

S. Ruthenburg,
Cutting Shingles.
N^o 27,075. Patented Feb. 7, 1860.

Fig. 3.

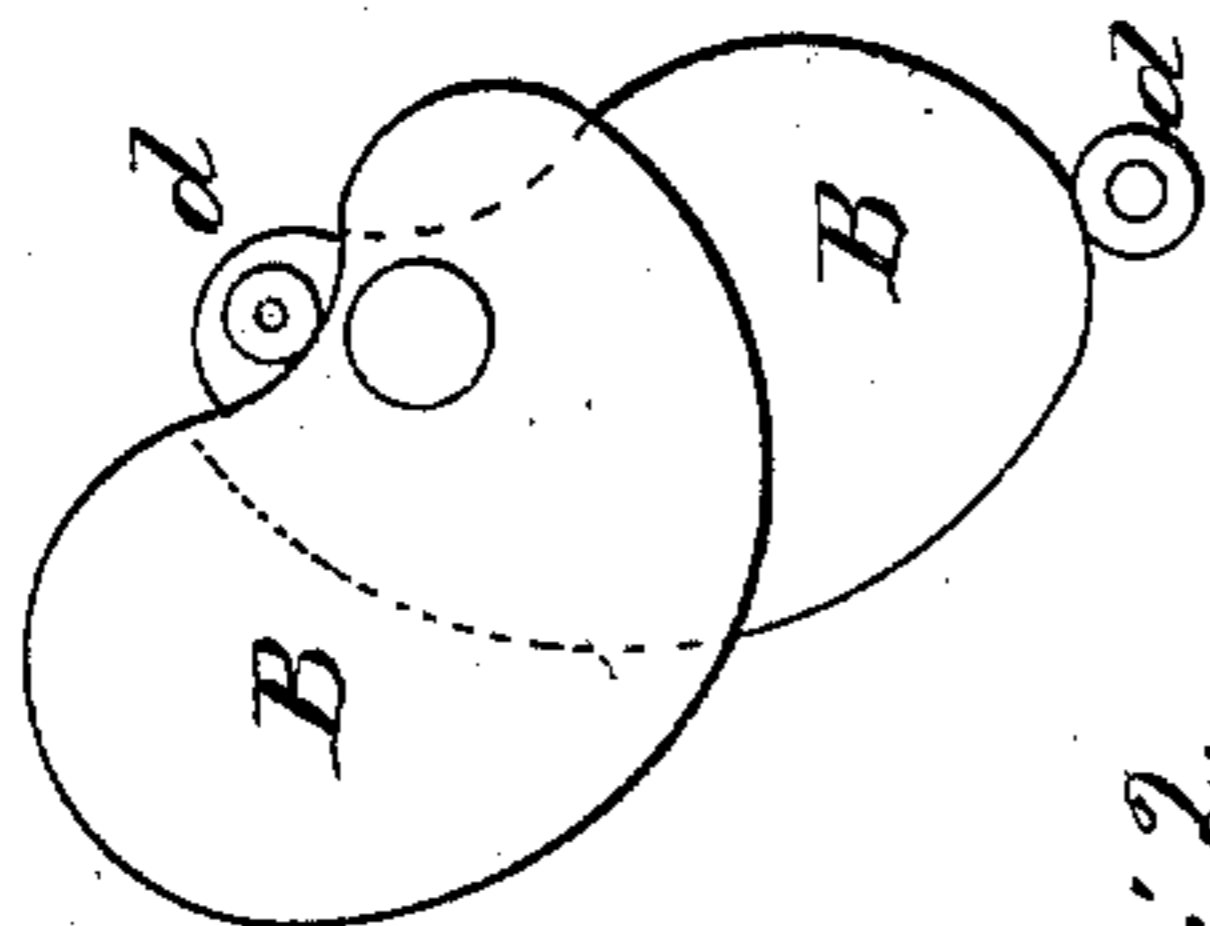


Fig. 2.

