

E. Coffin.

Rounding Corners of Slate Frames.

N^o 72371

Patented Dec. 17, 1867.

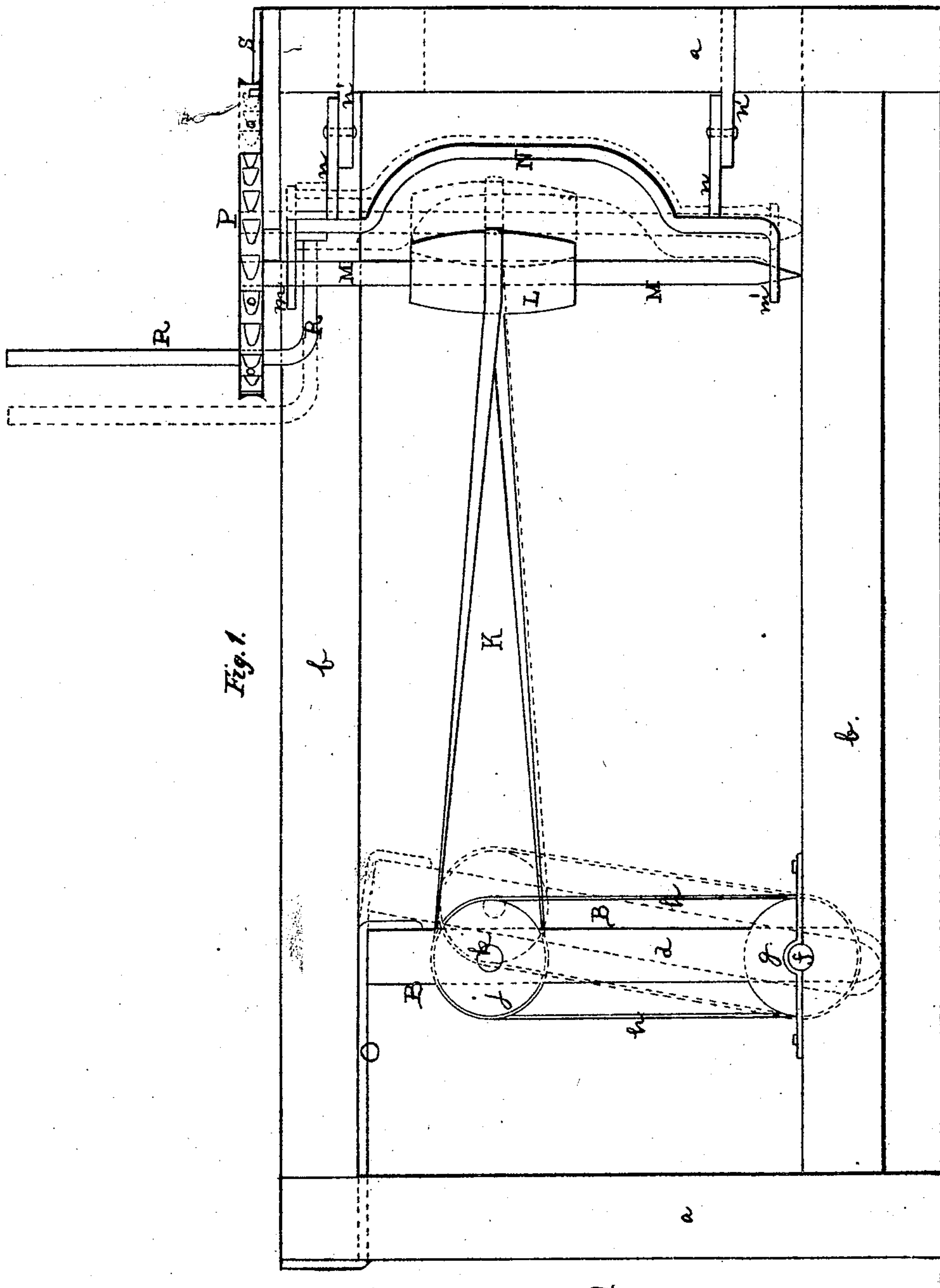


Fig. 1.

Witnesses.

Alex^r. H. C. Manette
D. Durand

Inventor.

E. Coffin
by Decker & Co.
attys

E. Coffin.

Rounding Corners of Slate Frames

N^o 72371

Patented Dec. 17, 1867.

Fig. 2.

