November 1, 1913.

DRAWING

1,983

A careful search has been made this day for the original drawing or a photolithographic copy of the same, for the purpose of reproducing the said drawing to form a part of this book, but at this time nothing can be found from which a reproduction can be made.

Finis D. Morris,

Chief of Division E.

AWK

UNITED STATES PATENT OFFICE.

CHARLES DANFORTH, OF PATERSON, NEW JERSEY.

MACHINE FOR MAKING COTTON ROPING.

Specification of Letters Patent No. 1,983, dated February 18, 1841.

To all whom it may concern:

Be it known that I, CHARLES DANFORTH, of Paterson, in the county of Passaic and State of New Jersey, have invented a new and useful Improvement in Making Cotton-Roping Machines commonly called "Counter-Twist Speeders," of which the following is a full and exact description.

The drawings hereunto annexed and which I desire may constitute a part of this specification consist of four parts to wit.

Figure 1 is an elevation view of the driving end of the machine. Fig. 2 is a front elevation view. Fig. 3 is an inside end elevation view, the machine divided in two parts through the center from back to front looking toward the driving end. Fig. 4 is a horizontal or ground view, with one of the top flats or brushes taken off to show the roller. They are all drawn to a scale of three inches to the foot.

The same letters on all the figures refer to the same parts of the machine.

In the first place I dispense with the blocks commonly used for supporting and giving motion to bobbins and instead thereof I make use of a plain shaft A, about one inch and five eighths of an inch in diameter forming a cylinder for the bobbin to rest on as usual. This shaft is sometimes passed out, or in other words, has recesses of an eigth of an inch deep turned in it to admit of small ribs or heads on the ends of the bobbins to drop into. These ribs or heads are made on the bobbins as usual to prevent the roping from sliding off the ends of the bobbins. This shaft A is made to revolve in bearings B, B, by means of an endless band or belt O, passing around a pulley D, about eight inches in diameter fastened to the end of shaft A, on an overneck, and another pulley E, about six and five eighths inches in diameter fastened to the front roller shaft F. These two pulleys E and D should be made of such proportionate size as to cause the surface of shaft A, to run about the same speed as the surface of the front roller, so that the bobbins G, G, G, which rest on and receive motion from it will receive the roping as it is delivered from the front rollers. It will be perceived by this arrangement that this shaft or cylinder A, is made to turn in the same direction as the front bottom rollers, and in the contrary direction from that usually given to the blocks and block-shaft.

The bobbins G, G, G, are supported by radius bars H, H, H; these radius bars are hung on gudgeons or fulcrums to brackets I, I, I, I; they are about three inches and three quarters long from the center of their fulcrums or gudgeons to the recesses, which form a bearing for the gudgeons J, J, J, of the bobbins. The fulcrum of the radius bars are placed in a position below that part that supports the bobbins, so that as the bobbins increase in size and raise the radius rods, which move on a center below the bobbins the bobbins are made to recede or fall back from the belt or tube used for condensing the roping. either of which may be used, but I prefer the belt.

Instead of applying the condensing belt K, which is made of stout woolen cloth in the usual way on a level with the center of the bobbins G, G, G, I apply it so that the upper surface of the lower part is on a level with the top of the shaft or cylinder A, and the other part which runs in a contrary direction from it is above and in contact with it; both parts of the condensing belt K, are placed so far over the shaft A, and under the bobbins G, G, G, as can be conveniently done without interfering with the shaft A, or the bobbins G, G, G, as shown in Fig. 3. By this arrangement the roping is wound directly on to the bobbin as it leaves the condensing belt or tube as the case may be without the necessity of making a short turn around a guide. I sometimes use small guides between the front edge of the condensing belt, K, and the bobbins, but I prefer doing without them, the small pins L, L, L, L, on the backside of the condensing belt answer all purposes to guide the roping and make the bobbins fill properly.

