


Fig. 3.



Witnesses
Wm. H. Barker.
Michael J. Dacey

Inventor
Frederick W. Shettleworth
By W. E. Simonds
Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 3.

F. W. SHETTLEWORTH.

STONE SAWING MACHINE.

No. 598,446. Patented Feb. 1, 1898.

Fig. 4

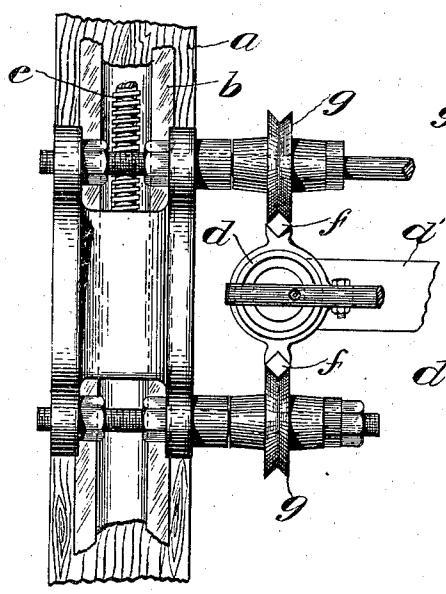


Fig. 5.

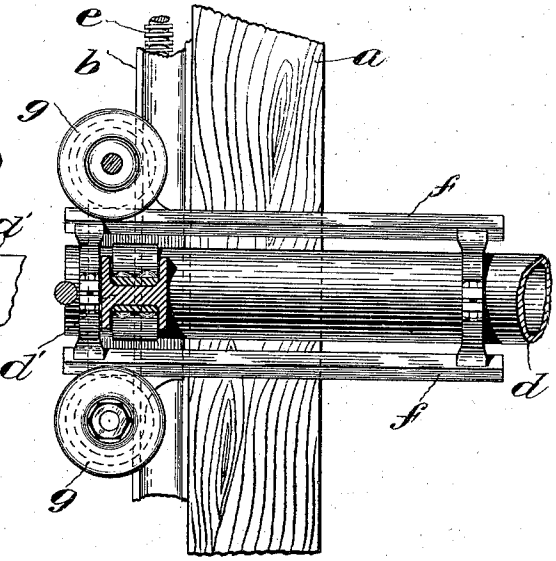


Fig. 6.

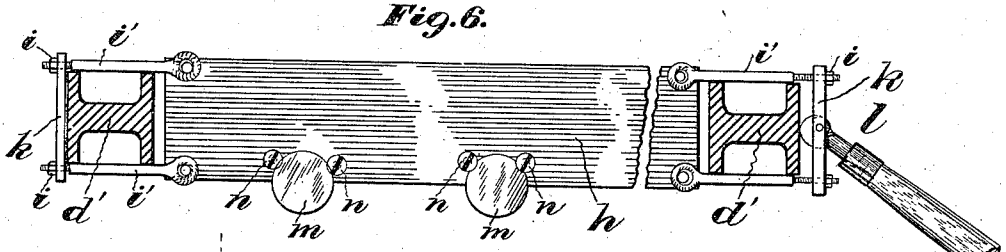


Fig. 7.

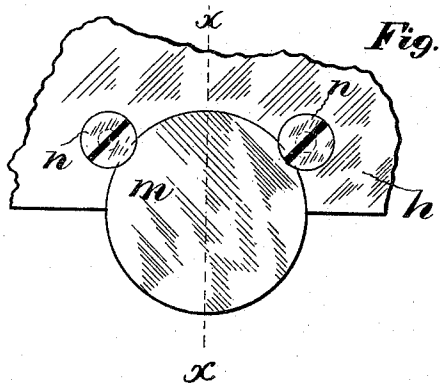
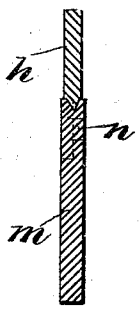


Fig. 8.



Witnesses
Wm. H. Barker.
Michael J. Dacey

Inventor
Frederick W. Shettleworth
By W. E. Simonds
Attorney

THE HOWARD PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FREDERICK W. SHETTLEWORTH, OF PORTLAND, CONNECTICUT, ASSIGNOR OF ONE-HALF TO E. IRVING BELL, OF SAME PLACE.

STONE-SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 598,446, dated February 1, 1898.

Application filed April 5, 1897. Serial No. 630,697. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. SHETTLEWORTH, a citizen of the United States of America, residing at Portland, in the county of Middlesex and State of Connecticut, have invented a certain new and useful Improvement in Stone-Sawing Machines, of which the following is a description, reference being had to the accompanying drawings, wherein—

Figure 1 is a view from above, in the nature of a plan view, of a machine embodying said improvements, with the parts which are above the saw-frame removed. Fig. 2 is a detail face view, on an enlarged scale, of one of the guide-blocks, with the parts appurtenant thereto, which are to be found at each corner-post of the machine. Fig. 3 is a detail side view of the parts shown in Fig. 2, on the same scale. Fig. 4 is a detail view similar in its general nature to Fig. 3, showing a modification. Fig. 5 is a side view of the parts shown in Fig. 4. Fig. 6 is a detail side view of a saw-blade which may be used in this connection and of the devices at the ends for attaching such blade to the saw-frame. Fig. 7 is a detail side view, on an enlarged scale, of a saw-tooth and the neighboring part of a saw-blade. Fig. 8 is a view of the same parts which are shown in Fig. 7, in cross-section, on the plane denoted by the letters *x x* in that figure.

