

G. Holland.
Assorting Silk.

Patented Feb. 19, 1861.

Inventor
G. Holland
per Mum & Co
attys

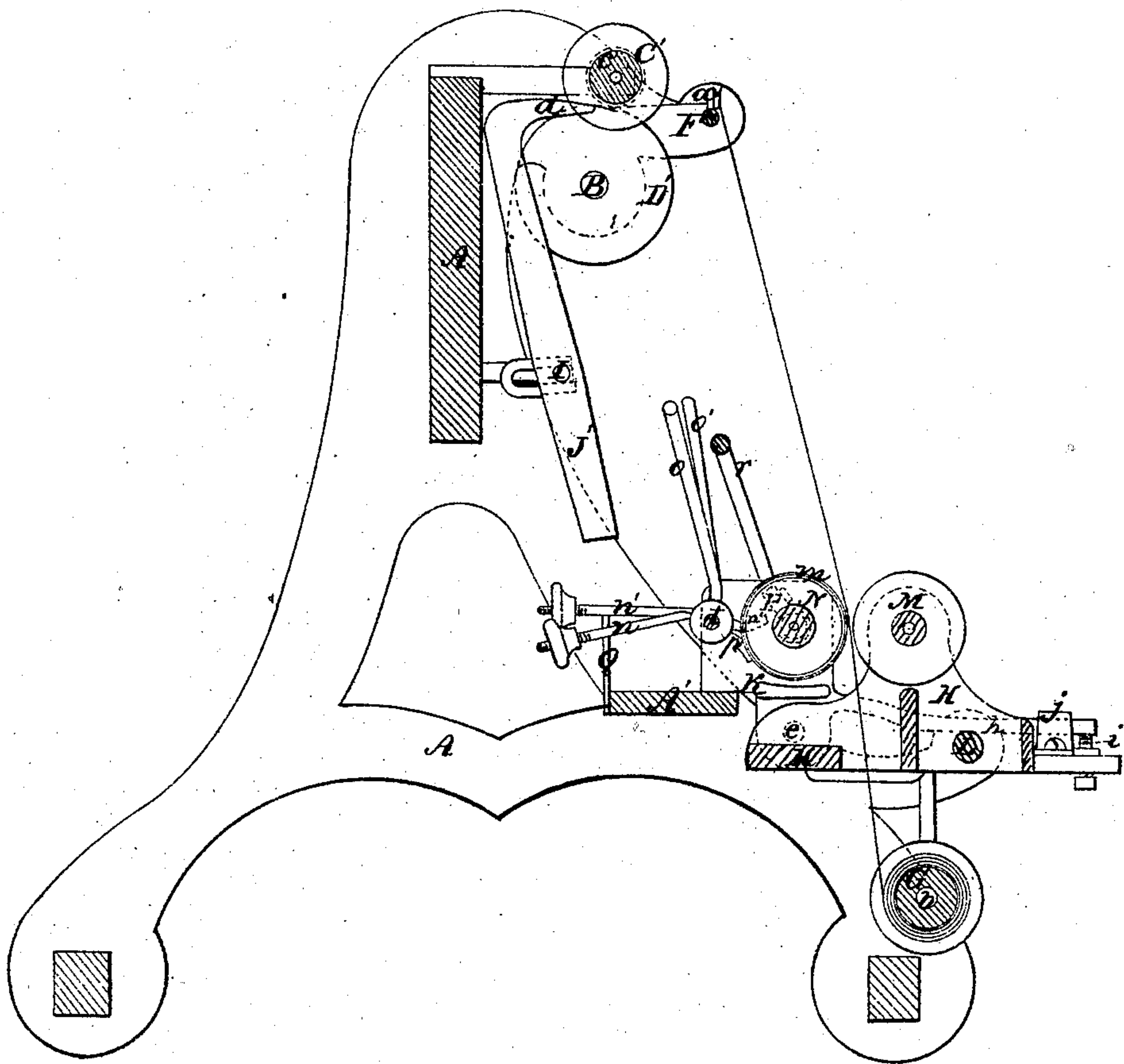
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N^o
31,458.

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Fig. 2



Witnesses
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UNITED STATES PATENT OFFICE.

GOODRICH HOLLAND, OF WILLIMANTIC, CONNECTICUT.

