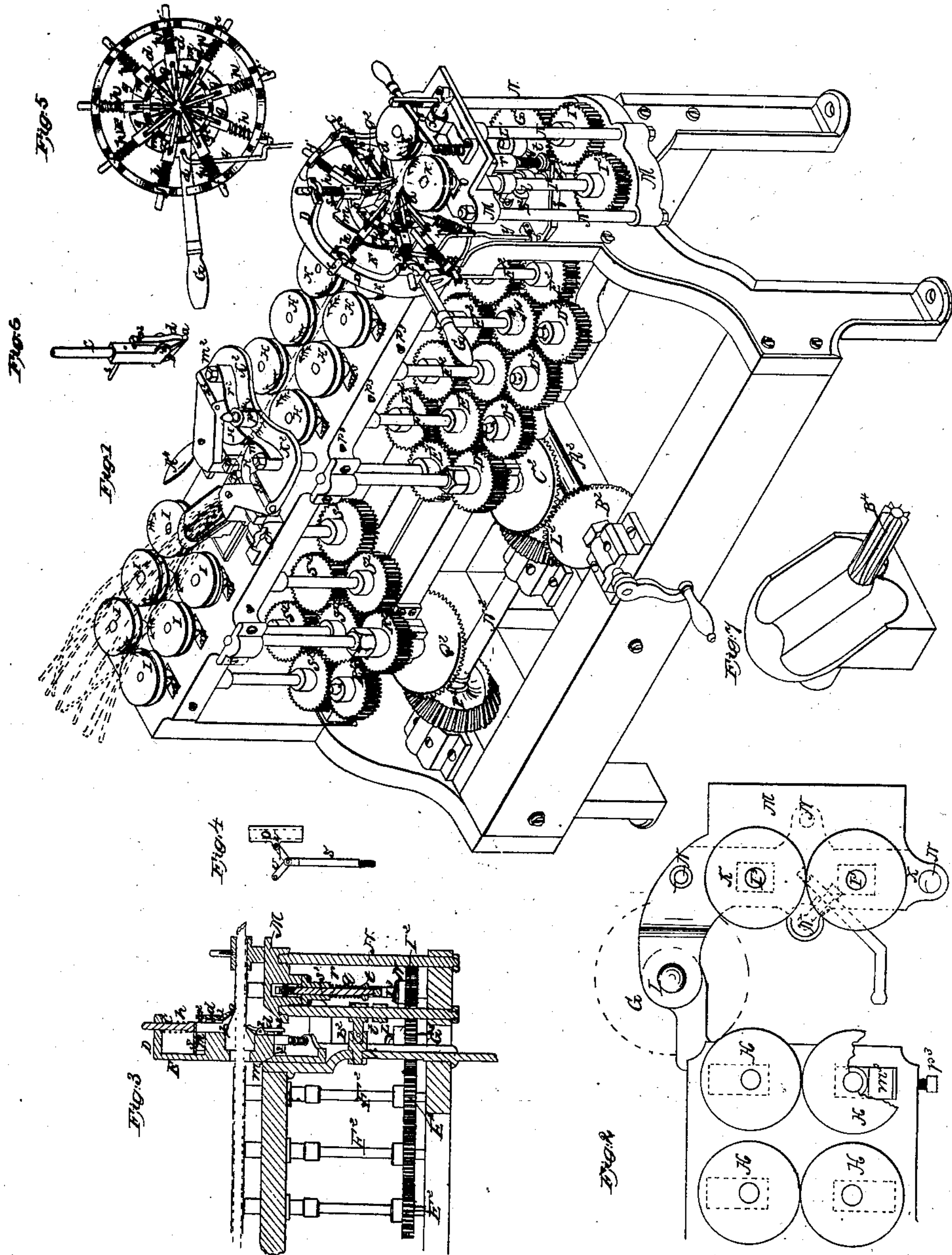


*N. H. Richardson,
Working Rattan.*

N^o 38,051.

Patented June 25, 1861.



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UNITED STATES PATENT OFFICE.

N. H. RICHARDSON, OF FITCHBURG, MASSACHUSETTS.

RATAN-MACHINE.

Specification of Letters Patent No. 32,651, dated June 25, 1861.

