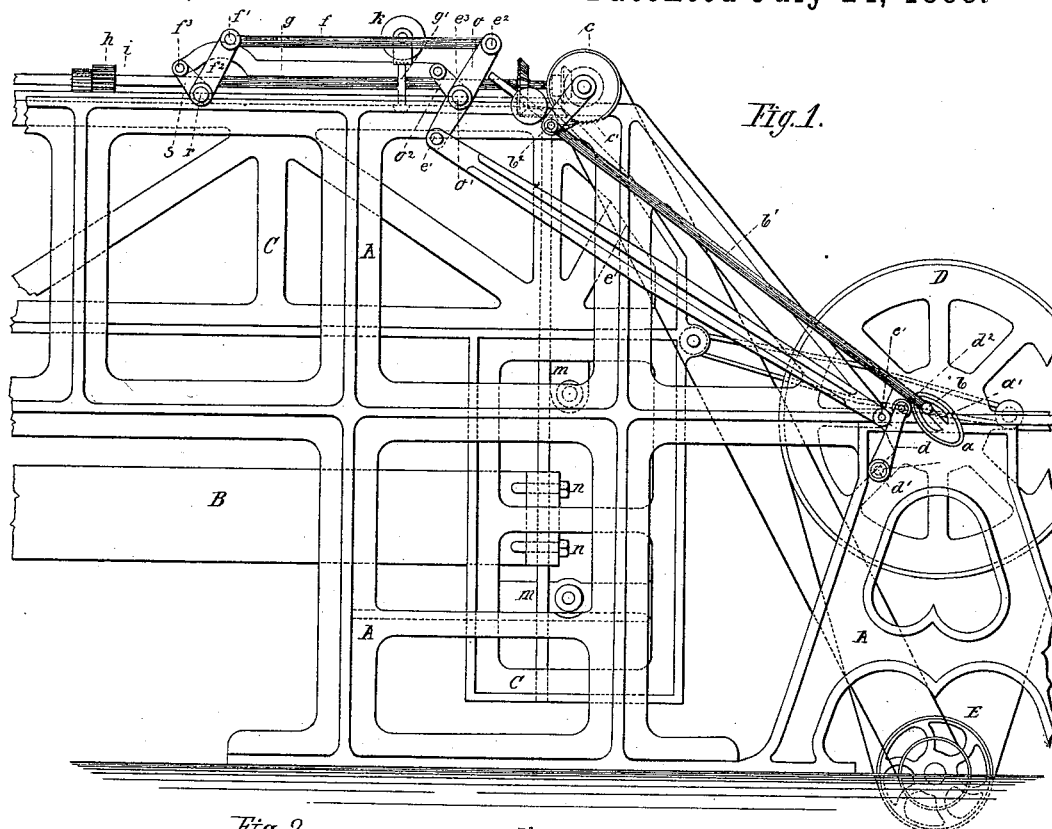


T. A. JACKSON.  
STONE SAWING MACHINE.

Patented July 24, 1888.