MACHINE FOR SORTING SILK AND OTHER THREAD.

Specification of Letters Patent No. 31,458, dated February 19, 1861.

To all whom it may concern:

Be it known that I, GOODRICH HOLLAND, of Willimantic, in the county of Windham and State of Connecticut, have invented a new and Improved Machine for Sorting Silk or other Threads According to Their Size or Thickness; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a front view of a sizing machine constructed according to my invention. Fig. 2 is a vertical section of the same at right angle to Fig. 1. Fig. 3 is a horizontal section of the same.

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

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

A, is the framing of the machine in the upper part of which are the bearings for the main shaft B. This shaft is furnished with two friction wheels D, D', for driving two bobbins C, C', whose heads *c*, *c'*, rest upon the said wheels and with a cam E, for working a traverse bar F, which carries two guides *a*, *a'*, for directing the thread to either of the two bobbins as it is wound thereon from a bobbin G. This bobbin G, is arranged to be turned by the draft of the thread on an axle *b*, attached to a carriage H, K, which is arranged in the lower part of the machine to move horizontally and parallel with the main shaft B, and bobbins C, C'. Below, some distance in rear of and parallel with the main shaft there are arranged in suitable bearings the two shafts I, I', of the rocking frames J, J', one side of each of which extends upward and terminates in a curved or eccentric cam like form as shown at *d*, in Fig. 2. These frames are so balanced that when left free the upper parts *d*, *d'*, fall back against the frame out of the way of the bobbins C, C', but the said upper parts are of such length and so arranged that if either be thrown forward its eccentric end passes under the head *c*, or, *c'*, of its respective bobbin and raises it from

its respective friction wheel D, or D' and so causes its rotary motion to cease.

The carriage H, K, in which are held the two polished steel rollers M, N, whose peripheries constitute the gaging surfaces is composed of two parts of which the part H, is fitted to slide along and also to move about the axis of a fixed cylindrical bar L, which is arranged parallel with the main shaft B, and bobbins C, C', and which extends all across the lower part of the front of the framing; and the part K, is connected by a center-screw or hinge joint *e*, with the said part H, the axis of said joint being parallel with the bar L. The part H, carries the roller M, and the part K, carries the roller N, said rollers being arranged to rotate between center-screws *f*, *f*, and *g*, *g*, with their axes parallel with the axis of the joint *e*, and of the bar L, and main shaft. To provide for keeping the peripheries of the rollers at a proper distance apart to gage the thread, the part K, of the carriage is furnished at one end with a rigid arm *h*, which is held against the point of a set screw *i*, screwing through the part H, by means of a spring *j*, attached to the part H. By turning the set screw *i*, the rollers are adjusted at the desired distance apart by a movement of the two parts of the frame at the joint *e*, *e*.

The frame H, K, is kept down by its own weight and the weight of the rollers M, N, in contact with a horizontal rest bar A', extending across the frame A, and this weight also serves to keep the rollers as near together as the set screw *i*, permits, so that the spring *j*, is scarcely necessary except to keep the two parts of the carriage in proper relation when it is raised up from the rest bar A'. The roller N, has at one end a neck *k*, fitted with a friction clamp P, and at the other end the said roller has cut upon it a very fine screw thread *m*. At the back of the said roller N, and parallel with it there is rigidly secured in the part K, of the carriage an axle *l*, to which are fitted two three-armed tumblers *n*, *o*, *p*, and *n'*, *o'*, *p'*. The arms *n*, *n'*, of these tumblers are weighted in such a manner as to tend to draw the

arms o, o' , back against the lower parts of the rocking frames. The arm p , of the tumbler n, o, p , has its extremity cut in the form of a screw chaser to fit the screw thread m , in such manner as to hold up the weighted arm n , and hold forward the arm o . The arm p , of the tumbler p' , is so arranged relatively to its arms n', o' , that it may be acted upon by the friction clamp P , in such manner as to hold up the weighted arm n' , and hold forward the arm o' . Under the weighted arms n, n' , there is secured to the back of the rest bar A' , an upright plate Q , the upper edge of which is horizontal at its central portion but which has a descent toward each end as shown at q, q' , in Fig. 1. In front of the tumblers n, o, p, n', o', p' , there is secured to the part K , of the carriage a guard bar r .

