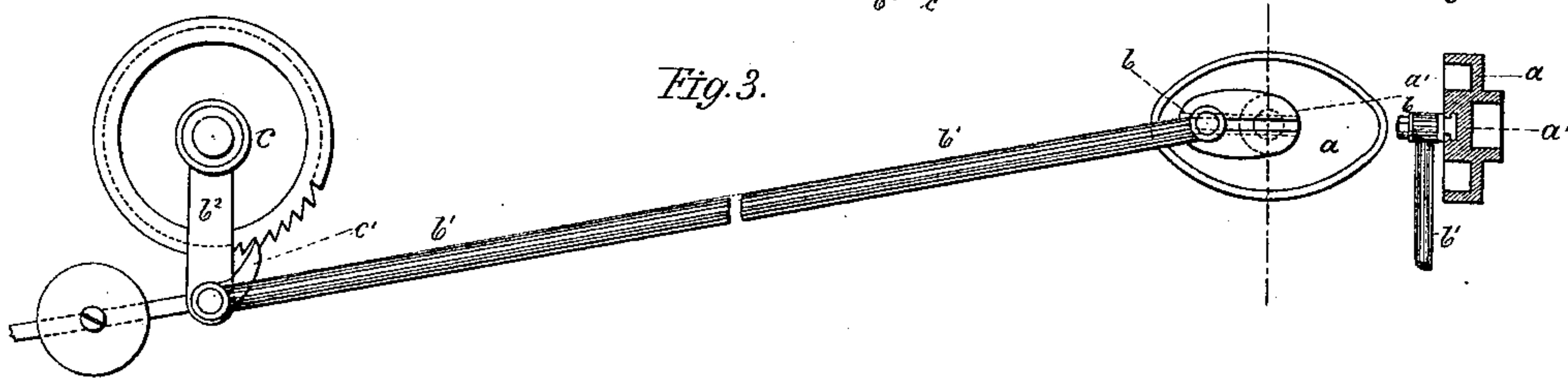
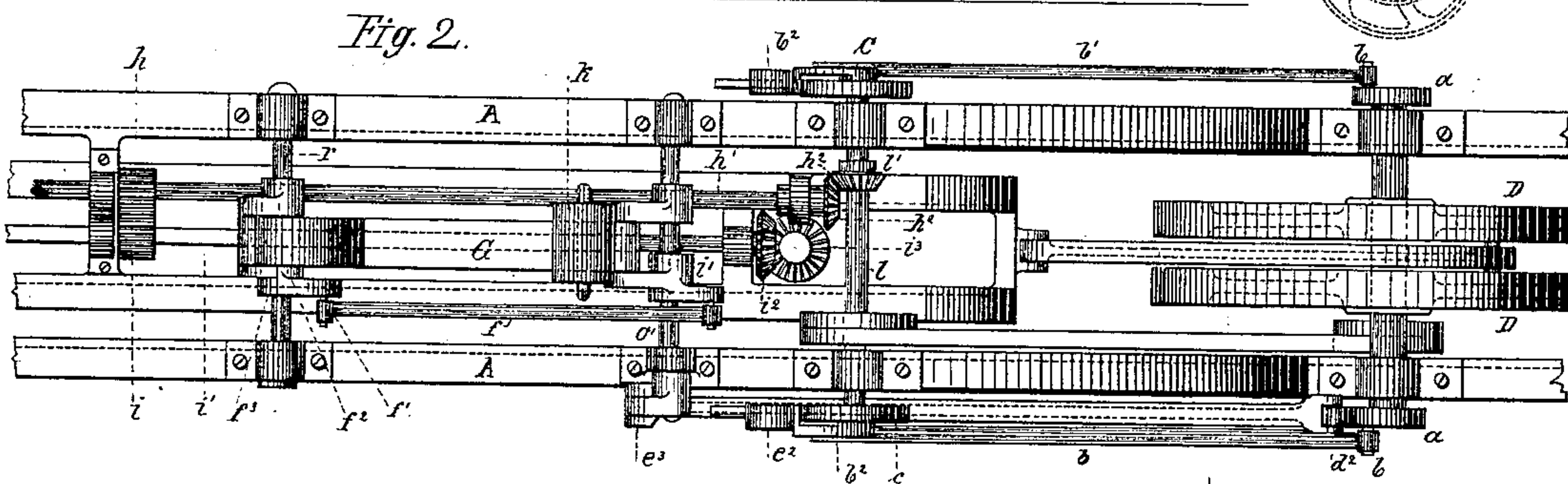
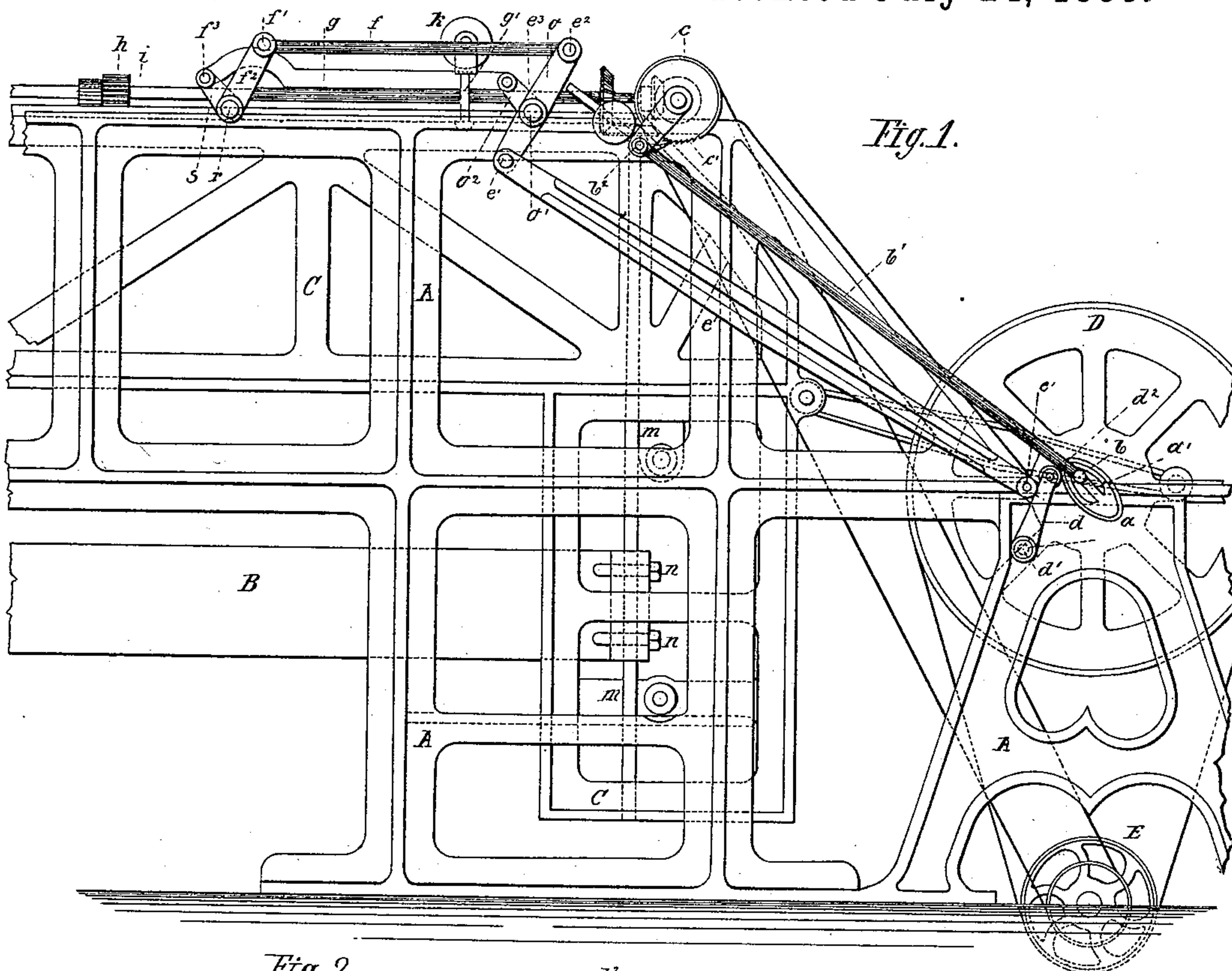


