Dec. 18, 1928. 1,696,165

R. A. KEARSLEY

STOP MOTION FOR TWISTERS

Filed March 22, 1928

Fig. 1.

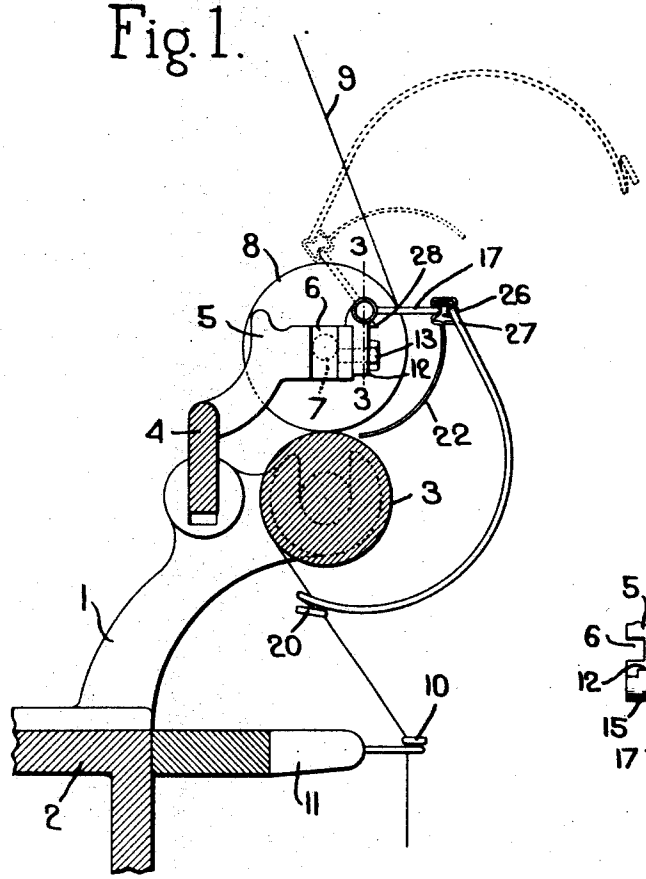


Fig. 2.

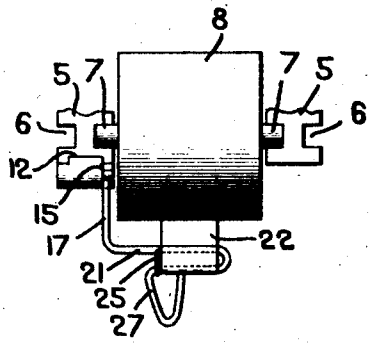


Fig. 3.

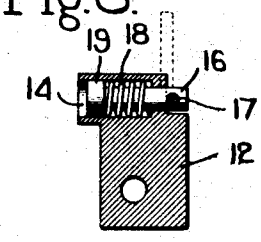


Fig. 4.

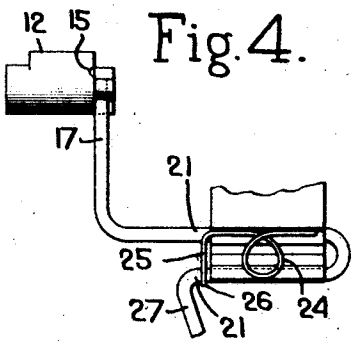
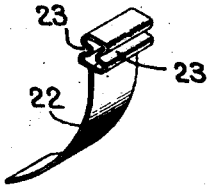


Fig. 5.



Inventor.
Richard A. Kearsley
by Heard Smith & Tennant.
Attys.

Patented Dec. 18, 1928. 1,696,165

UNITED STATES PATENT OFFICE.

RICHARD A. KEARSLEY, OF MILFORD, MASSACHUSETTS, ASSIGNOR TO DRAPER CORPORATION, OF HOPEDALE, MASSACHUSETTS, A CORPORATION OF MAINE.

STOP MOTION FOR TWISTERS.

Application filed March 22, 1928. Serial No. 263,877.

This invention relates to improvements in stop motions for a twister of the type in which a pivotally mounted guide is supported by the running yarn and is provided with a tongue which, when the yarn fails, is permitted to feed in between the rolls and thus stop the rotation of the top roll. Such a stop motion is shown in the patent to Davis, No. 1,657,431, granted January 24, 1928.

It is the object of the present invention to provide an improved form of twister stop motion of the type shown in the aforesaid patent.