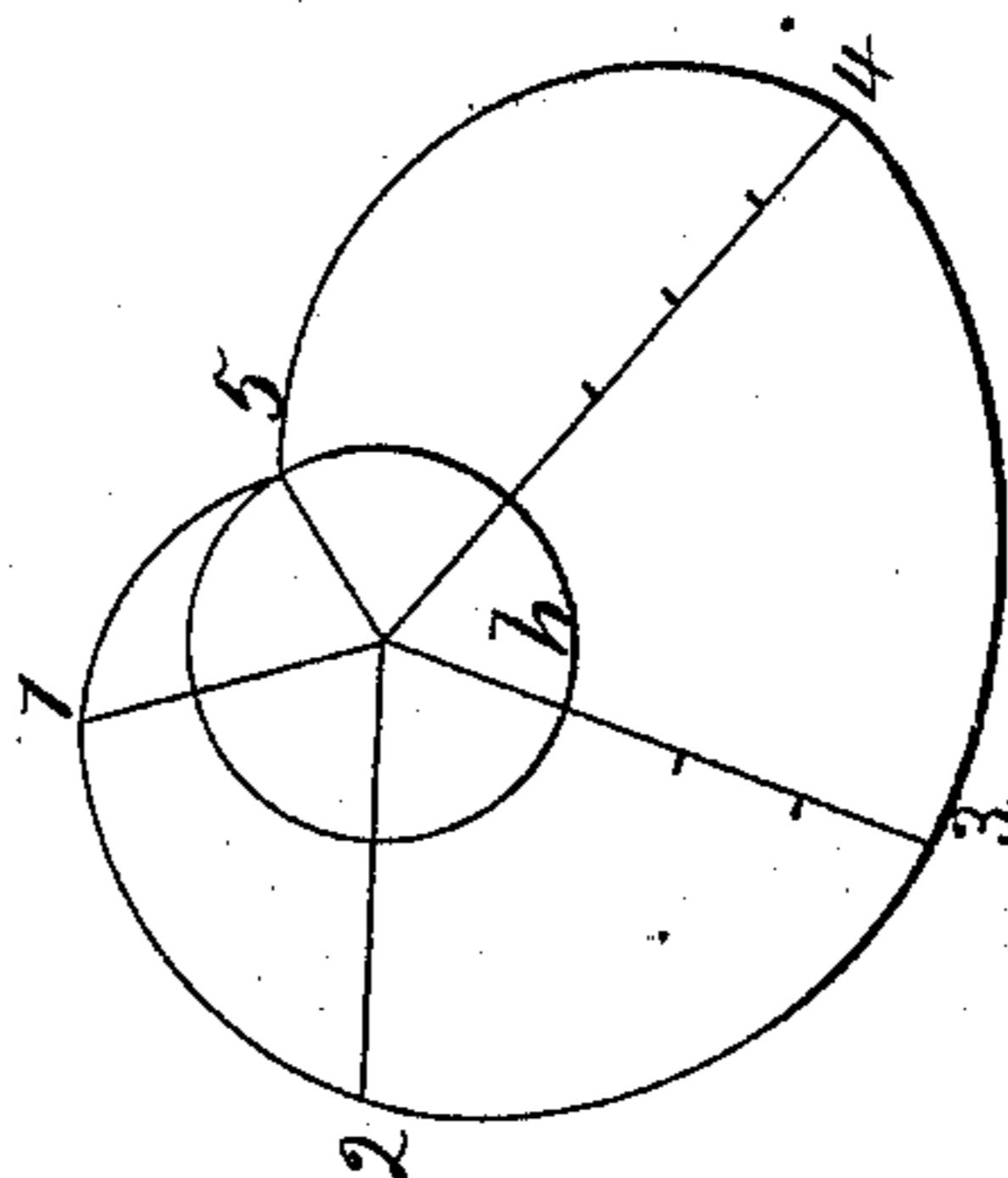


Fig. 4.