The purpose of the invention is denoted by its title.

The embodied invention is a machine specially adapted for sawing stone. All the parts of the machine are not shown, because those not shown are well known. A machine of this class, but destitute of the special features of improvement described and claimed herein, is shown in United States Patent No. 283,929, dated August 28, 1883.

In machines at present in general use for sawing stone and using a gang of saws it is the rule that the saw-frame has a pendulous movement. In the machine of this patent the saw-frame is adapted for reciprocation in one plane, although the saw-frame may be raised and lowered at pleasure.

The letters *a* denote the four corner-posts of the machine.

The letters *b* denote ways of channel-iron secured in vertical lines to the posts *a*.

The letters *c* denote way-blocks which travel up and down on the ways *b*.

The letters *e* denote vertical adjusting-screws taking through the way-blocks, by means of which the plane in which the saw-frame shall reciprocate can be altered at pleasure. Practically all these screws are operated simultaneously by a device well known in the prior art.

The letters *f* denote guide-rails of angular shape in cross-section (practically square) which are attached to and carried by the saw-frame. The letters *g* denote rolls whose faces have an angular shape corresponding to that of said guide-rails, which confine and coöperate with said guide-rails both above and below the same. Although these rolls may, as seen in Figs. 4 and 5, be hung upon stationary shafts, the preferable mode is to make them true friction-rolls, as shown in Figs. 2 and 3, resting at the back against other suitably-shaped rails which are carried by the said way-blocks. This construction gives as a result the reciprocation of the saws and saw-frame in one plane in lieu of the said pendulous motion common to the prior art.

A construction and arrangement for dealing with and adjusting the tension of the saw-blades in the saw-frame is brought out more clearly in Fig. 6 than elsewhere. There the letters *d* denote the end bars of the saw-frame, a saw being denoted by the letter *h*. The saw is attached to the ends of the saw-frame by the nuts and bolts *i i'* and the plates *k*. The letter *l* denotes a cam-lever hung in the plate *k* and adapted to have its cam coöperate with the outer surface of the end bar of the saw-frame. In practice the operator throws the cam-lever into substantially the position shown in Fig. 6 and then gives the saw its proper tension in the frame by means of the nuts *i'*. Then when he wishes to adjust the saw to a different position laterally he has only to throw the cam-lever up, adjust the

saw-blade laterally, and then throw the cam-lever down, when he has the saw-blade in its new adjustment with practically its original tension, which is designed to be the same as that of all the other saw-blades in the frame.

In Figs. 7 and 8 there is brought out a new shape and construction of tooth for saw-blades of this general nature. The saw-tooth *m* is round, and the edge is grooved, as seen in Fig. 8. The saw-blade has a correspondingly-shaped saw-tooth seat to receive the saw-tooth, and the edge of that tooth has a shape corresponding to the shape of the edge of the saw-tooth. The letters *n* denote screws set into the saw-blade and with their heads extending into correspondingly-shaped sockets in the periphery of the saw-tooth, so that these screws coöperate with the saw-blade and the saw-tooth in such fashion as to hold the saw-tooth to its seat in the saw-blade.

In the operation of sawing stone small steel balls resembling shot are used underneath the saw-teeth. I make these teeth of gun-metal, and thereby get improved frictional contact with the small steel balls and a lengthened life of the saw-teeth.

I claim as my invention—

1. In a stone-sawing machine, the saw-frame, having tubular side rails *d*, *d*, and angular guideways *f*, *f*, attached to said side rails above and below the same, in a plane at right angles to the plane of the said frame, in combination with free rollers *g*, *g*, and vertically-adjustable way-blocks *c*, *c*, having fixed angular guideways arranged in pairs in vertical planes, of a width to include the said guideways *f*, *f*, and said free rollers *g*, *g*, said rollers being arranged in gangs, and included between the said fixed angular guideways and the guideways *f*, *f*, above and below the rails *d*, *d*, respectively, substantially as shown and described.

2. In a stone-sawing machine, the saw-frame, having side rails *d*, *d*, and guideways *f*, *f*, attached to said rails, in a plane at right angles to the plane of the frame, in combination with way-blocks *c*, *c*, carrying fixed angular guideways, free rollers *g*, *g*, between said fixed guideways and the guideways *f*, *f*, fixed upright channel-ways borne on vertical posts *a*, *a*, and means for giving vertical adjustment to the said way-blocks, substantially as shown and described.

3. The combination of the saw-frame having tubular side rails *d*, *d*, channel end bars *d'*, *d'*, angular guideways *f*, *f*, arranged in pairs above and below the said side rails, in planes at right angles to the plane of the saw-frame, and angular channeled rollers *g*, *g*, arranged in sets above and below said angular guideways, whereby the saw-frame is kept in a right line of travel, substantially as shown and described.

4. The saw-blade *h* provided with a semicircular seat having a V-shaped edge, in combination with the solid-disk circular saw-tooth *m*, provided with an angular grooved edge fitting the said V-shaped seat edge, and retaining-screws *n*, *n*, substantially as shown and described.

FREDERICK W. SHETTLEWORTH.

Witnesses:
ROBERT S. MITCHELL,
CHARLES E. BLODGETT.