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WILLIAM H. RAYNER.

Improvement in Slate Cutting Machines.

No. 118,816.

Patented Sep. 12, 1871.

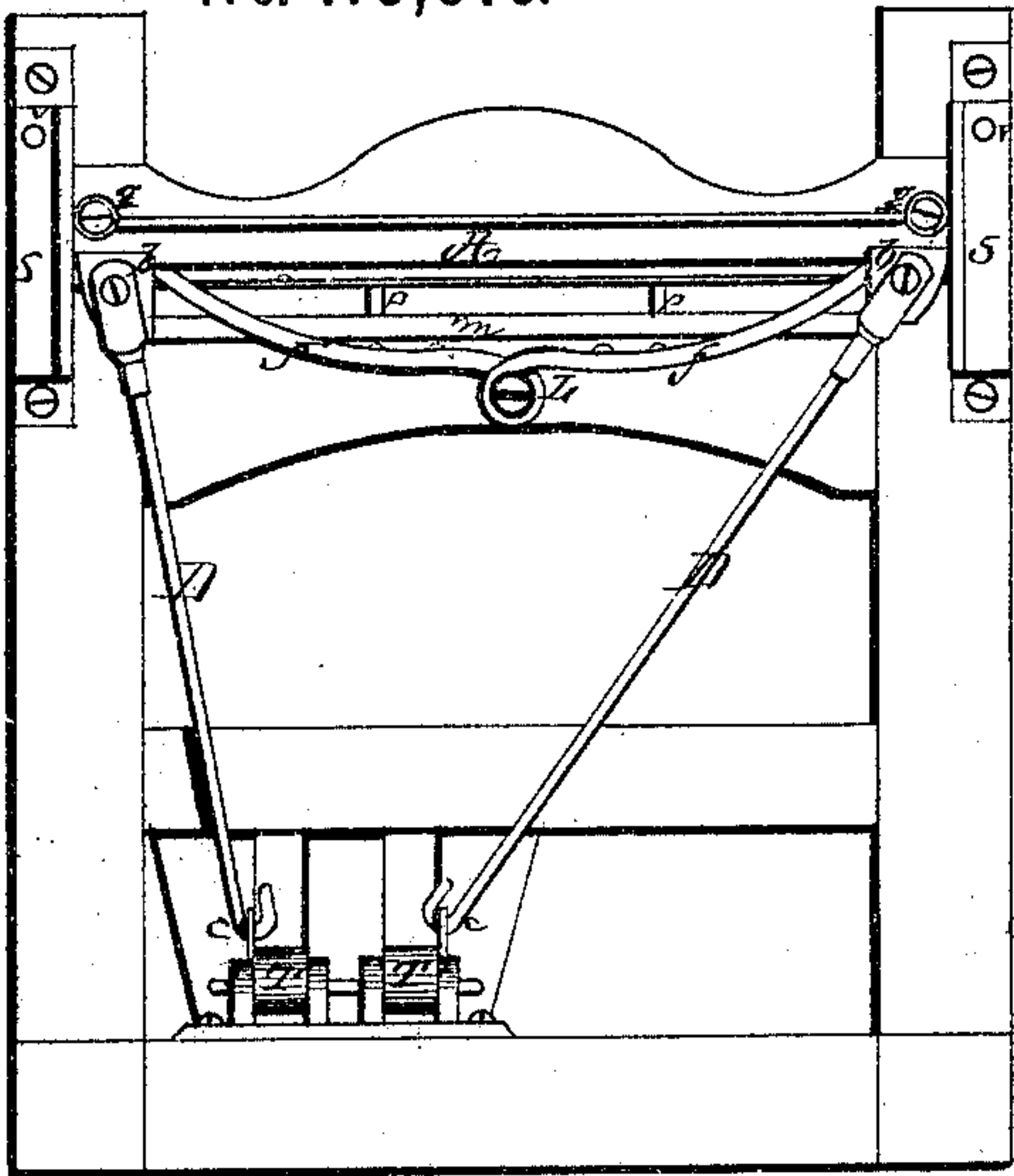


FIG. I.

