No. 670,598. Patented Mar. 26, 1901.

E. A. RUSDEN.

CLOTH HOLDER FOR TENTERING OR STRETCHING MACHINES.

(Application filed Dec. 27, 1899.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1

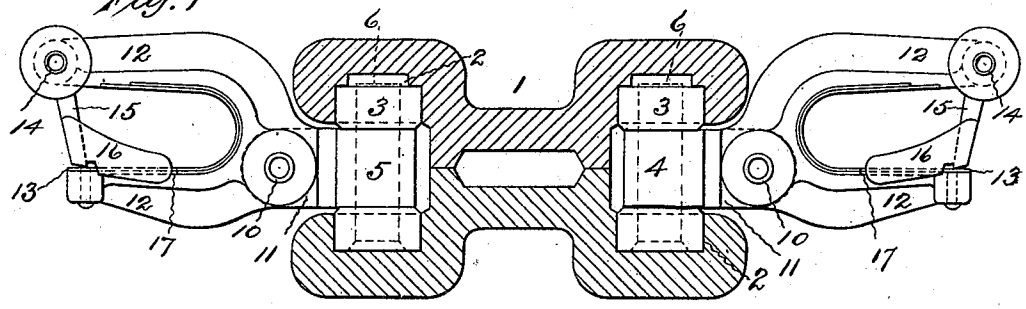


Fig. 2

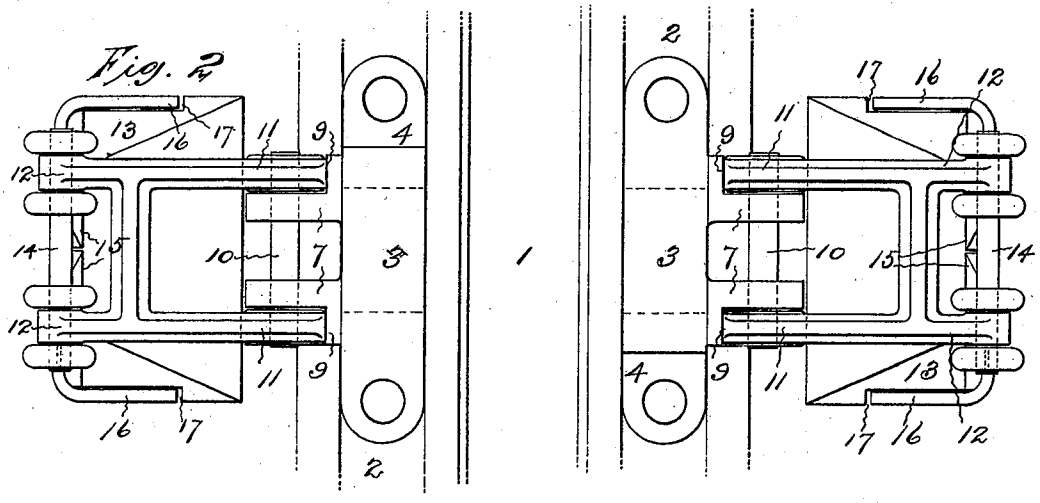


Fig. 3

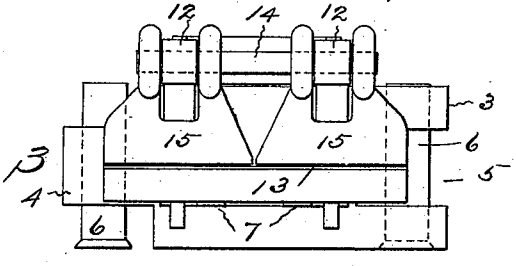


Fig. 4

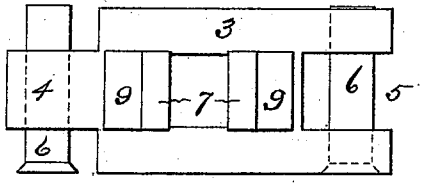
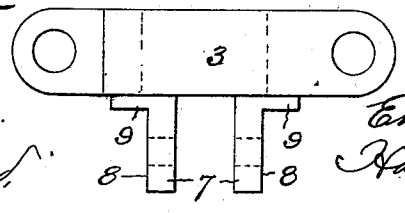


Fig. 5



Witnesses:
F. G. Holcomb.
C. E. Rockland.

Inventor:
Ethelbert A. Rusden,
by Harry P. Williams
atty.