*Fig. 2.*

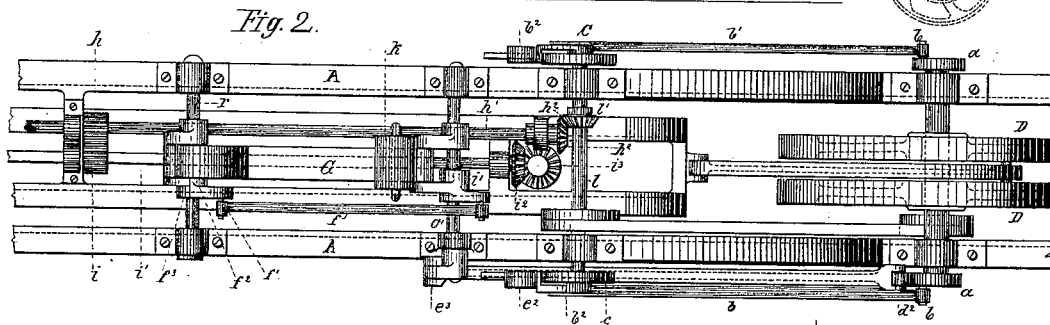
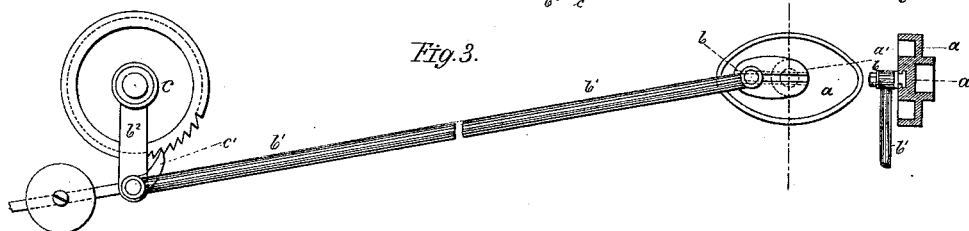


Fig. 3.



*Witnesses:*

Witnesses:  
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Inventor:  
Phaddeus A. Jackson,  
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# UNITED STATES PATENT OFFICE.

THADDEUS A. JACKSON, OF NEW YORK, N. Y.

## STONE-SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 386,542, dated July 24, 1888.

Application filed August 17, 1887. Serial No. 247,221. (No model.)

*To all whom it may concern:*

Be it known that I, THADDEUS A. JACKSON, a citizen of the United States, residing at the city of New York, in the county and State of New York, have invented a new and useful Improvement in Stone-Sawing Machines, of which the following is a specification.

This invention is an improvement on that for which Letters Patent No. 361,011 were granted to me on the 12th day of April, 1887, for an improvement in machines for sawing stone. In that invention the external eccentric periphery of a wheel, in said patent described, was used in connection with a tilting lever, spring, and other mechanism, in said patent described, to produce the proper motion for the feed of the saw. In my present improvement I use the same eccentric periphery of the same wheel, in connection with mechanism, hereinafter described, to produce a lifting motion for the clearance of the saw; and also by constructing the same wheel with a radial slot, and by the use therewith of certain mechanism, hereinafter described, I produce an adjustable feed motion for the saw.

The nature of the invention also consists in the combination, with a wheel revolving upon a shaft and having an eccentric periphery, of an oscillating lever pivotally attached by one end to a proper support, having at the other end a friction-wheel rolling on the face of the eccentric wheel, a connecting-rod communicating motion to a bell-crank, and means connected therewith, substantially as hereinafter described, to lift the saw of a stone-sawing machine for its clearance.

The nature of the invention also consists in the combination of the aforesaid radial slot and the said eccentric periphery in one wheel, whereby the one wheel, by means of the mechanism hereinafter described, is enabled to feed the saw, and also to lift same for its clearance, substantially as hereinafter described.

The nature of the invention also consists in the details of construction, substantially as shown in the drawings, hereinafter described, and subsequently pointed out in the claims.

Figure 1 illustrates a side view of part of a stone-sawing machine with my invention upon it. Fig. 2 illustrates a plan view of the top of the same. Fig. 3 is a detail view illustrating a part of the feeding device.

A A designate the stationary frame, which supports the working part of the machine; D, the fly-wheel; C, the reciprocating sash or frame which is driven by a pitman connecting it with the fly-wheel D.

B designates the saw, which is carried by the frame C in its horizontal reciprocating motion. The downward feed motion and upward withdrawing motion of this saw and the mechanism by which such motions are produced are fully hereinafter described.

