F. HEILMAN.

AUTOMATIC STOP FOR BARB WIRE MACHINES.

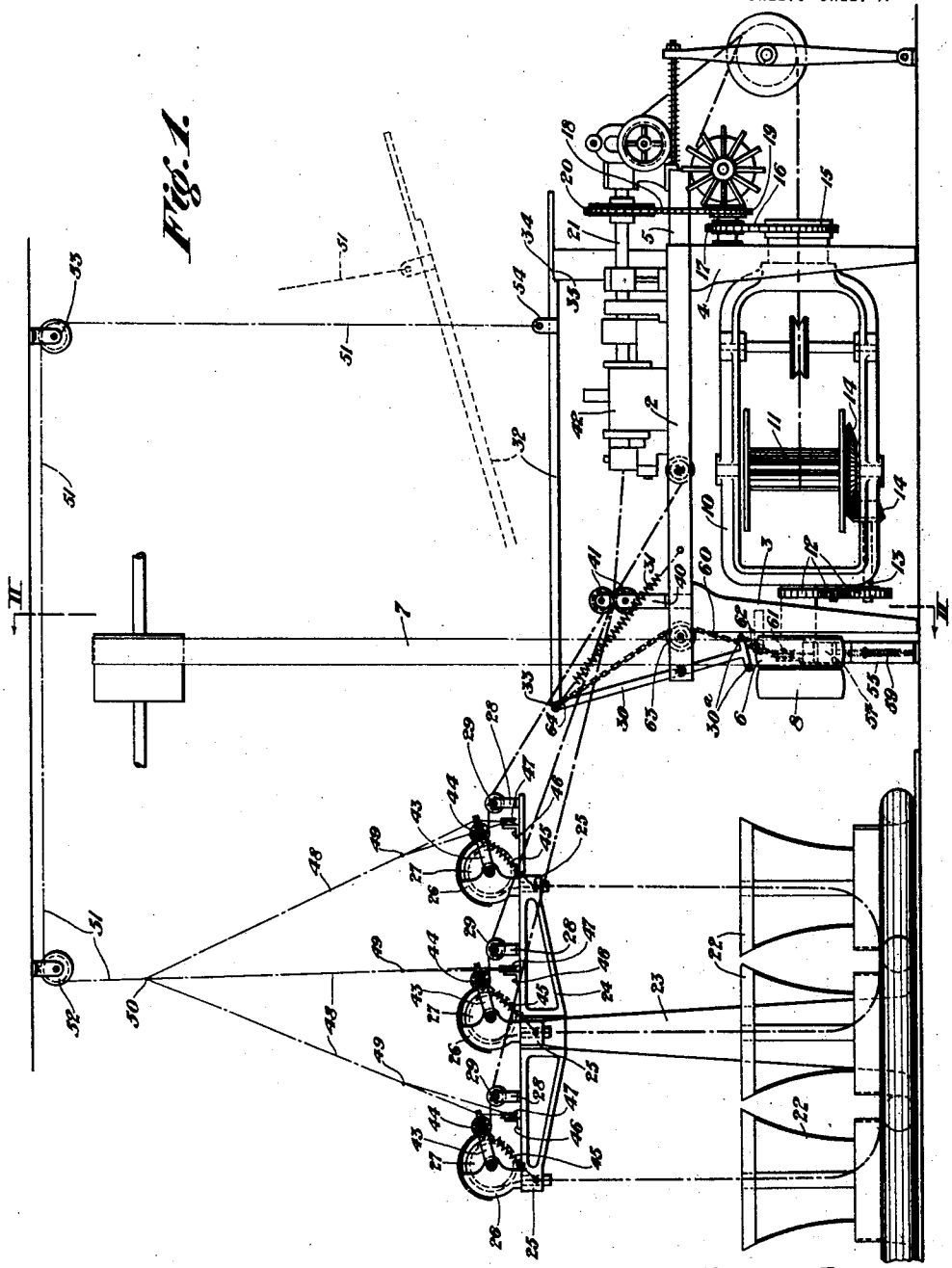
APPLICATION FILED JAN. 26, 1921.