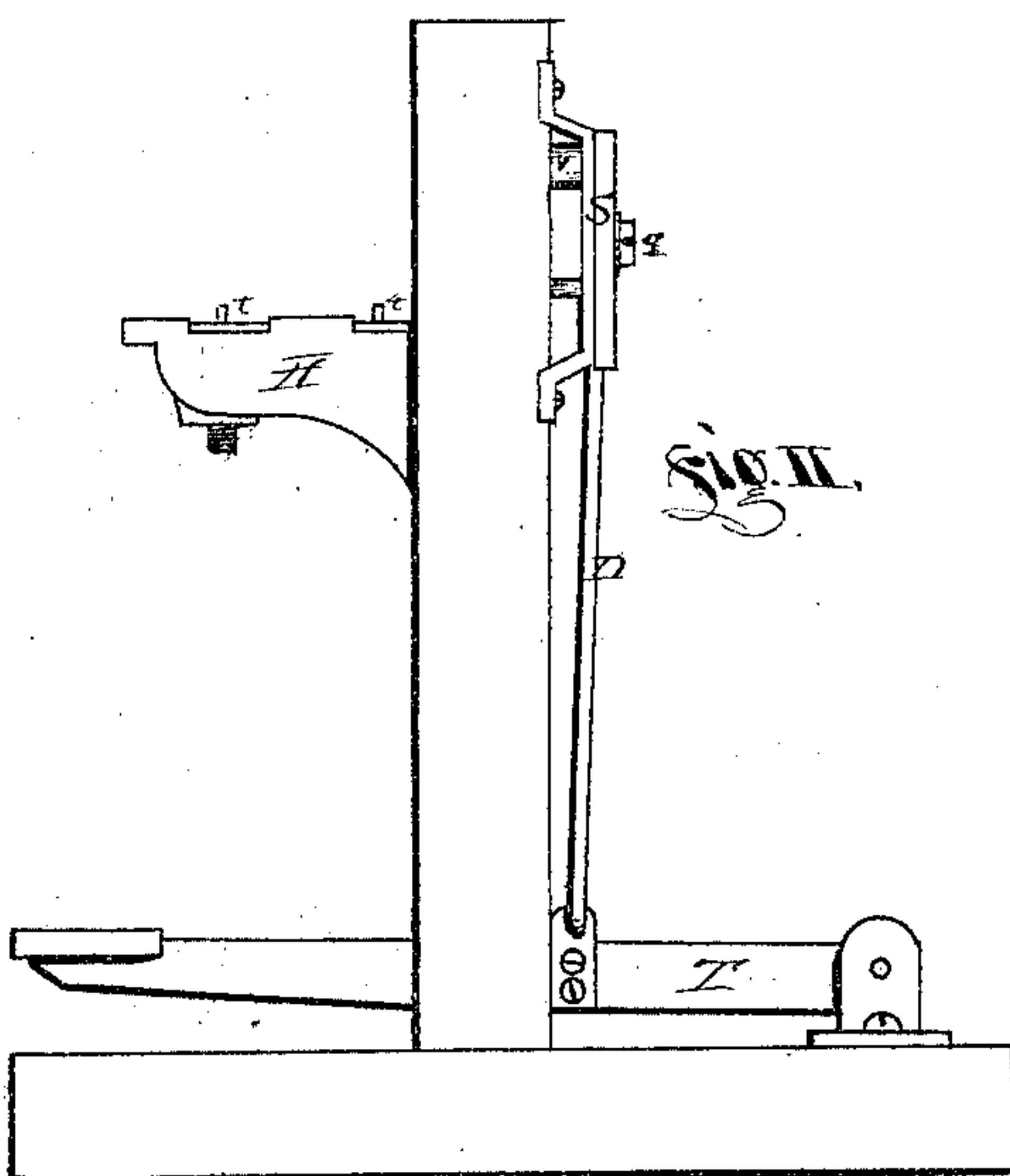


FIG. II.

