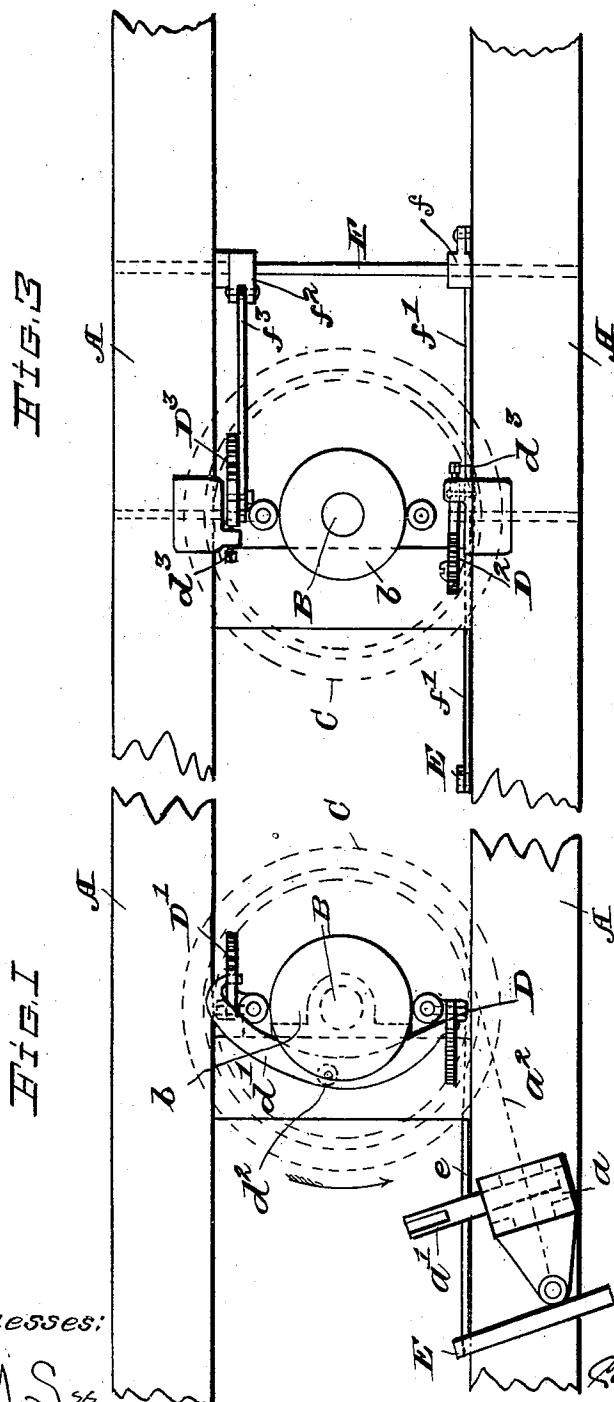


C. W. VAUGHN.
SAFETY STOP FOR WIRE BLOCKS.
APPLICATION FILED JAN. 17, 1910.

977,490.

Patented Dec. 6, 1910.

2 SHEETS—SHEET 1.



Witnesses:
Robert M. S. Jr.
Geo. T. Oberlin

Inventor:
Calvin H. Vaughn
by J. B. Fay
Attorney.

C. W. VAUGHN.
SAFETY STOP FOR WIRE BLOCKS.
APPLICATION FILED JAN. 17, 1910.

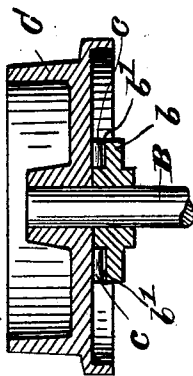
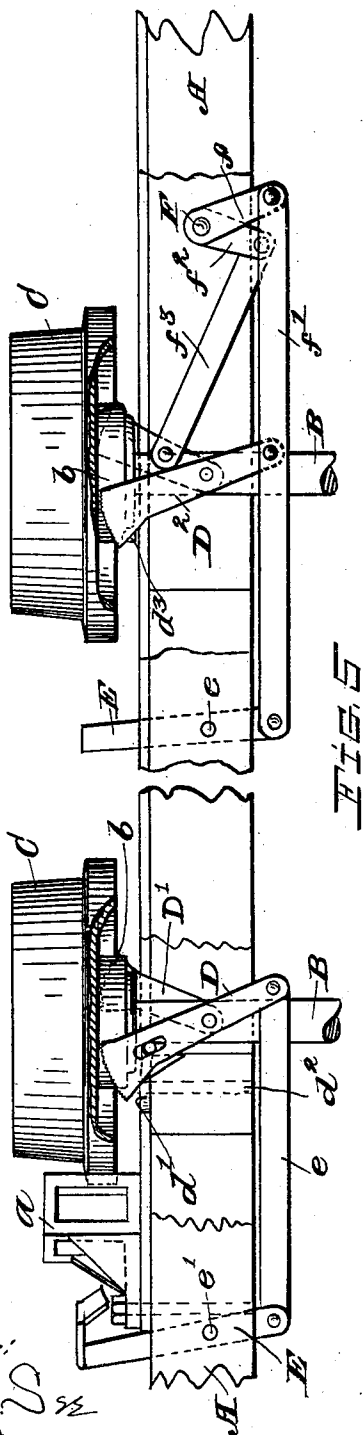
977,490.

