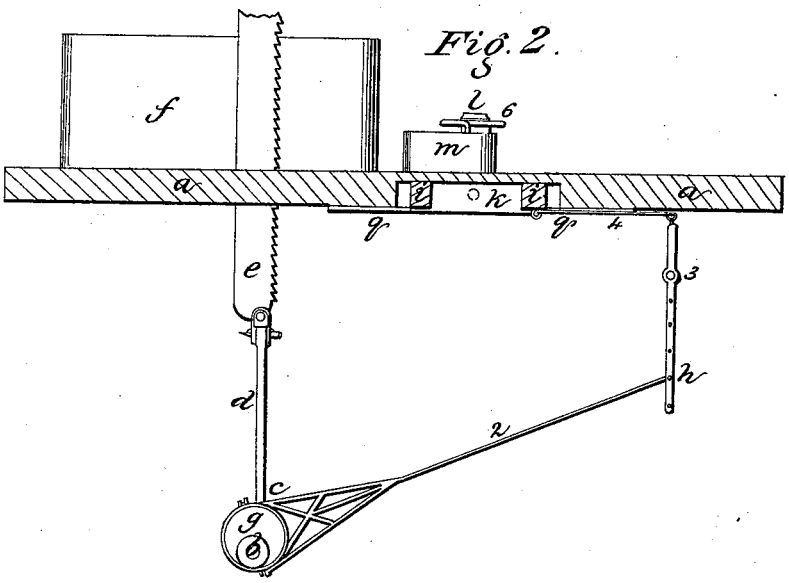
T. J. Wells,

Resawing Machine.

No. 4,456. Patented Apr. 11, 1846.

Fig. 2.



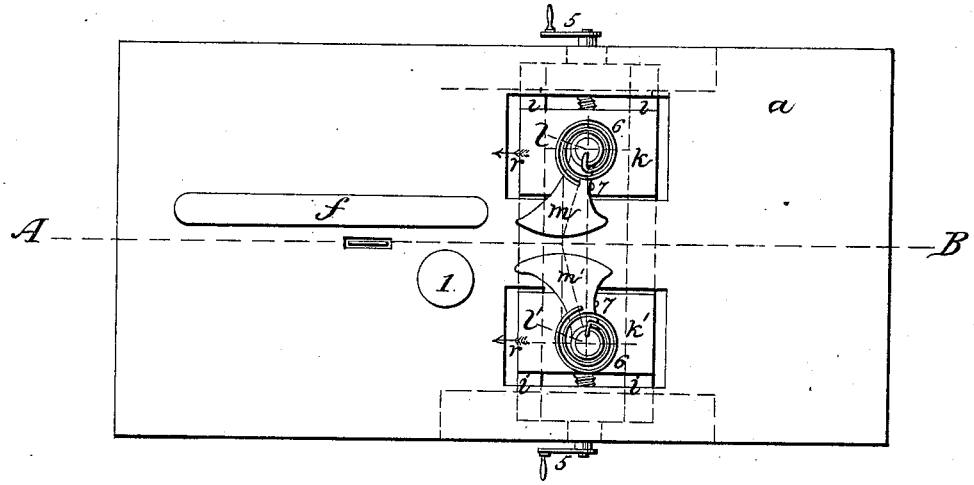


Fig. 1.

Witnesses:

W. Sennell

Samuel K. Sennell

Inventor:

Thos. J. Wells.

UNITED STATES PATENT OFFICE.

THOMAS J. WELLS, OF NEW YORK, N. Y.

SAWMILL.

Specification of Letters Patent No. 4,456, dated April 11, 1846.

To all whom it may concern:

Be it known that I, THOMAS J. WELLS, of the city, county, and State of New York, machinist, have invented and made and applied to use certain new and useful improvements in the arrangement of mechanical means for feeding material to sawing and planing machines, which improvements are intended to pass the material to the saw by compression between a pair of eccentric cams formed and moved in a manner not hitherto so used, and the same means may be applied to planing-machines and sawmills and other similar purposes for which it may be available, and that the said improvements and the mode of constructing and using the same are fully and substantially set forth and shown in the following description and in the drawings annexed to and making part of this specification, wherein—

Figure 1, is a plan of a common saw bench, fitted with my improvements; Fig. 2, is a sectional elevation, through the line A, B, Fig. 1, and the same letters and numbers and other marks of reference, apply to the same parts in each figure.

a, is the main bed, or bench of the machine; *b*, is a shaft, to which motive power may be applied, in any convenient manner; *c*, is a crank, with a connecting rod *d*, to the foot of a saw *e; f*, is a gage fence, and 1 is a roller, to keep the material to the fence, all these may be made, and fitted, in any of the modes now practised, or may be changed, to connect the shaft *b*, *to* a circular saw, or to the cutters of a planing machine, when so needed.

