March 29, 1932. J. PERRY, JR 1,851,937

REVERSIBLE SPINDLE DRIVE FOR SPINNING AND TWISTING MACHINES

Filed May 29, 1931 2 Sheets-Sheet 1

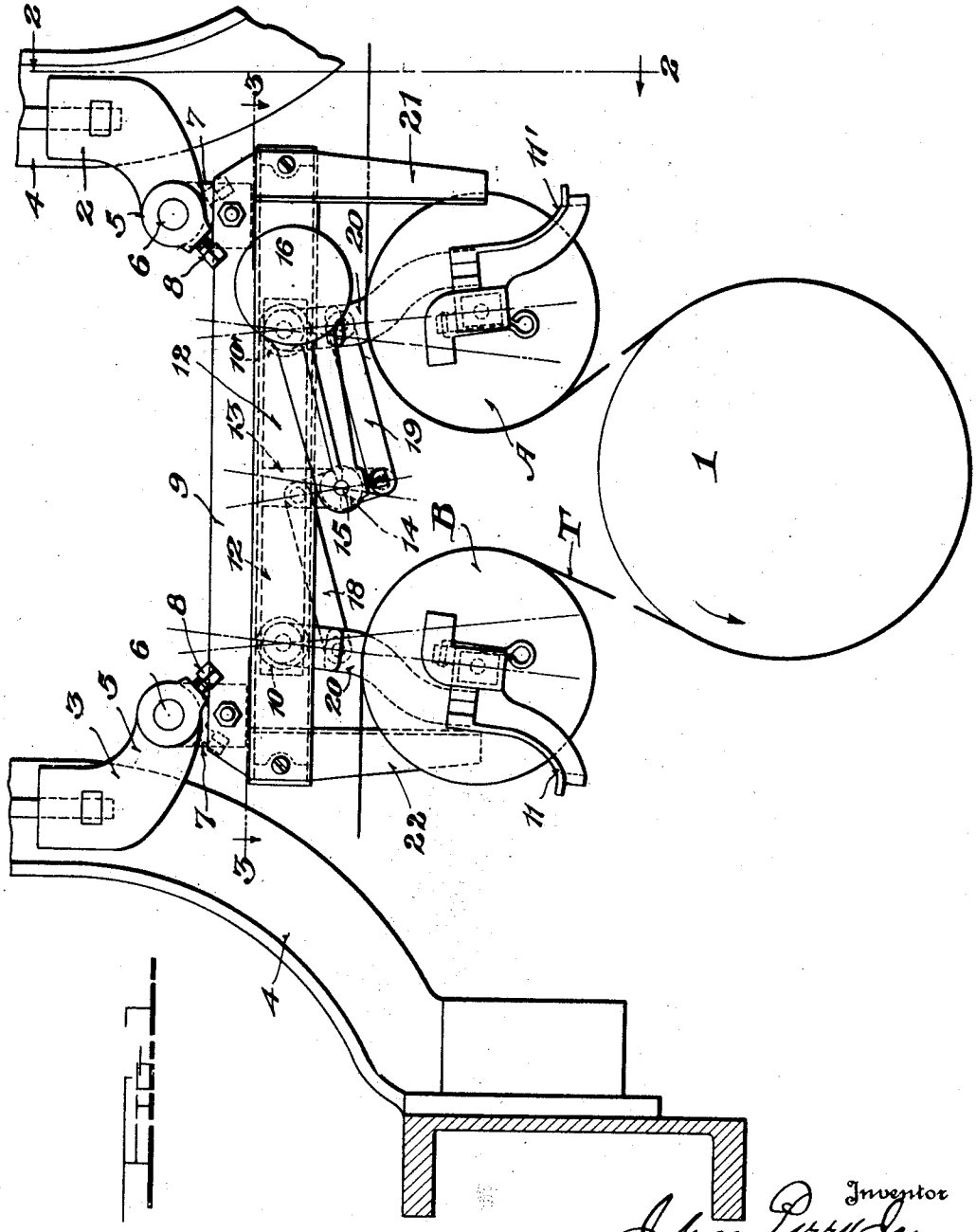

FIG. 1

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Fig. 2

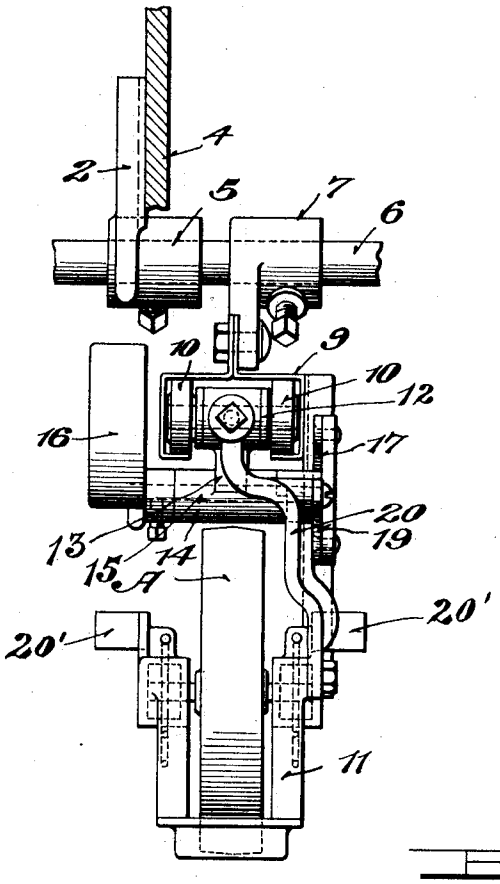


Fig. 4

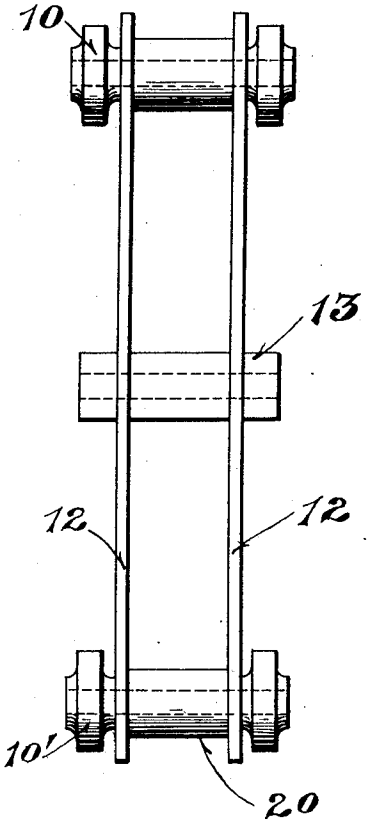
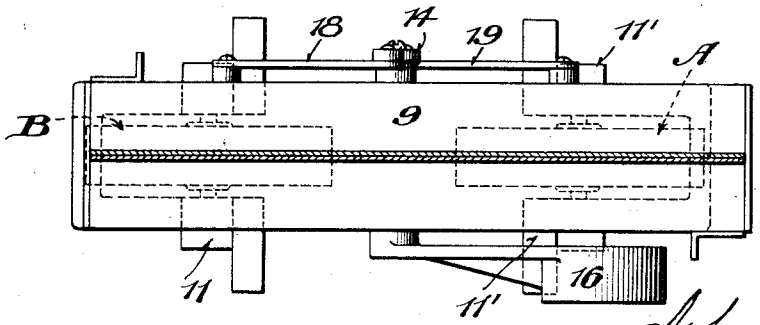


Fig. 3



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UNITED STATES PATENT OFFICE

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REVERSIBLE SPINDLE DRIVE FOR SPINNING AND TWISTING MACHINES

Application filed May 29, 1931. Serial No. 540,844.

This invention relates to reversible spindle drives for spinning and twisting machines and has for its primary object to provide automatic means to take up slack in the driving tape irrespective of the direction of rotation of the machine.

A further object of the invention is to provide means whereby the idler pulley system places a constant tension on the driving tape and at the same time allows the entire idler pulley system to shift laterally of the supporting frame through a limited range.

Further objects and advantages will become apparent as the description proceeds, reference being had to the accompanying drawings; in which

Figure 1 is a fragmentary elevation partly diagrammatic of the device mounted on the ordinary spinning frame:

Figure 2 is a view on line 2—2 of Figure 1, and

Figure 3 is a section on line 3—3 of Figure 1.

Figure 4 is a plan view of the auxiliary frame showing the rollers and the central depending arm.

