

(No Model.)

2 Sheets—Sheet 1.

T. E. DANIELS.

ENDLESS CHAIN MORTISING MACHINE.

No. 268,003.

Patented Nov. 28, 1882.

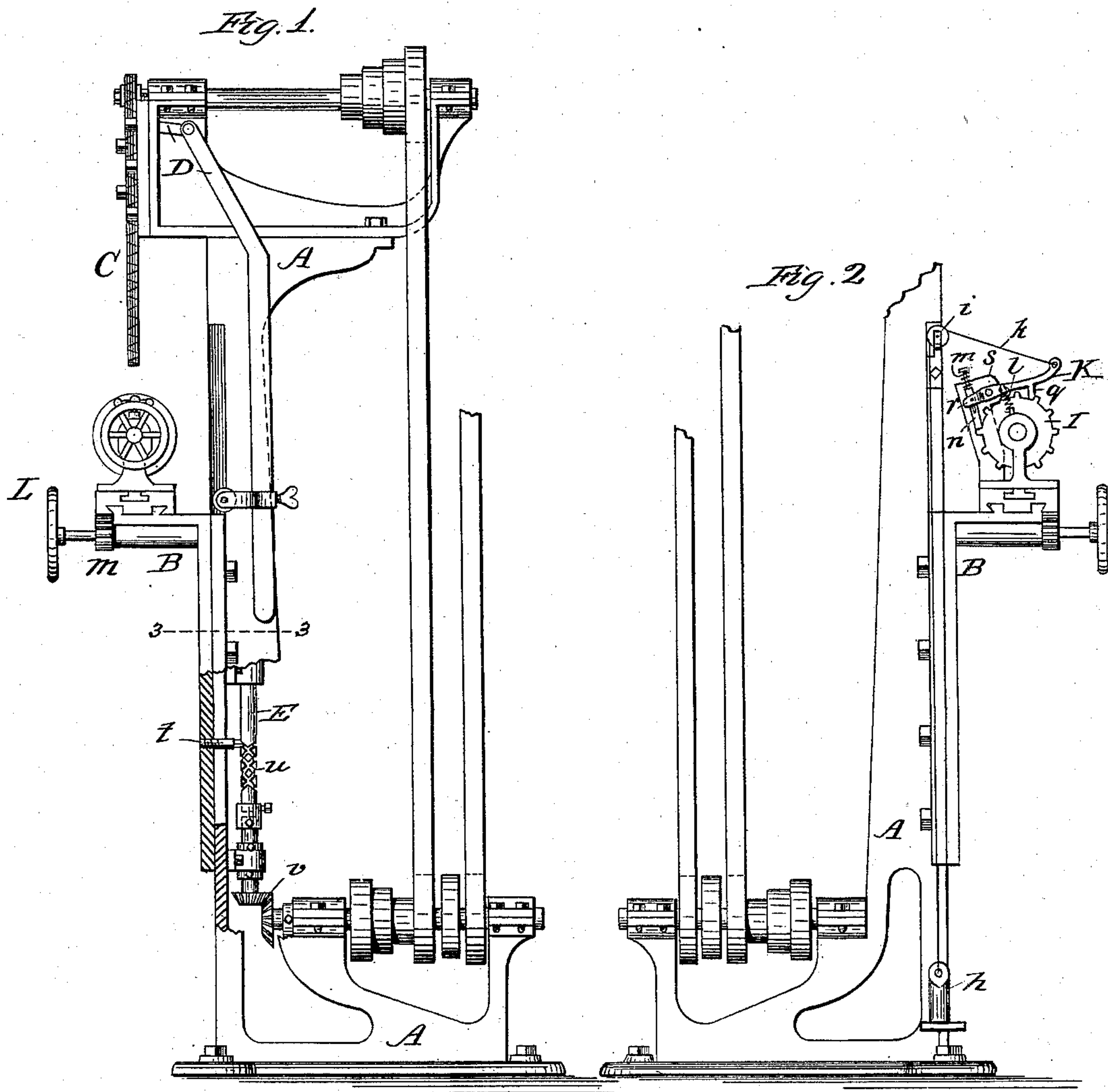
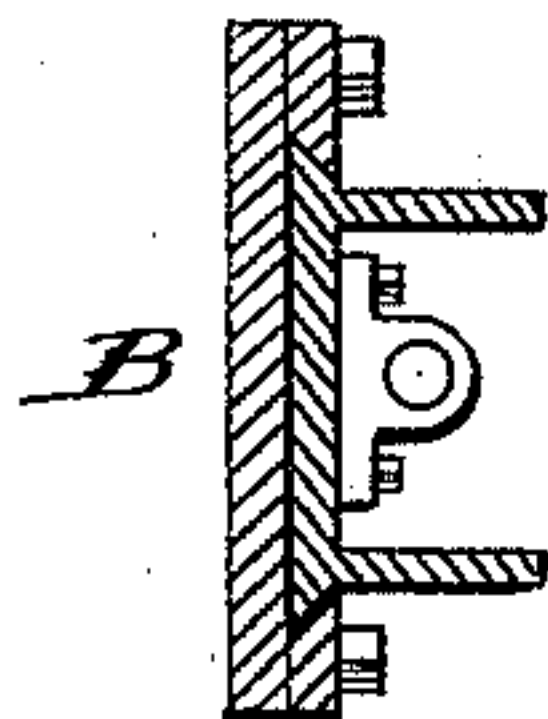


