S. Sawyer,

Working Rattan.

No. 12,073. Patented Dec. 12, 1854.

Fig. 4.

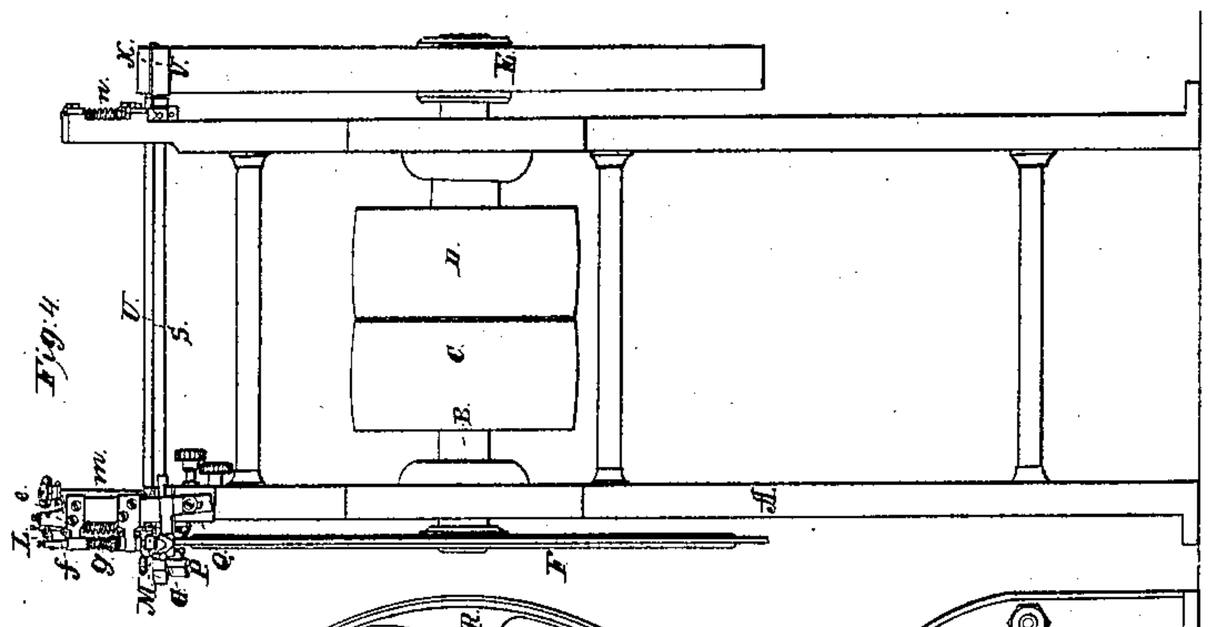


Fig. 3.

