

Aug. 11, 1959

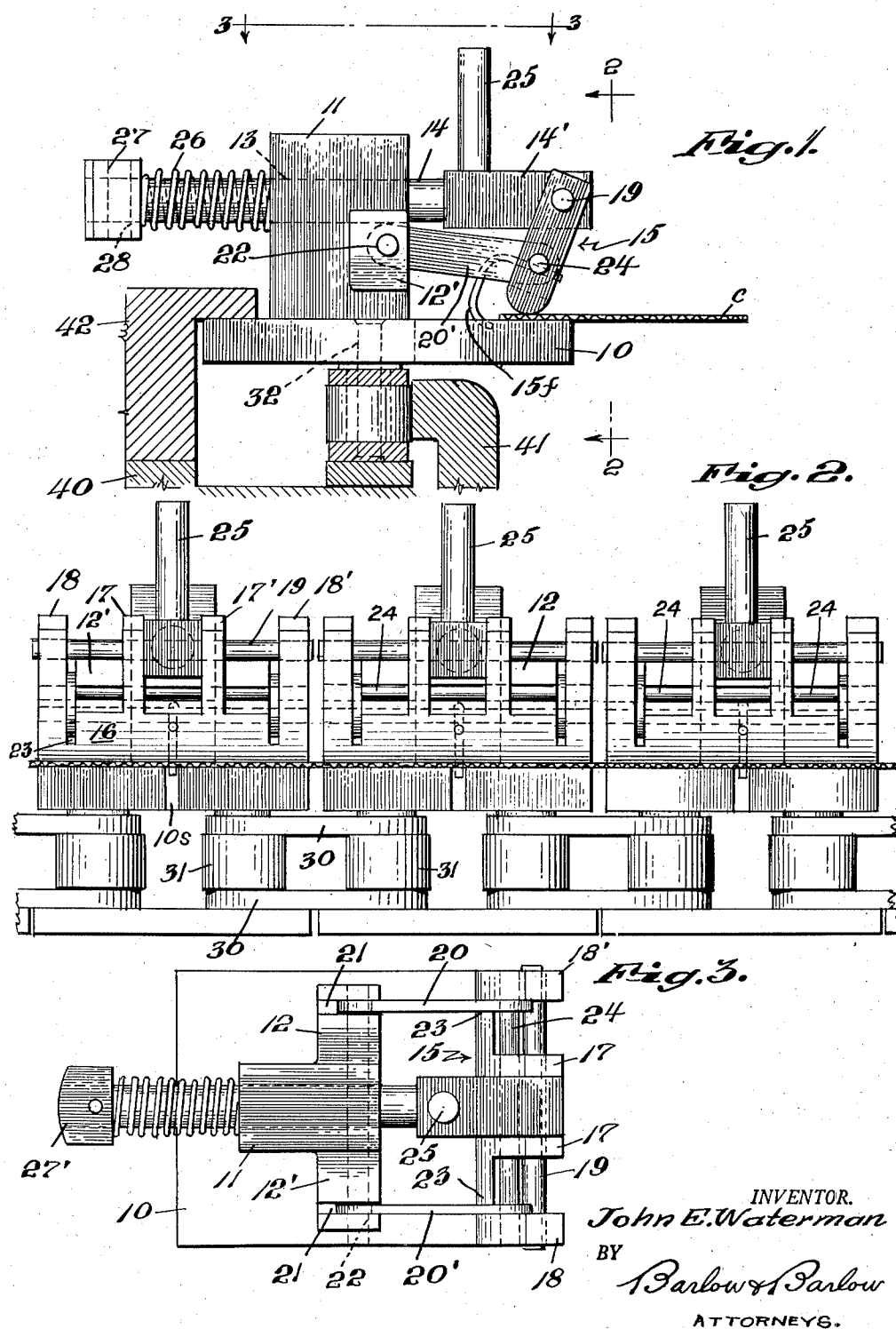
J. E. WATERMAN

2,898,661

TENTER CLIP

Filed July 24, 1956

2 Sheets-Sheet 1



1

2,898,661

TENTER CLIP

John E. Waterman, Chepatchet, R.I., assignor to Winsor & Jerauld Manufacturing Company, a corporation of Maine

Application July 24, 1956, Serial No. 599,873

7 Claims. (Cl. 26—62)

This invention relates to an improved construction of a tenter clip which is capable of high speed operation.