Fig. 3.



WITNESSES—

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INVENTOR—

Taylor E. Daniels,
By P. C. Dyrenforth
Attorney.

(No Model.)

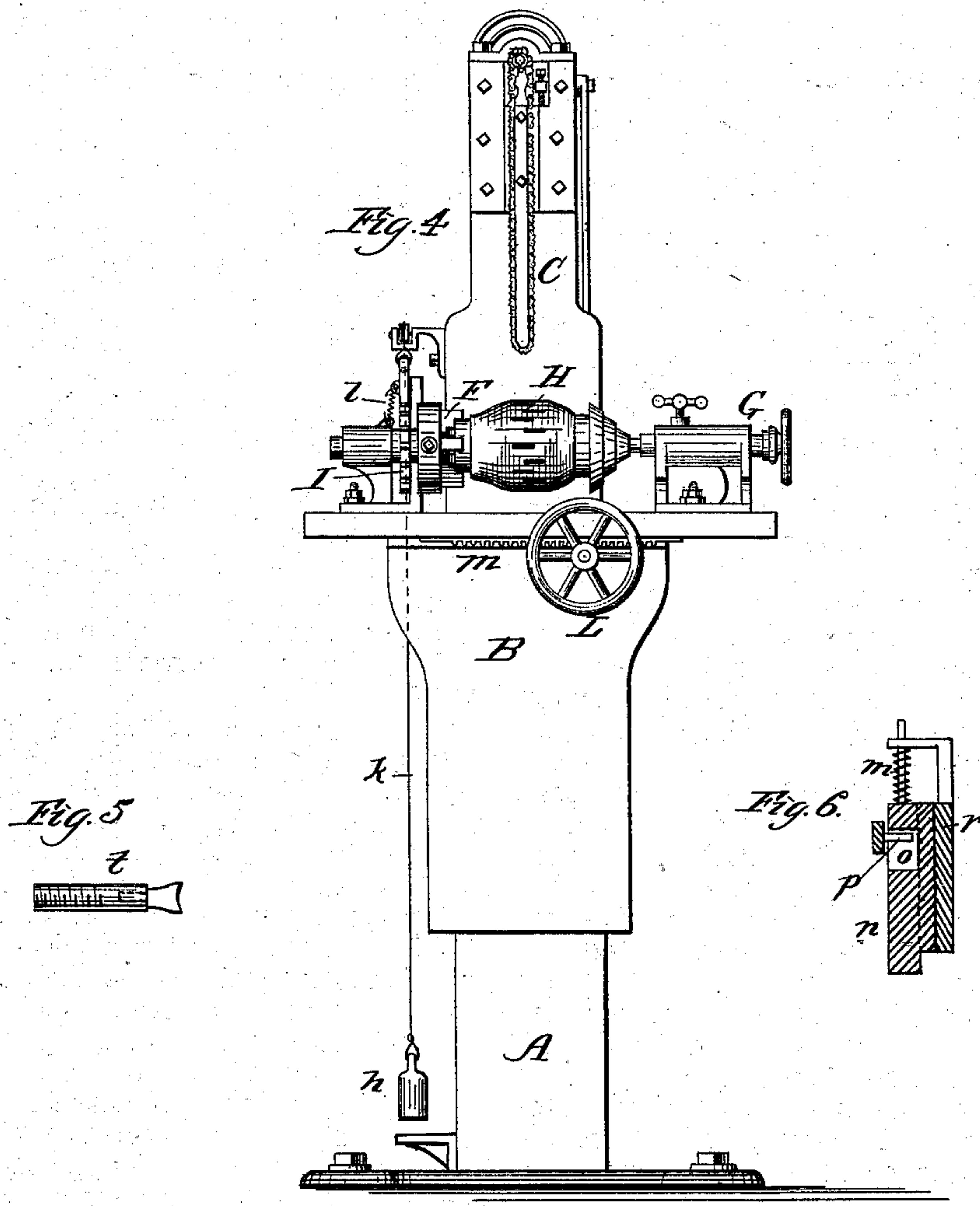
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T. E. DANIELS.