To all whom it may concern:

Be it known that I, N. H. RICHARDSON, of Fitchburg, in the county of Worcester and State of Massachusetts, have invented certain Improvements in Machines for Scraping or Dressing Ratans, 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 a machine for scraping and splitting ratans for making chair seating; Fig. 2, a plan and Fig. 3 a vertical longitudinal section through a portion of the same; Figs. 4, 5, 6 and 7 details to be referred to hereafter.

The machine represented in Fig. 1 of the drawings is designed to perform two operations upon the ratan in the process of manufacturing cane seating for chairs, viz., the "scraping" by which it is divested of its joints and brought to a uniform cylindrical form and the "splitting" by which it is divided into a given number of strands which are ultimately dressed and finished by other machinery. The "scraping" operation is performed at the right hand end of the machine which is constructed upon the general plan of a machine for which Letters Patent of the United States were granted to Sylvanus Sawyer on the 24th of June 1851, to which machine the improvements which form the subject of my present invention have been applied.

I will first describe the general construction and operation of the machine and will then point out more particularly the improvements which I have added thereto.

The scraping knives *a* are held in clamps or holders consisting of a stationary jaw *b*, attached to the sliding rod *C*, and a movable jaw *d*, which is pivoted at 1, to ears projecting from the rod *C*, and carries at its outer end a screw 2 by means of which the scraper is secured between the two jaws of the clamp. The scraper holders of which there are nine slide freely in boxes or guides in the rim *D*, and hub *F*, of the stock *E*. These guides are arranged in sets of three each which project at different distances from the face of the stock *E*. The first set (*f g*) being nearest the stock, the next set (*f' g'*) farther removed therefrom, and the third set (*f² g²*) at a still farther distance, whereby the cutters are made to operate in three separate planes parallel with the stock

E, but at different distances therefrom, and are caused to overlap each other in their action so as to insure the entire scraping of the surface of the ratan whatever may be its size.

The action of the individual cutters upon the ratan is similar to that of the cutters described in the aforesaid patent of Sawyer, but the arrangement of the cutters in the stocks is somewhat different. The cutter holders are arranged radially upon the surface of the stock *E*, and are all forced toward the center of the stock by springs *h*. From each of these rods projects a pin *s*, which rests upon one of a series of projections *m* cut upon the outer edge of a cam ring which surrounds the hub *F* of the stock. A handle *G* is attached to the cam ring by depressing which the cams are caused to act upon the pins, and all the cutters are thus drawn back, leaving the space between them open for the entrance of the end of a fresh ratan. On the handle *G* being released the cam ring is restored to its working position by the springs *h*, which bring the scrapers down upon the stick again. After passing the scrapers *a* the ratan is seized by the feed rolls *H*, and is carried through a suitable guide *n*, against a splitting cutter *B⁴* seen in Fig. 7, and which is similar to that described and represented in Letters Patent granted Addison M. Sawyer on the 7th day of March 1854 for machines for splitting ratans. The strands which are to be used for chair stuff are seen at *p, p*, and the central cylindrical portion *T* of the cane is led off by the feed rolls *I*. These details however form no part of my present invention and need not be further described.

My improvements which relate only to that part of the machine which performs the scraping of the joints from the exterior surface of the ratan will now be described.

In the machine described in the before mentioned patent of Sylvanus Sawyer when it became necessary to insert the end of a stick of ratan, the handle was depressed and the cutters were separated from each other. If now the stick was inserted sufficiently far to reach the first pair of feed rolls, these rolls were liable to twitch it past the cutters before the operator could release the handle and let them down upon it, and if he let the cutters down upon the stick before it reached the feed rolls, he was obliged to

push the stick through the cutters until its end entered in between the rolls.

To remedy this inconvenience is the object of my invention which consists in so arranging a pair of auxiliary feed rolls in advance of the scraping cutters that they may be separated simultaneously with the cutters when a stick is to be entered and may be swung out of the way when it becomes necessary to get at the scrapers to adjust or to replace or sharpen them or for any other purpose.