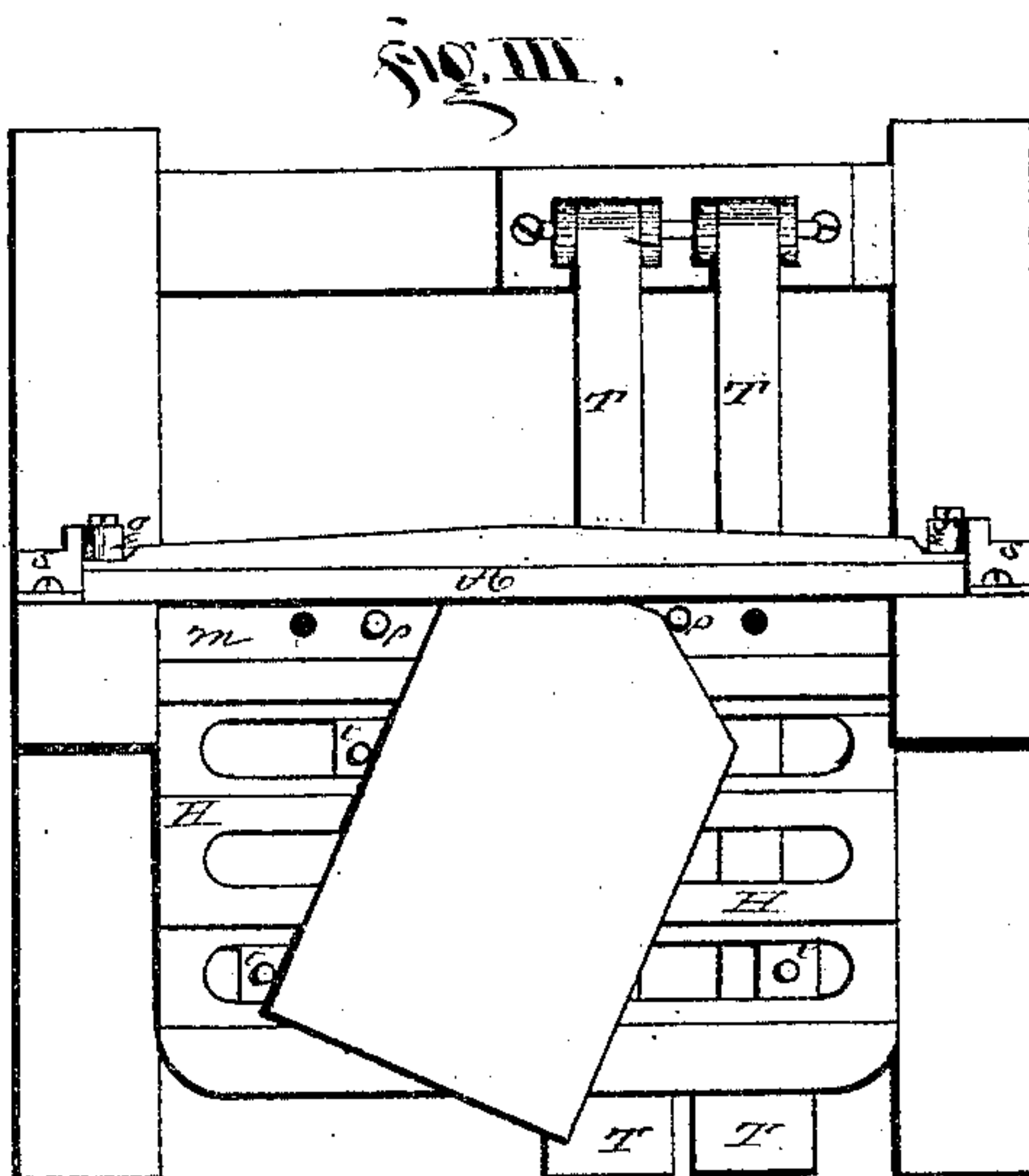


FIG. III.

