Sheet 1. 2. Sheets.

E. Keith.

Shingle-Machine.

No 73343 Patented Jan. 14, 1868.

Fig. 3.

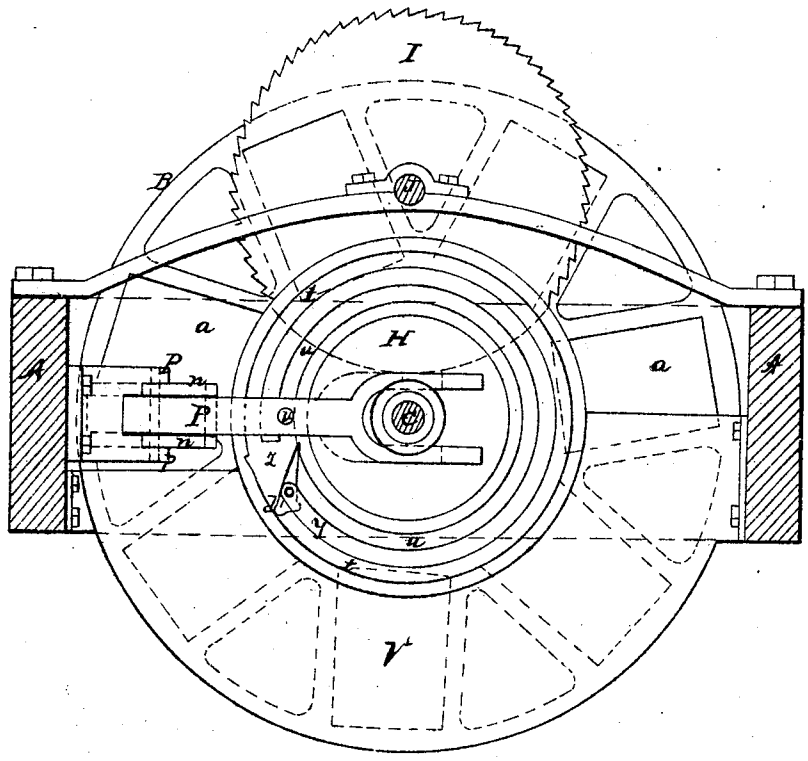
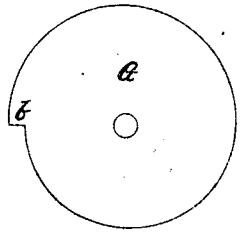


Fig. 4.



Witnesses.

J. R. Doake.

Jay Hyatt.

Inventor.

Edmund Keith

By J. Fraser Rec. Attys.

Sheet 2. 2 Sheets.

E. Keith.

Shingle-Machine.

No 73343 Patented Jan. 14, 1868.

Fig. 2.

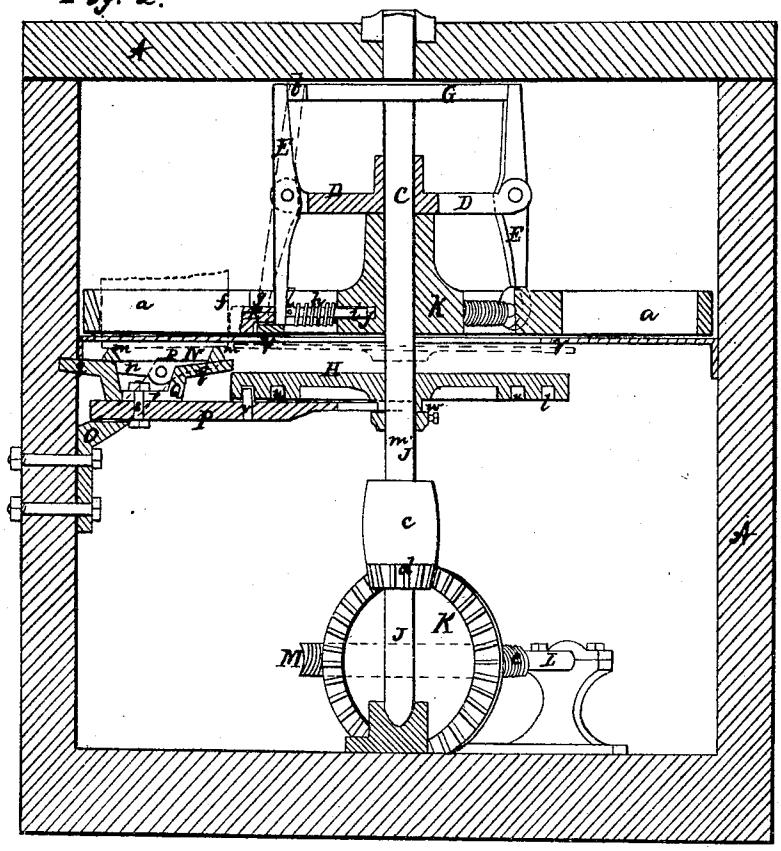
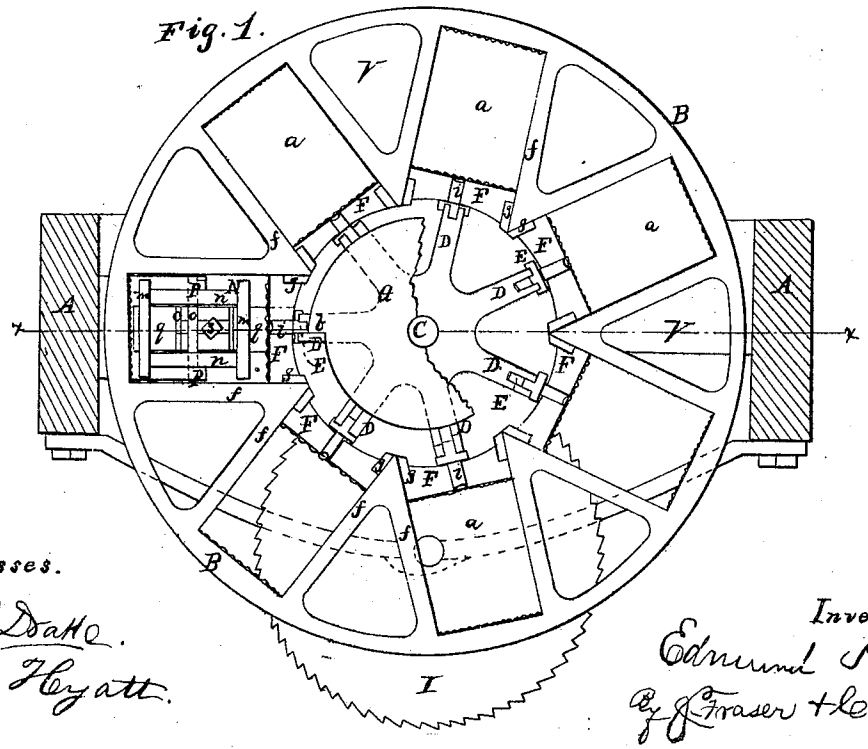


