

(No Model.)

T. BRIGGS & E. WEBB.

YARN TWISTING MACHINE.

No. 341,792.

Patented May 11, 1886.

FIG. 3.

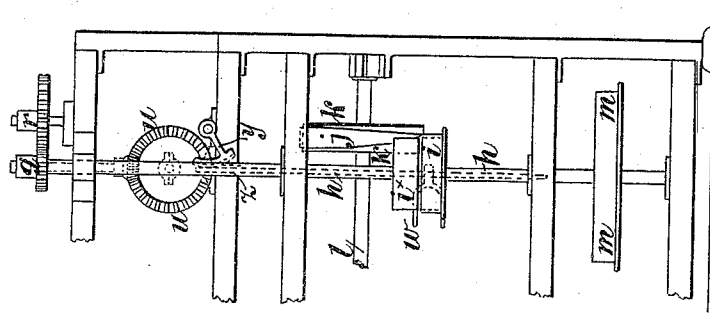


FIG. 2.

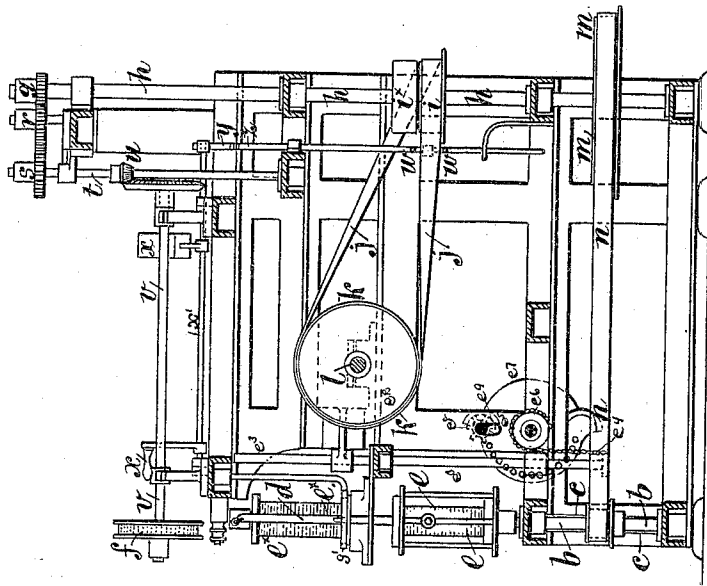
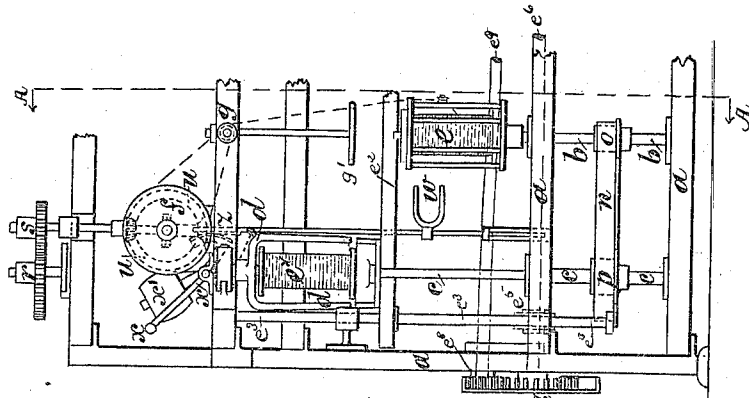


FIG. 1.



Witnesses.

Harry Drury
Henry Bossert.

Inventors
T. Briggs & E. Webb
by their Attorneys
Nowson and Coors

UNITED STATES PATENT OFFICE.

THOMAS BRIGGS AND EDWARD WEBB, OF SALFORD, COUNTY OF LANCASTER, ENGLAND.

YARN-TWISTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 341,792, dated May 11, 1886.

Application filed May 6, 1885. Serial No. 164,516. (No model.) Patented in England January 31, 1884, No. 2,426.

To all whom it may concern:

Be it known that we, THOMAS BRIGGS and EDWARD WEBB, subjects of the Queen of Great Britain and Ireland, and both residing at Salford, in the county of Lancaster, England, have invented Improvements in Yarn-Twisting Machines, (for which we obtained a patent in Great Britain, No. 2,426, dated January 31, 1884,) of which the following is a specification.

This invention consists of improvements in the construction of apparatus for twisting yarns of fibrous material.

Our invention will be readily understood from the following description thereof, reference being made to the accompanying drawings, in which—

Figure 1 is a front elevation of one end section of our machine, parts of the frame being broken away. Fig. 2 is a vertical transverse section of the same on the line A A, Fig. 1; and Fig. 3 is a back elevation of the same, parts of the frame being broken away.

Instead of the creel-pins being arranged at the top of the frame for receiving the bobbin of yarn to be twisted, as in the ordinary method of doubling, we arrange the spindles in pairs, mounted upon rails secured to the front of the frame *a a*. One of the spindles is termed the "letting-off" spindle. The other is an ordinary "doubling-spindle," *c c*, provided with a flier, *d d*. The bobbins of yarn *e e*, previously wound upon a doubling winding-frame, are placed upon the letting-off spindles, and the threads from each of these bobbins is carried upward through the ring *g'* and over the pulley *g*, then round the draw-roller *f f*, then back round the pulley *g*, and over the draw-roller *f* again, thence passing down the flier *d* to the bobbin *e'* upon the taking-up spindle *c*. By this means the threads receive twist at both ends.