Patented Dec. 6, 1910.

2 SHEETS—SHEET 2.

FIG. 4

FIG. 2



Witnesses:
Robert M. S. S.
Geo. T. Ouelin

Inventor:
Calvin H. Vaughn
by J. B. Fay
Attorney.

UNITED STATES PATENT OFFICE.

CALVIN W. VAUGHN, OF CUYAHOGA FALLS, OHIO.

SAFETY-STOP FOR WIRE-BLOCKS.

977,490.

Specification of Letters Patent.

Patented Dec. 6, 1910.

Application filed January 17, 1910. Serial No. 538,433.

To all whom it may concern:

Be it known that I, CALVIN W. VAUGHN, a citizen of the United States, and a resident of Cuyahoga Falls, county of Summit, and State of Ohio, have invented a new and useful Improvement in Safety-Stops for Wire-Blocks, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

In the operation of drawing wire through a die, an operator is frequently caught in a mass of tangled wire and his serious injury caused by his being drawn into the machine by the wire. Again, a tangle in the wire being drawn will, upon its passing into the machine, seriously damage the die block or else tear the wire.

It is the object of the present invention to render such injury to an operator or such damage to the machine and product itself impossible, and my invention is particularly applicable to that class of wire drawing machinery in which heavy wire is drawn through the die by a rotating drum upon which it is finally wound.

To the accomplishment of these and related ends said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings:—Figure 1 is a plan of a machine equipped with my improved device, the drum and wire being shown by dotted lines; Fig. 2 is a broken side elevation thereof, with part of the support broken out; Fig. 3 is a plan of a slightly modified form of the device; Fig. 4 is a broken side elevation thereof, and Fig. 5 is a vertical section showing the clutch mechanism.

In the machine, in connection with which I have here illustrated my invention, a suitable frame work is formed by two spaced supports A, one of which supports the die holder *a* in which is removably held the die *a'*, and through which passes the wire *a''* which is being drawn. Vertically disposed between the two supports is a drive shaft

B which may be rotated by any suitable means, and which bears at its upper end a horizontal driving disk *b*, the disk *b* being formed on its upper surface with diametrically opposite recesses *b'*. A drum C is mounted on shaft B above disk *b* and is loose on the shaft so that it may move lengthwise thereon. The drum C is formed on its under side with two diametrically opposite depending lugs *c* which are designed, when the drum is in its lowest position, to register with the recesses *b'* in the driving disk *b*. Disposed below the lower surface of the drum and pivoted on horizontal axes, are two diametrically opposite members D and D', and the length of these pivoted members from their pivotal axes upward is greater than the distance in a vertical line from such pivotal axes to the top of the recesses *b'* plus the height of the depending lugs *c*. The pivoted members D and D' have their upper surfaces preferably formed with milled teeth, and near the upper end of said members is formed a longitudinal slot, the milled teeth and slots being clearly disclosed in Fig. 2. A yoke *d'* is pivoted on a vertical axis *d''* which is located between the two supports A, and at each end the yoke is formed with a pin, one of which extends through the longitudinal slots in the pivoted members respectively. A lever E, which is preferably disposed in front of the die holder, is pivoted on a horizontal axis *e'* and is formed with a horizontally extending bar at its top, which bar extends outwardly over the support A. A link *e* is pivoted at one end to the lower end of lever E and at its other end to the lower end of the pivoted member D, the members D and D' normally lying to one side of their vertical positions.

It is obvious, then, that if a man be tangled in the wire which is being drawn through the die, before he can be drawn into the machine he will necessarily strike the upper end of lever E, and the tension of the wire thus caused will pull forward the upper end of the lever. The result will be that the connecting link will pull the pivoted member D toward a vertical position, while the connecting yoke will, at the same time, pull the pivoted member D' toward such vertical position. As soon as the upper surfaces of the two pivoted members come into contact with the under surface of the rotating drum, the pivoted members

will frictionally engage the drum and the rotative movement of the drum will serve to completely carry the pivoted members into their vertical positions, this result being further insured by the milled teeth on the pivoted members. When the pivoted members have reached their vertical positions they will, because of their length, lift the rotatable drum so that the lugs formed thereon will no longer engage the recesses in the driving disk, and consequently rotation of the drum and movement of the wire will cease, so that all possibility of injury to operator, or damage to machine, is obviated.

