Feb. 10, 1948. A. A. WORTH 2,435,667

YARN-CATCHING DEVICE FOR SPINNING FRAMES

Filed Jan. 29, 1945

Fig. 1.

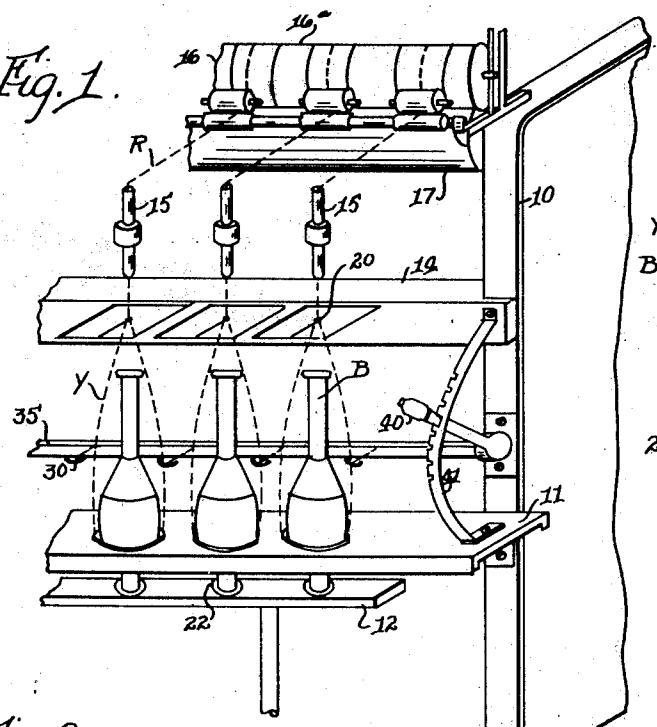

Fig. 2.

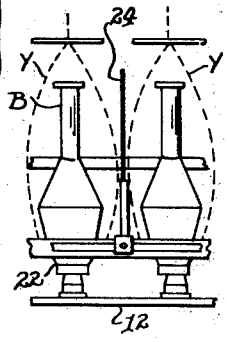

Fig. 3.

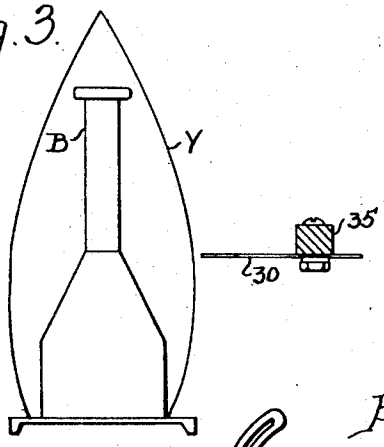

Fig. 4.

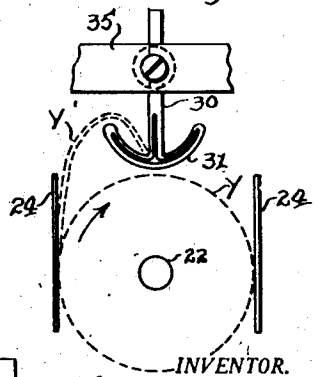

Fig. 5.

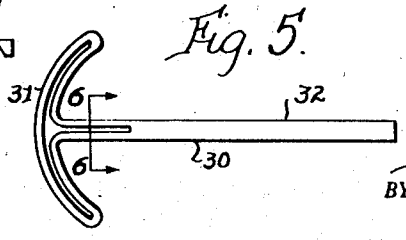

Fig. 6.

INVENTOR.
Arthur A. Worth.
BY Chas. T. Hawley
ATTY.

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YARN-CATCHING DEVICE FOR SPINNING FRAMES

Arthur A. Worth, Lebanon, N. H., assignor to Whitin Machine Works, Whitinsville, Mass., a corporation of Massachusetts

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3 Claims. (Cl. 57—107)

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This invention relates to machines for spinning yarn from wool or other textile fibers. Wool is commonly supplied to a wool spinning frame in the form of rovings delivered from condensers and these rovings are wound on a jack spool in adjacent disc-like sections. Each of these rovings is separately guided through a twister head to a bobbin on a rapidly rotating spindle.

It occasionally happens that two adjacent rovings on the jack spool will become entangled or otherwise associated and that both rovings will be led to a single twister head and bobbin, thus producing irregular and overweight yarn. This condition may continue for a considerable period before detection by the operator, and much waste yarn may thereby result.

It is the general object of my invention to provide a device which will catch and break a double or overweight yarn in a spinning frame as soon as it begins to form.

To the attainment of this object, I provide a yarn-catching device which is clear of the balloon area of a normal or single yarn but which is within the balloon area of an over-size or double yarn. I also provide a device which is operative to catch and break an over-size yarn, regardless of the direction of rotation of the spindle.

My invention further relates to arrangements and combinations of parts which will be hereinafter described and more particularly pointed out in the appended claims.

