

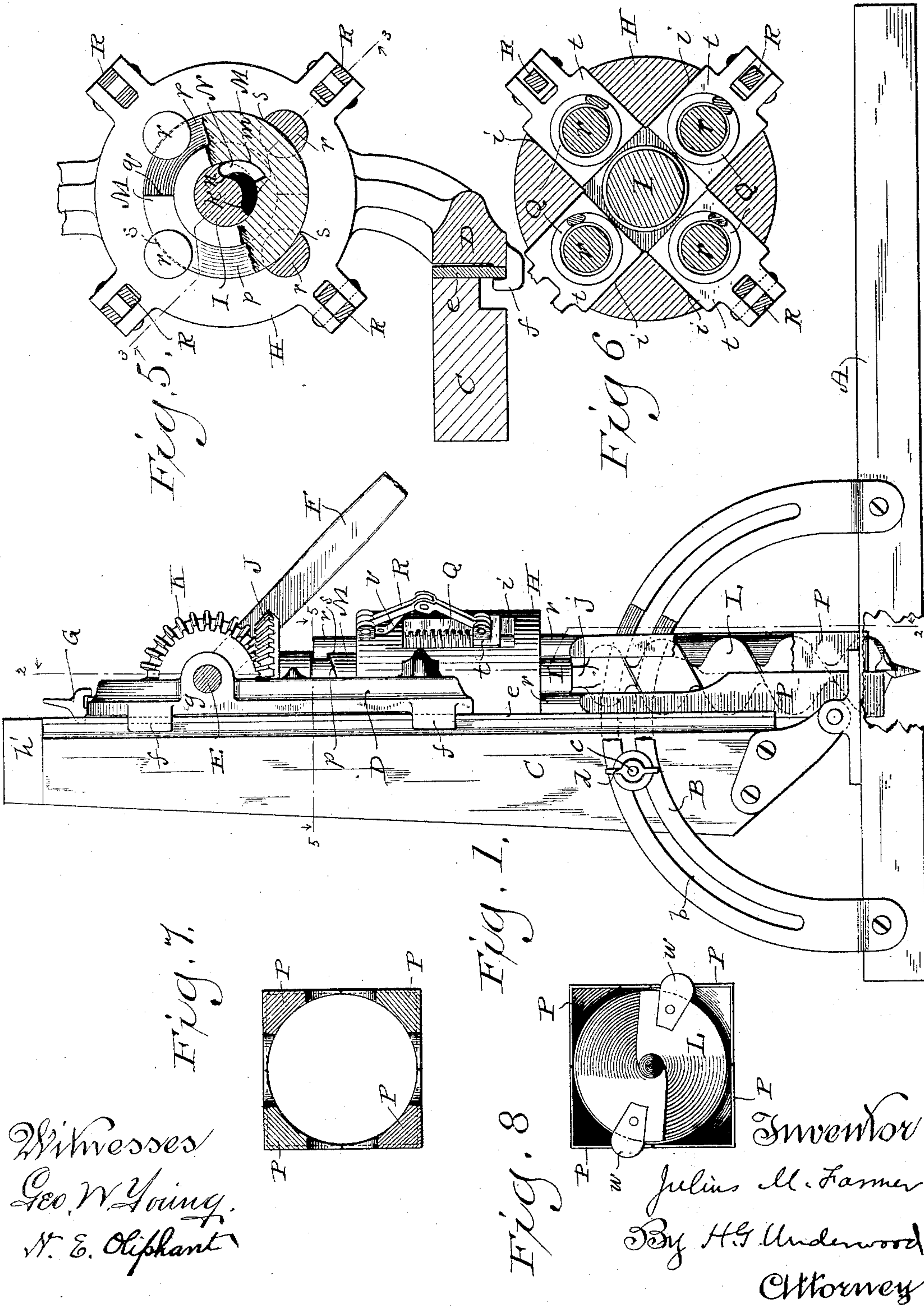
(No Model.)