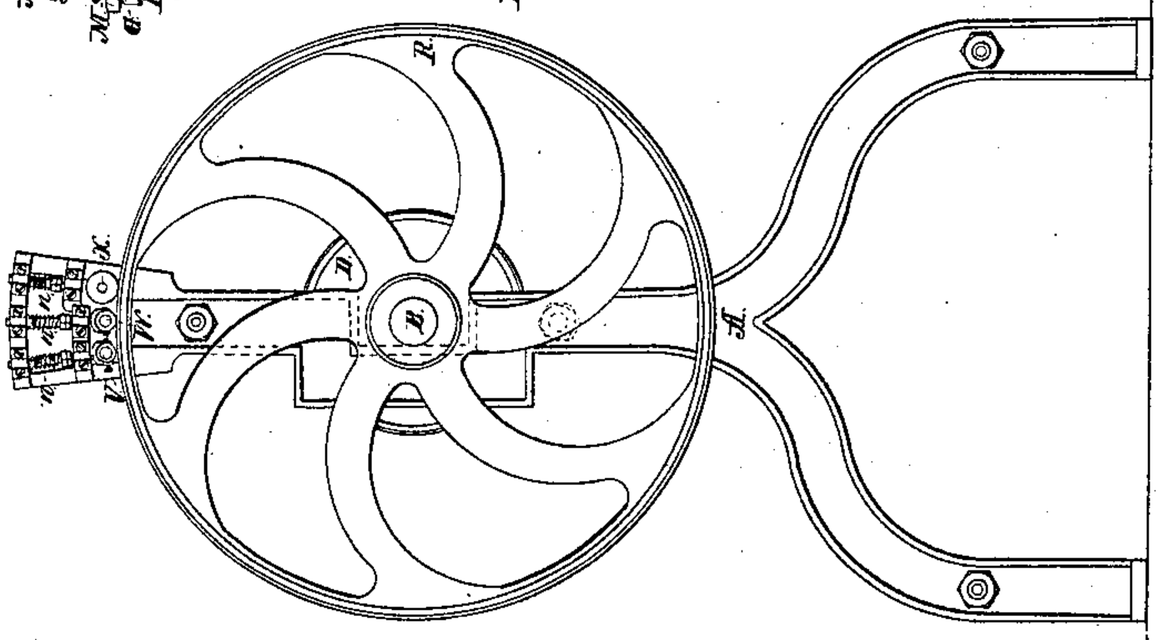


Fig. 2.

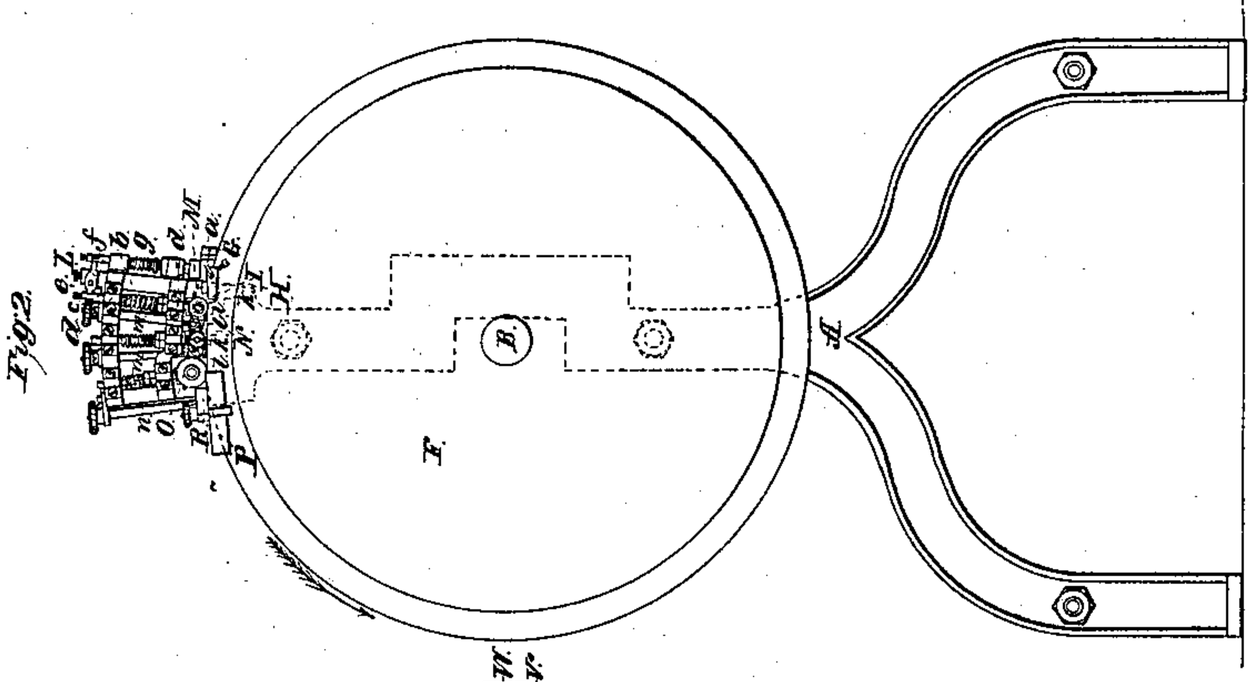
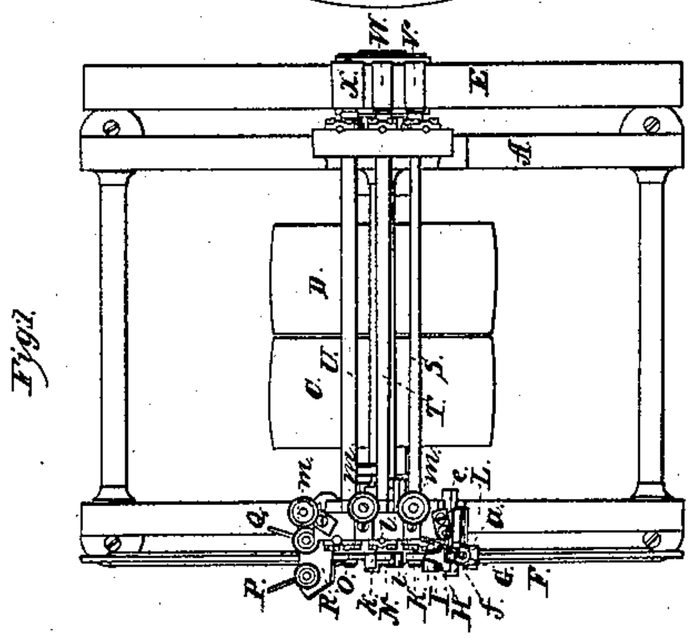