On the shaft *b*, is an eccentric *g*, with a rod 2, connected by changeable holes, and a pin, to the lower part of a vertical lever *h*, set on a fulcrum 3, the upper end being connected, by a rod 4, to a cross frame *i*, beneath the bed *a*, supported in slides *q*, *q*, at each end of the frame *i;* above this, two openings in the bed *a*, receive two clamp slides *k*, *k'*, so set on and between the transverse pieces of the slide frame, *i*, that the transverse space, between *k* and *k'*, can be adjusted by screws 5, 5, entering the lengthwise parts of the frame *i*, beneath the bed *a*. In each of the slides *k*, *k'*, is a strong stud *l*, or *l'*, each holding an eccentric formed clamp *m*, or *m'*, and in the head of each stud *l*, *l'*, is one end of a strongly expansive spiral spring 6, 6, the other or outer end of each spring, being secured into the corresponding eccentric clamp *m*, or *m'*, and having a tendency to press the faces of these clamps toward each other, which tendency is limited, by two stop pins 7, 7, each set on the clamp slide *k*, or *k'*, beneath: These clamps *m* or *m'*, are not formed in the ordinary manner, but are mathematically formed as shown by red dotted lines in Fig. 1, by striking a rectangular line across the direction of the motion, at the center of motion of the clamps, and two longitudinal lines, in the same points; then protracting lines, in an angle of about fifteen degrees from the center of motion of the clamps, toward the center of the machine, diverging in the same direction with the motion of the material operated on, and at the point, where the diagonal line intersects the intended faces of the clamps, a line, parallel the center of motion, and intersecting the two longitudinal lines, will give the centers, from which to strike segments of circles, forming the faces of the clamps; when so formed, and thus applied, however the thickness of the material may vary, a line, drawn as a radius, from the face of the clamp, at the point of contact with the material, will always make nearly the same angle with the direction of the feed, and thus maintain a nearly equal pressure, upon each side of the material, that is to be fed in. By making the clamps according to these directions, they will act uniformly to clip the material, and progress it to the tool. But if a larger angle than about fifteen degrees is taken, the clamps will pass forward, without holding the material, and if a much less angle is used, they will slip by, from not having sufficient hold; in some cases a single eccentric, clamp thus formed, may be used on one side of the material, with a fixed fence on the opposite slide *k* or *k'*. When thus constructed, and fully adjusted for use, as shown in the drawing, it will be obvious, that the eccentric *g*, throwing the slides and clamps forward, in the direction of the arrows *r*, will cause the lips of the clamps *m*, *m'; to* hug, or press, on the sides of the material, and carry it forward to the saw in the direction of the arrows *r*, by an intermittent motion, that commences, at the moment the saw begins to ascend, and if the motion is fitted for use with circular saws, or planing machines, a second, or third, or more eccentrics *g*, set to act at successive angles, in advance of each

other, upon two or more vertical levers, and sets of slides and eccentric clamps, will form the means of maintaining a continuous motion of the material, toward the saw or planing cutters,

It will be obvious, that several sorts of springs may be used, in these arrangements, to maintain the contact of the clamps with the material, without any really mechanical departure from the means described, and the motion of the clamps, toward the saw, or cutters, may be given and regulated by any mechanical means that can conveniently be used.

By changing the positions of the eccentric formed clamps, *m*, *m'*, and placing them on the bed of a common saw mill, so that they shall act on each side of either or both the side pieces of the saw mill carriage, they will effect the feeding of a sawmill, for sawing logs; and in all cases, the extent of each feeding motion can be regulated, by placing the eccentric *g*, in connection with the lever lever *h*, at a greater or less distance from the fulcrum 3, by the changeable holes and pin, before named and shown in the drawing Fig. 2.

I do not intend to limit myself to the means herein described of giving motion to the clamps, and I do not claim, generally, feeding sawmills by clamps attached to slides, nor the use of clamps, for this purpose, which simply increase their pressure, as the resistance increases; but

What I do claim, as new, and of my own invention, and desire to secure by Letters Patent, is—

The combination of the slides with eccentric clamps, slightly pressed together, and so formed upon their faces, that however the thickness of the stuff may vary, the line, drawn as a radius, from the face of the clamp, at the point of contact with the stuff, shall always make nearly the same angle with the face of the material, and the direction of the feed.

In witness whereof, I have hereunto set my hand and seal, in the city of New York, this twenty eighth day of March, one thousand eight hundred and forty six.

THOS. J. WELLS. [L. S.]

Witnesses:

W. SERRELL,

LEMUEL W. SERRELL.