A further object of the invention is to provide a construction of the tongue in which the tongue is made of all sheet metal with the upper end or head portion formed or bent into the required shape, thus presenting a light weight structure and one readily and economically manufactured.

A further object of the invention is to provide a novel form of construction for retaining a tongue of the type just described in position on the guide while permitting its detachment therefrom when required.

A further object of the invention is to provide means for detachably locking the yarn guide and tongue supported thereby in an elevated inoperative position, as when it is necessary to clean the rolls, piece the yarn or do anything else with the yarn guide and tongue out of operative position.

These and other objects and features of the invention will appear more fully from the accompanying description and drawings and will be particularly pointed out in the claims.

The drawings illustrate a simple and preferred form of the invention embodied in a structure such as that generally shown in the said patent to Davis.

In the drawings:

Fig. 1 is a view in vertical cross section through a portion of a twister frame taken adjacent to one of the supports of one of the top rolls and showing in full lines the stop motion device with the yarn in running position and in dotted lines the stop motion locked in elevated inoperative position.

Fig. 2 is a top plan view of a portion of the construction shown in Fig. 1.

Fig. 3 is a detail in vertical cross section taken on the line 3—3 of Fig. 1.

Fig. 4 is a top plan view of a portion of the construction with the upper end of the tongue in horizontal cross section.

Fig. 5 is a perspective view of the tongue.

In the twister frame illustrated a series of supports 1 which extend upwardly from the frame 2 present bearings in which is journalled the positively driven bottom roll 3. The bars 4 which are mounted in these supports in the usual manner are provided with upwardly projecting supporting brackets 5 having vertically slotted bearings 6 in which are mounted the journals 7 of the top rolls 8. The top rolls are thereby permitted to rest upon and to be driven by the bottom roll and also to be lifted out of contact with the bottom roll and arrested by the stop motion. The yarn 9 feeds down around the top roll, in between the top and bottom rolls, around the back of the bottom roll and thence downward through the guide eye 10 supported from the finger board 11 projecting at the front of the frame 2.

One of the stop motion devices is provided for each top roll or run of yarn. A bracket 12 is secured by means of a bolt or set screw 13 to the front face of one of the top roll supports 5. In the construction of this invention, this bracket is provided with a bearing 14 extending parallel with the axes of the rolls 3 and 8 and has at one end a notch 15. A journal stud 16 is mounted to rotate and to slide longitudinally in this bearing. This stud is provided with an arm 17 which rides normally on the unnotched portion of the end of the bearing. A helical spring 18 is seated inside the bearing and abuts a head 19 on the journal stud and thus serves to hold the arm 17 in engagement with the end of the bearing.

The yarn guide is preferably made of wire and preferably constitutes a prolongation of the arm 17. The lower end of this yarn guide is formed into a pigtail 20 through which the run of yarn from the bottom roll 3 to the guide eye 10 passes and serves normally to hold the yarn guide in operative running position. Between its ends the yarn guide is provided with an intermediate open loop of general U-shape with the legs 21 narrowly spaced from each other and extending in parallelism with the axes of the rolls 3 and 8. This loop normally stands in a substantially horizontal position.

In the present invention, the tongue which is designed to feed between the rolls when the yarn fails is made entirely of sheet metal and preferably of a single piece of sheet metal. It presents a curved body portion 22 and at its upper end it is bent or formed so that in cross section it is of a generally 8-shape, somewhat flattened and so as to present at the front and rear oppositely disposed, parallel grooves 23. These grooves are so proportioned that the tongue may be slidably inserted in the open end of the loop in the guide and so that the legs 21 of this loop will rest loosely in the grooves 23, allowing the tongue to pivot slightly or hang loosely on the loop. Thus the tongue is easily and economically manufactured and is of a minimum weight since the upper end is formed of the same sheet metal as the body and is bent to present the required grooves with a minimum amount of metal.

The invention also provides a novel means for detachably securing the tongue in position on the loop while at the same time not interfering with the loose movement of the tongue and at the same time permitting the tongue readily to be detached and removed from the loop whenever required. For this purpose a clip is provided formed of spring wire and comprising a body portion located and having a spring fit within one, preferably the upper, of the loops of the 8-shaped upper end of the tongue and having a hook-shaped arm extending outside of the tongue and pivoted on one of the legs of the loop. The body portion of this clip is shown as formed intermediate its length into a loop 24 of such size that when the clip is slipped into the inside of the upper end of the tongue, it will lie within one of the loops in a generally horizontal position and press against the opposite sides, thus remaining firmly in place. From this body portion the arm 25 extends outside of the tongue and is bent at its free end to form the hook 26 which is snapped over and pivots on one of the legs 21 adjacent a portion of the guide such as 27 extending at an angle to the loop leg 21. This prevents the tongue from slipping out from between the legs 21 while it permits the tongue to pivot and at the same time, by disengaging the hook 26 from the legs 21, enables the tongue readily to be slid out from between the legs 21 and thus detached from the guide.

