

N^o 8,664.



UNITED STATES PATENT OFFICE.

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MACHINE FOR SPLITTING RATAN.

Specification of Letters Patent No. 8,664, dated January 20, 1852.

To all whom it may concern:

Be it known that I, JOSEPH SAWYER, of Royalston, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Machinery for Splitting Cane, Ratan, or other Similar Fibrous Materials; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, is a plan. Fig. 2, is a longitudinal vertical section through the line $x-x$, in Fig. 1. Fig. 3, is a transverse vertical section through the line $y-y$, in Figs. 1 and 2. Fig. 4, is a perspective view of the cutter head, detached from the machine. Fig. 5, is an elevation of the first pair of feed rollers.

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

My invention consists in the employment in combination with the cutter head and cutters for splitting or cutting off the strands, of feed rollers having grooves in their periphery of angular form corresponding with the angle of polygon which is formed when all the strips are taken from the stick; these feed rollers conduct the stick to the cutters at the proper angle to cut every strand so as to insure the surface of the stick being equally divided and none wasted and also to insure every strand being cut perfect.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

A, A, is a frame or bench of wood or metal, having an opening a, a , through the top and a similar one through the bottom.

B, C, is the cutter head of wood or cast iron, consisting of a base B, secured to the top of the bench or table, and an arch piece C, at the front of its upper side, it has a projection b, b , on its upper side behind the arch, somewhat similar in form to a segment of a pyramid, the under part of the arch c , is hollowed out, and the back part has a hole e , through it.

D, D, are a pair of chisels or cutters whose points or cutting edges may be of any suitable form, they are fitted in grooves, one in each face of the projection b, b , and are secured by clamping plates d, d , and screws

e, e ; the form of the projection b, b , causes the chisels to be presented at oblique angles to their work, see Figs. 1 and 2. There are two grooves f, f , see Fig. 4, in the front face of the arch C, in which fit two bars g, g , carrying each a roller h , at its longer end; the upper ends of these bars are bent over the top of the arch, and screws i, i , fit in them, resting on the top of the arch, for adjusting the rollers at any height. A plate E, is secured to the front of the arch C, covering the grooves f, f , and set screws j, j , are screwed through this plate for the purpose of securing the bars g, g , when properly adjusted; the axis of each of the rollers h, h , should be parallel with the face of the chisel over which it stands, and the periphery slightly concave.

E, is a bent lever having its fulcrum in the pin k , at the lower part of the cutter head, it carries at its front end a roller G, with a concave periphery whose axis l , is nearly under the axis of the rollers h , and at its back or lower end it is connected by a spiral spring m , to the front of the bench; this spring has a tendency to raise the roller G.

H, H, H', H', are vertical shafts, fitting in bearings in the top and bottom of the bench, in front of the cutter head B, C, those H', H', are capable of moving transversely toward or from those H, H, by means of sliding bearings. The shafts H, H, carry the angular grooved pulleys I I, at their upper ends, the form of these pulleys is most clearly seen in Fig. 5, and the angle in the groove will vary according to the number of strands to be cut off; the number of strands cut from a stick, varying according to the relative proportion between the required width of the strand and the circumference of the stick, it being desirable in splitting cane and ratan than every strand should have a perfect face, and that all the surface should be cut from the stick to prevent waste and that the strands should be of uniform width; the angle of the groove and the position of the cutters must bear a proper relation to one another the projection b, b , forming part of the same polygon as the angle of the groove in the pulley. The shafts H', H', carry pulleys I I, with concave peripheries at the same height as I, I, all being of the proper height to feed the material direct to the cutters. All the above shafts carry driving pulleys J, J, at their lower ends.

K is a bar suspended near its center from the upper part of the bench by a rod *n*, its ends bear on the outer sides of the shafts H', H', it is connected by a pair of links *o*, *p*, to a bar L, secured to the opposite side of the bench. A weighted rod *q*, is suspended at the junction of the links *o*, *p*, which has a tendency to draw the shaft H' H' toward those H, H, and thereby cause the pulleys I, I, and I', I', to take a firm hold of the cane.

H'', H'', H''', H''', are another set of shafts arranged in the bench behind the cutter head in a manner similar to those H, H, H', H', in front, they carry a similar set of driving pulleys J, J, and the shafts H''', H''', are drawn toward those H'' H'', in a manner similar that in which the shafts H', H', are drawn toward H, H; they all carry flanged rollers M, M, M, M, a band N, passing round each pair.

O, O, is a stick of cane or ratan.

P, is the driving band, which passes between each row of driving pulleys, giving rotary motion to the whole, being firmly pressed between them so as to obtain the required hold upon the surface by the weighted rods *q*, *q*, whose action has been already described. The driving band may receive its motion from a pulley placed in any convenient position.

The operation of the machine is as follows: The rollers *g*, *g*, are adjusted in the manner already described, so as to bring the lower parts of their peripheries at a suitable height above the cutting edges of the chisels, according to the required thickness of the strips or strands, to be cut from the stick, the rollers acting as gages; the stick is then introduced between the feed rollers I, I, and I', I', and by their rotary motion is drawn toward the cutters, its end coming in be-

tween the rollers G, and *h*, *h*, press down the roller G, and enables it to pass between them, the spring *m*, holding it secure; after passing the rollers, it meets the edges of the chisels, and each chisel splits or cuts off a strip or strand; it passes on through the rollers M, M, and is drawn entirely through the cutter head, the strips being cut off its entire length. After one cut is taken it is again put in, in front, the angle formed by the first cut being placed in the angular groove of the first roller I, and although its thickness decreases with every cut, still the roller G holds it up to its place and cuts every succeeding strip of the same width and thickness.

A greater number of strips may be cut at once, by using a greater number of chisels, an adjustable roller *h*, being added for every chisel; but one roller G, would usually be sufficient. The thickness of the stick is immaterial, as the self adjustable arrangement of the shafts H', H', H''', H''', will always cause the feed rollers to grasp it. Feed rollers similar to I, I, I', I', may be employed behind, as well as in front of the cutter head instead of rollers with bands.

Having thus fully described my invention I will now state what I claim as new and desire to secure by Letters Patent—

I claim the employment in combination with the cutters for splitting off the strands, of feed rollers or their equivalents I, I, having grooves of the form of an angle or certain of the sides of a polygon of which the edge or edges of the knife or knives, form another side or other sides, substantially as and for the purposes herein described.

JOSEPH SAWYER.

Witnesses:

BARNET BULLOCK,
GEORGE S. COLBURN.