2 Sheets—Sheet 1.

J. M. FARMER.
MORTISING MACHINE.

No. 468,417.

Patented Feb. 9, 1892.



Witnesses
Geo. W. Young.
N. E. Oliphant

Fig. 8

Inventor
Julius M. Farmer
By H. G. Underwood
Attorney

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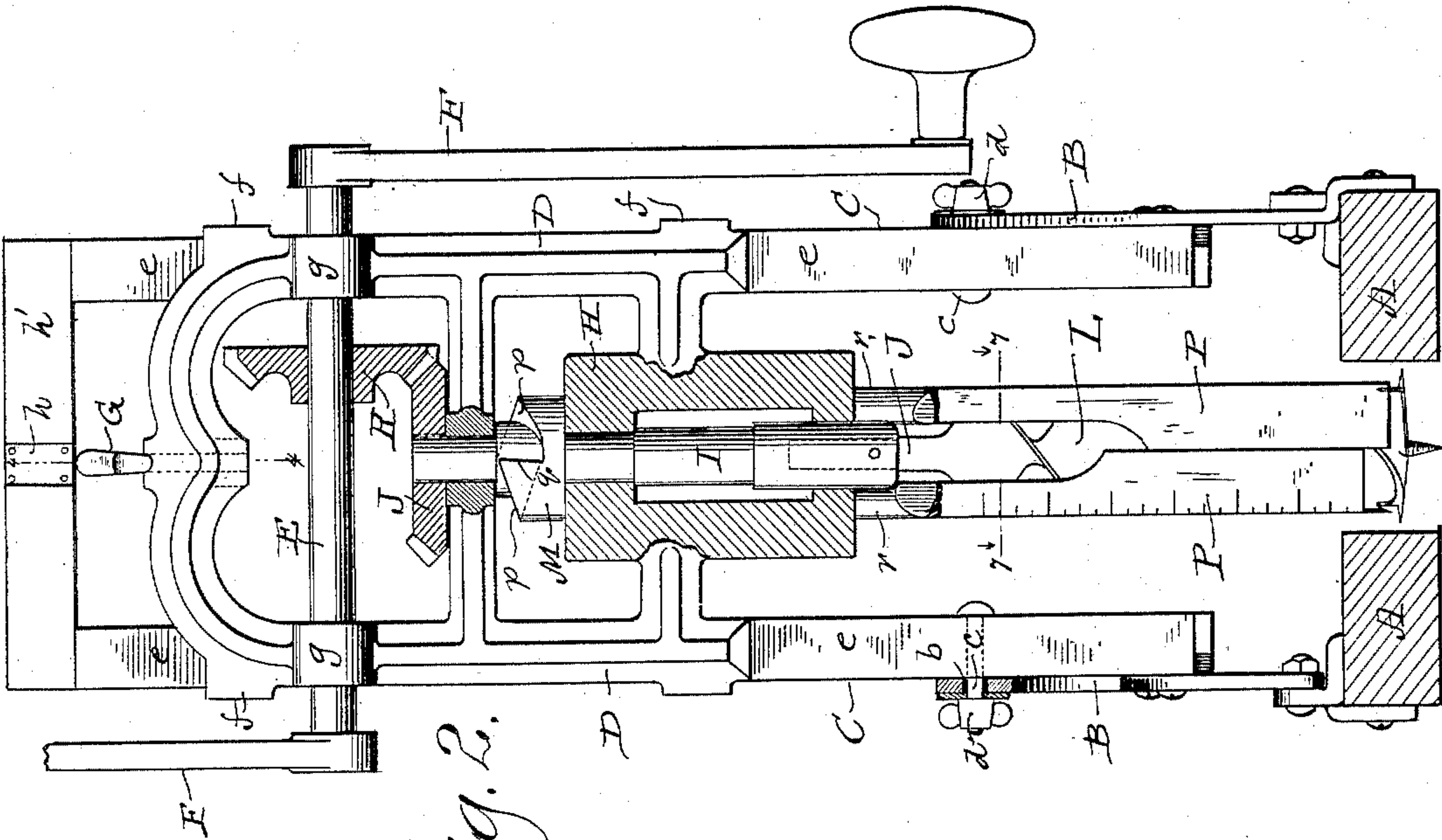


Fig. 2.

