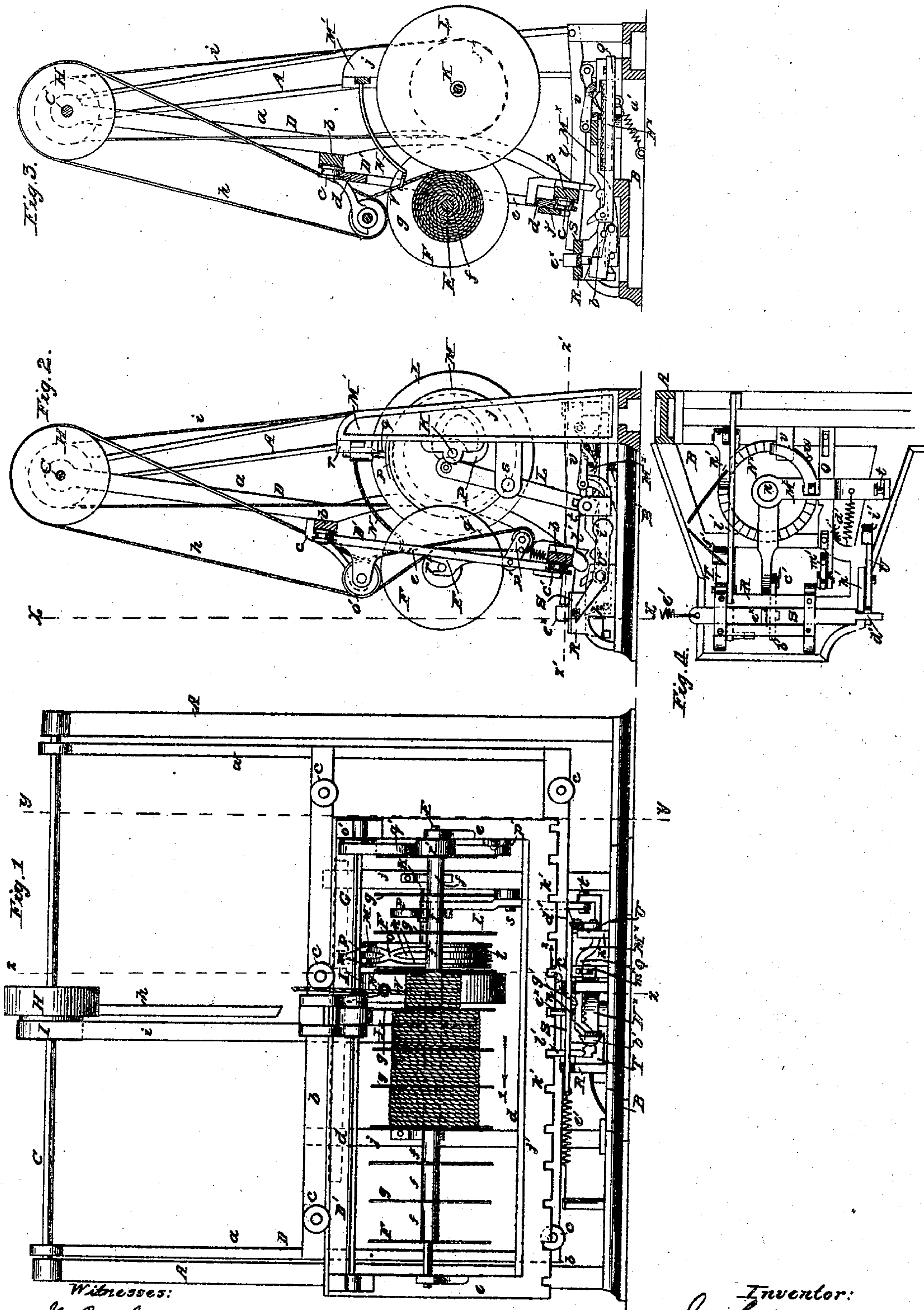


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MACHINE FOR WINDING ROVINGS ON SPOOLS.

No. 30,958.

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UNITED STATES PATENT OFFICE.

J. A. CHAPMAN, OF POQUETANUCK, CONNECTICUT.

MACHINE FOR WINDING WOOLEN ROVINGS.

Specification of Letters Patent No. 30,958, dated December 18, 1860.

