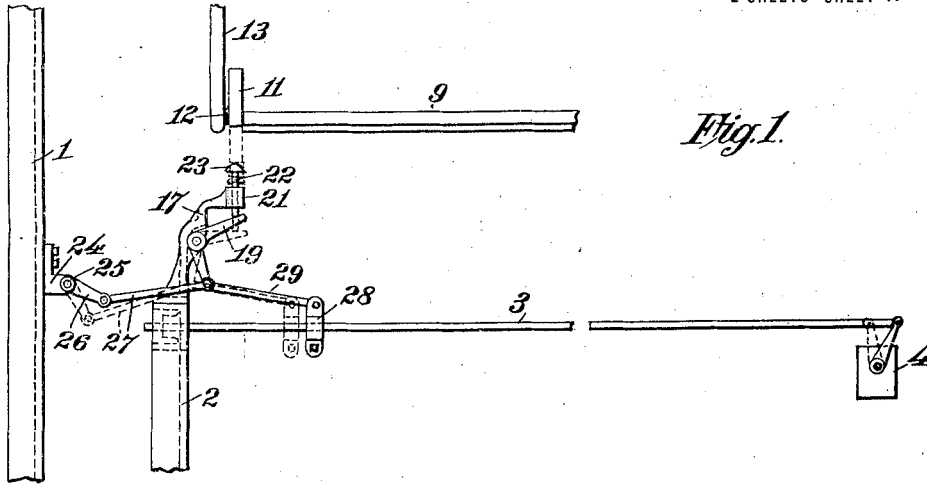


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 STOP MECHANISM FOR LACE WEAVING MACHINES.  
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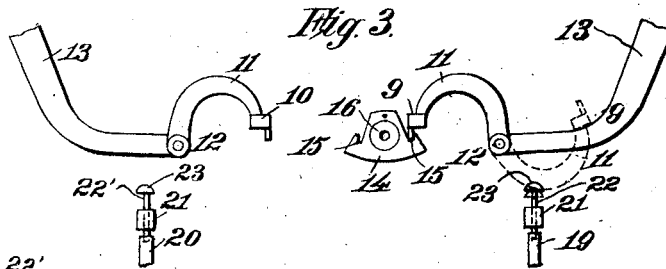
1,335,218.

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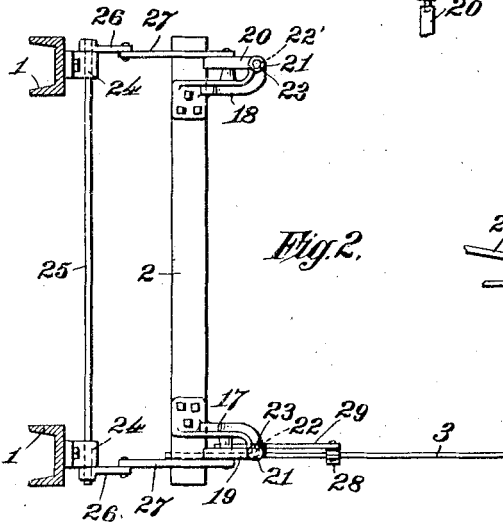
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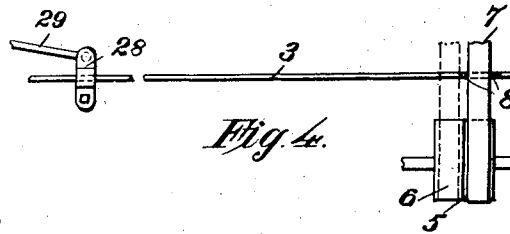
*Fig. 1.*