Fig. 1.



Witnesses.

J. P. Drake.

Jay Hyatt.

Inventor.

Edmund Keith.

By J. Fraser & Co. Attys

United States Patent Office.

EDMUND KEITH, OF BUFFALO, NEW YORK.

Letters Patent No. 73,343, *dated January* 14, 1868.

IMPROVEMENT IN SHINGLE-MACHINES.

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, EDMUND KEITH, of the city of Buffalo, in the county of Erie, and State of New York, have invented certain new and useful Improvements in Machines for Sawing Shingles; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of my improved machine.

Figure 2 is a central vertical section in plane of *x x*, fig. 1, the gearing and a portion of the saw-shaft being shown in elevation.

Figure 3 is a plan of the bottom inverted.

Figure 4, a view of the eccentric, G, detached.

Like letters of reference designate corresponding parts in all the figures.

My improvements relate to machines for sawing shingles by means of a circular saw; and the invention consists in the mechanism by which the blocks of timber are alternately clamped and released; the tilting-device for tipping and inclining the block alternately in one direction, and in the opposite for producing the requisite taper of the shingles; and the peculiar arrangement for operating the said tilting-device, all as hereinafter more fully set forth.

In the drawings, A A represents any suitable frame for supporting the parts. B, a horizontal circular revolving disk or frame, provided with a series of apertures, *a a*, for the reception of the blocks from which the shingles are to be sawed. C, the vertical shaft of said disk. D D, a series of radial arms extending from a hub rigidly secured to the shaft C. E E, levers pivoted in the ends of these arms, which form a fulcrum therefor, by which the clamps F, to which the lower ends of the levers are attached, are operated, as will presently be explained. G is a cam or eccentric, provided with an abrupt jog or shoulder, *b*, and rigidly fastened to the top of the frame A, by which the upper ends of the levers E are actuated in releasing the clamps, (shown most clearly in fig. 2.) H is the concentrically-grooved wheel or disk, mounted on shaft C, by which the tilting-device is operated. I, a circular saw attached to the upper end of a shaft, J. *c* is a driving-pulley mounted thereon. *d*, a pinion gearing with bevel-wheel K, mounted on the end of a horizontal shaft, L, that is supported in suitable bearings, and provided with a screw, *e*, which gives motion to a spur-wheel, M, on the shaft C, by which the latter, and the parts attached thereto, receive their proper retarded motion. It is evident that other gearing than that just described may be employed to impart the necessary motion to the shafts C J.

The jaws or clamps F, (of which there is one for each of the spaces, *a*,) are constructed so as to slide in the ways formed by the sides or partitions *f f* between these apertures, and the lugs *g g*, which are cast on these ways, overlapping the ends of the jaws, as shown. There is a shank or stem, *i*, extending from each jaw through the lower end of the levers E, and a spiral spring, *h*, while its end fits so as to slide in radially-formed sockets, *j*, in the hub *k*, which is preferably cast with the frame B. A pin, *l*, or equivalent, is used to retain the end of the lever in place on the stem *i*. The function of the spiral springs is to press the jaw outward, clamping the block, shown in red lines, fig. 2, except when it is released by the eccentric G and lever, which compress the spring, as shown in black lines, fig. 2.