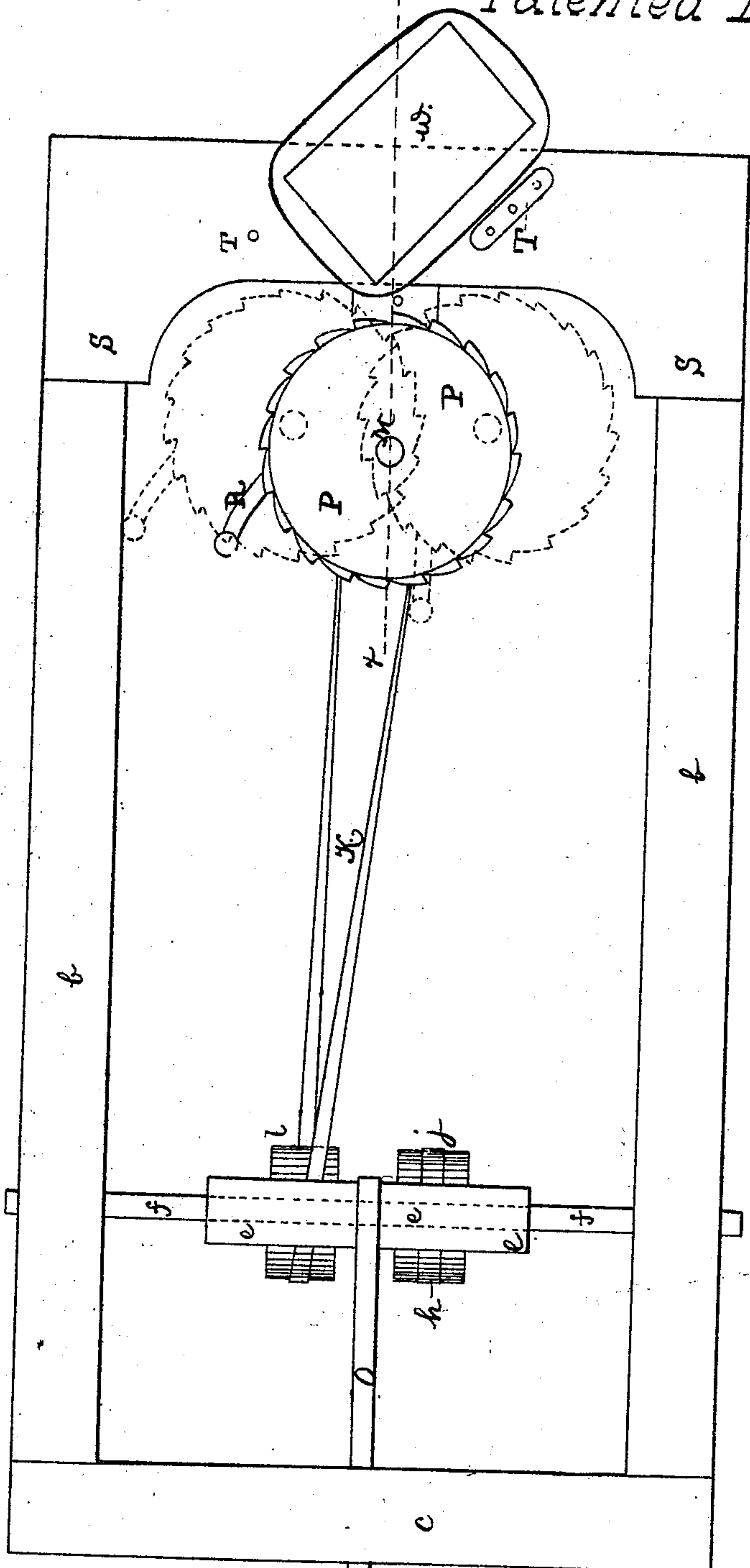
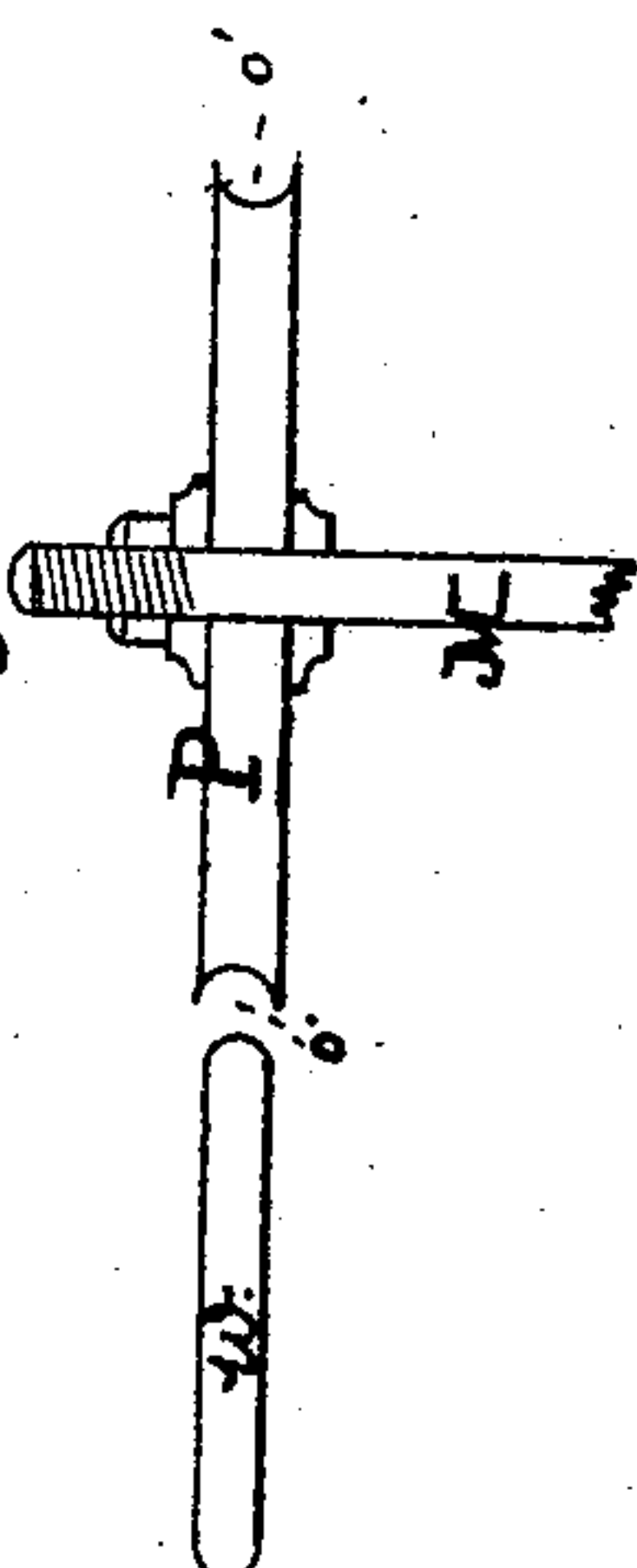