*Fig. 3.*



*Fig. 2.*



*Fig. 4.*

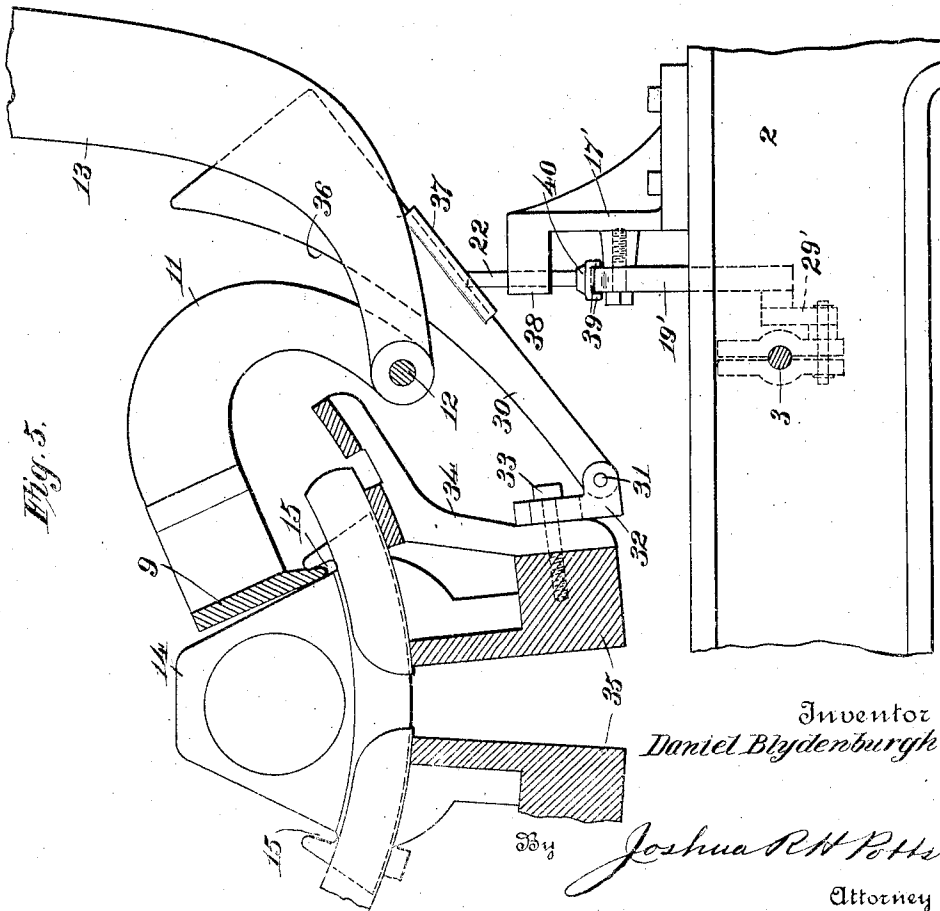
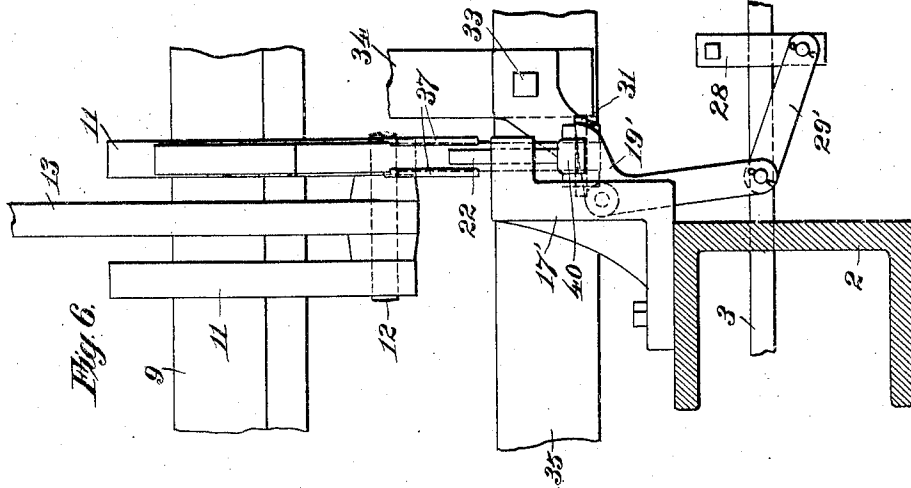
Inventor:  
*Daniel Blydenburgh.*  
 by *Joshua R. A. Pott.*  
 Att'y.

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2 SHEETS--SHEET 2.



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# UNITED STATES PATENT OFFICE.

DANIEL BLYDENBURGH, OF SOUTH ATTLEBORO, MASSACHUSETTS.