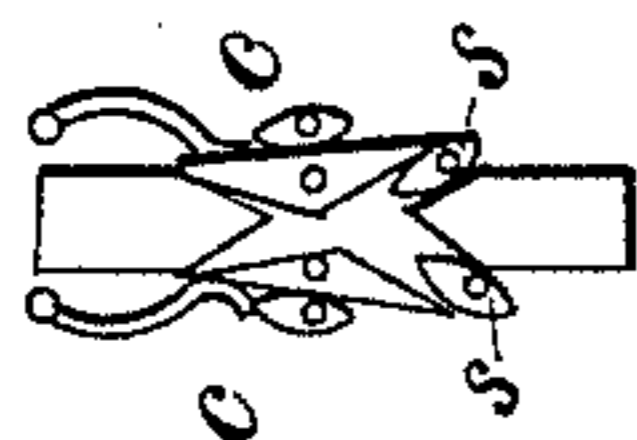
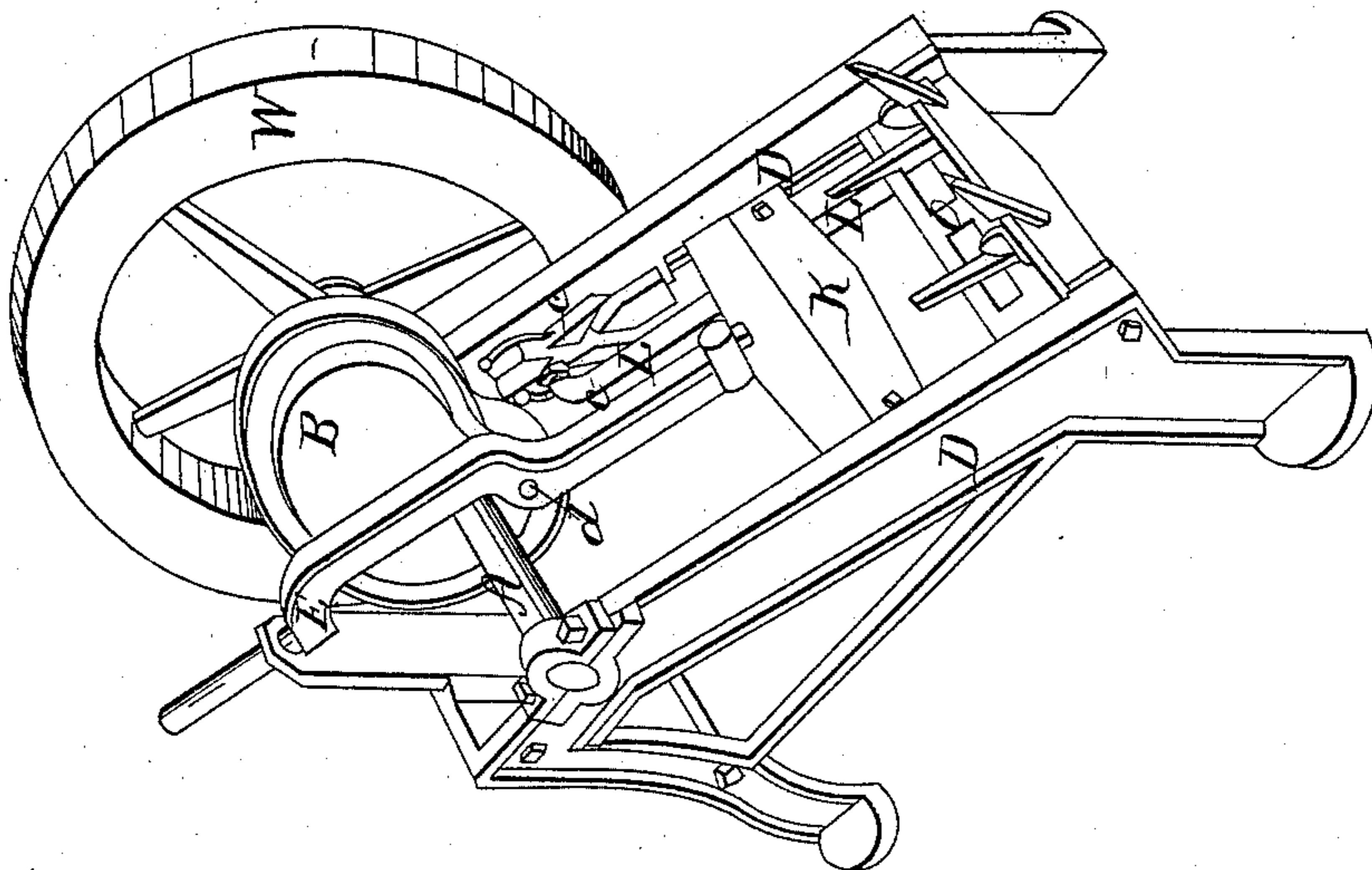