It has been the practice in the manufacture of tenter clips to cast a generally arcuate body for the clip and have depending from an upper portion thereof a pivoting jaw which is adapted to wedge the cloth. In order to insure a positive gripping action, it has been found necessary in some of the prior art devices to fashion the edge of the pivoting jaw as a sharp blade. This blade, while not sharp enough to cut the cloth, would still be sharp enough to bite the cloth and substantially prevent slippage. Maintenance of this type of tenter clip necessitates the frequent sharpening of the aforementioned edges to insure a proper action of the clip.

It is therefore one of the main objects of this invention to overcome some of these maintenance difficulties and provide a jaw which does not need to have a sharp edge for positive engagement with the cloth.

A further object of the invention is to provide a tenter clip which has a toggle action instead of a straight pivoting action.

A further object of the invention is to provide a clip construction which has two remote points of contact to effect the opening thereof.

A still further object of the invention is to provide a tenter clip which has a self-aligning jaw.

With these and other objects in view, the invention consists of certain novel features of construction as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings:

Figure 1 is a side elevational view of a tenter clip affixed to a chain on the rails of a tenter;

Figure 2 is a front elevational view of the tenter clip viewed from lines 2—2 of Figure 1;

Figure 3 is a plan view of a single clip viewed from lines 3—3 of Figure 1;

Fig. 4 is a view similar to Fig. 1 and showing the tenter clip in open position; and Fig. 5 is a view of a fragmentary portion of the tenter clip shown in Fig. 4 but on an enlarged scale.

In proceeding with my invention, I provide a tenter clip with the usual base plate and attach to this base plate an upright supporting member. Reciprocating through this upright member in an axis substantially parallel to the plane of the base plate is a shaft which carries at one end thereof the upper pivoting axis of a jaw. At a point remote from this pivoting axis, a link is attached to the jaw and to the upright member. Action of the jaw can be secured by exerting a force on the reciprocating shaft.

Referring more particularly to the drawings, there is shown a base plate 10 which may be fashioned from suitable steel and which is substantially flat throughout its extent. Mounted on the base plate is an upright member 11 which is provided with two wing sections 12, 12' that may be integral or rigidly affixed thereto. The upright member 11 is provided with a bore 13 through which there is passed a shaft 14. Pivotaly mounted at one

2

end of this shaft 14 on a section 14' thereof, which may be rectangular in cross section, is a jaw generally designated 15.

Referring now to Figure 2, it will be seen that this jaw 15 has a body portion 16 with upstanding arms 17—17' near the center thereof and additional upstanding arms 18—18' at each end thereof. The upper end of these arms 17—17' and 18—18' is provided with a bore through which a pivot pin 19 passes, the pivot pin also passing through a bore in the rectangular portion 14' of the shaft 14. The jaw 15 is therefore pivotally related to the shaft 14 for swinging movement. To provide the desired action of the jaw, a pair of links 20—20' are pivotally related to the wings 12—12' by providing a slot 21 in each of the wings and passing a pin 22 through the wings 12—12' and the link arms 20—20'. The other ends of the links 20—20' are pivotally related to the jaw 15 by providing a pair of slots 23 in the body 16 of the jaw and passing a pin 24 through the body 16 and the links 20—20'. A helical spring 26 biases the shaft 14 with relation to the body 11 so as to maintain the clip in a closed position, the spring 26 extending between the body 11 and a collar 27 rigidly affixed to the shaft 14 as by a pin 28.

The tenter clip just described may be mounted on the usual tenter chain which consists of a pair of links such as 30 mounted between a pair of rollers 31 by a rivet such as 32 that passes through the links 30 and into the base plate 10 of the clip. The completed assembly may therefore be mounted in the usual tenter rail 40 which may have a front casing 41 and a top casing 42 as is usual in the art.

At the cloth receiving end of the tenter chains, the jaw 15 of the tenter clip is held in the open position by a cam (not shown) which is coupled to shaft 14 so that the marginal edge of the cloth which is being guided to the tenter chains will be received over the base plate 10. The cloth C extends beneath the jaw 15 and overlies slots 10S. As the chains advance forwardly a distance sufficient to free the clip of said cams, the shaft 14 under urge of spring 26 will be moved in a direction to swing jaw 15 about pivot 24 in a counter clockwise direction (as viewed in the drawings), finger 15f being carried by the jaw into engagement with the cloth and arresting further movement of the shaft 14 and said jaw 15 (see Fig. 4). The tenter chains as they move forward on the machine diverge as desired, and the cloth will eventually slip from beneath finger 15f allowing the same to drop into slot 10S. The jaw 15 in turn engages and holds the cloth firmly against the base plate 10. At the end of the forwardly travel of the chains, the clip will be moved to open position by the usual cams (not shown) at the forward end of the machine.