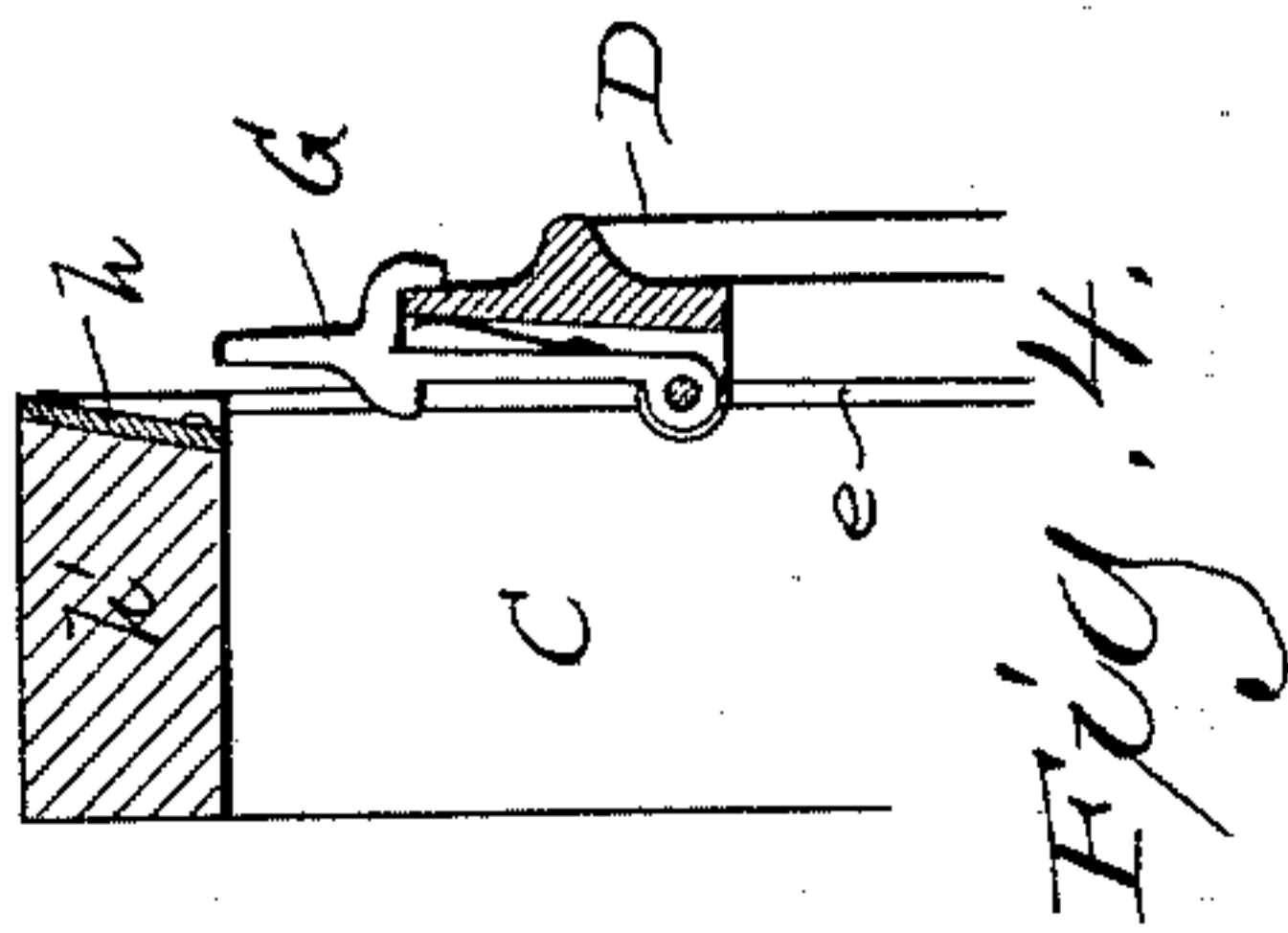


Fig. 4.