A preferred form of the invention is shown in the drawings, in which

Fig. 1 is a perspective view of parts of a wool spinning frame embodying my improvements;

Fig. 2 is a front elevation of two adjacent spindles and an interposed separator;

Fig. 3 is a detail side elevation showing the preferred position of my yarn-catching device relative to the balloon area;

Fig. 4 is a fragmentary plan view illustrating the operation of my yarn-catching device;

Fig. 5 is an enlarged plan view of a yarn-catching member; and

Fig. 6 is a detail sectional view, taken along the line 6—6 in Fig. 5.

Referring to the drawings, I have shown my invention embodied in a wool spinning frame of conventional design and comprising a frame 10 having a ring rail 11, a spindle rail 12 and a yarn guide support 14.

I have indicated diagrammatically a plurality of twister heads 15 to which rovings R may be supplied in any convenient manner, as from a jack spool 16 supported on and rotated by a driven

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cylinder or drum 17. The rovings are wound on the jack spool in successive sections 16a, and rovings R from separate sections are delivered to the twister heads 15 in the usual manner.

The rovings R then pass through yarn guides 20 to spinning rings (not shown) on the ring rail 11 and the yarns Y thus formed are wound on bobbins B.

The spindles 22 (Fig. 2) and bobbins B rotate at substantial speed, so that adjacent yarns Y are thrown outward and balloon as indicated in Fig. 2. The usual separators 24 are provided between adjacent spindles to prevent the ballooning yarns from engaging each other.

All of the constructions thus far described is of the usual type and in itself forms no part of my present invention.

As previously stated, rovings from adjacent sections 16a of the jack spool 16 sometimes become entangled or otherwise associated, so that two rovings will be directed to a single twister head 15 and bobbin B. When this occurs, the extra weight of the over-size or double yarn causes a substantial increase in the balloon area, as indicated at Y' in Fig. 4.

My improved yarn-catching device consists of a series of more-or-less T-shaped members 30 (Fig. 5) each having a double-horned head 31 and a stem 32. The stems 32 are mounted for adjustment in a bar 35, which bar in turn is mounted at the rear of the spindles 22 and extends longitudinally of the spinning frame. The members 30 are preferably positioned directly rearward of the associated spindles 22 substantially as indicated in Figs. 3 and 4, so that the heads 31 thereof are just clear of the yarn Y in its normal balloon path. If, however, the yarn is increased in weight so that it assumes the position Y' in Fig. 4, the yarn will be caught in one of the horns of the head 31 and continued rotation of the spindle will promptly break the yarn. The doubled roving will then wind up on the usual scavenger roll until conditions are corrected by the operator.

If the direction of rotation of the spindle is reversed, the doubled yarn is caught on the opposite horn of the head 31, and the same result is achieved.

The balloon area varies with the size of the yarn and with the speed of the spindles. The members 30 are preferably so adjusted that they are just outside of the correct balloon area for the particular size of yarn and speed of rotation encountered.

The bar 35 on which the devices 30 are mounted

is preferably rotatably supported on the frame 10 and is provided with a handle 40 which may be latched to a notched segment 41 to hold the bar 35 and members 30 in any desired angular position. Relative adjustment between the members 30 and the yarns Y may thus be additionally obtained by angularly adjusting the bar 35 to raise or lower the members 30.

The heads 31 of the members 30 may desirably be formed of continuous pieces of wire, see Fig. 6, bent as indicated in Fig. 5 and having their adjacent rear ends secured to the supporting stem 30 by welding or any other convenient manner. It will be understood, however, that my invention is not limited to this specific construction.

From the foregoing description, it will be evident that I have provided very simple and efficient means for catching and breaking a double or over-size yarn in a spinning frame, while at the same time there is no interference with the usual operation of the machine.

I have described my invention as embodied in a machine designed for spinning wool, but the utility of my invention is not limited to the spinning of any particular material.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:

1. In a wool spinning frame, a yarn-catching member comprising a stem and a head secured thereto and having rearwardly disposed yarn-catching end portions, said head being formed of a single piece of wire doubled upon itself and having its ends extending rearward and secured to the front end of said stem.

2. In a wool spinning frame having a fixed ring rail and vertically movable spindles and having yarn guides which have a vertically fixed operative position, in combination, a yarn-catching device comprising a longitudinal support and a series of yarn-catching members spaced along said support and secured thereto, each member being positioned directly rearward of its associated spindle and adjacent the normal maximum balloon area of an associated yarn and substantially in the horizontal plane vertically midway between the fixed ring rail and the vertically fixed yarn guides, and each yarn-catching device having a laterally projecting portion effective to engage and break an over-size yarn on excessive ballooning thereof.

3. The combination in a wool spinning frame as set forth in claim 2, in which the yarn-catching member has a laterally projecting hook-shaped portion at each side thereof effective to engage and break an over-size yarn on excessive ballooning thereof and for either direction of spindle rotation.

ARTHUR A. WORTH.

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