Referring to Fig. 5, it will be seen that the pivot 19 is moved along a straight line indicated SL. It will also be seen that links 20, 20' allow pivot 24 to move only on radius 20A. It will also be apparent that in the open position of the jaw, the radius 19R from pivot 19 intersects radius 20A at point P. In the closed position of jaw 15 indicated in broken lines 15', the radius 19R' intersects the radius 20A at point P'. Thus, it will be apparent that pivot 24 moves from open to closed position and from closed to open position along a short arc between point P and P', which arc is nearly a straight vertical line. This results in a compound movement of the center C of the radius of the rounded end of the jaw to be moved in a nearly vertical path. Thus, the jaw of the clip in effect comes down on the cloth in a path substantially at right angles thereto and is released from the cloth in the same but reversed path. The rounded end of the clip presents a point contact against the cloth, and there is no necessity for a sharp edge as in prior de-

3

vices. Thus, when the operating finger releases the jaw, the clip will come down upon the cloth in nearly vertical fashion, the wedging action being maintained by the angular relationship of the jaw 15 with relation to the base plate 10 and the slight pressure that is additionally exerted by the spring 26 acting on the operating shaft 14.

Referring particularly to Figure 2, it will be noted that in distinction to some of the prior art devices in which the jaw of the tenter clip is pivoted at one end thereof, I have here a structure in which the jaw 15 is allowed to rock with relation to the base plate 10. This comes about due to the fact that the operating shaft 14 is cylindrical and allows a tilting action of the body 16 relative to the base plate. This particular feature insures positive alignment of the contacting edge of the jaw with the base plate 10 and consequently the cloth.

I have shown, for example, the usual operator 25 which is adapted to contact a cammed surface adjacent to the center rail, but it will be, of course, understood that, if desired, the operation may be carried on by a cammed surface which will contact the generally rounded end 27' of the collar 27. In a similar but reverse fashion, it will be apparent that the clip will disengage the cloth in a manner which will practically prevent the tearing thereof, inasmuch as the contacting edge of the jaw rises nearly vertical.

I claim:

1. A tenter clip having a base plate, an upright member mounted on said plate, a jaw, a shaft mounted for reciprocation by said member, one end of said shaft pivotally related to an upper end of said jaw, a link, said link pivotally related to said member and to said jaw at a point remote from the shaft attachment point, whereby upon moving said shaft in one or the other directions said jaw will be moved about said link.

2. A tenter clip as in claim 1 wherein the lower end of said jaw has a rounded end.

3. A tenter clip having a base plate, a support extend-

4

ing from said base plate, a shaft slidably mounted on said support, a jaw pivotally mounted on said shaft for movement toward and from said base plate, a link pivotally mounted at one end thereof to said support and pivotally connected at the other end thereof on said jaw at a location thereon intermediate the ends of said jaw, whereby upon sliding said shaft in one or the other direction said jaw will be moved about its pivotal connection to said link.

4. A tenter clip as set forth in claim 3 wherein said shaft is spring biased for movement in one direction.

5. A tenter clip as set forth in claim 3 wherein said shaft is spring biased for movement in one direction and a collar is carried by the shaft for moving the same in the other direction.

6. A tenter clip as set forth in claim 3 wherein said shaft is slidably mounted for movement in a plane extending substantially parallel to said base plate.

7. A tenter clip having a base plate, a support extending from said base plate, a shaft slidably mounted on said support, a jaw pivotally mounted at one end thereof to said shaft and extending therefrom toward said base plate, a link pivotally mounted at one end thereof on said support and at the other end thereof to said jaw at a location thereon adjacent the free end thereof, and a feeler member secured to said jaw.

References Cited in the file of this patent

UNITED STATES PATENTS

665,655 Gass _____ Jan. 8, 1901

FOREIGN PATENTS

15,612 Great Britain _____ of 1903
328,970 France _____ May 16, 1903