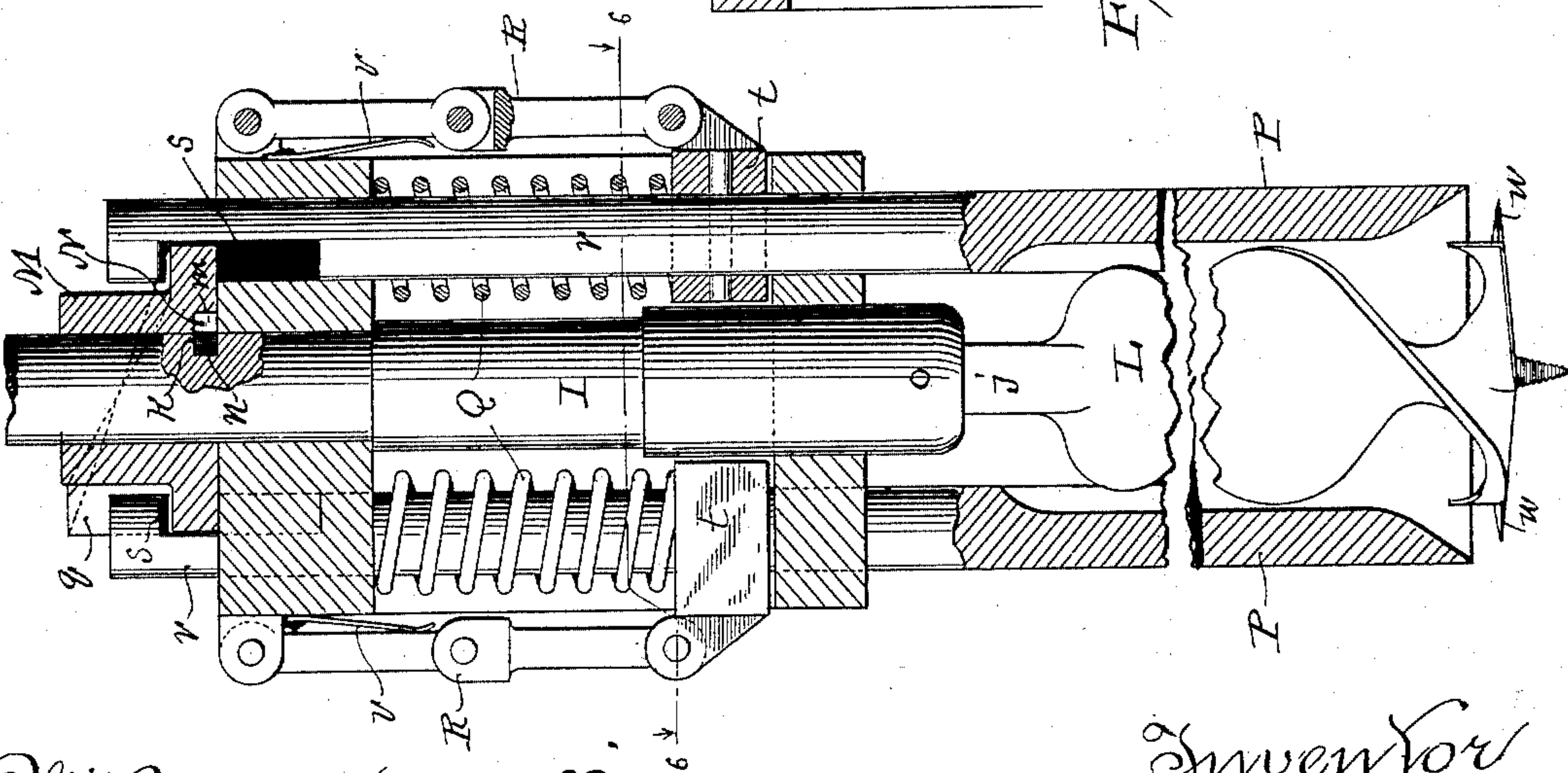


Fig. 3.