Fig. 3.



Witnesses.

Alex^r. H. b. Hancock

Durand

Inventor

E. Coffin

by Guedersheim & Co.
attys.

United States Patent Office.

ELEAZAR COFFIN, OF FLICKSVILLE, PENNSYLVANIA.

Letters Patent No. 72,371, dated December 17, 1867.

IMPROVEMENT IN MACHINES FOR ROUNDING CORNERS OF SLATE-FRAMES

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, ELEAZAR COFFIN, of Flicksville, in the county of Northampton, and State of Pennsylvania, have invented a new and improved Machine for Rounding and Ovalling Corners of School-Slate Frames; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which it appertains to fully understand and use the same, reference being had to the accompanying drawings, making part of the specification, in which—

Figure 1 is a side elevation of the device, illustrating my invention.

Figure 2 is a top or plane view thereof.

Figure 3 is a central vertical section in the line *x x*, fig. 2.

Similar letters of reference indicate corresponding parts in the several figures.

My invention has for its object a device for rounding and ovalling corners of school-slate frames, and consists in a toothed disk or cutter-head, having an annular groove on its periphery, said cutter-head or disk being mounted on a swinging frame, readily operated, so that when the disk is brought in contact with the corners of the frame, the corners are cut off, rounded, and made oval simultaneously, by the swinging motion of the disk or cutter-head, which motion is performed or manipulated by any suitable power.

The mandrel is driven by belts, receiving motion from pulleys on a swinging frame, in such a manner that the belt is always held taut or stretched, and operates the mandrel at every point that the disk-carrier assumes in its swinging motion, all in a manner as will be hereinafter more fully described.

In the drawings, A represents a frame, constructed of upright, longitudinal, and transverse pieces *a b c*. B is a frame, consisting of uprights *d*, joined at their upper ends by a cross-bar, *e*. These uprights, near their lower ends, have perforations, through which passes loosely the main shaft *f*, whose bearings are on the lower longitudinal pieces *b* of the frame A. On the shaft *f*, between the uprights of the frame D, there is secured by keys, feathers, or otherwise, a pulley, *g*, around which passes a band or belt, *h*, communicating motion to a similar pulley, *j*, secured to a shaft, *k*, which is mounted on the uprights *a* near their upper ends. A pulley, *l*, is also secured to the shaft *k*, which, with the shaft *f*, should rest in suitable boxes and bearings, and have collars or shoulders, or equivalent devices, to prevent any lateral play of the shafts. K is a cross-belt or band, passing around the pulley *l*, and also around a pulley, *I*, on a mandrel, M. This mandrel turns freely in its bearings in the arms *m* of a frame, N, consisting of a strip or bar of metal, or other material, having its centre bent or bowed so as to allow a space for the pulley *l* and the belt K to move without coming in contact with the frame.