Figs. 3 and 4 illustrate a somewhat modified form of the device as it has been described. In this form the two pivoted members D^2 and D^3 are not connected by a yoke as in the first form, and the difference between the two forms consists simply in the means by which the second pivoted member is operated. A rotatable horizontal shaft F is supported by the two supports A , this shaft being disposed on the opposite side of the driving shaft B from the lever E . Keyed on the shaft F is an arm f , and a link f' is pivoted to lever E , to the pivoted member D^2 , and to the arm f . At the opposite end of the shaft F is keyed an arm f^2 , and a link f^3 connects arm f^2 with the pivoted member D^3 . Bolts d^3 are horizontally mounted adjacent to the path of movement of the two pivoted members D^2 and D^3 so as to form adjustable stops therefor by means of which the amount of movement of said pivoted members may be limited. It is evident, then, that actuation of the lever E in the same manner as described in connection with the first form of the invention will raise the pivoted member D^2 toward its vertical position and will rotate the shaft F and then, by means of the arm and link, will raise the pivoted member D^3 to its vertical position. The consequent result will be that the drum is disengaged from the driver in the same manner as is effected by the first form of the invention.

It will be seen, then, that my invention absolutely provides against the possibility of an operator being entangled in the wire and drawn into the machine, and it provides just as effectively against the danger of a mass of tangled wire damaging the machine by being drawn into it. Furthermore, if it at any time be desired to stop the machine, this may be easily done by an operator purposely thrusting forward the actuating lever. The improved device which attains these highly important results and safeguards is one which is of simple construction and it may therefore be depended upon to attain its results uniformly without the danger of derangement due to any complicated mechanism.

I am aware that safety devices for use in connection with die blocks have been heretofore proposed, but in many of such prior devices the wire is severed, at a point either just before or just after its passage through the block. The operation of such a device, hence, obviously involves the breaking of the wire and the waste of the bundle of wire in course of being drawn at the time. The present invention, while affording an equal assurance of safety to the operator, at the same time avoids the serious annoyance and loss entailed by the use of the other form. It will be understood, of course, that assistance may be required to extricate a man from device, but he is safe from being drawn into the die and the tension of the wire may be quickly relieved so as to free him. A serious accident of this kind is, moreover, relatively infrequent, it being the minor entanglements that occur most frequently.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. In a device of the character described, the combination of a rotatable drum for the reception of the wire being drawn, mechanism for rotating said drum, a pivotally mounted member adapted to move the drum out of engagement with said mechanism, means in line with the wire being drawn for throwing said member into contact with said drum, and said drum being adapted, upon such contact, to frictionally engage and further operate said member and thereby move the drum.

2. In a device of the character described, the combination of a drum for the reception of the wire being drawn, said drum being rotatable about a vertical axis and axially movable, and being provided with a lug on its under side, mechanism for rotating said drum, said mechanism including a member provided with a recess adapted to receive said lug, two oppositely disposed members below said drum and pivoted on horizontal axes, the length of said members above their axes being greater than the distance from such axes to the top of said recess, added to the height of said lug, said members being normally positioned at one side of their vertical positions, and a lever in line with the wire being drawn and adapted to raise said members to such vertical positions.

3. In a device of the character described, the combination of a rotatable drum for the reception of the wire being drawn, mechanism for rotating said drum, two oppositely disposed pivotally mounted members

adapted to move the drum out of engagement with said mechanism, a yoke pivoted on an axis transverse to the axes of said members and slidably connected at its ends with said members, respectively, and means in line with the wire being drawn for actuating one of said members.

4. In a device of the character described, the combination of a rotatable drum for the reception of the wire being drawn, mechanism for rotating said drum, two oppositely disposed pivotally mounted members adapted to move the drum out of engagement with said mechanism, a yoke pivoted on an axis transverse to the axes of said members and slidably connected at its ends with said members, respectively, a lever in line with the wire being drawn, and a link connecting the lever with one of said members.

5. In a device of the character described, the combination of a drum for the reception of the wire being drawn, said drum being

rotatable about a vertical axis and axially movable, mechanism disposed below said drum for rotating the same, two oppositely disposed members below said drum and pivoted on horizontal axes, the length of said members above their axes being sufficient to raise the drum out of engagement with said mechanism, said members being normally positioned to one side of their vertical positions, a yoke pivoted on a vertical axis and slidably connected at its ends with said members, respectively, a lever in line with the wire being drawn and pivoted on a horizontal axis, and a link connecting said lever with one of said members.

Signed by me this 15th day of January, 1910.

CALVIN W. VAUGHN.

Attested by—

ANNA L. GILL,
JNO. F. OBERLIN.