STOP MECHANISM FOR LACE-WEAVING MACHINES.

1,335,218.

Specification of Letters Patent. Patented Mar. 30, 1920.

Application filed March 10, 1919. Serial No. 281,658.

*To all whom it may concern:*

Be it known that I, DANIEL BLYDENBURGH, a citizen of the United States, residing at South Attleboro, county of Bristol, and State of Massachusetts, have invented certain new and useful Improvements in Stop Mechanism for Lace-Weaving Machines, of which the following is a specification.

My invention relates to lace weaving machines, and particularly to stop mechanism for automatically stopping the same.

In lace weaving machines of the character under consideration, a large number of bobbin-holding carriages are provided which are shifted as necessary to produce the desired pattern and in cooperation with a pair of catch bars which engage notches or recesses upon opposite sides of the carriages, there being a catch bar at both the front and back of the machine. When a "smash" occurs, the catch bar flies out of engagement with the carriages and unless the machine is immediately stopped considerable damage results. It is the purpose of my invention to provide means whereby when a catch bar flies out of engagement with the carriages, the machine will be automatically stopped and cannot be started again until the carriages and catch bars are back in proper operative position.

The object of my invention, therefore, is to provide automatic means for stopping a lace making machine of the character mentioned, when a catch bar flies out of engagement with the carriages. A further object of my invention is to provide a device as mentioned which will so control the stopping and starting mechanism that the machine cannot be again started while the catch bars are out of operative position. A further and particular object of my invention is to provide a device of the character mentioned which may be readily attached to any lace machine of the character under consideration without necessitating a change in any of the parts of the lace machine *per se*. Other objects will appear hereinafter.

In machines of this character a shift rod extends longitudinally of the machine by means of which the operator may start or stop the machine when desired, said rod being attached at one end to the starting and stopping mechanism. With the above objects in view, my invention consists gen-

erally in suitable mechanism interposed between said shift rod and a point or points adjacent the catch bars, whereby a movement of the catch bar to inoperative position will actuate said mechanism to operate the stopping mechanism. My invention further consists in arranging the device so that the same may be operated by either the front or rear catch bar. My invention further consists in an attachment for a lace making machine comprising brackets adapted to be secured to the frame of the machine, levers arranged adjacent and adapted to be actuated by the catch bars, and means for connecting said levers to the shaft rod. My invention further consists in various details of construction and arrangements of parts, all as will be fully described hereinafter and particularly pointed out in the claims.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification, and in which—

Figure 1 is a side elevation of the device illustrating the same applied to a lace making machine, only portions of the said machine being illustrated.

Fig. 2 is a plan view of the same.

Fig. 3 is a diagrammatic transverse section through a lace machine showing the parts of the mechanism adjacent both the front and rear catch bars.

Fig. 4 is a detail illustrating a modified form of stopping mechanism.

Fig. 5 is a detail transverse section of a portion of a lace machine equipped with a modified form of attachment, and

Fig. 6 is a side elevation of the same.

Referring now to Figs. 1 to 4 inclusive of the drawings, 1 and 2 indicate portions of the frame elements of a lace making machine, and 3 the shift rod by means of which the machine may be started or stopped by moving the same longitudinally. As shown in Fig. 1, the shift rod is connected to an electric switch 4, said switch being the direct means of stopping or starting the machine; whereas in Fig. 4 I have illustrated the fast and loose pulleys 5 and 6, respectively, and a cooperating belt 7, which may be shifted from pulley to pulley by the fork 8 on the rod 3. 9 and 10 indicate the front and rear catch bars mounted on the curved arms 11 which are in turn

pivotally mounted, as at 12, to the depending arms 13. 14 indicates one of the carriages provided with the notches 15 for engagement by the catch bars. 16 is the shuttle in the carriers. These portions of the device are old and well known, form no part of my invention, except in combination with the parts hereinafter described, and, therefore, need no detailed description.