To all whom it may concern:

Be it known that I, J. A. CHAPMAN, of Poquetanuck, in the county of New London and State of Connecticut, have invented
5 a new and Improved Machine for Winding Woolen Rovings on Spools; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making
10 a part of this specification, in which—

Figure 1 is a front sectional elevation of my invention taken in the line *x, x*, Fig. 2. Fig. 2 a side sectional view of the same taken in the line *y, y*, Fig. 1. Fig. 3 a side sectional view of the same taken in the line *z, z*,
15 Fig. 1. Fig. 4 a horizontal section of the same taken in the line *z', z'*, Fig. 2.

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

20 The object of this invention is to facilitate the labor of removing the rovings from the carder to the machinery which subjects them to the succeeding operation in the manufacture of yarn.

25 The invention consists in the employment or use of a series of spools connected together or placed on the same shaft the latter being placed in a sliding frame which is fitted in a swinging one and arranged with
30 certain parts hereinafter described, whereby the rovings, as they are discharged from the carder are wound on the spools, the latter being filled consecutively by a continuous operation and adjusted automatically.

35 To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A A represent two uprights which are attached to a proper base B, and have their
40 upper ends connected by a horizontal rod C, on which a swinging frame D, is suspended and allowed to work freely. This frame D is composed of two bars *a, a*, the upper ends of which are fitted loosely on rod C. The
45 rods *a, a*, are connected by cross bars *b, b*, which are parallel with each other and have friction rollers *c*, attached, between which a sliding frame D', is fitted, said frame being composed of two horizontal parallel bars
50 *d, d*, having their ends connected by upright bars *e, e*. See Fig. 1.

In the sliding frame D', there is placed a horizontal shaft E, the latter having its

bearings attached to the upright bars *e, e*. On the shaft E, the spools F, on which the
55 rovings are wound are placed, said spools being formed of a series of short tubes *f*, with a circular disk *g*, between each.

In the upper part of the frame D, there is placed a shaft G, which is parallel with E,
60 and receives its motion by a belt *h*, from a pulley H, on the rod C. To the pulley H, there is attached a pulley I, around which a belt *i*, passes, said belt also passing around a pulley J, which is attached to a shaft K,
65 that is fitted between two uprights *j, j*, on the base B. On this shaft K, there is also secured a wheel L, which has a smooth periphery parallel with the shaft E, and nearly equal in breadth to the space between
70 the disks *g*, as shown clearly in Fig. 1. On the shaft K, there is placed a wheel M, the periphery of which has two worm-shaped grooves *k, k*, made in it. These grooves are
75 each composed of a circumferential portion *l*, and an oblique portion *m*, the latter crossing each other at about their centers as shown at *o*, in Fig. 1. Into these grooves
80 *k, k*, a plate *p*, is fitted, said plate being attached to the lower end of a vertical rod *q*,
which is fitted loosely in a horizontal bar M', the latter being placed loosely in guides
85 *r*, on the uprights so that it may work freely to the right and left therein. To the bar M', a guide N, is attached through which the
roving O, passes.

P, is a cam which approximates to a heart-form and is placed on the shaft K. This cam P, works against the upper end of a
90 lever L, which has its fulcrum at *s*. The lower end of lever L, is attached by a pivot *t*, to one end of a bent lever M^x, which has its fulcrum at *u*, and on which below lever M^x, there is placed a horizontal ratchet N^x,
95 into which a pawl *v*, on the lever M^x, catches. The ratchet N, has a pin *w*, attached to it, which pin, at every revolution of the ratchet, engages with a slide bar Q, and forces it
100 back a certain distance, a spring *a'*, which is attached to bar Q, having a tendency to force said bar forward. The outer end of the bent lever M^x, has a small arm or latch
b', attached to it by a pivot *c'*.

On the base B, there is secured a small horizontal frame R, in which a sliding bar
105 S, is fitted and allowed to work freely. This

bar S, has a notch d' , at one end of it and the opposite end has a spiral spring e' , attached to it. On the upper surface of the sliding bar S, there is a projection e^x , and to the lower part of the frame R, there is attached a small drop lever T, the inner end of said lever having a weight f' , at its inner end which weight has a tendency to keep its outer end elevated and also latch b' . To the under side of the sliding bar S, there is attached a projection g' .

U, is a drop lever which is attached to a small upright h' . This lever has also a weight i' , at its inner end which has a tendency to keep its outer end elevated.