Witnesses
Geo. W. Young.
N. E. Oliphant.

Inventor
Julius M. Farmer.
By A. G. Underwood
Attorney

UNITED STATES PATENT OFFICE.

JULIUS M. FARMER, OF MILWAUKEE, WISCONSIN, ASSIGNOR OF TWO-THIRDS
TO MANNING H. CASE, OF SAME PLACE.

MORTISING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 468,417, dated February 9, 1892.

Application filed January 12, 1891. Serial No. 377,432. (No model.)

To all whom it may concern:

Be it known that I, JULIUS M. FARMER, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Mortising-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention consists in certain peculiarities of construction and combination of parts to be hereinafter described with reference to the accompanying drawings and subsequently claimed.

In the drawings, Figure 1 represents a side elevation of my machine with parts broken away; Fig. 2, a rear elevation, partly in section, on line 2 2 of the preceding figure; Fig. 3, a detail elevation, partly in section, on line 3 3 of Fig. 5; Fig. 4, a section on line 4 4 of Fig. 2; Fig. 5, a horizontal section on line 5 5 of Fig. 1; Fig. 6, a similar view on line 6 6 of Fig. 3; Fig. 7, a like view on line 7 7 of Fig. 2; and Fig. 8 a detail view of an auger and set of chisels employed in my machine, these parts being shown in an inverted position.

Referring by letter to the drawings, A represents a base-board having a recessed forward portion provided at the sides with slotted semicircular plates B, the slots *b* in these plates being engaged by screw-threaded studs *c*, that project from the sides of a frame C, the latter being hinged to the base-board, and by means of set-nuts *d* on the studs the frame may be held in any position to which it may be adjusted on its hinges. Tracks *e* are secured to the rear edges of the frame C and engage with lateral ears *f* on a carriage D, the latter being provided with bearings *g* for a shaft E, that has cranks F at its ends. At its upper end the carriage D is centrally provided with a spring-latch G, that hooks over a plate *h* on the cross-piece *h'* of the frame C to normally suspend said carriage.

Cast in one piece with the carriage D is a head H, having four vertical slots *i* arranged at regular intervals apart, and said carriage and head are centrally provided with bearings for a spindle I, that has a miter-wheel J on its upper end, this wheel being in mesh with another such wheel K on the shaft E, the

lower end of the spindle being socketed to receive the shank *j* of an auger L, as is best illustrated by dotted lines in Fig. 2. Just above the head H the spindle I is recessed, as shown at *k*, and surrounding this recessed portion of said spindle is a cam M, having a recess *m* in its bore. A dog N is inserted in the recess *k* of the spindle against a spring *n*, and the cam M being positioned the spring acts to throw one end of the dog into the recess *m* of said cam when both recesses come into register. This result being accomplished, the cam will move in one direction with the spindle; but a reverse movement of said spindle causes the dog N to be forced back against its spring *n* out of engagement with said cam and the latter remains stationary while this reverse movement is continued. In other words, the cam M is only rotated when the auger L is boring. As shown, the cam has two inclined faces *p*, and from the highest point of one face to the lowest point of the other there is a vertical drop *q*, as best illustrated in Fig. 2.

Four right-angled chisels P form a hollow square about the auger L, and the shanks *r* of these chisels extend up through guide-openings in the head H, these openings being in line with the slots *i* in said head, and the upper ends of the chisel-shanks are provided with recesses *s*, that engage the cam M, above described.