The operation of the device will be readily undersood. Normally the parts stand as shown in full lines in Fig. 1 with the yarn passing through the eye 20 and holding the yarn guide and tongue in position so that the free end of the tongue is away from the bite of the rolls. If now the yarn fails, the guide and tongue drop and the tongue feeds in between and separates the rolls, thus stopping the feed of the yarn. The yarn guide is prevented from allowing the tongue to feed too far in by the usual stop face 28 on the bracket 12. If it is desired to hold the guide and tongue elevated for any reason, the guide is lifted into the position shown in dotted lines or until engagement is had with the notch 15 when the parts are thereupon yieldingly locked in elevated and in inoperative position. Whenever it is desired to remove and replace the tongue, the hook 26 of the clip is removed from the leg 21 and the tongue slid off from the guide.

There is thus presented a very simple and effective construction in which the tongue is of minimum weight, in which the tongue is readily detached and removed from the guide and in which the guide and tongue may be yieldingly locked in elevated inoperative position when desired.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is:

1. In a stop motion for twisters having top and bottom rolls and stands therefor, a guide pivotally mounted upon the top roll stand and normally supported at its lower end by the running yarn and having an intermediate open loop presenting narrowly spaced legs extending in parallelism with the axes of the rolls and an all sheet metal tongue formed at its upper end to present oppositely disposed parallel grooves to engage slidably and loosely the legs of the loop and be detachably retained thereby and presenting a free lower end adapted to enter between the rolls upon failure of the yarn to support the guide.

2. In a stop motion for twisters having top and bottom rolls and stands therefor, a guide pivotally mounted upon the top roll stand and normally supported at its lower end by the running yarn and having an intermediate open loop presenting narrowly spaced legs extending in parallelism with the axes of the rolls and an all sheet metal tongue bent at its upper end in substantially 8-shape thereby to present oppositely disposed parallel grooves to engage slidably and loosely the legs of the loop and be detachably retained thereby and presenting a free lower end adapted to enter between the rolls upon failure of the yarn to support the guide.

3. In a stop motion for twisters the construction defined in claim 2, together with a wire clip comprising a body portion located and having a spring fit within one of the loops of the upper end of the tongue and an arm extending from said body portion outside the tongue and pivotally and detachably engaging one of the legs of the loop adjacent a portion of the guide extending at an angle to the loop whereby the tongue

is prevented from sliding off the loop but may be readily detached from the guide.

4. In a stop motion for twisters the construction defined in claim 2, together with a wire clip comprising a body portion located and having a spring fit within one of the loops of the upper end of the tongue and a hook-shaped arm extending from said body portion outside the tongue and pivotally and detachably engaging one of the legs of the loop adjacent a portion of the guide extending at an angle to the loop whereby the tongue is prevented from sliding off the loop but may be readily detached from the guide.

5. In a stop motion for twisters having top and bottom rolls and stands therefor, a guide pivotally mounted upon the top roll stand and normally supported at its lower end by the running yarn, a tongue loosely pivoted at its upper end in parallelism with the axes of the rolls on the guide and presenting a free lower end adapted to enter between said rolls upon failure of the yarn to support said guide and means for yieldingly locking the guide in an elevated inoperative position.

6. In a stop motion for twisters having top and bottom rolls and stands therefor, a bearing having a notch at one end and mounted on the roll stand parallel with the axes of the rolls, a journal stud mounted to rotate and to slide longitudinally in said bearing and having an arm riding normally on the unnotched portion of the said bearing end, a spring acting to slide the journal stud longitudinally to maintain the said arm in engagement with the said bearing end, a yarn guide carried by the journal stud and normally supported at its lower end by the running yarn, and a roll separating tongue pivotally supported on the yarn guide whereby the yarn guide and supported tongue may be raised into inoperative position and held yieldingly locked by the arm engaging the notch.

In testimony whereof, I have signed my name to this specification.

RICHARD A. KEARSLEY.