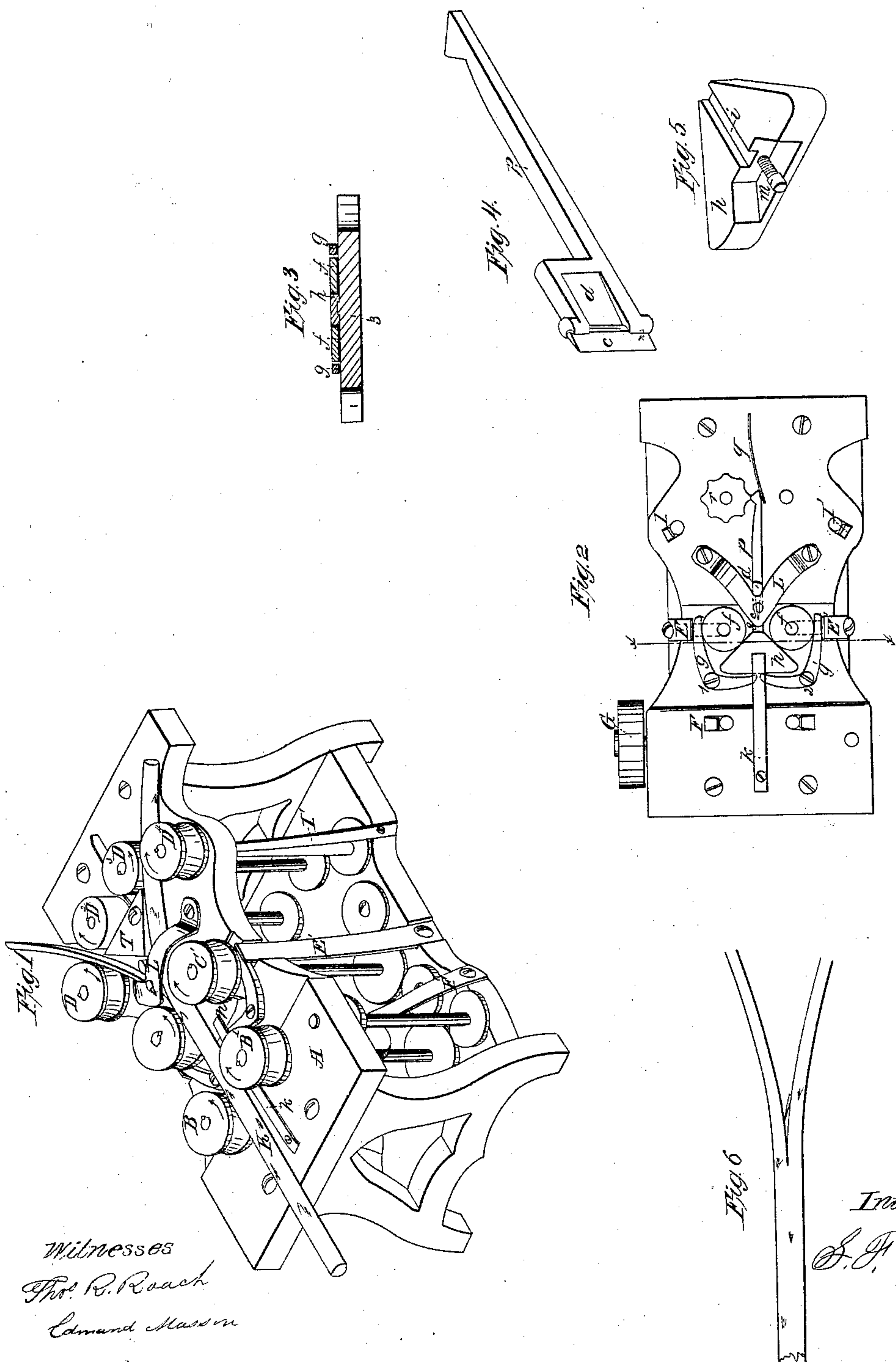


S. F. Atherton,

Making Hoops.

N^o 28,048.

Patented May 1, 1860.



Witnesses
Thos. R. Roach
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UNITED STATES PATENT OFFICE.

S. F. ATHERTON, OF FITCHBURG, MASSACHUSETTS.

MACHINE FOR SPLITTING HOOPS.

Specification of Letters Patent No. 28,048, dated May 1, 1860.

To all whom it may concern:

Be it known that I, S. F. ATHERTON, of Fitchburg, in the county of Worcester and State of Massachusetts, have invented certain Improvements in Machines for Splitting Hoops, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of the machine; Fig. 2, a plan of the machine, with the operating rolls removed; Fig. 3, a vertical section through the table on the line X, X, of Fig. 2; Fig. 4, detached view of the splitting knife enlarged; Fig. 5, detached view of the triangular block *h*, enlarged and seen from beneath; Fig. 6 a view designed to illustrate the operation of the vibrating knife.