To the lowest bar d , of the sliding frame D' , there is attached a bar j' , which is slotted vertically at equal distances apart as shown at k' , in Fig. 1, and just below said bar j' , and at right angles to it there is secured a bar l' , which bar serves as a guide for the swinging frame D, as will be presently shown.

The projection e^x , on the bar S, is equal in thickness to the guide bar l' , and the latter is in line with the projection e^x , when the bar S, is drawn fully back by the spring e' . In the outer end of the slide bar Q, there is fitted a small drop lever m' , and a holding pawl n' , engages with the ratchet N.

To one end of the shaft G, there is attached a pulley o' , around which and a pulley p' , in the frame D' , there passes a belt q' . This belt bears against or runs in contact with a pulley r' , on shaft E.

The operation is as follows: The shaft K, is rotated by any convenient power and the sliding frame D' , is adjusted to the extreme right of its movement, the first spool F, being directly opposite the wheel L, and the latter fitting within it the gravity of frame D, causing such result. The roving designated by V, passes through the guide N, and around the first spool F, or the one in which the wheel L, fits. The shaft E, is rotated from the shaft G, by the friction belt q' , and the roving is wound on the first spool, the frame D, being gradually forced outward as the diameter of the spool increases in consequence of the periphery of the wheel L, bearing against it (see Fig. 3). The roving V, as it is wound on the spool has a lateral vibrating movement given it by the bar M' , the latter being operated by the wheel M, with its grooved periphery the grooves k, k , being so arranged as to give the guide N, a slight dwell at the change of its movement so as to have the spools concave or the roving so wound thereon as to be of greater diameter at the ends to admit of the roving being freely unwound from the spools. As the spool gradually fills the frame D, as before stated, is forced outward, the frame being guided

in its outward movement by the guide bar l' , which is fitted in one of the recesses k' , of the bar j' . By the time the spool is filled the bar Q, throws the frame D, outward and the notched bar j' , passes off the guide bar l' , and covers the projection e^x , on the slide bar S, and at this movement the front end of the drop lever U, is pressed down by a projection a^x , on the frame D, and the slide bar S, is released and the spring e' , draws the sliding frame D' , in the direction of arrow 1, a sufficient distance to bring the succeeding spool F, in front of wheel L, and the operation is repeated until all the spools are filled. After each movement of the frame D' , the latch b' , of lever M^x , (which latter is actuated by the lever L, and cam P) catches against the projection g' , of the slide bar S, and moves said bar in the direction of arrow 2, until the notch d' , catches over the front end of the drop lever U, the latter holding the bar S, until the frame D, is again shoved forward the extent of its movement and a recess k' , passed over the projection e^x , when the slide bar S, is again liberated as before and a succeeding spool brought in line with wheel L. The roving V, it will be understood is not broken but is wound on the whole series of spools in a continuous thread.

The rotation of the shaft E, and spools F, is not arbitrary for motion is given the shaft E, by the friction belt q' , and as the wheel L, bears against the face of the spool under process of filling the wheel L, modifies the motion of the spool. It will be seen that as the spools fill the slower they should rotate and consequently the wheel L, and belt q' , operate in opposition to each other the former offering an increasing resistance to the positive or constant movement of the belt q' . By this arrangement the roving is wound snugly or compactly on the spools, the belt q' , slipping over the surface of pulley r' .

The function of the bar Q, as previously alluded to is to throw the frame D, rapidly off the guide bar l' , and over the slide bar S, at the moment when the spools have been filled. This result is effected by the action of the pin w , on the ratchet N^x , the former drawing the latter back and releasing it at such a time that the bar Q, will be projected forward by its spring a' , and shove the frame D, forward off guide bar l' , and on the slide bar S, and be then released so that the frame D' , may be moved to bring the succeeding spool before the wheel L.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is—

1. The arrangement of the wheel L, bar Q, sliding frame D' , swinging frame D,

guide bar *l*, and sliding bar *S*, operated as shown, or in any equivalent way, for the purpose of shifting the frame *D'*, and presenting the empty spools consecutively before the guide *N*, to receive the roving *V*.

2. Operating for the purpose specified the bar *Q*, through the medium of the spring *a'*, ratchet *N**, with pin *w*, attached and the pawl *v*, arranged as described.

3. The employment of a series of spools *10* *F*, when placed on a common shaft *E*, and filled or wound consecutively by a continuous roving substantially as set forth.

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Witnesses:

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