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Fig. 6

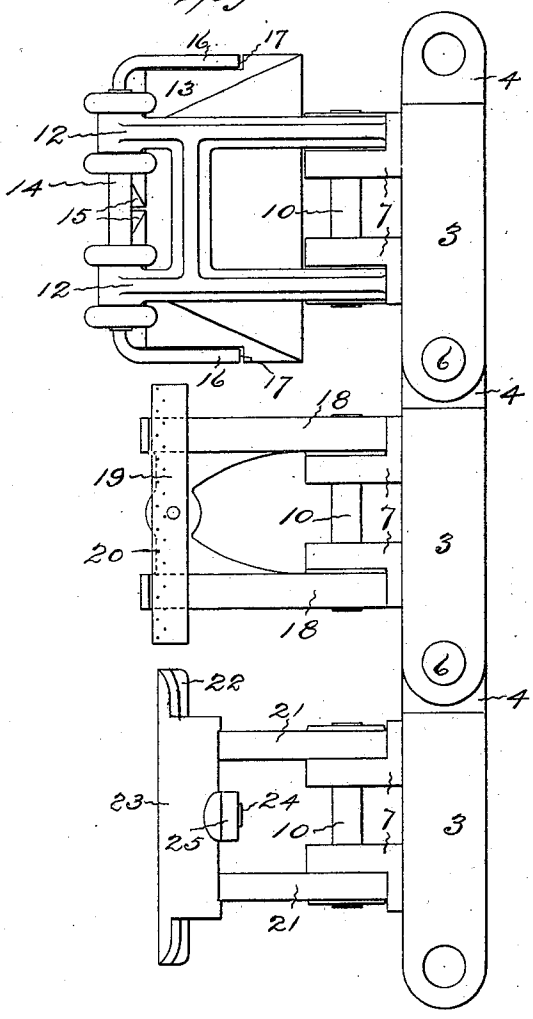


Fig. 7

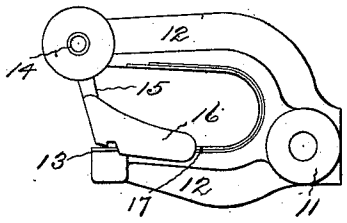


Fig. 8

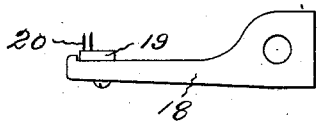
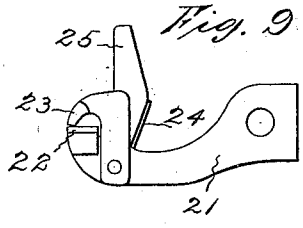


Fig. 9



Witnesses:
F. G. Holcomb.
C. E. Burckland.

Inventor:
Ethelbert A. Rusden, by
Harry P. Williams atty

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E. A. RUSDEN.

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Fig. 10

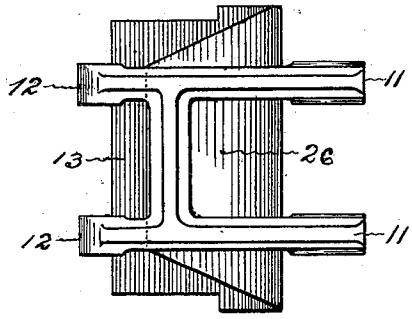
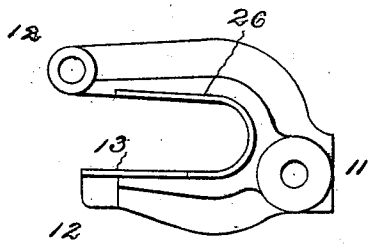


Fig. 11



Witnesses:
C. A. Holcomb.
Luitgard Mosba

Inventor:
Ethelbert A. Rusden,
by
Harry P. Williams
atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ETHELBERT A. RUSDEN, OF HARTFORD, CONNECTICUT.

CLOTH-HOLDER FOR TENTERING OR STRETCHING MACHINES.

SPECIFICATION forming part of Letters Patent No. 670,598, dated March 26, 1901.

Application filed December 27, 1899. Serial No. 741,735. (No model.)

To all whom it may concern:

Be it known that I, ETHELBERT A. RUSDEN, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Cloth-Holders for Tentering or Stretching Machines, of which the following is a specification.

This invention relates to the construction of the clips, clip-chains, and chain-guides of those machines which are employed for tentering or stretching continuous pieces of cotton, woolen, or other fabrics.

The object of the invention is to so construct these cloth-holding parts that a machine which can be quickly and inexpensively adapted for tentering or stretching fabrics of different natures can be cheaply built to operate efficiently with great rapidity and to have much more strength and durability and largely-increased facility for cleaning and repairing than prior machines of this class.

In the accompanying drawings, which illustrate the invention, the chain-rail is shown as formed of two complementary plates placed face to face in such position that the plain channels milled in each coöperate and form the guideways in which travel the loosely-connected links of the chain, and detachably secured to each link by a tubular pin is a holder having pins, clip, or clamp for temporarily retaining the edge of the cloth to be tentered or stretched.

