(No Model.)

J. DUFFY.

ORGANZINE SPINNER.

No. 525,192. Patented Aug. 28, 1894.

Fig: 1.

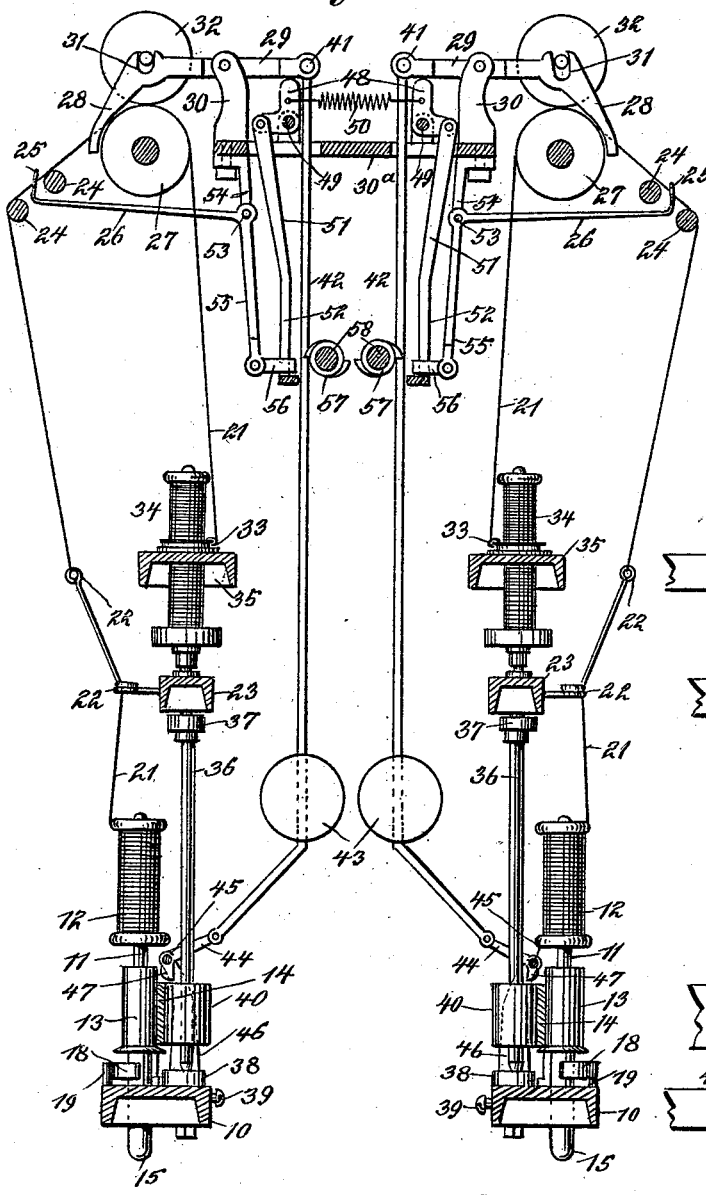


Fig: 2.

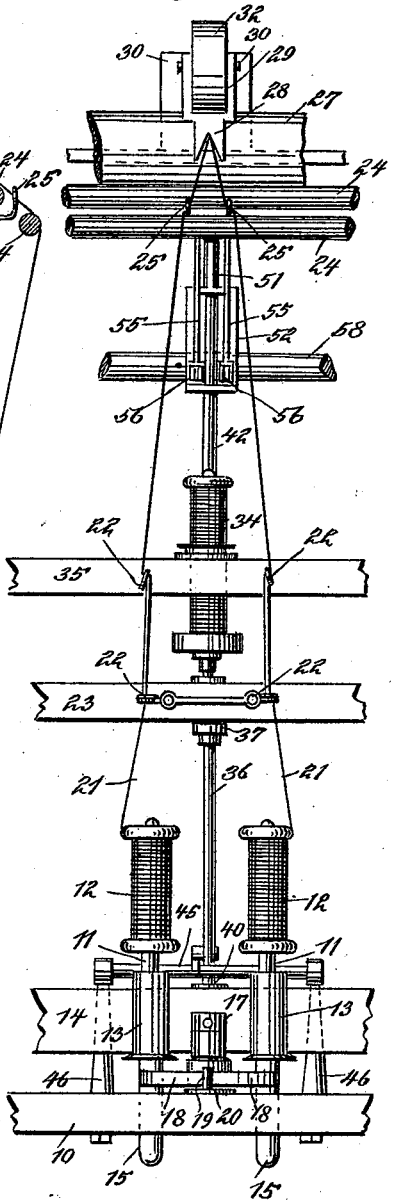
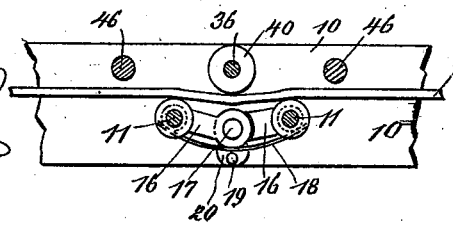


Fig: 3.



