

F. Ames.
Ruling Mach.
N^o 106,534 Patented Aug. 23, 1870.

Fig. 1.

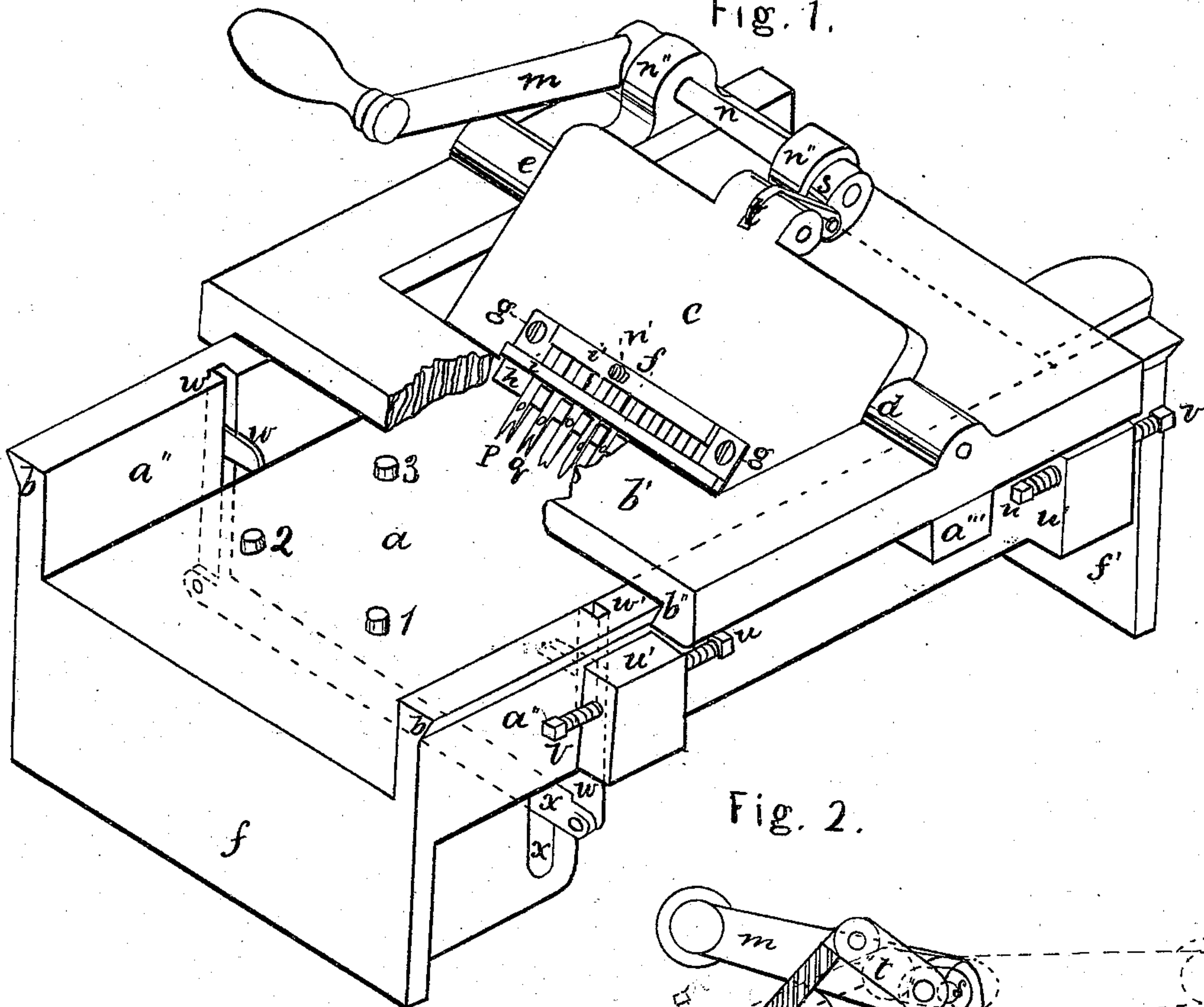
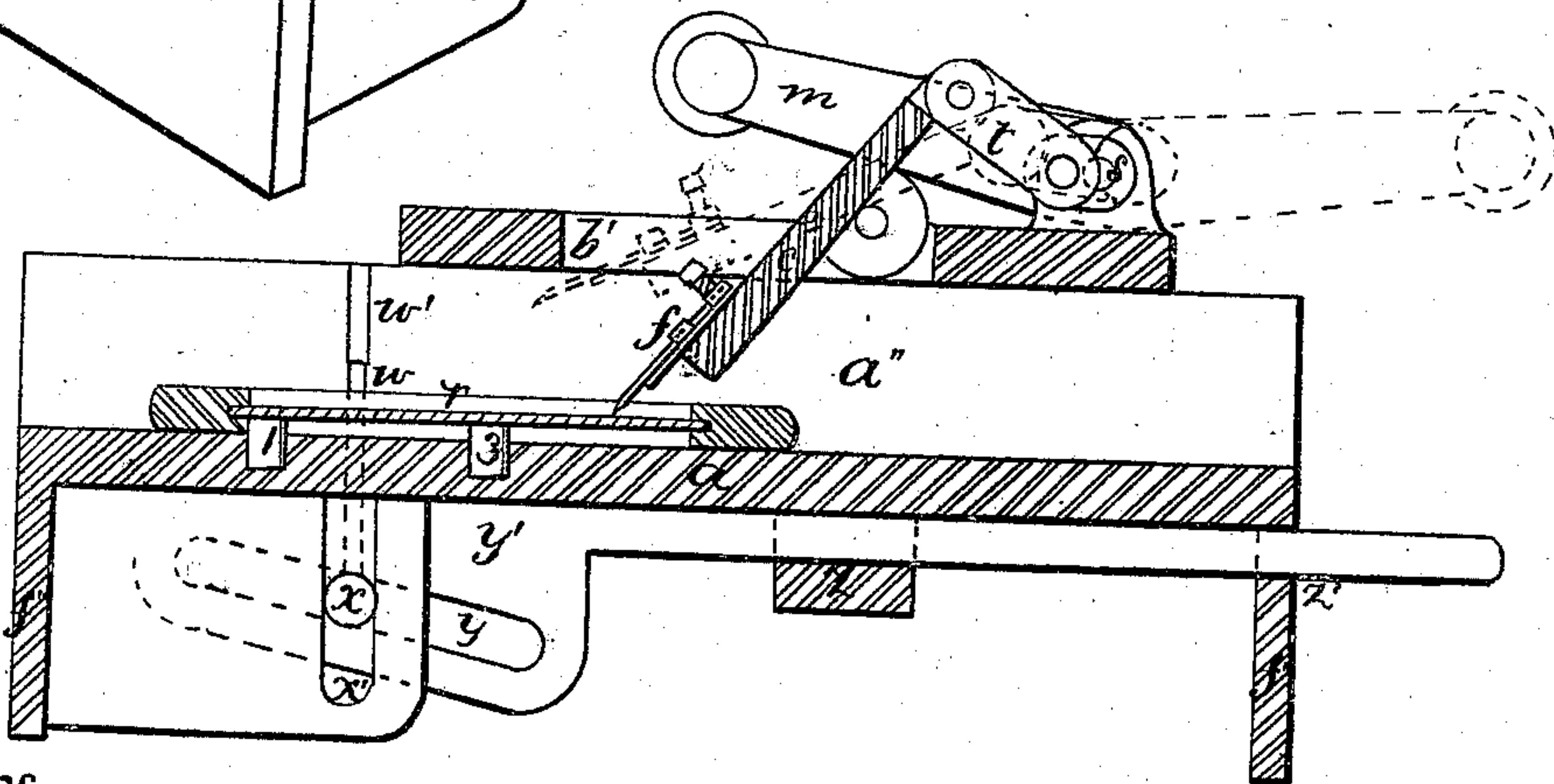