Upon the end of the shaft of the fly-wheel D is mounted the wheel *a*, which is preferably of disk form, having an eccentric periphery and having a radial slot, *a'*, in its side. This wheel, being rigidly attached to the fly-wheel shaft, revolves with it. In the slot *a'* is fixed the wrist-bolt *b*, which, by reason of having a screw on its lower end and a corresponding nut in the slot *a'*, is adjustable as to its radial distance from the center of the wheel in the slot. This wrist-bolt is connected with the lever *b'* of the pawl *c'* by the connecting-rod *b'*. This pawl is pivotally attached to the lever *b'*, and works upon and drives the ratchet-wheel *c*. Upon the shaft *l* of this ratchet-wheel, which runs in bearings supported by the said stationary frame, is a bevel gear wheel, designated by *l'*. This bevel-wheel *l'* meshes into another bevel-wheel, *h'*, upon the shaft *h'*, which shaft also runs in bearings supported by the stationary frame aforesaid. Upon this same shaft, *h'*, is also mounted the spur-wheel *h*, which meshes into the spur-wheel *i*. The spur-wheel *i* is constructed with a hub which, being adapted thereto, runs like a journal in bearings supported by said stationary frame. The hub of the wheel *i* has a square boss, through which passes a square part of the shaft *i'*, adapted to slip endwise in said hub. The shaft *i'* is attached by suitable bearings to the top of the reciprocating sash or frame C, so that it moves with said frame and slips endwise in said hub. Upon either end of this said shaft *i'* is mounted a bevel-wheel, one of which is designated by *i''*. These wheels *i''* mesh into bevel-wheels on the top of the feed-screws *m* of the saw. One of these bevel-wheels, mounted on the top of the feed screws, is designated by *i'''*. These bevel-wheels communicate rotary motion to the feed-screws, which are held upright in bearings supported by the reciprocating

cating frame or sash C, and, by means of the  
 nuts *n*, raise or feed down the saw as is re-  
 quired. When the mechanism last described  
 is in motion, the saw is fed downward to cut  
 5 the stone. The speed of the downward mo-  
 tion of the saw is regulated by placing the  
 wrist-bolt *b* at different distances from the cen-  
 ter of the wheel *a* in the radial slot *a'*. When  
 it is desired to withdraw the saw from the  
 10 stone, the pawl *c'* is withdrawn from the  
 ratchet-wheel *c* and the wheel *E* set in motion.  
 This wheel, being connected by a belt with a  
 wheel upon the shaft *l*, causes it to move rap-  
 idly in the opposite direction from that just  
 15 described, and so, by means of the mechanism  
 described, reverses the motion of the feed-  
 screws and withdraws the saw from the stone.  
 The wheel *a*, as hereinbefore described, has  
 an eccentric periphery. Upon this rolls the  
 20 friction-wheel *d*<sup>2</sup>, which is mounted in the end  
 of the oscillating lever *d*. The lever *d* is at-  
 tached by a pivot to the stationary frame at  
*d'*. To the lever *d* is attached by a pivot-  
 joint, one end of the connecting-rod *e*. The  
 25 other end of this rod *e* is attached by a pivot-  
 joint at *e'* to the oscillating lever *o*. This le-  
 ver is mounted upon the shaft *o'*, which turns  
 in bearings supported by the said stationary  
 frame. At *e*<sup>2</sup> the lever *o* is connected with the  
 30 end *f'* of the bell-crank *f*<sup>2</sup> *s* by the rod *f*.  
 The bell-crank *f*<sup>2</sup> *s* is mounted upon the  
 shaft *r*, which turns in bearings supported by  
 the said stationary frame. The bar *g* is at-  
 tached at one end to the arm *e*<sup>2</sup> of the bell-  
 35 crank formed by the lever *o* and the arm *e*<sup>2</sup>,  
 and by the other end to the arm *s* of the bell-  
 crank *f*<sup>2</sup> *s*. When these cranks are oscillated  
 by means of the motion of the eccentric wheel  
 40 *a* being transmitted through the mechanism  
 described, on account of the arms *e*<sup>2</sup> and *s* be-  
 ing of equal length and describing simulta-  
 neously the same arc of rotation, the ends of  
 the bar *g* will always be lifted simultaneously  
 45 to the same height, so that the bar *g* will al-  
 ways be parallel to the guides on which the  
 reciprocating frame or sash C runs. The roller  
*k* moves on this bar *g*, and is attached by a  
 rod, *g'*, to the top of the reciprocating sash or  
 50 frame C. This mechanism is so adjusted that  
 when the reciprocating frame or sash C is run-  
 ning full upon its guides and the bar *g* is in  
 its lowest position the roller *k* will roll on the  
 bar *g*, and so that when, by means of the mech-  
 55 anism described, the bar *g* is lifted a little  
 it will also lift reciprocating frame C, to which  
 it is attached, and with it the saw B, holding  
 them up through the first one-third of their  
 stroke and letting them fall so that the saw will  
 60 cut through the last two-thirds of its stroke,  
 for it is so arranged that this lifting occurs