Fig. 1.



Witnesses;

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UNITED STATES PATENT OFFICE.

SOLOMON RUTHENBURG, OF INDIANAPOLIS, INDIANA.

SHINGLE-MACHINE.

Specification of Letters Patent No. 27,075, dated February 7, 1860.

To all whom it may concern:

Be it known that I, SOLOMON RUTHENBURG, of Indianapolis, in the county of Marion and State of Indiana, have invented
5 a new and useful Improvement in Shingle-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.
10

The nature of my invention consists in providing an alternate lever guide—for producing a rocking movement in the block table, from which the point of the shingle is alternated from one end of the block to the
15 other, in an improved manner.

To enable others, skilled in the manufacture of this class of machines, to manufacture and use my shingle machine, I will
20 now proceed to describe its construction and operation, desiring that the accompanying drawings shall constitute a part of my specification.

Like letters in these drawings always
25 refer to like parts.

Figure 1 is a perspective view of the entire machine. Fig. 2 is the cam, or eccentric, through which motion is imparted to the knife. Fig. 3 is a side view of two
30 cams, showing their relation to each other when that number are used, and Fig. 4 represents the click guides, for giving a vibratory motion to the shingle-block frame.

The general outlines of my machine—so
35 far as relates to the frame, the crank, the fly-wheel, and the knife-sash—together with the knife itself, are quite similar to some other machines in use.

It will therefore be seen, that my invention consists in an improved means of communicating motion both to the knife and the shingle-block sash.

W, is a heavy fly-wheel, which may also be used as a crank to impart motion to the
45 cam-shaft A.

B, is the cam or eccentric on shaft A. The roller—*d*—runs in a groove on the periphery, and, being firmly attached to the knife shaft E forces it up and down alternately, with every revolution of the eccentric B. This knife shaft E, has a guide at its upper end for holding it steady, while at its lower end it is bolted to the knife sash or frame S. To this sash, the knife—K—
55 is firmly fastened. The knife, K, plays just over the vibrating block table, O.

L, is a lever—fulcrumed to the inside of main frame-work, while at its lower end the oscillating block table, O, is attached, and upon the upper end is a self-adjusting ovoid
60 cam—swiveled in its center to said lever. This swivel cam runs in cross-tracks—*i. e.*, as it plays up and down it crosses its own track alternately. It is made to do this by the arrangement seen in Fig. 4. *s, s*, represent this swivel cam at the two lower
65 extremes, and, since it carries the upper end of the lever, L, with it in its zig-zag course, these two positions determine the amount of vibration imparted to the block table, O.
70 The swivel cam, *s*, must be long enough to reach from the inside bulge, or projection, on the click guide, *c*, and lap onto the V-shaped point above and below said clicks. This insures its taking a straight course in
75 passing from one side of Fig. 4 to the other. When it reaches the top extreme—on either side—the top ends of the click-guides *c, c*, drop, or are forced down behind it by springs which gives it parallel or straight
80 direction in its downward course. The amount of motion given to the block table, O, may be governed by making these cross-ways wider, or, by changing the fulcrum of the lever, L,—either up or down.
85