The operation of the machine is as follows: The bobbin G , having upon it the thread to be sorted or, as it is commonly termed sized is placed on the axle b , and its end passed between the rollers M, N , and through the guide and made fast to the bobbin C , or C' , according as it may be supposed to be smaller or larger than the average size. I will suppose it to be first secured to the bobbin C , which is to receive the smaller thread in which case the carriage H, K , is moved to a position under that bobbin as shown in Fig. 1, where as well as in Fig. 2 the thread is shown in blue color. The arm n' , of the tumbler n', o', p' , then rests on the highest part of the plate Q , and the arm p , of the tumbler n, o, p , rests against the screw thread m , of the roller N , and both arms o, o' , are held forward clear of the two rocking frames J, J' . Rotary motion being now communicated to the main shaft B , it drives both the bobbins C, C' , and the bobbin C , winds up the thread from the bobbin G , drawing it between the rollers M, N . If the thread be not above the average size it will pass between the rollers without turning them, or it may perhaps turn the roller M , but will not turn the roller N , which does not turn so easily owing to the friction produced on the screw thread m , by the arm p . When, however the size of the thread passing between the rollers gets above the average it will fit so tightly between them that it will by its friction cause the roller N , to rotate and cause the screw thread m , to move the arm p , lengthwise of the said roller toward the end thereof and a few revolutions will carry the said arm beyond the end of the said roller when the tumbler having no further support from the said roller will have its arm o , drawn back against the rocking frame J , by the weight of the arm n , and will press back the lower part of the frame J , and throw forward the up-

per end thereof under the head c , of the bobbin C , and so raise the said bobbin out of contact with the friction of the wheel D , and thereby cause the rotation of the said bobbin and the winding up of the thread thereon to cease. On the stoppage of the bobbin C , the attendant without stopping the main shaft breaks the thread, pushes the carriage over to the other side of the machine passes the end of the thread through the guide a' , and secures it to the bobbin C' , which then commences to wind it up. The tumbler n', o', p' , is now held forward against the bar guard r , by the pressure of the friction clamp P , upon its arm p' , the friction of the said clamp on the neck k , of the roller N , being sufficient to overcome the weight of the arm n' ; but as soon as the size of the thread passing between the rollers ceases to be above the average and fails to turn the roller N , the weight of the arm n' , pressing against the friction clamp overcomes the friction of the said roller between its centers or in its bearings and the said arm which is beyond the plate Q , drops down and throws the arm o' , back against the rocking frame J' , whose upper end is thus thrown forward and caused to raise the bobbin C' , out of contact with the friction wheel D , thereby causing the said bobbin to stop and the winding to cease. The attendant now breaks the thread and moves the carriage back to the other side of the frame passes the thread through the guide a , and secures it to the bobbin C , when the operation proceeds again as at first described. The two inclined portions q, q' , of the edge of the plate Q , serve to raise the weighted arms n, n' , as the carriage is moved across the machine to change the winding from one to the other of the bobbins C, C' . The central higher portion of the said plate Q , while the bobbin C , is in operation holds the arm n , of the tumbler n, o, p , up so high that the arm p , is low enough to clear the screw thread and in the said higher portion there is a slight notch shown in dotted outline in Fig. 1, into which the arm n , falls as the carriage is being shifted over toward the bobbin C , and by which it is stopped while the carriage moves a short distance, for the purpose of bringing the arm p , of the tumbler n, o, p , under the screw thread m , again ready for the winding on the bobbin C . The arm p , having arrived in this position the tumbler is pushed along by the sleeve on the shaft l , coming in contact with it, the notch s , being so slight that the arm n , slips out of it quite easily.

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

1. The combination of the rocking frame J and weighted tumbler n, o, p with the

roller N and bobbin C in the manner substantially as herein shown and described.

2. Providing the periphery of the roller N with a screw thread *m* as and for the purposes set forth.

3. The combination of the screw threaded roller N and a chaser *h* with the roller M in the manner substantially as herein shown and described, so that when the size of the

passing thread increases the roller N and its screw *m* will be rotated, and carry the chaser out of the screw, and thereby cause the stoppage of the thread winding bobbin, all as herein set forth.

GOODRICH HOLLAND.

Witnesses:

ELLIOT B. SUMNER,
JAMES O. FITCH.