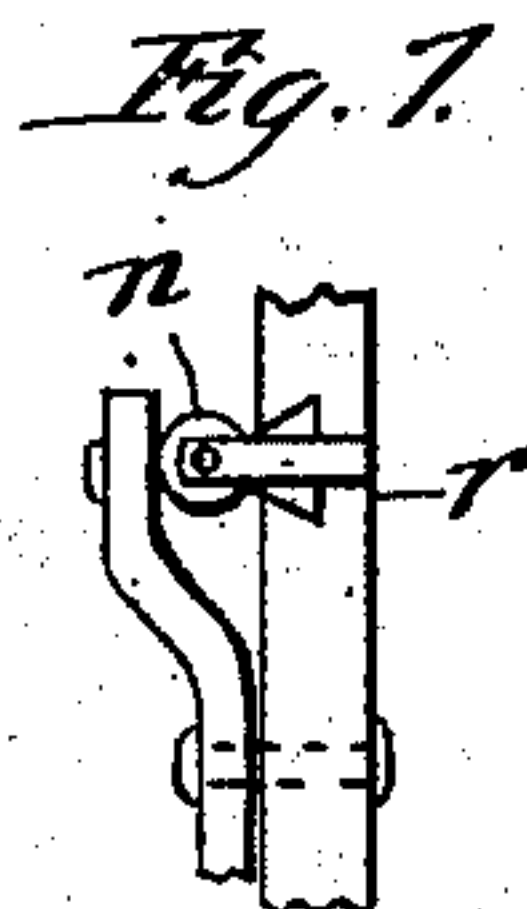
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UNITED STATES PATENT OFFICE.

TAYLOR E. DANIELS, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE AMERICAN
CHAIN MORTISING MACHINE COMPANY.

ENDLESS-CHAIN MORTISING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 268,003, dated November 28, 1882.

Application filed April 15, 1882. (No model.)

To all whom it may concern:

Be it known that I, TAYLOR E. DANIELS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Endless-Chain Mortising-Machines; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, of which—

Figure 1 is a side elevation of a machine provided with my improvements; Fig. 2, a view of a part of the same from the opposite side; Fig. 3, a cross-section on the line 3 3 of Fig. 1; Fig. 4, a front elevation of the machine, and Figs. 5, 6, and 7 detail views.

My invention relates to certain additions to the endless-chain mortising-machine invented by William W. Green, Jr., whereby, first, the rising and falling of the table for the purpose of bringing the object to be mortised periodically into contact with the chain-saw is rendered regular and automatic, and whereby, secondly, the machine is especially adapted for mortising hubs and other cylindrical bodies.

My invention consists in the mechanism by means of which the regular and automatic rising and falling of the table is effected, and also in mechanism operating intermittently by means of which the cylindrical body is automatically rotated the proper distance for the consecutive mortises, all as hereinafter more fully set forth.