In Fig. 3, two cams, or eccentrics are exhibited—both on one shaft, quite close to each other; but it will be observed that they bear a different relation to the shaft in their axis; in other words the longest axis of one
90 cam is placed where the short axis of the other is. With these it is necessary to use a friction roller, *d'—d'*, on each side of shaft E—the shaft passing between the cams B'—B'. When the two are thus used
95 there is no necessity of a groove as seen in B. The reason is apparent, for, while the roller on one side is traveling out toward the long axis of one eccentric, the other is traveling in toward the short axis of the
100 other.

For soft timber, a single eccentric—as in Fig. 1—is sufficient, while it is necessary to use the double eccentrics—as in Fig. 3—for cutting hard stuff.
105

It may be well to say just here, that the pause in the oscillating block-table O, which must be made while the shingle is being cut, is made when the swivel cam—*s*—is passing the outer or straight side of the
110 click guides—*c, c*—always in its downward course.

Inasmuch as I am assured that I have a new feature in shingle machines, by the adoption of a peculiarly shaped cam, or eccentric, B, for imparting motion to my knife, it may be proper to describe it minutely.

After it is ascertained how much more power is required to cut a shingle, than to lift the knife back to its highest elevation, a circle of the size of the shaft (or a little larger) is divided into as many parts as the fractional proportion of the back-stroke to the working or down stroke may indicate. See, *h*, Fig. 2. For example:—if it requires four times as much power to cut a shingle as it does to lift the knife-sash, then divide the circle into five equal parts, of which I take four-fifths for the down-stroke and one fifth for the up-stroke. In order that the down-stroke shall be accomplished by the movement of the knife sash equal distances in equal times, I divide the full stroke into four equal parts—see 1, 2, 3, and 4, Fig. 2—then draw a curved line around four fifths of the circumference—*i. e.*, a circumferal line, which moves to the left from, 5, in Fig. 2, to, 1, from thence to, 2, (leaving the center exactly one fifth of the entire circumference, in going from one division to the other, until it reaches, 4, which is the entire and complete stroke) and so on. When the line reaches, 4, then it moves with a slight curve to—5—; from 4 to 5 is the back stroke, which it will be seen is accomplished in one fifth of the revolution of the eccentric. Now the economy of this arrangement is seen in the fact that I use nearly all of the entire revolution of my cam or eccentric to do the effective work in cutting the shingle, then I

use the last fifth of the circle to do the light work—or to return the knife to its place again. In these particular fractions, in the division of the working functions of my machine, the model is my guide, but I wish it understood that I am not confined to these particular divisions, as I contemplate other proportions than those set forth. The plan for economizing power, here set forth, is what I contend for, and what I feel conscious is unknown in others.

The mode of operation is simple and apparent from its very nature. Turning the wheel, W, imparts motion to the eccentric B, and this to the knife sash. When the knife sash passes up and down on its ways, it carries the block table, and connected oscillating lever L, and this lever is tripped at its upper end by the device seen in Fig. 4, which rocks the block table, so as to alternate the proximity of its sides to the contrary ends of the knife, and so—alternates the point of the shingle—bring it first at one end of the block and then at the other—and so on.

Now, having thus fully described my invention, what I claim as my invention, and desire to secure by Letters Patent, is—

The guide clicks *c, c*,—when constructed as set forth,—in combination with the vibrating block table, O, through lever, L;—operating in conjunction with my machine—substantially as set forth in the foregoing specification.

SOLOMON RUTHENBURG.

Witnesses:

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R. S. GEE.