The bobbins *e' e'* are carried upon a traversing rail, *e''*, which is lifted and lowered by vertically-sliding rods *e''*, supported and actuated by chains *e''* and pulleys *e''* on a shaft, *e''*, to which an alternately-reversing movement is given by means of a mangle-wheel, *e''*, driven by a pinion, *e''*, on a constantly-revolving shaft, *e''*. (See Figs. 1 and 2.) This shaft *e''*

may receive its constantly-revolving motion directly from the driving-shaft *l*, or from any other shaft convenient for the purpose. The traversing motion, however, forms no part of our present invention, and may be replaced by any other well-known or equivalent motion for effecting the traverse of the rail *e''*.

Conveniently situated at the back part of the machine, and behind each pair of spindles, is placed a vertical shaft, *h h*, fitted with fast and loose pulleys *i i'*, and driven by a band, *j j*, from a pulley, *k k*, upon a horizontal shaft, *l l*, passing from end to end of the front part of the frame. On each of these vertical shafts *h h*, and near the lower part thereof, is keyed a flanged pulley, *m m*, which serves to drive each pair of spindles by means of a band, *n n*, passing round both the small flanged pulleys, *o o p p*, on the spindles, and driving both in the same direction. On the upper part of each of these vertical shafts *h h* is keyed a pinion, *g g*, gearing into an intermediate wheel, *r r*, which drives a change-pinion, *s s*, keyed or fastened by means of a set-screw to another small upright shaft, *t t*, placed a short distance in front of the first-named vertical shaft *h h*. From this small upright shaft *f f* the draw-roller (placed between the two spindles *b* and *c*, forming a pair) is driven by means of bevel-gearing *u u* and a horizontal shaft, *v v*, extending to the front of the frame and carrying the draw-roller.

The stopping of each pair of spindles is effected by removing the band driving the upright shaft from the fast pulley *i i* to the loose pulley *i' i'* by means of a strap-fork, *w w*, worked by a small handle, *x x*, in front of the machine. The said handle actuates the toothed sector *y y*, which is on the same shaft or axis, *x'*, with the handle *x*, and raises or lowers the rack *z z* and weight *x' x'*, counterbalancing the weight of the said strap, fork, rack, and sector.

By this arrangement it will be seen that each pair of spindles, with its separate draw-roller, forms a distinct machine, or section of a machine, complete in itself, although the frame may contain any number of pairs without any increase of space or pitch beyond that of the ordinary twisting-frames. The advan-

tages of this construction will also be apparent to any one conversant with doubling and twisting heavy fibers, as it admits of a great variety of cords being produced simultaneously, and avoids all delay and expense in changing or running off a frame. Each spindle can be supplied with fresh bobbins and doffed or pierced or changed separately while others are running, thus enabling a much larger "turn-off" to be obtained.

The principal advantages obtained by this improved construction of twisting-frame are, first, that both letting-off and "winding-on" spindles being at the front of the machine, both space and labor are economized; second, that each separate section of the machine is complete in itself and can be started and stopped independently of all other sections; third, that the twist is put in at both ends of the yarn at once, and equal length and strain upon each strand is insured; fourth, that the system allows of the spindles being driven at a much higher speed than otherwise, and as they are driven from vertical pulleys with comparatively wide straps there is no liability to slip or "miss twist," resulting in the production of a superior cord and very little "waste."

We do not wish to claim in this case the arrangement of both the letting-off and doubling spindles at the front of the machine, as that feature is set forth in a separate application for patent filed by us May 6, 1885, Serial No. 164,517.

We claim as our invention—

1. The combination of the spindles *b* and *c*, adapted to receive letting-off and doubling bobbins, and having pulleys *o* and *p*, with shaft *h*, having pulley *m*, and strap *n*, passing round these pulleys, and with driving-pulley *k*, belt *j*, belt-shifter for the latter, and fast and loose pulleys *i* *i*' on the shaft *h*, all substantially as specified.

2. The combination of the letting-off spindle *b*, the doubling-spindle *c*, flier *d*, and draw-roller *f* with the driving-shaft *h*, stopping and starting devices for the latter, and mechanism, substantially as set forth, whereby the two spindles and draw-roller are all driven from the shaft *h*, all substantially as set forth.

3. The combination of the letting-off spindle and doubling-spindle with the shaft *h*, and devices for transmitting motion to the spindles from the shaft *h*, fast and loose pulleys on the shaft, driving-pulley *k*, belt *j*, rack *z*, carrying a fork, *w*, a sector, *y*, shaft *x*', and operating-handle *x* for the sector, all substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

THOS. BRIGGS.
EDWARD WEBB.

Witnesses:

JNO. HUGHES,
J. ERNEST HUGHES.