Fast on the chisel-shanks *r* within the slots *i* of the head H are blocks *t*, and surrounding said chisel-shanks above the blocks are strong spiral springs Q, the latter being compressed when the cam M lifts on the aforesaid chisel-shanks. There being two faces on the cam, the chisels P are lifted in pairs, and just prior to the time that said cam has finished its lift on one pair of said chisels it begins to lift on the other pair. At the moment the cam-faces pass away from the shanks of the chisels the latter are shot down with considerable force by the expansion of the springs Q, above described.

It has been found preferable to connect the blocks *t* on each chisel-shank with the upper portion of the head H by means of a toggled joint R, the sections of the latter forming an angle to each other when said shank is

lifted; but when the chisel is shot down by the expansion of its spring said toggle-joint straightens out. The length of each toggle-joint is such that the block *t* connected therewith is prevented from striking against the lower end of the coincident slot *i* in the head H, and thus the machine is practically noiseless in its operation.

Secured to the head H are flat springs *v*, impinged against the toggle-joints R, and these springs being normally under compression said toggle-joints are forced outward when the chisels begin to rise, this being a guard against any sticking of the aforesaid toggle-joints. The lower portion of the auger L is in advance of the chisels P, and extended laterally from this lower portion of said auger are spurs *w*, that make a spiral cut in the wood outward from the hole bored by the aforesaid auger. The wood being thus cut, the angular corners thereof between the auger-hole and the chisels will come away in chips as said chisels are actuated, and consequently the work is made easier than would be the case were the spurs *w* omitted.

As shown in Fig. 2, I prefer to provide at least one of the chisels with a scale, and thus the operator is able to tell at any time just how deep the hole in the wood has been cut.

In the general operation of my machine the carriage is unlatched from the cross-piece *h'* of the frame C and lowered until the auger L comes into contact with the wood to be operated upon. The cranks F being turned in the proper direction, the auger L and the cam M are locked together by the dog N and simultaneously rotated. The action of the auger being followed by that of the chisels P in the manner above described, a rectangular opening is cut in the wood to the required depth, the chips being carried up and discharged between the shanks of said chisels.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A mortising-machine comprising a reciprocative and vertically-slotted head, a rotary spindle having bearings in the head, an auger fitted in the spindle, a lifting-cam carried on said spindle, chisels inclosing the auger and having notched shanks engaging the cam, blocks fast on the chisel-shanks but loose on the head-slots, and springs surrounding said chisel-shanks between the blocks and

upper portion of the head in opposition to the lift of said cam, substantially as set forth.

2. A mortising-machine comprising a reciprocative head, a rotary spindle having bearings on the head, an auger fitted to the spindle and provided with lateral spurs adjacent to its point, a lifting-cam carried on said spindle, chisels inclosing the auger and having notched shanks engaging the cam, and springs supported on the chisel-shanks in opposition to the lift of said cam, substantially as set forth.

3. A mortising-machine comprising a reciprocative head, a rotary spindle having bearings in the head and provided with a recess, a lifting-cam arranged on the spindle and having a recess in its bore, a spring-controlled dog arranged in the spindle-recess to normally engage the recess in the cam, an auger fitted in said spindle, and chisels inclosing the auger and having spring-controlled and notched shanks engaging said cam, substantially as set forth.

4. A mortising-machine comprising a slotted traveling head, an auger having its spindle arranged in bearings in the head, chisels inclosing the auger and having shanks loose in said head, blocks fast on the chisel-shanks within the head-slots, springs arranged on said shanks above the blocks, toggle-joints connecting said blocks and head, and suitable means for rotating said auger and for lifting the chisels to a certain height against the springs, substantially as set forth.

5. A mortising-machine comprising a slotted traveling head, an auger having its spindle arranged in bearings in the head, chisels inclosing the auger and having shanks loose in said head, blocks fast on the chisel-shanks within the head-slots, springs arranged on said shanks above the blocks, spring-controlled toggle-joints connecting said blocks and head, and suitable means for rotating said auger and for lifting the chisels a certain height against the springs, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

JULIUS M. FARMER.

Witnesses:

N. E. OLIPHANT,
WM. KLUG.