The first part of my invention consists in a new and improved method of causing the feeding rolls to move equally upon each side of the splitting knife as the hoop pole passes between them for the purpose of preserving the knife constantly in the center of the opening between the rolls. I am aware that this has been accomplished by other means before, but the joints and links employed were subject to such wear as soon to cause a frivolous motion of the rolls which soon rendered the machine unfit to perform accurate or good work. To obviate this difficulty I have devised a method of connecting the rolls together in which all wear of the parts may be compensated for and any lost motion be taken up at once.

It is known that the operation of splitting a stick by hand is facilitated by vibrating the knife from side to side as represented in Fig. 6. The second part of my invention consists in vibrating the splitting knife (or a portion of it) in imitation of the hand operation whereby a great saving of friction and of the power necessary to run the machine is effected.

In the accompanying drawings A is the table or bed plate of the machine; B, B' the first pair, C, C', the second pair of feed rolls, D, D² D³, D⁴ the rolls which take the hoops out of the machine after they are split. These rolls are all driven in the direction of their arrows by suitable connections with the shaft of the drum G. The rolls B, B' are pressed together by springs F, F', and the rolls C, C', by springs E, E'. The shafts of the rolls D², D³, run in stationary

bearings and the rolls D, and D⁴ are pressed up to them by springs I, I'.

Immediately beneath the rolls C, C' and running loosely upon their shafts are collars *f f*—against which bear the bent levers *g g* which are pivoted to the bed plate at 1 and 2, the opposite ends of the levers bearing against a triangular block or wedge *h*, which slides freely upon a rib 3 rising from the bed plate—the rib entering a groove *i* in the bottom of the block. The block *h*, is held down upon the table by a spring *k* or other suitable device. The shafts of the rolls C, C', move in slots in the bed plate (seen dotted beneath the collars *f f*, in Fig. 2,) and as either one of the rolls C, C', is pressed out by the entrance of a hoop pole its collar *f* presses against its lever *g* the other end of which bears upon the wedge *h*, and forces it in between the collars—and as the wedge *h*, is kept constantly central by its groove *i* and rib 3, the rolls C, C', are kept equally distant from the central line, whatever may be the distance to which they are forced apart.

In order to prevent the parts from becoming loose by wear the wedge *h* is constructed (as seen in Fig. 5,) with a set screw *m*, in its rear side against the head of which the ends of the levers *g* bear—any wear may thus be taken up and the parts kept constantly in contact by operating this set screw.

The splitting knife is seen at *c, d*, Figs. 1, 2 and 4 the latter being an enlarged view of the same detached. The portion *c* or edge of the knife is set stationary in the bed plate directly in the central line passing between the rolls C, C', the upper end of this portion of the knife being carried by a suitable support L rising from the bed plate.

The rear portion (*d*,) of the knife is detached from the front portion, but is pivoted immediately behind and in contact with it so as to support and strengthen it, at the same time that it can vibrate slightly from side to side. This vibration is effected as follows: *p*, is a lever projecting from the rear portion of the knife and borne by a spring *q* against a toothed wheel *r*, upon the shaft of the roll D² and thus as this roll revolves the rear portion of the knife is vibrated from side to side by which vibration the splitting of the stick is greatly facilitated as in the hand operation described and represented in Fig. 3.

The bearing surface of the rolls D², D³ is

flat and may be roughened or fluted to cause them to take a surer hold upon the hoop, all the other rolls are grooved to suit the curved surface of the hoop or pole and are smooth
5 in order to preserve the bark of the hoop or pole from being broken or bruised.

The above described machine is equally adapted to splitting either rattan or hoops. In the operating machine I propose placing
10 the block *h*, levers *g*, and collars *f*, beneath the table of the machine out of the way of the dust and grit which falls from the material.

The operation of the machine is as follows—The hoop pole *K*, is inserted between the first pair of feed rolls *B*, *B'*, and is thence passed along to the second pair *C*, *C'*, these rolls opening equally as before described upon each side pass the pole centrally to the
20 stationary portion *c*, of the knife by which it is split, the vibration of the rear portion of the knife greatly facilitating the operation and diminishing the power required to perform it. The two halves of the pole pass
25 out one upon each side of the triangular

guide block *T*, and between the rolls *D*, *D*² and *D*³ *D*⁴ by which they are drawn out of the machine. In lieu of constructing the knife of two portions one only of which is vibrated, it may be made in a single piece
30 and be vibrated around an axis passing through the cutting edges, but the wear and grinding of the knife would soon throw the edge out of the axis of rotation and I therefore prefer the method which I have de-
35 scribed above of making it in two pieces one of which is stationary.

What I claim as my invention and desire to secure by Letters Patent is—

1. The wedge *h*, in combination with the
40 levers *g* operating as described for the purpose specified.

2. I claim the vibrating knife *d* operating in the manner specified for the purpose described.

S. F. ATHERTON.

Witnesses:

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