1,399,384.

Patented Dec. 6, 1921.

2 SHEETS—SHEET 1.

Fig. 1.



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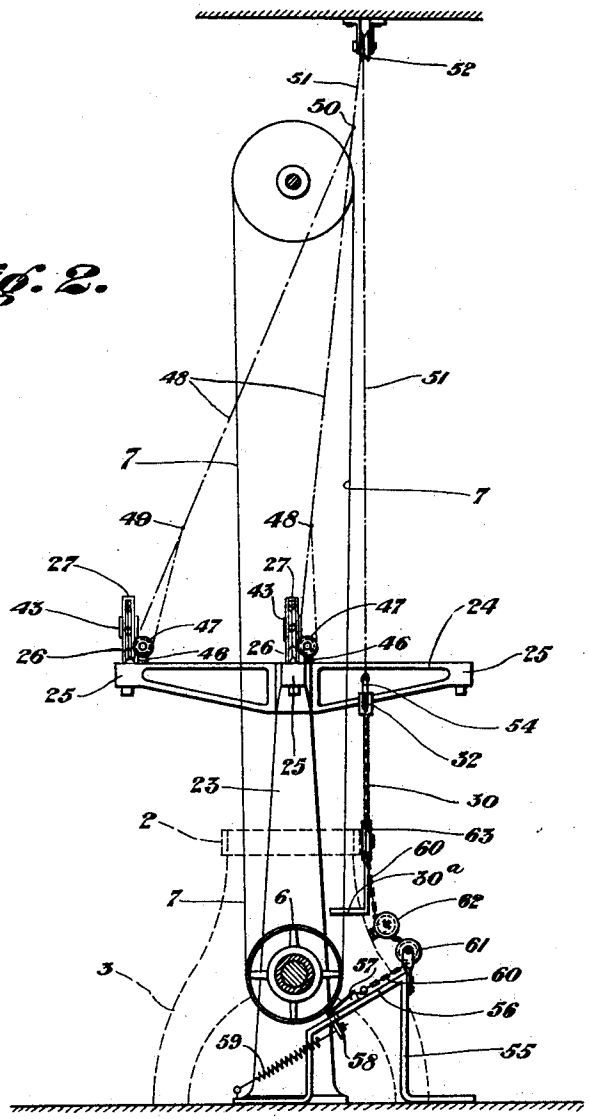
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2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

FRANK HEILMAN, OF CLEVELAND, OHIO, ASSIGNOR TO THE AMERICAN STEEL AND WIRE COMPANY OF NEW JERSEY, A CORPORATION OF NEW JERSEY.

AUTOMATIC STOP FOR BARB-WIRE MACHINES.

1,399,384. Specification of Letters Patent. Patented Dec. 6, 1921.

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To all whom it may concern:

Be it known that I, FRANK HEILMAN, a citizen of the United States, and resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Automatic Stops for Barb-Wire Machines, of which the following is a specification.

This invention relates to improved means for disconnecting the drive from a wire working machine and applying a braking device for quickly stopping the machine in the event of the wire being broken in the machine or becoming snarled, either in the machine or between the feed reel and the machine.

Briefly my invention pertains to a barb wire machine and comprises a belt shifter which is connected with means tending to shift the drive belt into engagement with the loose pulley of the machine, and a latch arranged to normally hold the belt shifter in position to guide the belt on the fixed pulley, and a feeler mechanism engaging the wire which is fed into the machine, said feeler mechanism being connected with means for tripping the belt shifter so that it may be automatically moved upon the snarling or breaking of a wire in the machine. I also provide a braking shoe connected with means tending to force it against said fixed pulley, and provided with a connection with said belt shifter arranged to normally hold said shoe away from said pulley until said belt shifter is tripped.

The primary object of my invention is to automatically stop the machine quickly upon the snarling or breaking of the wire while passing through the machine, thereby eliminating considerable scrap and saving the time consumed in re-running and splicing the broken wire.

Other objects and advantages will be readily apparent from the following specification and will be illustrated in the accompanying drawings, in which:

Figure 1 is a somewhat diagrammatic side elevation of a machine having my invention applied thereto.