The frame N, consisting of the curved or bowed centre, and the arms *m*, has on the side opposite to the arms *m m'*, projecting arms or butts *n*, which are pivoted to arms or butts *n'*, secured to the cross-pieces of the frame A at the end opposite to the swinging pulley-frame D. It is evident that the frame N will rotate freely on its hinges or pivots, and thus carry the mandrel L with it.

To any suitable part of one of the top cross-beams, *c*, at the end where the pulley-frame D is placed, I secure one end of an elastic cord, strap, or spring, O, whose other end is attached to the top cross-piece of the pulley-frame B. It will be seen that the strap O will draw the pulley-frame away from the mandrel N, and therefore hold taut or stretched the belt or band K. The pulley-frame is drawn outward by the elasticity of the strap, but its play in that direction is limited by the cross-belt K, which passes around the pulley.

P represents the cutter-head, having a toothed or serrated periphery, *o*. A groove, *o'*, is cut in the centre of this toothed periphery, and continues by preference entirely around the periphery. The cutter-head is arranged at the upper end of the mandrel M, and is secured thereto by collar, nut, or any other suitable device.

The swinging frame N, carrying the mandrel M and cutter-head, is to be operated and manipulated by the hand or other power. For this purpose, in the present case, I employ a key or wrench, R, which is constructed in the form of a crank-handle, having a hook at one end instead of the eye, as ordinarily. The hooked end is adapted to catch hold of the upper part of the frame N, just below the arm *m* of said frame, and the arm of the hook lies under the cutter-head or disk, while the handle projects upwardly alongside the cutter-head, and above the frame, so as to be readily operated without exposing the hands of the operator to the cutter-head, as seen in fig. 1.

On the upper-side of the frame A, at the end where the cutter-head is arranged, there is placed a rest, bed,

or seat, S, having a gauge, T, which is made adjustable, to admit slate-frames of varying dimensions. The seat S is suitably cut away, leaving a space in which the cutter-head has its play.

The guages which may be retained in place by set-screws, or any other suitable means, are to be so arranged on the bed or seat S that the corners of the slates may be presented to the action of the cutter.

The slates will lie diagonally on the face of the seat, or the seat may be arranged diagonally on the frame and the gauge placed to correspond thereto, to accomplish the same result.

Other means than the key or wrench for operating the cutter may be employed.

The operation is as follows: The slate *w* is placed on the seat S, the cutter-bed, by means of the key R, is then turned to the right or left to its full extent. The slate is advanced forward to the full limit of the gauge. The cutter-head or disk is now forced to the side opposite from which it starts, and in this operation describes the arc of a circle, at the same time it cuts the corners of the slate-frame in a rounded form, and forms a rounded, bevelled, or chamfered edge thereon. During this motion of the cutter-head, its mandrel M is rotated, by means of the band K passing over the pulley L, and which receives its power through the medium of the pulleys *l, j, g*, and the main shaft *f*. As the frame N swings around, the belt K is carried with it, which the swinging frame D allows, but the said belt is kept perfectly taut by the action of the elastic strap or spring O, which draws or pulls the pulley-frame B away from the mandrel M, yet yields sufficiently to allow the frame N to describe its arc, but the belt is always kept sufficiently tight to rotate the mandrel M, irrespective of its position. In lieu of the elastic strap or spring O, a cord and weight might be substituted, to accomplish the same result as the spring. The pulleys *g, j, k*, may be arranged on shafts which project on both sides of a single upright shaft, instead of within the frame B. It will be mounted on the main shaft *f*, and have secured to its upper end the spring or elastic cord O, but the operation will be the same as with the frame *d e*. The cutter-head or disk, as shown in the drawings, is in a horizontal position, but it will work equally well when placed vertically, it only being necessary to arrange the working parts so that the functions of the disk P, and carrier N, and pulley-frame D, are not destroyed. My invention is simple, practical, and useful.

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

1. The pulley-frame B, belt K, and spring O, or equivalent, in combination with the mandrel M, mounted on a swinging frame, N, and the operating-key R, or its equivalent, substantially as and for the purpose described.
2. The swinging frame N, carrying the cutter-head P, for the purpose substantially as described.

To the above. I have signed my name, this fourteenth day of October, 1867.

ELEAZAR COFFIN.

Witnesses:

D. McKENNA,

WM. A. WIEDERSHEIM.