Oct. 19, 1937. C. H. RAMSEY 2,096,470

TENTERING CLIP

Filed July 6, 1936 2 Sheets-Sheet 1

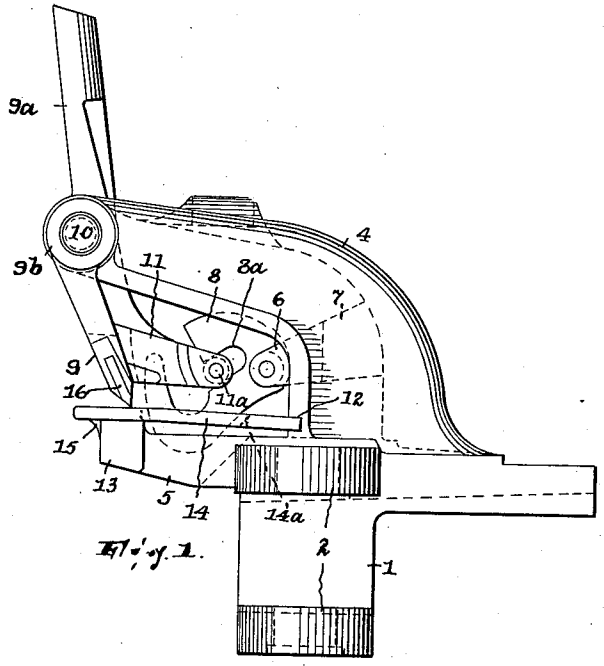


Fig. 1.

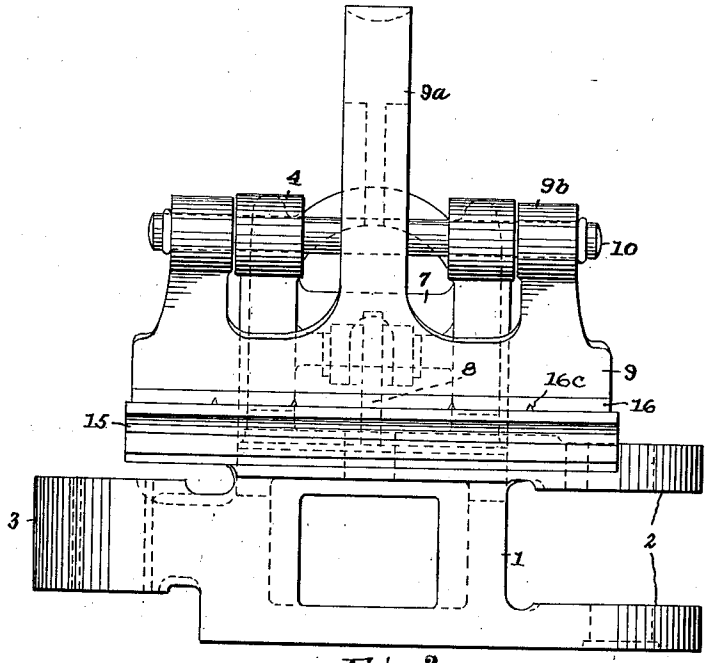


Fig. 2.

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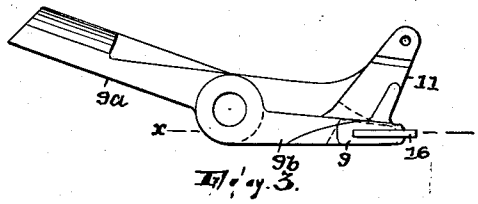


Fig. 3.

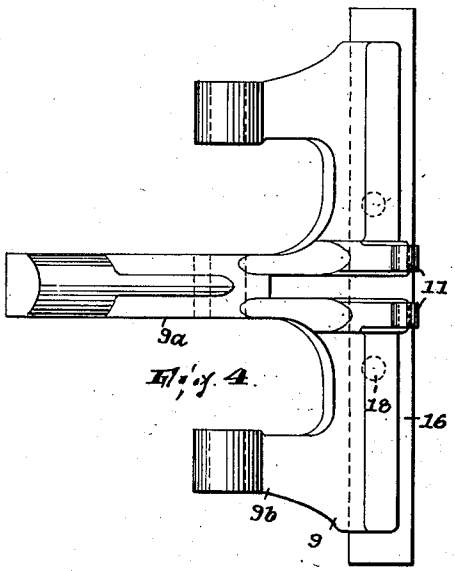


Fig. 4.

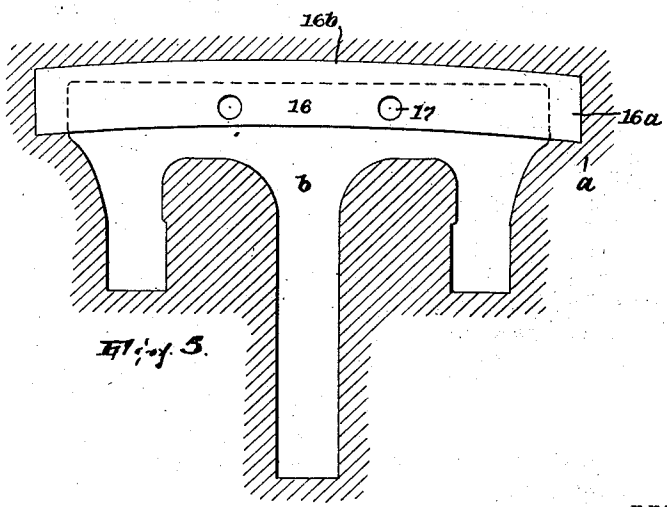


Fig. 5.