just when the saw commences its stroke, and  
 has the effect of clearing the saw of any cut-  
 tings or any other loose matter that may choke  
 it or cause it to bind in the kerf.

Otherwise than herein described this saw- 65  
 ing-machine may be constructed and used in  
 the same way as that described in my said  
 Patent No. 361,011, granted to me on the 12th  
 day of April, 1887.

What I claim as my invention, and desire to 70  
 secure by Letters Patent, is—

1. The combination, with a wheel revolving  
 upon a shaft and having an eccentric periph-  
 ery, of an oscillating lever attached pivotally  
 by one end to a proper support and having at 75  
 the other end a friction-wheel rolling upon the  
 face of the eccentric wheel, a connecting-rod  
 communicating motion to a bell-crank, the  
 said bell-crank, and means connected there-  
 with, substantially as hereinbefore described, 80  
 to lift the saw of a stone-sawing machine for  
 its clearance, substantially as and for the pur-  
 pose set forth.

2. The combination of the radial slot and  
 the eccentric periphery hereinbefore described 85  
 in one wheel, whereby the one wheel, by means  
 of the mechanism hereinbefore described, is  
 enabled to feed the saw, and also to lift the saw  
 for its clearance, substantially as and for the  
 purpose set forth. 90

3. In a stone-sawing machine, the wheel *a*,  
 mounted upon a revolving shaft and having  
 the radial slot *a'*, in combination with the  
 wrist-bolt *b*, the connecting-rod *b'*, the ratch- 95  
 et-wheel *c*, the pawl *c'*, the lever *b*<sup>2</sup>, the shaft *l*  
 and its bearings, the bevel-wheels *l'* *h*<sup>2</sup>, the  
 shaft *h'* and its bearings, the spur-wheel *h*, the  
 spur-wheel *i* and its bearings, the shaft *i'* and  
 its bearings, the bevel-wheels *i*<sup>2</sup> *i*<sup>3</sup>, the screws 100  
*m* and their bearings, the nuts *n*, the saw B,  
 and the reciprocating frame or sash C and its  
 supports, substantially as and for the purpose  
 set forth.

4. In a stone-sawing machine, the combina- 105  
 tion of the wheel *a*, mounted upon a revolving  
 shaft and constructed with an eccentric pe-  
 riphery, with the lever *d* and its pivotal sup-  
 port, the friction-wheel *d*<sup>2</sup>, the connecting-rod  
*e*, the lever *o*, the arm *e'*, the shaft *o'* and its  
 bearings, the connecting-rod *f*, the bell-crank 110  
*f*<sup>2</sup> *s*, the shaft *r* and its bearings, the bar *g*, the  
 roller *k*, the rod *g'*, and the reciprocating frame  
 or sash C, with its supports, substantially as  
 and for the purpose set forth.

In witness whereof I hereunto set my hand 115  
 in presence of two witnesses.

THADDEUS A. JACKSON.

Witnesses:

C. E. McDONALD,  
 F. W. RUBIEN.