(No Model.)

T. A. JACKSON.
STONE SAWING MACHINE.

No. 386,542.

Patented July 24, 1888.



Witnesses:

Witnesses:
C. E. McDonald.
Fredk. W. Rubien.

Inventor:

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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 required. When the mechanism last described is in motion, the saw is fed downward to cut
 5 the stone. The speed of the downward motion of the saw is regulated by placing the wrist-bolt *b* at different distances from the center 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 rapidly 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*², which is mounted in the end of the oscillating lever *d*. The lever *d* is attached 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 lever is mounted upon the shaft *o'*, which turns in bearings supported by the said stationary frame. At *e*² the lever *o* is connected with the
 30 end *f'* of the bell-crank *f*² *s* by the rod *f*. The bell-crank *f*² *s* is mounted upon the shaft *r*, which turns in bearings supported by the said stationary frame. The bar *g* is attached at one end to the arm *e*³ of the bell-
 35 crank formed by the lever *o* and the arm *e*³, and by the other end to the arm *s* of the bell-crank *f*² *s*. When these cranks are oscillated by means of the motion of the eccentric wheel *a* being transmitted through the mechanism
 40 described, on account of the arms *e*³ and *s* being of equal length and describing simultaneously the same arc of rotation, the ends of the bar *g* will always be lifted simultaneously to the same height, so that the bar *g* will al-
 45 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 frame C. This mechanism is so adjusted that
 50 when the reciprocating frame or sash C is running 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 mechanism described, the bar *g* is lifted a little it
 55 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 cut through the last two-thirds of its stroke,
 60 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 cuttings 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 periphery, 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 therewith, substantially as hereinbefore described, 80 to lift the saw of a stone-sawing machine for its clearance, substantially as and for the purpose 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 ratchet-wheel *c*, the pawl *c'*, the lever *b*², the shaft *l* 95 and its bearings, the bevel-wheels *l'* *h*², 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*² *i*³, the screws *m* and their bearings, the nuts *n*, the saw B, 100 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 combination of the wheel *a*, mounted upon a revolving 105 shaft and constructed with an eccentric periphery, with the lever *d* and its pivotal support, the friction-wheel *d*², 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*² *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.