WITNESSES:

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JOSEPH DUFFY, OF PATERSON, NEW JERSEY, ASSIGNOR TO TAYLOR, SHAW & COCKER AND THE ATHERTON MACHINE COMPANY, OF SAME PLACE, AND WALTER G. MORRISON, OF WILLIMANTIC, CONNECTICUT.

ORGANZINE-SPINNER.

SPECIFICATION forming part of Letters Patent No. 525,192, dated August 28, 1894.

Application filed September 23, 1893. Serial No. 486,295. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH DUFFY, of Paterson, in the county of Passaic and State of New Jersey, have invented a new and Improved Organzine-Spinner, of which the following is a full, clear, and exact description.

My invention relates to improvements in machines for spinning organzine silk warp, the machine being of the general class shown in the patents of the United States to Dale and Kraink, No. 109,185; Seymour, No. 245,878, and Tynan, Nos. 364,785 and 415,827.

My invention employs the well-known method of driving by a continuous belt, this method being substantially like that shown in the British Patent No. 1,938, of 1793.

The object of my invention is to produce a very simple apparatus, which will make perfect organzine warp, and which is constructed in such a way that the breaking of a thread will at once stop the winding and spinning mechanism which carries the thread, so that no imperfection in the warp results.

To this end my invention consists of certain features of construction, and combinations of the same, as will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a cross section through the spinning frame showing the general arrangement of the entire apparatus. Fig. 2 is a broken side elevation of the apparatus; and Fig. 3 is a sectional plan illustrating the manner in which the driving belt is arranged, and showing in detail my improvement on the duplex bolster.

The machine has the usual spindle rail 10, this being the lower rail and in the rail are mounted the spindles 11, which carry the delivery bobbins 12, and which are preferably duplex spindles of the kind shown in my former patent referred to above. The whirls 13 of the spindles press against a continuous and horizontally-moving belt 14 by which the whirls and spindles are revolved, and each whirl has a base flange to prevent the belt from dropping. The spindles rest in the bolsters 15 which have arms 16 pivoted on the trunnions 17 to permit the necessary oscillating movement of the spindles, and the spindles are pressed normally against the belt by a detachable plate spring 18, the ends of which rest against the bolsters, while its central portion is backed by a stud 19 on the flange 20 of the trunnion 17, this flange resting upon the rail 10, as shown in Figs. 2 and 3. The spring arrangement for holding the whirls against the driving belt I claim as novel, and as an improvement on the mechanism for the same purpose illustrated in my former patent, No. 489,292, dated January 3, 1893. The delivery bobbins 12 are revolved in the usual way, and are also arranged in pairs in the customary manner, and the threads 21 which are first spun on these bobbins extend upward through guides 22 of the common kind, these guides being supported on the upper spindle rail 23. The arrangement of the doubling and twisting mechanism which will be described, is similar on both sides of the spindle frame, as illustrated in Fig. 1. After passing through the guides 22, the threads 21 extend upward over the guide bars 24 which are of the usual kind and through the eyes 25 of the fallers 26 which are of an elbow-shape, as shown in Fig. 1, and the construction and the operation of which will be hereinafter described.

From the eyes 25, the threads 21 pass over the doubling roller 27, which is revoluble and extends the whole length of the frame on each side and just before the threads reach the roller they pass through the V-shaped guide 28 which is formed on one end of the tilting carriage 29, this being mounted in a support 30 on the top 30^a of the spinning frame. The carriage 29 has near its outer end and on its upper side, notches 31, which carry the shaft or trunnions of a friction roller 32, and this roller presses upon the threads which are united and doubled, as they pass over the roller 27, while the friction of the roller on the threads causes them to be drawn up and it also holds them in place. From the roller 27 the threads 21 which have

been doubled, extend downward through an eye 33 on the transverse rail 35, and are wound and spun on the take-up bobbin 34.