Fig. 2 is a cross-sectional elevation taken on the line II—II of Fig. 1.

The machine may be of any of the well known and accepted designs. As here shown, it consists generally of a bed or table 2, supported in elevated position upon uprights or standards 3 and 4. The mechanism for drawing the wires through the machine is mounted on a bracket 5, projecting from one end of the frame, and the devices for twisting and spooling the wires are located under the table being driven by power applied to the fixed pulley 6 by the belt 7, which is adapted to travel on the idler pulley 8 when the machine is not operating.

A belt shifter bar 30 which is pivoted to the end of the table 2 has belt engaging fingers 30^a, so as to move or shift the belt 7 from engagement with the fixed pulley 6 to the idler or loose pulley 8 when the wire being formed into barbed wire fencing becomes tangled or broken. A spring 31 secured to the belt shifter 30, normally tends to move the shifter so as to position the belt for engagement with the loose pulley 8. A latch bar 32 is pivotally connected at 33 to the shifter bar and is provided at its opposite end with a notch 34 adapted to engage the stop 35 to normally hold the shifter bar in position to guide the belt 7 on the fixed pulley 6.

A twister reel 10, journaled in the standards 3 and 4, has one end projecting through the standard 3 and forming a stub shaft on which the pulleys 6 and 8 are splined. A winding reel 11 is journaled in suitable bearings in the reel 10 and is driven by the gears 12, shaft 13 and gears 14. The other end of reel 10 projects through the standard 4 and is provided with a sprocket wheel 15, and a sprocket chain 16 is trained about the sprocket 15 and an idler sprocket wheel 17, which is journaled on a stud projecting from the standard 4. Another sprocket chain 18, is trained about the sprocket wheel 19, which is outside of and integral with or fixed to the idler sprocket wheel 17, and extends up and around the sprocket wheel 20 on the shaft 21 which is mounted in bearings above the table 2 and which constitutes the main drive shaft for the braking mechanism.

Stationary reels or baskets 22 located at one end of the machine, are adapted to retain bundles of wire to be fed into the machine. A standard 23, positioned at one side of the baskets 22, supports a horizontal shelf 24 having a plurality of guides or apertures 25 formed therein corresponding to the number of baskets. A bracket 26 is

mounted adjacent each of the guides 25 and has a sheave wheel 27 journaled therein. Another smaller bracket 28 is secured forward of each of the brackets 26 and carries a small sheave wheel 29 in alinement with the sheave wheel 27 in each bracket.

An upright 40, secured on the table 2, has a pair of guide sheaves 41 journaled thereon through which the several wires are guided into the machine.

The wires from the reels or baskets 22 are threaded up through guides 25, trained over the sheaves 27 and 29, thence over and between sheaves 41, where they are separated, two going through the barbing mechanism 42 and being trained about suitable sheaves and passed to the twister reel.

A feeler lever or arm 43 which is pivotally mounted on each of the brackets 26, carries a small sheave wheel 44 adjacent its forward end and in alinement with sheave wheel 27. Each of the levers 43 is provided with a spring 45 having one end secured to the lever and its other end to the shelf 24 so as to normally tend to pull the lever and sheave wheel downward against the wire between the sheaves 27 and 29.

A short bracket 46 is secured to shelf 24 at a point below the forward end of each of the levers 43 and has a sheave 47 journaled thereon.

Suitable cables 48, fastened to the forward end of each of the levers 43, are looped downwardly under the sheaves 47 and then back and are fastened together at a point 49. The several cables are then passed upwardly and fastened at 50 to a single cable 51 which is trained over the sheaves 52 and 53, which are mounted on a suitable overhead support, the cable 51 then being trained downwardly and secured to an eye 54 on the latch bar 32.

A suitable braking mechanism is provided to accelerate the stopping of the machine and is controlled by the operation of the belt shifter bar 30. Such mechanism comprises a stand 55 arranged below the pulleys 6 and 8 and having an inclined upper face 56. A brake-shoe 57 is slidably mounted on the inclined face 56 and has a downwardly projecting tongue 58 to which is secured a spring 59, having its other end secured to the base of stand 55 and tends to force said shoe under fixed pulley 6.