N represents the tilting-frame, which consists of two bars, *m m*, secured to the ends of two other bars, *n*, which are pivoted at their centre by a rod, *o*, to the arms *p p* of a bracket, O, bolted or otherwise fastened to the side of the frame A. P is a horizontal bar, the outer ends of which pass between the arms *p p* beneath the pivoted frame N, and has secured to its upper side the adjustable frame Q, constructed as shown, with elevated inclined arms *q q*, on which the bars *n* of the tilting-frame rest, and with a slot, *r*, in which passes the bolt *s* that fastens it to the end of the bar P. When this bar is moved in and out, carrying with it the frame Q, it is evident that the inclined arms *q* will cause the tilting-frame to slightly incline, according to the direction in which it is moved, as shown in fig. 2, and thus incline the block resting thereon, first in one direction and then in the opposite, so as to give the shingle, as it is sawed therefrom, (the saw being shown in red lines, fig. 2,) the required taper.

This desired reciprocation of the bar P is produced in the following manner: The disk H is provided in its under side, as shown in the inverted plane, fig. 3, with two concentric grooves, *t u*, in which a pin, *v*, from the

bar P, alternately projects. The inner end of this bar is divided so as to fit in a transverse groove, *w*, formed in the hub of the disk H. The ledge *y*, intervening between the two grooves, *t u*, is formed with an open space or passage, *z*, from one to the other. A short dog or arm, *c'*, is so pivoted at this passage, between the grooves, as to enable it to be inclined in either direction, against the inner or outer ledges of the disk, so as to guide the pin *v*, alternately from one groove to the other, at every revolution of the wheel. The guide *c'* is provided with lugs *d'*, against which the pin, after it has been conducted from one groove to the other, comes in contact, causing the guide to incline against the opposite ledge, so as to return the pin to the first groove again, after the wheel has completed a revolution. There is a plate, V, arranged under that portion of wheel B which is opposite the saw, for a purpose presently to be explained.

It is evident that the construction of the several parts of my machine may be considerably varied, and equivalents substituted, without materially affecting its principle or mode of operation.

The machine being constructed, as before described, and the frame Q adjusted on the bar P, so that it will cause the inclination of the tilting-frame to be equal, whether in one or the other of its positions, the blocks of timber sawed of the proper length are dropped in the spaces *a a* on the plate V; the greater diameter of the eccentric G, on that side through the levers E, operating to draw back the clamps, as shown in fig. 2, so as to permit their easy insertion. When the wheel B, revolving in the direction of the arrow, brings the upper end of the lever past the jog *b* in the eccentric, it releases the compressed spring, which forces the jaw F against the block that has at this moment been carried beyond the edge of plate V, and fallen on the tilting-frame, and firmly clamps it against the edge or periphery of the wheel. The wheel continuing its revolution, brings the block in contact with the saw, which speedily cuts off a shingle, when it is carried on, the jaw being gradually withdrawn by the action of the eccentric and lever compressing the spring, till the block is entirely released by the time it has been carried around over plate V. By the time it is again brought over the tilting-frame, the pin in the bar P will have been transferred by the guide or arm *c'*, to the other groove in the wheel H, causing the frame and block, when it is transferred to it, to incline in the opposite direction. The attendant standing on the side opposite from the saw, can insert the blocks in the spaces *a*, and remove the remnants as they are successively brought before him, by the revolution of the wheel, the machine requiring no other attendant, while it performs its work in a rapid, perfect, and automatic manner.

The saw is preferably arranged so as to decline slightly from the cutting side, for the purpose of preventing it from unduly pressing against the block, in its passage over it after the shingle has been cut therefrom.

The advantages of my improvements are obvious. The machine is simple and cheap in construction, and is not liable to get out of repair. The saw is so arranged as to cut partially across the grain, which is a great advantage over the ordinary arrangements, in which it cuts lengthwise.

With my machine there is no back-movement of the saw over the block, to dull the former and scratch the latter, as is the case with machines that use a saw which reciprocates back and forth.

What I claim as my invention, is—

1. The sliding bar P and frame Q, provided with inclined arms *q q*, arranged and operating the pivoted tilting-frame N, substantially as set forth.

2. I claim the concentrically-grooved wheel H, in combination with the bar P, grooves *u t*, dog *c'*, with projections *d'*, and pin *v*, all constructed and operating substantially as described.

3. I claim the sliding-spring jaw or clamp F, in combination with the lever E and eccentric G, for alternately operating to release and hold the bolts, all constructed and arranged substantially as set forth.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

E. KEITH.

Witnesses:

JAY HYATT,

ALBERT HAIGHT.