The auxiliary feed rolls are represented at K, and are secured to shafts I³, that run in boxes in an auxiliary frame consisting of upper and lower bearing plates M, M', and vertical posts or rods N. The upper and lower plates M, M', of this frame are hinged to the main frame at L, L', so that the rolls K, may be swung out to one side away from the cutters when the latter are to be sharpened or for other purposes. The boxes O, in which the shafts I, of the rolls K revolve slide in elongated openings in the plate M, and are drawn together for the purpose of grasping the ratan by the spring *q*, which encircles the rod *s'*, Fig. 4, the lower end of the spring resting on a nut *t*, upon the end of the rod and the upper end upon the guide *r*, attached to the plate M, through which the rod *s'* passes. The rod which is thus pressed constantly down by the spring is connected at its upper end by means of joint links *v* (Fig. 4) with the boxes O, of the shafts I. The rolls K, are thus constantly drawn toward each other by the spring *q*, and when they are forced apart by the ratan they are caused by the connections explained to move an equal amount on each side of the axis of the stock E. These rolls thus become a guide to the ratan and insure its delivery centrally to the scrapers *a*.

X is a stationary guide into which the ratan is passed by hand, and W, a knife working through the center of the guide for the purpose of cutting the ratan should it become clogged in the machine.

It is obvious that whenever a fresh ratan is to be introduced into the machine the rolls K should be separated from each other as well as the cutters *a*. This is effected in the following manner: From the handle G descends a rod *y* the lower end of which rests on the long arm of a lever *z*, which is pivoted to a collar secured to one of the vertical rods N, of the auxiliary frame. The other end of the lever comes immediately beneath the rod *s'* so that as the handle G is depressed to open the scrapers *a* the rod *s'* is raised and by the connections already described the rolls K are separated.

In the practical operation of the machine it is found to be important that the ratan be strained tight and maintained very straight

at the point between the rolls K and H, where it passes the scrapers. For this purpose the rolls K, are made slightly smaller in diameter than those (H) upon the other side of the scrapers and thus the desired end is gained. In the full sized machine the rolls H, are 3 $\frac{5}{8}$ inches in diameter and the rolls K $\frac{1}{2}$ inch smaller.

L is a bolt secured to one of the rods N, which enters a socket *b*² attached to the main frame and is secured by a pin *c*² by which means the auxiliary frame is held immovable while the machine is in operation.

The power which drives the machine is applied to the main shaft A² and by means of the bevel gears B² C² and the intermediate gears D² and gears E² upon the shafts F² motion is communicated to the rolls H. The gear E² upon the shaft of the foremost roll H (not seen in the drawings) engages with an intermediate gear G² which revolves upon the center of rotation (L') of the auxiliary frame M, M' and also engages with one of the gears I² upon the shafts of the rolls K, by which means these rolls are revolved in the direction of their arrows.

The bevel gear C² engages with a similar gear L² upon a horizontal shaft N² from which by means of the bevel gears P² Q² and the gears R² and S² the feed rolls I are caused to turn in the direction of their arrows. The guides *n* in advance of the splitting cutter are held by the carriers K^{*2} which are pivoted to the frame at *m*². The ends of these carriers are caused to move together by a joint *p*², and are forced in the direction of the arrows by the spring *r*² by which means the guides *n* are caused to hug the ratan and to move an equal amount upon each side of the central line as the size of the ratan varies. There is also a horizontal joint in each of the carriers K² at *x*², and by means of the handle A⁴ upon a shaft *c*⁴ which is eccentric where it passes beneath the guide *n*, this guide may be raised or lowered to adjust it to the splitting cutter B⁴. The rolls H and I are caused to hug the cane by springs *m*³, the strength of which is regulated by screws *p*³.

Operation: The handle G being depressed the scrapers *a* are separated by the projections *m* acting upon the pins *s* and by means of the connections *y*, *z*, *s'* and *v*, the rolls K in advance of the scrapers are also separated as before explained. A stick of ratan is then passed through the guide X, between the rolls K, and into the space between the scrapers. The handle G is then liberated and the scrapers close upon the ratan, the feed rolls K at the same instant seizing it and starting it into the machine. So soon as the advance end of the stick has passed the scrapers it is seized by the feed rolls H, and drawn through; the rolls K, now acting to put a sufficient drag upon it to keep

that portion of the ratan which is being acted upon by the scrapers straight. Having passed the rolls H the ratan enters the guides *n*, and by them is delivered centrally to the cutter B⁴, by which the strands *p* are separated, the central portion T being carried out of the machine by the feed rolls I.

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

10 1. The rolls K in combination with the rolls H, upon the opposite side of the scrapers, when the former (K,) are of slightly

smaller diameter than the latter (H) as set forth for the purpose explained.

2. So connecting the scrapers with the feed rolls in advance of them, by means of the connections described or their substantial equivalents that they shall be simultaneously separated for the entrance of the ratan as set forth for the purpose described.

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