Witnesses,

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by
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UNITED STATES PATENT OFFICE.

WILLIAM H. RAYNER, OF SPRINGFIELD, MASSACHUSETTS.

IMPROVEMENT IN SLATE-CUTTING MACHINES.

Specification forming part of Letters Patent No. 118,816, dated September 12, 1871.

To all whom it may concern:

Be it known that I, WILLIAM H. RAYNER, of Springfield, Hampden county, Commonwealth of Massachusetts, have invented an Improved Machine for Cutting Slate, of which the following is a specification:

The first part of my invention relates to hinging each end of the knife-bar to a treadle, so that when either end of the knife is depressed by the depression of the treadle to which it is connected, the other end is a center upon which the knife swings, and, in the application to each end of the knife-bar, a spring to raise the end depressed and the treadle when the foot is removed; the object of this part of my invention being to secure a shear motion in cutting the slate, and to enable it to be cut from sides transversely across its grain toward the ends without the necessity of turning the slate over upon the bed-plate. The second part of my invention relates to the combination, with the knife-bar, of the bed-plate, having two pins in the knife-plate, one on each side of the center of said plate, so that the ends of the slate can be pushed from one pin to the other to gauge the cut of the knife and thus enable a much narrower bed-plate to be used than were it necessary to bear the alternate sides of the slate against one pin in the center of the bed-plate. Depressible gauge-pins are adjustable relatively in the bed itself, so that those not in use against the side of the slate are pushed in by the weight of the slate flush with the surface of the bed.

Figure I is a front elevation, Fig. II a side elevation, and Fig. III is a plan view of my machine.

A is the knife-bar, hinged at each end, at *b*, to the rods D D, which are themselves attached at *c c* to the treadles T T. L is the spring, having its arms *f f* bearing against each end of the knife-bar A. The ends of the knife-bar are prevented from having any but a vertical motion by the shields *s s*, in which they slide. These shields have at their upper ends cushions *v v* to receive any shock of the returning ends of the knife-

bar, and coming in contact with the face of the shields are rollers *g g*, to prevent any lateral slip of the knife-bar. The treadles T T are placed one side of the center of the machine, to be moved alternately by one foot of the operator. It is not necessary that the spring to raise the ends of the knife-bar and treadles be placed as shown in the drawing, as it may be placed immediately under the ends of the knife-bar within the shields or beneath the treadles. H is the bed-plate, having the pins *p p*, which are held at one end in sockets in the knife-plate *m*, and can be adjusted at points more or less far from the center of the plate. *t t* are the depressible pins for gauging, which can be shifted to any desirable position on the bed-plate by means of thumb-screws beneath them.

In Fig. III is seen a slate bearing against two of the gauge-pins and one of the pins *p*.

Slate having a grain corresponding in some respects to wood it is necessary, to insure against splitting, to cut from the side inward, and at an angle to the direction of the grain, so as to let all split be in the direction of the chip being removed. This I accomplish by means of the shear motion and by means of the knife swinging on both of its ends, and by the construction of my bed I am able to cut the slate without having to turn it over, and consequently upon a much smaller bed.

Now, having described my invention, what I claim is—

1. The combination of the knife-bar A, springs *f f*, rods D D, and treadles T T, substantially as and for the purpose hereinbefore set forth.

2. The combination, with the knife-bar A, springs *f f*, rods D D, and treadles T T, of the bed-plate H with pins *p p* and depressible pins *t t*, &c., substantially as and for the purpose hereinbefore set forth.

W. H. RAYNER.

Witnesses:

R. F. HYDE,
L. A. TIFFT.

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