In the drawings, A is the frame of the machine; B, the table; C, the chain-saw, and D the device for automatically tightening and loosening the chain, none of which are included in my invention.

The parts which constitute my invention I shall now proceed to describe, beginning with the device for raising and lowering the table.

E is a vertical rotary shaft in journals upon the frame of the machine, and revolved by means of a beveled gearing, *v*, from the driving-shaft. Upon this shaft E is formed a right-and-left screw, *u*, equal in length to the reciprocating movement of the table. The threaded portion of the shaft is made detachable to permit screws of greater or smaller length to be inserted, according to requirement. From the vertical portion of the sliding table B a swiv-

eled arm, *t*, projects, having its outer end flattened and slightly forked, as shown in Fig. 5. The forked end fits into the thread of the screw and enters the right or left hand thread, according as it is at the upper or lower end of the screw, thus carrying the table alternately up and down.

The mechanism which I employ for carrying out the second feature of my invention is as follows:

F is a chuck, and G a hand-screw and clamp, all in the usual form, for securing the hub H in position. Secured rigidly to the outer end of the chuck is a ratchet-wheel, I, the distance between consecutive cogs being equal to the required distance between consecutive mortises.

K is a pawl fulcrumed at *s* to a brace, *r*, and provided near one end with a vertical arm, *q*, and near the opposite end with a lateral pin, *p*, which enters a slot, *o*, in the sliding bar *n*, which is dovetailed into the brace *r*, to form guides for it, as shown in Figs. 6 and 7, which represent respectively a vertical section and a top view of this portion of the device. The lower end of the bar *n* rests against the upper face of a cog of the ratchet-wheel and the arm *q* against the opposite side of another cog, as represented in Fig. 2, when the table is up. A spring, *m*, may be employed, if desired, to hold the bar *n* down in this position, though this is not absolutely necessary. The spring *l*, however, connecting the long arm of the pawl to the frame, or an equivalent spring, cannot be dispensed with. A cord or chain, *k*, passing over a pulley, *i*, connects the outer extremity of the pawl with a weight, *h*, which rests on a bracket or other support when the table is up.

Since all the parts just described are carried by table, the latter, as soon as it descends, exerts a strain upon the cord or chain *k*, which is resisted by the weight, and this serves to raise the outer end of the pawl K. The length of the slot *o* is just sufficient to permit the arm *q* to become free from the cog with which it is engaged before the pin *p* begins to act against the sliding bar *n*, which it does, of course, as soon as the pin reaches the bottom of the slot. When this takes place all further lifting of the long arm of the pawl K serves to move the bar *n* downward, and thus to turn

the ratchet-wheel, and with it the chuck and hub; and the parts are so adjusted that one such movement carries the ratchet-wheel around just the distance between two cogs, which, as before stated, is equal to the required space between two mortises. As the table reascends the weight settles back to its support, and then the spring *l* throws the pawl and attendant parts back to the position represented in Fig. 2, when a fresh mortise is made, and so on indefinitely. The hand-wheel *L* and rack *M* permit the table to be moved from side to side to give the proper location to the consecutive mortises.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a mortising-machine, in combination with the frame, table, endless-chain saw, and mechanism for driving the same, the device for automatically raising and lowering the table, consisting of the vertical rotary shaft *E*, provided with the right-and-left screw *u*, in combination with the swiveled and forked

arm *t*, projecting from the table, the whole being constructed and arranged to operate substantially as described.

2. The combination, with the table of a hub-mortising machine, and with mechanism for raising and lowering the table, and with mechanism for securing the hub in position upon the table, of the device for automatically turning the hub to receive the consecutive mortises, consisting of the ratchet-wheel *I*, rigidly connected to the chuck, pawl *K*, fulcrumed to a suitable brace and provided with the vertical arm *q* and laterally-projecting pin *p*, bar *n*, sliding longitudinally in guides and provided with the slot *o*, into which the pin *p* enters, cord *k*, pulley *i*, weight *h*, and a suitable spring holding the pawl in opposition to said weight, the whole being constructed and arranged to operate substantially as described.

TAYLOR E. DANIELS.

In presence of—

P. C. DYRENFORTH,
WM. H. DYRENFORTH.