Figure 1 of the views is a transverse section of a rail, showing the ends of two links, each of which is provided with an automatic clamp. Fig. 2 shows a plan of the rail, links, and clamps represented in Fig. 1 with the upper plate of the rail removed. Fig. 3 is a front view of one clamp and link. Fig. 4 is a front view of one link, the clamp being removed. Fig. 5 is a plan of one link. Fig. 6 is a plan of three links, each link being provided with a cloth-holder of different form. Fig. 7 is a side elevation of the automatic clamp attached to the upper link shown in Fig. 6. Fig. 8 is a side elevation of the pin-holder attached to the middle link. Fig. 9 is an elevation of the spring-clip attached to the lower link of Fig. 6. Fig. 10 is a plan of the jaw-support and the plate fixed to the jaw-support which forms the lower jaw and the shield for the edge of the fabric, and Fig. 11 is a side elevation of the jaw-support and the lower jaw and shield-plate.

The middle 1 of each rail-plate is hollowed out on the exterior to economize metal and insure lightness and on the interior, so that but little planing will be required to cause the plates to properly fit together. A plain channel 2 is milled near each outer edge of the inner face of both plates, and when the plates are together the channels form two guideways for the links of the chain, which when in operation travels in one direction through one guideway and in the opposite direction through the other guideway. With the upper plate taken off the chain may be placed in position or removed; but when the plates are fastened together the chain is loosely retained in proper position for accomplishing its work, Fig. 1.

Each link 3 is provided at one end with a horizontal tongue 4 and at the opposite end with a horizontal mortise 5, the mortise at one end of the link being adapted to receive the tongue on the adjacent end of the next link. Perforations are made vertically through the ends of the links, and by vertically-extending pins 6, placed in these perforations, the links are pivotally connected. Projecting outwardly from one side of each link are a pair of vertically-arranged ears 7. These ears are perforated horizontally, and their outer faces 8 and the adjacent faces 9 on the body of the link are preferably planed, so that they will be comparatively true, Figs. 4 and 5.

The holder for temporarily retaining the cloth to be tentered or stretched is attached to these ears by a hollow pin 10, that extends horizontally through the perforations in the ears 7 and perforations in the arms 11 of the holder, the inner ends of which arms are shaped to fit closely against the faces 9 of the link when the pin is in position.

In Figs. 1, 2, and 3 an automatic clamping-holder is illustrated, and the arms 11 of this holder terminate at their outer ends in fingers 12. Fastened to the upper faces of the lower fingers is a plate 13, which forms the fixed jaw, and loosely supported by a tubular pivot 14, held in the perforations in the outer ends of the upper fingers, are plates 15,

that form two sections of the swinging jaw of the holder. Gage-lugs 16 are attached to the outer edges of the swinging jaw-sections, so as to project backwardly, and slots 17 are made in the outer edges of the jaw-plate 13 for the passage of the lugs. The plate 13, that is secured to the upper edges of the lower fingers 12 and which forms the lower fixed jaw with which the upper swinging jaw coöperates, is shown as extending from the outer ends of the lower fingers backwardly and as curving upwardly from the upper edges of the lower fingers to the lower edges of the upper fingers, along which lower edges it extends nearly to the front end of the upper fingers in such manner as to form a shield 26. When the links are joined together and the cloth-holders are secured to the links, these plates form a U-shaped way which will protect the edge of the fabric held by the clamps from oil and stain that might be spattered or thrown from the joints of the chain, Figs. 10 and 11. These automatic holders operate in the usual manner—that is, the edge of the cloth is drawn outwardly between the swinging and fixed jaws until the slots 17 in the edges of the plate 13 are uncovered, so that the gage-lugs will drop through them and allow the swinging jaw to clamp the cloth to the fixed jaw, when the continued pull of the cloth tends to tighten the clamping of the jaws. The slots 17 in the edges of the fixed-jaw plate are very accessible for cleaning, as the links open apart when turning around the sprocket-wheels at the ends of the rail. The jaws are designed and so attached that the plane of draft of the cloth is on a line with the center of the chain, and this prevents undue strain upon either the upper or lower of the plates in which the chainways are formed. The arrangement of the upper jaw in two sections provides an extended clamping-line without requiring that it be made perfectly true, and should the bearings become more worn at one end than the other or slightly bent the sections will still clamp the cloth.

As shown in Fig. 6, the holder that is attached to the ears 7 of the link instead of being an automatically-operating clamp similar to that already described, which is particularly designed for cotton goods, may be a pin-holder, which is more especially used for woolen goods, or it may be a spring-clip, which is adapted to either woolen or cotton goods of certain characters.