In the proceeding in accordance with the present invention a driving pulley or drum 1 is shown which is mounted and actuated in the usual manner. A pair of shaft brackets 2 and 3 are adjustably mounted on an ordinary spinning machine frame 4. The shaft brackets 2 and 3 are provided with inwardly extending projecting portions 5 which carry supporting shafts 6. As shown in Figure 2 the supporting shafts carry the entire idler pulley structure which letter is connected thereto by means of supporting members 7, and which may be fixed in place by adjustment of set screws 8. Depending from the supporting members 7 is a U-shaped track-like member 9, which is formed from sheet metal and has the free ends of the U turned inwardly to provide track surfaces for rollers 10 and 10′. The roller 10 supports axially bearing cradle structures 11 and at the same time act to support one end of the auxiliary frame 12, and the roller 10′ supports a similar structure, that is, a bearing cradle structure 11′ and the opposite end of the auxiliary frame 12. From the center of the auxiliary frame 12 a depending arm 13 is provided and has a hub 14 at its lower end. A shaft 15 extends axially through the hub 14 and carries a weight 16 at one end and a crank arm 17 at the other. Pivotally connected to each end of the crank arm 17 are links 18 and 19 which are pivotally connected at their outer ends to the carrying brackets 20 of the bearing cradles 11. The links 18 and 19 are connected at the inner side of the crank arm 17 so that they will be in position to contact the hub 14 in case the weight 16 tends to move them beyond their normal position. In this manner the weight 16 is kept from dropping completely down and necessitating readjustment of the component parts of the idler pulley system.

Should the driving tape T slip from the pulley A or B, stop ears 20′ carried by the bearing cradle 11 will act to keep the tape from falling down on the driving mechanism.

Stop brackets 21 and 22 are provided which depend from the track 9 and act to limit the motion of the idler system laterally of the frame.

In operation, and assuming the direction of rotation to be indicated by the arrow on the driving pulley, it will be seen that pulley B and the carriage structure carried by the rollers 10 will move to the left. The motion will continue until the bearing yoke 11 contacts the depending stop member 22. In this position, pulley B becomes the idler pulley and the weight 16 acts on the pulley A through link 19 and urges it inward thus tensioning the tape T and assuring a positive drive at all times. If the direction of rotation is reversed the similar action will provide pulley A as the idler pulley and pulley B as the tensioning pulley.

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

1. In a device of the class described, a frame, spindle driving means carried by said frame, a U-shaped track member carried by said frame, said member having the free ends of the U bent inwardly and horizontally to provide track surfaces, spaced pairs of spaced

rollers in said track member, an auxiliary frame carried between said pairs of rollers, a hub depending centrally from said auxiliary frame, a weight disposed at one side of and connected to said hub, a crank arm disposed at the opposite side of said hub and operative by said weight, a pair of links pivotally connected to opposite ends of said crank arm, a pair of brackets each carried between one pair of said spaced rollers, bearing cradles carried by each of said brackets and connected to the opposite ends of said links, pulleys carried by each of said bearing cradles, stop members depending from the track member and adapted to limit the lateral movement of said bearing cradles by engagement therewith, and means to drive said pulleys from said driving means.

2. In a device of the class described, a frame, spindle driving means carried by said frame, a track member carried by said frame, rollers carried in said track member, an auxiliary frame connecting the rollers, a hub depending from said auxiliary frame, a weight disposed at one side of and connected to said hub, a crank arm connected to the opposite side of said hub and operable by said weight, a pair of bearing cradles, means to connect said bearing cradles to said auxiliary frame, means to connect said bearing cradles to said crank arm whereby said bearing cradles are urged toward each other by the action of said weight, pulleys carried in said bearing cradles, and means to drive the pulleys from said driving means.

3. In a device of the class described, a frame, spindle driving means carried by said frame, a track member carried by said frame, rollers carried in said track member, an auxiliary frame connecting said rollers, a hub depending from said auxiliary frame, a pair of bearing cradles carried by said auxiliary frame, means connected to the auxiliary frame and said bearing cradles whereby to urge the pulleys carried in said bearing cradles toward each other and means to drive the pulleys from said driving means.

In testimony whereof I have hereunto signed my name.

JOHN PERRY, JR.