Fig. 2.



Witnesses

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FRANKLIN AMES, OF NORTH BRIDGEWATER, MASSACHUSETTS.

Letters Patent No. 106,534, dated August 23, 1870.

IMPROVEMENT IN MACHINES FOR RULING SLATES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, FRANKLIN AMES, of North Bridgewater, county of Plymouth and State of Massachusetts, have invented a new and useful Improvement in Slate-ruling Machines; and do hereby declare that the following description, taken in connection with the accompanying drawing, forms a full, clear, and exact specification of the same, wherein I have set forth the nature and principles of my said improvement by which my invention may be distinguished from others of a similar class, together with such parts as I claim and desire to secure by Letters Patent.

The objects of this invention are:

First, a machine, by which one side of the slate can be ruled at one stroke.

Second, a method by which the style of ruling can be changed readily.

Third, an improved method for lifting and depressing the ruling-chisels.

Fourth, a means by which the travel of the ruling-table may be regulated.

Fifth, an improved device by which the slates are held while undergoing the process of ruling; and

Sixth, an appliance by which the slate to be ruled can be easily brought into the same relative position with the chisels.

In the annexed drawing—

Figure 1 is a perspective view of the machine, and Figure 2, a longitudinal vertical section.

a is the bed of the machine, from which rise the sides *a'*, which latter are provided with V-shaped guides *b*, fitting into corresponding grooves *b'* on the table *b'*. This table carries the whole ruling apparatus, and is capable of sliding freely on the guides *b* of the bed *a*.

The ruling-plate *c*, hinged to the table *b'* at *d* and *e*, carries the chisel-frame *f*, which latter is fastened to it by means of screws *g g*, or any other convenient device, in such a manner that the frame *f* can be removed quickly when it is desired to put another one in place.

The chisel-frame consists of a thin plate, *h*, provided with the strips *i i*, which latter are notched on the side next to the plate *h* for the purpose of forming recesses into which the chisels *o o* can be introduced. These chisels may be fastened permanently to the plate and to the strips *i i*, or they may be held in place by screws *n'*, as shown in figs. 1 and 2. This latter method is preferable, as then the amount of projection of the points of the chisels from the plate *h* can be regulated to give any desired amount of elasticity, and the chisels can then be removed separately, in order to put others in their places, as occasion requires.

When it is desired to rule two or more lines closer

together than the distance between the adjacent chisels will allow, one chisel is provided with a number of points corresponding to the lines desired, as shown at *p q*, fig. 1.

For the purpose of bringing the chisels *o* in contact with the slate *r*, the crank *m*, shaft *n*, crank *s*, and link *t* have been provided.

The shaft *n* oscillates freely in bearings *n'* on the table *b'*, and the link *t* connects the crank *s* and plate *c*.

The relative position of the cranks *m* and *s* on the shaft *n* is such that, when the crank *m* is moved entirely to the left, as in figs. 2 and 1, the crank *s*, fig. 2, will have slightly passed its dead center, and will have moved the back of the plate *c* to its highest position, and consequently the front side, with the attached chisel-frame, to its lowest.

It will be readily seen that, as the crank *m* cannot move any further to the left, and as the crank *s* has slightly passed its dead center, the parts will remain in that position until the crank *m* is moved to the right, when the device will assume the position shown by dotted lines shown in fig. 2.

The amount of motion of the table is regulated by the stopping-screws *u u*, fitting into the lugs *u' u'*.

When the screws *u u* have been set to their right position, the screws *v v* are screwed against them, and hold them in position, answering the same purpose as a "jamb-nut" or "lock-nut."

When it is desired to vary the amount of motion of the table further than the length of the screws will permit, the lugs may be moved horizontally to suit, and the screws may be used to stop the table as before.

In order to hold the slate firmly in its position while the same is being ruled, the fingers *w w* have been provided, which move in vertical recesses *w' w'*, and are connected below the bed *a* by a cross-bar, *x*, which passes through a vertical guiding-slot, *x'*, and through the inclined slot *y* in the slide *y'*. This latter is capable of a longitudinal motion underneath the bed, moving through recesses *z z'*.

The feet *f' f'* serve to elevate the bed, to make room for the parts underneath.

In order to bring the slates intended for ruling always readily into the same relative position with the chisels, the pins 1 2 3 have been provided, which bear against the interior edge of the frame of the slate—1 and 3 against two contiguous sides, and 2 against the inside corner.

The operation of the machine is as follows:

When the slate has been laid upon the bed *a*, with the interior edge of its frame pushed against the pins 1 2 3, the slide *y'* is pushed in, by which motion the fingers *w w* are brought upon the frame of the slate,

holding it tightly. The table is now pushed to the left until the lug *a'''* meets the screw *u*, when, by turning the crank *m* to the left, the chisels are brought in contact with the slate, and, on drawing the table toward the right, the linear impressions are made upon the slate.

I claim as my invention only what is mentioned in the following clauses, viz:

1. The combination of the cranks *m* and *s*, shaft *n*, and

link *t* with the plate *c* and table *b*, substantially as and for the purpose specified.

2. The combination of the fingers *w w*, cross-bar *x*, recesses *w' w'*, slot *x'*, inclined slot *y*, slide *y'*, and recesses *z z'* with the bed *a*, substantially as and for the purpose set forth.

Witnesses:

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