The bobbin 34 is carried by the take-up spindle 36 which turns in suitable bearings in the upper spindle rail 23, and which has an oil cup 37 immediately below the bearing this cup being designed to catch the superfluous oil and prevent it from being scattered by the centrifugal force of the revolving spindle. The spindle 36 turns in a step bearing 38 on the lower rail 10, the bearing being held in place by a binding screw 39. The spindle 36 is revolved by means of a whirl 40 which is secured to the spindle and presses against the belt 14 at a point opposite the trunnion 17, as shown best in Fig. 3.

The inner end of the tilting carriage 29 has pivoted to it, as shown at 41, a depending brake rod 42, which extends downward through a slot in the top 30^a of the spinning frame, and is provided with a weight 43 sufficiently heavy to tilt the carriage and lift the outer end thereof together with the friction roller 32. The lower end of the brake rod connects with the brake arm 44 which is journaled on a shaft 45 carried by supports 46 on the rail 10, and the brake arm has at a point below its fulcrum, a brake shoe 47, which, when the rod 42 and arm 44 are dropped, swings against the whirl 13 of the spindle 11, so as to push the whirl away from the belt 14 and thus stop the revolving of the spindle. A brake is provided for each whirl so that the spindle will be stopped in case a thread breaks, as hereinafter described. The weights 43 are held up and the brake shoes 47 held away from the whirls opposite them, by means of the bell cranks 48 which are pivoted at their elbows on the top 30^a of the spinning frame, as shown at 49, and the upper ends of which lie normally beneath the inner ends of the tilting carriage 29, the bell cranks being held in position by a spring 50, which connects the upper portions of opposite bell cranks. The lower arm of each bell crank 48 has pivoted to it, a depending rod 51, which extends downward through a slot in the top of the spinning frame, and this arm terminates at its lower end in a guide loop 52. The faller 26 on the outer side of the rod 51 is pivoted at its elbow as shown at 53, to a hanger 54 on the top of the spinning frame, and the inner depending arm 55 of the faller carries at its lower end, a pawl 56, which slides through the lower end of the guide loop 52 and into the path of the teeth on the spur wheel 57, which wheel is carried by a revolving shaft 58.

It will be observed that when the machine is in operation, the threads 21 will be fed constantly from the delivery bobbins 12 to the take-up bobbins 34, but if a thread breaks, the faller 26, through the eye of which the thread runs, will drop, and the inner arm 55 of the faller will swing inward, pushing the pawl 56 into the path of one of the teeth on the spur wheel 57. The spur wheel will then force the pawl downward and will carry with it, the loop 52 and rod 51 which movement of the rod tilts the bell crank 48 and swings it from beneath the tilting carriage 29. The weight 43 then causes the inner end of the carriage to drop, thus lifting the outer end and raising the friction or feed roller 32 from the united threads 21, while at the same time, the brake shoes 47 are forced against the whirls 13 of the spindles 11, and the feeding and spinning mechanism is completely stopped. The broken thread may then be repaired; and the machinery is set in motion by simply pressing downward on the roller 32, thus forcing it back to place and lifting the weight 43 and releasing the brakes 47, and when the brakes are released and the inner end of the tilting carriage 29 raised, the spring 50 causes the bell crank 48 to swing back to its normal position, and the work goes on as before.

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

1. In a spinning apparatus of the kind described, the combination with the endless traveling belt, oscillating bolsters, and the fixed trunnion on which the bolster arms are pivoted, of a pin fixed vertically in rear of but contiguous to said bolster, and a plate spring held detachably between said trunnion and pin, and its ends bearing upon the bolster spindles, as shown and described.

2. In a spinning apparatus of the kind described, the combination with the traveling belt and whirls running in contact with it, a doubling roller, a pivoted horizontal carriage, a friction roller journaled in said carriage, a weighted rod depending from the rear arm of the latter, a swinging brake-shoe connected with the rod and arranged contiguous to the whirl so as to push it away from the belt when a thread breaks, a pivoted, spring-retracted bell-crank, 48, arranged under the rear arm of the aforesaid carriage, a rod depending from the bell-crank and having the guide loop, 52, at its lower end, the pivoted faller, 26, having a thread eye at one end and a pawl, 56, at its opposite end, which slides in said guide loop, and a toothed gear with which the pawl engages when a thread breaks, as shown and described.

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Witnesses:
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