A chain or cable 60 is secured to the brake-shoe 57 and is trained under sheave 61, which is journaled on the rear of the stand 55, and then under the sheave 62 and over the sheave 63, and is fastened at 64 to the belt shifter bar 30.

The operation of the above described mechanism is as follows: The wires being drawn through the machine are under tension and normally support the pivoted feeler levers of arms 43 and sheaves 44 at a certain level. However, tangling of either of the wires in its basket or in traveling through the several sheaves causes the lever to raise above its normal level and exert a pull on the cable 48 and cable 51, thereby raising the latch bar 32 and allowing the spring 31 to operate the shifter bar 30 so as to throw the belt 7 from the tight pulley to the loose or idler pulley 8.

The belt shifter rod 30 when actuated to move the belt 7 to the loose or idler pulley, loosens the cable 60 and allows the brake-shoe 57 to slide down under the fixed pulley 6 thus quickly stopping the machine before a broken or snarled wire has traveled any appreciable distance.

While I have shown and described one specific and what may be termed the preferred form of my invention, it will be understood that the invention is not to be limited thereto, since such form is only illustrative of my invention, and various changes in the construction and arrangement of the parts may be made without departing from the spirit of the invention as defined in the appended claims.

I claim:—

1. The combination with a wire working machine having a driving belt and fixed and loose pulleys, of a belt shifter therefor, means tending to move said belt shifter, a latch bar for normally preventing the movement of said belt shifter, means engaging the wire fed to the machine, means connecting said first named means and said latch bar for releasing said bar, and a brakeshoe adapted to engage said fixed pulley when said belt shifter is operated to shift the belt to said loose pulley.

2. The combination with a wire working machine having a driving belt and having fixed and loose pulleys, of a belt shifter therefor, yielding means tending to move said belt shifter, a latch bar for normally preventing movement of said belt shifter, a plurality of feeler arms and sheaves engaging the wires fed to the machine, flexible means connecting said feeler arms and said latch bar whereby said bar will be released when the wires become tangled or broken, and a brake-shoe adapted to engage said fixed pulley and thereby stop said machine when said latch bar is released.

3. The combination with a wire working machine having a driving belt and fixed and loose pulleys, of a belt shifter therefor, a spring tending to move said belt shifter, a latch bar for normally preventing movement of said shifter, a plurality of feeler arms and sheaves engaging the wires fed to the machine, flexible means connecting said feeler arms and said latch bar whereby said bar will be released when a wire tangles or breaks, a spring actuated brake-shoe adapted to engage said fixed pulley when said belt

is shifted, and means connecting said brake-shoe and belt shifter whereby said shoe will be held away from said fixed pulley until said latch bar is tripped.

4. The combination with a wire working machine having a driving belt and fixed and loose pulleys, of a belt shifter for moving the belt from one pulley to the other, a spring tending to move said shifter into position to engage the belt with said loose pulley, a latch bar coacting with a fixed stop and arranged to normally hold said shifter in position to maintain the belt in engagement with said fixed pulley, a plurality of fixed guide sheaves for the wires fed to the machine, a lever pivotally mounted on the shaft of each of said guide sheaves, a feeler sheave carried by each of said levers and arranged to ride on the wires fed to the machine, cables, having one end fastened to the forward end of said levers, said cables being trained over sheaves fixed below said levers, then looped back and fixed to a cable above said levers, a single cable supported on suitable overhead sheaves and having one end secured to said latch bar and the other to said first named cables, said levers and cables being adapted to release said latch bar to permit said belt shifter to move the belt to said loose pulley, a spring actuated brake-shoe adapted to engage said fixed pulley when said belt is shifted and a cable connecting said brake-shoe and belt shifter whereby said shoe will be held away from said fixed pulley until said latch bar is tripped to permit shifting of said belt.

In testimony whereof, I have hereunto signed my name.

FRANK HEILMAN.