The condensing belt K, is driven in the following manner, viz: A pulley M, about three inches in diameter is fastened to the front roller shaft F, shown in Figs. 3 and 4 which gives motion to pulley N, which is about six inches in diameter, by means of an endless strap or belt P, this pulley N, has a hub on each side of a suitable size and length, and is bored out to fit a stud Q on which it turns, this stud Q, is fastened by a screw and nut to a bracket R, which is bolted to the frame end. On the inside hub of pulley N, is fixed a miter wheel S, which works into another miter wheel T, fixed to the end of a shaft or spindle about three-fourths of an inch in diameter, which is sup-

ported by and works in a socket bearing U,— on the other end of this shaft or spindle is fixed a pulley V, about four and a half inches in diameter which gives motion to the condensing belt K, the socket bearing U, is cast to and constiutes a part of the same piece of metal as bracket W, which supports it, and is bolted to the end of the machine. The condensing belt K, leads off from the lower periphery of pulley V, thence in a straight line parallel with shaft or cylinder A, and on a level with it as before described passing along the top of the carriage X, as usual to pulley Y, around this pulley to pulley Z,—passing under this last named pulley it passes in a parallel direction and in contact with the part described above as passing along the top of the carriage X, to pulley *x* passing under the last named pulley it leads on to pulley V, thence around said pulley V, to the place of beginning. The pulleys Y, Z, and *x* run on studs as usual, the studs supporting Y, Z are fastened to a bracket *c*, bolted to the frame end. The stud supporting *x*, is fastened to a projection or bracket W, described above. The two parts of the condensing belt K are guided and pressed together by a series of springs *a*, *a*, shown in Figs. 3 and 4. They are made of rolled or hoop iron and are about one inch wide and about one thirty-second of an inch thick, they are fastened with wood screws to the back side of the top piece of the carriage and run up about three-eighths of an inch above said top piece where they are turned or bent at right angles and pass over the top of the condensing belt K to within about three fourths of an inch of its front edge next the bobbins, where it is bent or set down about one eighth of an inch in such manner that about one half inch of the front of the springs will bear on the condensing belt K, the front ends of these springs are turned or bent down at right angles about five sixteenths of an inch for the purpose of guiding and keeping the condensing belt K in its place. The springs *a*, *a*, are regulated so as to put the proper pressure on the condensing belt by means of wood-screws *b*, *b*, passing through them into the top piece of the carriage.

By the above described arrangement it will be perceived the necessity of raising the carriage as the bobbins fill is obviated and all the fixtures usually employed for that purpose dispensed with. The carriage X, is supported by brackets *d*, *d* and *g*, *g*, which are bolted to cross pieces *e*, these cross pieces are supported at one end by the roller beam, and at the other by the beam at the front of the machine, which support the brackets I, I, and the radius bars H, H. The front brackets *d*, *d*, have a V groove in their tops made to fit V slides which are fastened to the bottom of the carriage X, in which they run, these slides are filed or planed up straight and put on parallel with the carriage, and guide the carriage and keep it parallel with the shaft or cylinder A, the brackets *g*, are made plain on their tops to fit plain straight slides on the back side of the carriage.

The carriage may be worked in any of the ordinary ways by which the bobbins are made to fill conical at their ends or without heads on the bobbins, but I prefer the mangle, wheel motion such as is now in common use,—this part of the machine as well as the rollers and roller gearing being in common use and so well understood I deem it unnecessary to described it.

What I claim as my invention consists of the following arrangement, viz:

The turning of the cylinder A, which bears and drives the bobbins in a direction which makes the roping run on to the bobbins at the point of contact or bearing between the bobbins and the said driving cylinder the roping being made to pass between the condensing belt or through the condensing tube to said point of contact in the direction of a tangent to said driving cylinder, whereby the bobbins take the roving at such a distance from the nearer edge of the said belt or tube as to be within the length of the fiber,—and thereby the roping is not liable to be strained after passing upon the bobbin as may be the case in machines which deliver the roving through guides to the top or sides of the bobbins, the guides in my machine being made to deliver the roping filament to the condensing belt and this being placed on a line with the top of the driving cylinder so as to deliver the roping as near as may be in the direction of a tangent as aforesaid, all substantially as aforesaid.

CHARLES DANFORTH.

Witnesses:
GEO. J. BOWDOIN,
JOHN F. BRADY.