Fig. 1.



UNITED STATES PATENT OFFICE.

SYLVANUS SAWYER, OF FITCHBURG, MASSACHUSETTS.

RATAN-MACHINE.

Specification of Letters Patent No. 12,073, dated December 12, 1854.

To all whom it may concern:

Be it known that I, SYLVANUS SAWYER, of Fitchburg, in the county of Worcester and State of Massachusetts, have invented a new and useful Machine for Reducing and Dressing Strands of Ratan to a Proper Thickness and Width; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, letters, figures, and references thereof.

Of the said drawings Figure 1, represents a top view of my machine; Fig. 2, is a front end elevation of it; Fig. 3, is a rear end elevation of it, and Fig. 4, is a side view of it exhibiting that side of it at which the ratan strand is made to enter the machine.

My invention is not intended for the purpose of removing strands from a stick of ratan, but it is for the object of finishing such strands or reducing them to a proper width and thickness and removing their joints or any projections from their enameled surfaces after such strands have been taken or cut from a stick of ratan by means of other machinery.

In the drawings above referred to A, exhibits the frame of the machine, which may be constructed of the form shown in the drawings or in any other proper manner and of cast-iron or any suitable material. Such frame supports a driving shaft B, carrying a fast pulley, C, and a loose pulley, D. On one end of this shaft is fixed a large driving wheel, E, and on the other end of such shaft is attached a movable bed or roller, F, whose periphery is grooved out, entirely around it, so as to receive the curved enameled surface of a strand of ratan and retain said strand in place while its opposite surface and its edges are being reduced by mechanism to be hereinafter described.

A short distance above the grooved bed roller there is placed a stationary guide, G, for the purpose of introducing the strand to the reducing cutters or knives. In advance of this guide there is arranged a cutter stock, H, which carries a knife or cutter, *a*, the object of which is to cut or shave from the enameled surface of the strand the projections of the joints or other excrescences or parts as are necessary to be removed therefrom. The said knife or cutter, *a*, may be constructed of a long thin plate or strip of steel, having its upper and cutting edges beveled and grooved or recessed out as shown in top view in Fig. 1. Each of the several recesses is curved to form or fit to the curved side of a strand, and they are arranged on the strip or plate so that when any one of their cutting edges may become worn or too dull a fresh one may be moved into the path of the strand and used in the place of the dull cutter. The said cutter stock, H, bears upon its upper surface, two small guides, I, I, which are arranged so as to stand at an inclination and to properly direct the strand toward a pressure roller, K, and into the bite between it and the grooved bed roller, E, the said pressure roller being placed directly over the bed roller and forced down toward the same by means of a spring, *b*, which is made to envelop a rod, *c*, that extends upward from the axle or support of the pressure roller, and plays freely up and down through stationary guide boxes, *d*, *d*.

The upper end of the rod, *c*, is jointed or applied to one arm of a lever, L, that turns upon a stationary fulcrum, *e*, and has its opposite arm extending through a slot formed in a rod, *f*, of a pressure block M, which is arranged directly over the knife or cutter, *a*. The said rod, *f*, is provided with a spring, *g*, for the purpose of forcing the pressure block down upon the strand with a due amount of pressure.