The arms 18, that are detachably secured to the ears 7 of the middle link 3 of Fig. 6, may support a bar 19, which has one or more rows of upwardly-projecting pointed pins 20. Woolen cloth may be caught upon and removed from these pins in the usual manner when such a holder is connected with a chain-link.

The arms 21, that are detachably secured to the ears 7 of the lowest link of Fig. 6, support a bar 22, which forms the fixed jaw of the spring-clip. Hinged to these arms is a bar 23, which forms the movable jaw of the spring-clip. A spring 24 is arranged to keep the movable jaw closed against the fixed jaw, and a lug 25 projects from the movable jaw to provide an opening means.

Either the automatic clamp, the pin-holder, or the spring-clip may, as desired, be attached to the link-bodies described, so that a single machine which ordinarily has many hundreds of links may be readily altered to provide the best holding means for the kind of goods that is to be tentered or stretched.

By the use of these holders builders of tentering-machines are relieved from the necessity of having patterns of links and from keeping in stock links for each of the different styles. Should one of these holders become broken or otherwise damaged while in use, it may be removed without disturbing the link connections or the rail by simply withdrawing the pin that connects it with the link and substituting another. In the old forms of machines the link-rivets had to be unfastened and the entire link and clip removed from the chain for the purpose of substituting a new one or repairing a damaged one. With the holders described the entire strain of the pull of the chain, which amounts to very much when the chain has several hundred links, as it often does, is sustained by the link-bodies, and should they become stretched or bent or worn the clamping or clipping jaws would not be affected, for they are separated from the link-bodies. The employment of tubular pins for securing the parts together very materially decreases the total weight of the chain and at the same time provides an increase of wearing-surface and increases the general strength and durability of the machine. As the pins are not riveted in position, the ears are not drawn together so as to cause the parts to bind and retard the movement of the chain and the operation of the clip and clamping parts.

A tentering-machine provided with the links and holders described on account of their lightness, strength, durability, and ease of action may be run many yards per minute faster than machines having the common clips.

I claim as my invention—

1. A cloth-holder for tentering-machines consisting of a rail with a horizontal chainway, a number of links loosely connected together and adapted to be moved horizontally along said way, an independent cloth-retainer having means for holding the edge of a piece of cloth, fitted so as to be rigid with each link, and means for detachably holding each retainer rigidly to its link, substantially as specified.

2. A cloth-holder for tentering-machines consisting of a rail with a horizontal chainway, a number of links loosely connected together and adapted to move horizontally along said way, ears projecting from one side

of each link, arms closely fitting the ears and the side of each link, means for detachably securing the arms rigidly to the ears of each link, and a cloth-retainer supported by each pair of arms, substantially as specified.

3. A chain for a cloth-tentering machine consisting of a number of links loosely connected together, an independent cloth-retainer having means for holding the edge of a piece of cloth fitted so as to be rigid with each link, and means for detachably holding each retainer rigidly to its link, substantially as specified.

4. A chain for a cloth-tentering machine consisting of a number of links loosely connected together, ears projecting from one side of each link, arms closely fitting the ears and the side of each link, means for detachably securing the arms rigidly to the ears of each link, and a cloth-retainer supported by each pair of arms, substantially as specified.

5. A chain for a cloth-tentering machine consisting of a number of links loosely connected together, an independent cloth-retainer having means for holding the edge of a piece of cloth fitted so as to be rigid with each link, and a tube for detachably holding each retainer rigidly to its link, substantially as specified.

6. A chain for a cloth-tentering machine consisting of a number of links loosely connected together, ears projecting from one side of each link, arms closely fitting the ears and the side of each link, tubes passing through the arms and the ears and detachably securing the arms and the ears, and a cloth-retainer supported by each pair of arms, substantially as specified.

7. A cloth-retainer for a tentering-machine chain consisting of a jaw-support, a plate fixed to the jaw-support and forming the lower jaw and extending backwardly, upwardly and forwardly, gage-slots in the outer edges of the lower part of the plate, a jaw formed in separate sections, a gage-lug projecting backwardly from the outer edge of each section of the upper jaw near the outer edge of the lower part of the plate, and a pivot loosely connecting the upper-jaw sections with the jaw-support, substantially as specified.

8. A cloth-retainer for a tentering-machine chain, consisting of a jaw-support, a plate fixed to the jaw-support and forming the lower jaw and extending backwardly, upwardly and forwardly to form a shield for the edge of the fabric, an upper jaw pivotally connected with the jaw-support, and a gage-lug projecting backwardly from the pivoted jaw, substantially as specified.

ETHELBERT A. RUSDEN.

Witnesses:
CHARLES B. MASON,
H. R. WILLIAMS.