Mounted upon the frame member 2 adjacent the front and rear of the machine are similar brackets 17 and 18, respectively. Pivotally mounted upon the brackets 17 and 18 are bell crank levers 19 and 20. The upper portion of the brackets are provided with vertically disposed sleeves 21, in which are slidably mounted pins 22 and 22', respectively, preferably provided with enlarged rounded heads 23. The lower ends of the pins 22 and 22' impinge upon one arm of the bell crank levers 19 and 20.

Secured to the frame member 1 is a pair of brackets 24—24, forming bearings for an oscillatory shaft 25, extending from the front to the back of the machine. Fixed to the ends of the shaft 25 are arms 26 which are connected respectively by links 27 with the depending arms of the bell crank levers 19 and 20.

28 indicates a clamp adapted to be secured to the shaft rod 3, and pivotally connected to said clamp is a link 29, the opposite end of which is attached to the lower or depending arm of the bell crank lever 19.

It is obvious that should any accident occur to one or more of the carriages, causing either of the catch bars to fly out, the arm 11 of the catch bar will engage the head 23 of the adjacent vertically movable pin, forcing the same downwardly and through the levers and links above described shift the shift rod 3 to stop the machine. The weight of the catch bar resting upon said pin will be sufficient to prevent the machine from being again started until the catch bars are again placed in proper relation to the carriages. This will be true whether it is the front or back catch bar that flies out as the connection from the back to the front of the machine is made through the oscillatory shaft 25.

In Figs. 5 and 6 I have illustrated a modified form of the invention. In this form of the device a pivotally mounted element continuously rests upon the pin 22 and is in turn engaged by the arm 11. 30 indicates the said element which comprises an arm pivotally mounted at 31 to a bracket 32. This bracket is secured to the device by means of a bolt 33 which replaces the bolt which normally secured the rail bracket 34 to the comb bar 35. By this arrangement no change is necessary in the machine as to attach the bracket it is but necessary to remove the bolt holding the bracket 34 in

place and replace it with the slightly longer bolt 33. The arm 30 rests upon the upper end of the pin 22, or 22' as the case may be, and the upper edge thereof is curved as indicated at 36 forming a cam face adapted to be engaged by the edge of the arm 11. To maintain the arm 30 in position upon the upper end of the pin a pair of depending flanges 37 are provided arranged upon opposite sides of the said arm and extending along the same for a suitable distance.

The bracket 17' is provided with the vertical sleeve 38 in which the pin 22 reciprocates vertically, and beneath the same is pivotally mounted a bell crank lever 19'. The lower end of the pin 22 is provided with depending elements adapted to engage opposite sides of the upper arm of the lever 19' to maintain the same in position thereon, and these are preferably formed upon an enlarged head 40, as indicated. The lower end of the lever is connected by a link 29' to the clamp 28 on the shipping rod 3. The operation of this form of the device is obvious.

I claim:—

1. A lace making machine including the carriages, catch bars, and stop mechanism shift rod, in combination with a bell crank lever, and a connection between said lever and said shift rod, said lever being adapted to be actuated by the catch bar when thrown out of operative position, substantially as described.

2. A device as set forth in claim 1 further characterized by a vertically movable pin arranged in the path of the catch bar and engaging said bell crank lever, substantially as described.

3. A lace making machine including the usual frame, carriages, front and rear catch bars and shift rod, in combination with a transverse oscillatory shaft, an operative connection between said shaft and said shift rod, a bell crank lever arranged adjacent each of said catch bars and adapted to be actuated by the same, and an operative connection between each of said levers and said oscillatory shaft, substantially as described.

4. A lace making machine including the carriages, catch bars and a stop mechanism shift rod, in combination with a bell crank lever, a connection between said lever and said shift rod, a vertically movable pin engaging said bell crank lever, a pivotally mounted arm normally resting upon the upper end of said pin engageable by the catch bar supporting arm when thrown out of operative position, substantially as described.

5. A device as set forth in claim 4 in which the upper edge of the said pivotally mounted arm is curved as and for the purpose specified.

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6. A device as set forth in claim 4 further characterized by a bracket upon which said arm is pivotally mounted, and a bolt for holding the same in position, said bolt  
5 being engaged in the bolt hole for the rail bracket securing bolt, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DANIEL BLYDENBURGH.

Witnesses:

PETER MORIN,

STANLEY N. CHASE.