At the time of the introduction of the strand into the machine, the pressure roller, K, is resting over and so as to nearly touch the top surface of the grooved bed roller, while the pressure block, M, is elevated above the top of the knife, *a*, a distance somewhat greater than the thickness of the strand in order that the strand may be readily passed between the said pressure block and cutter and against the pressure roller, K. The said positions of the pressure roller, K, and block, M, are produced by the elastic power of the spring, *m*, being greater than that of the spring *g*, and also in consequence of the two arms of the lever, L, being of different lengths, the rearmost being the longer. As soon as the strand is forced into contact with such pressure roller, the grooved bed roller (which may be supposed to be in revolution in the direction denoted by the arrow, *n*, as seen in Fig. 2,) will take it and carry it forward under the pressure roller and against a second cutter, *i*, arranged with respect to the pressure roller as seen in Fig. 2. In passing under the pres-

sure roller the strand will elevate it and thereby cause the pressure block, M, to be forced downward so as to press the enameled surface of the strand into close contact with the knife, *a*. There is also a second pressure roller, N, and a third cutter, *k*, arranged over the grooved bed roller, F, as seen in Figs. 1, and 2; the object of these cutters or knives, *i*, and *k*, being for the purpose of reducing the strand on its upper surface. These cutters are held in place by suitable stocks and made fast therein by set screws, the stocks being so connected with the adjusting screws as to be capable of being adjusted thereby so as to arrange the edges of the cutters to the required thickness of the strand. Each of said cutters is provided with a curved guide, *l*, which is arranged over it and in advance of the pressure roller, and is made so as to turn the shaving from the cutter upward and out of the way of the mechanism or rollers in advance of it. There is also another pressure roller, O, disposed with respect to the guide of the pressure roller, N, and directly over the grooved bed roller, as seen in Fig. 2. In connection with the said pressure roller, O, the machine is provided with two edged knives or chisels P, Q, whose edges are disposed on opposite sides of the bed roller, F, and at a suitable distance asunder to reduce the strand to its proper width. The said chisels P, Q, are held in place by a stationary stock, R, against which they are drawn by clamps and screws.

Each of the cutters should have a suitable adjusting screw or contrivance by which its position can be changed or regulated as circumstances may require; such screws being shown at *m*, *m*, *m*.

The pressure rollers K, N, O, hereinbefore with pulleys V, W, X, that rest upon the adjacent ends of three horizontal shafts S, T, U, whose opposite ends are provided with pulleys V, W, X, that rest upon the periphery of the large driving wheel E, upon which they are pressed downward by means of springs, *n*, *n*, *n*, acting against movable bearings, that sustain the shafts in position, such downward pressure being for the purpose of producing the requisite degree of friction to enable the rollers to be put in rotation by the wheel, E.

In the above description of my machine I have represented its essential elements; and although I have exhibited in the drawings certain forms and constructions of many of its operative parts, I would remark, that I do not mean to confine my invention to such forms or constructions, while I do not change the principle or principles of it.

The operation of my machine on a strand of ratan will be obvious from the description hereinbefore given, it being understood that the several reductions of the strand, viz, that of its enameled surface, that of its opposite surface, and those of its opposite edges being performed in regular order one after the other; which being accomplished, the strand is discharged from the machine in a finished state ready to be used in the manufacture of chair seating or otherwise as occasion may require.

What I claim in the said machine is—.

1. The combination of a mechanism for dressing the enameled side of the strand of ratan and a mechanism for reducing a strand to its proper thickness as specified.

2. I also claim the combination of a mechanism for reducing the strand to a proper thickness and a mechanism for reducing it to its proper width, as specified.

3. I also claim the combination of a movable grooved bed or roller, pressure roller or rollers and knives for reducing a strip to the width required.

4. I also claim the combination and arrangement of a mechanism for reducing the enameled surface or side of the strand or removing the joints or other protuberances therefrom—a mechanism for reducing a strand to its proper thickness and a mechanism for reducing it to its proper width, the same being made to act together automatically essentially as hereinbefore specified.

In testimony whereof I have hereunto set my signature this eleventh day of October A. D. 1854.

SYLVANUS SAWYER.

Witnesses:

R. H. Eddy,

F. P. Hale, Jr.