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UNITED STATES PATENT OFFICE

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TENTERING CLIP

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Application July 6, 1936, Serial No. 88,975

3 Claims. (Cl. 26—62)

This invention relates to cloth-gripping devices and especially to the cloth-gripping or tentering clips used in tentering machines, such usually embodying, with a cast metal (as iron) frame, a steel or other harder plate over which the margin of the cloth extends and serving as the fixed jaw of the clip, and a jaw or gate so pivoted in the frame that it tends by gravity to impinge against the fixed jaw thus to coact therewith to grip the cloth, the clip being one of a number forming the links of an endless travelling chain and its movable jaw being adapted to be opened or retracted from the fixed jaw and then allowed to fall by parts of the machine past which the chain travels.

Usually the fixed jaw or said plate is clamped to the frame in some way, commonly by rivets. But, on account of the vibration and jarring which the clip constantly undergoes, the fixed jaw (however it may be clamped) works loose so that repairs are constantly necessary to keep the plate from chattering and also properly coactive with the movable jaw; and, in addition, if rivets are used, the rivet holes in the plate permit oil used for lubricating the chain and other parts to work up through them to the upper or cloth-engaged surface of the plate, thus to cause staining of the cloth. According to this invention the plate or fixed jaw and frame are joined by a welding mass and so become an integral structure and are adapted to remain as such throughout the whole life of the clip, making repairs in so far as the union between the plate and frame is concerned never necessary, the connection between them being moreover such as not to invite access of oil to the cloth-engaged surface of said fixed jaw.

Since the fixed jaw or plate is of hard metal (steel) the gripping edge portion of the movable jaw should be the same. My invention further involves a novel construction of the movable jaw comprising a cast body and a plate of harder material (as steel) associated therewith so as to provide the gripping edge.

In the drawings,

Figs. 1 and 2 are a side elevation and a plan, respectively, of the improved clip;

Figs. 3 and 4 are similar views, respectively, of its movable jaw in uncompleted form; and

Fig. 5 is a horizontal sectional view of the mold in which the movable jaw is formed and as viewed from above, the edge-forming blade for such jaw appearing in position in the mold.

The cast metal frame of the clip includes a base 1 having the usual extensions 2 and 3 by which to connect such frame pivotally to the frames of similar clips to form an endless chain, and also having the upstanding and forwardly projecting movable-jaw support 4 (here as usual comprising a pair of arms) and the forwardly projecting fixed-jaw support 5. In a forked arm 6 projecting from a brace 7 connecting the arms of support 4 is pivoted to move in a vertical plane the usual controller 8 for the movable jaw, the same having a slot 8a to be engaged by such jaw and being adapted to enter as usual a slot, as will appear, in the fixed jaw or plate.

The movable jaw or gate is mainly a lever-like brass casting including a web 9 having arms 9a and 9b penetrated by a pin 10 by which such jaw is pivotally carried by the movable-jaw support 4, arm 9a being between and projecting further than arms 9b so as to be adapted, as the chain of clips moves in its circuit and their movable jaws are normally urged by gravity to assume the position of Fig. 1, to engage parts of the machine whose function it is to move said jaw to cloth-releasing or open position, as well known. Projecting inwardly from the web is also the forked arm 11 having a roller 11a engaged in the slot 8a of controller 8.

So much is the usual construction.

The movable-jaw support 4 (here each arm thereof) is at 12 notched at its forward side and near the base 1. The fixed-jaw support is formed at its forward portion with a substantial or thickened-up terminal forming an anvil 13 having a substantially horizontal plane top surface. Jammed in the notches is the rear edge of the fixed jaw 14, being a plate of preferably rustless steel, its forward portion resting in face to face contact with said surface of and its forward edge parallel with the anvil. The anvil is elongated transversely of the frame to at least the same extent as the movable jaw and the forward edge of the fixed jaw or plate, which is approximately as wide as the anvil is long, forwardly overhangs the anvil. Existing in the angle between the under side of the projecting portion of the plate and the forward side of the anvil and extending substantially the full width of the plate and continuously and uniting such projecting portion of the plate and the anvil is a steel welding mass 15. (The anvil is so located that when the movable jaw is closed—position shown, Fig. 1—its gripping edge is over the anvil.) The notches 12 are slightly depressed relatively to the top surface of the anvil, and the plate, whose portion in contact with said surface is horizontal, has its remaining or rear portion bent downward somewhat thus to permit the former portion to be machined

off when required (as when and if it becomes marred by the movable jaw) independently of the latter portion. The slot in the plate to receive the controller is indicated at **14***a*.

The construction is such that the cast portion and plate or fixed jaw, as considerable practice has shown, form a structure adapted to remain in effect integral indefinitely, and the plate is without holes over the table permitting access of oil to the cloth being tentered; further, there is assurance, when the cast portion and plate are united in the way stated, that they are at once firmly united, which is not the case where riveting or other form of clamping is resorted to since in that case there may be seeming but not actual binding or at least effective binding of the parts tightly together so that when the clip goes into action any actual or potential looseness present initially becomes the cause of increasing looseness and consequent chattering and failure of the two jaws to coact properly.

To form the movable jaw or gate a mold is provided only the sand *a* of which, provided with a molding space *b*, is shown in Fig. 5. Before the metal to form the cast body is poured a flat steel blade **16** is placed in the mold space as shown, to wit, so that the blade lies in approximately the median plane *x* of the ultimate web **9** of the jaw, with both ends **16***a* and one long margin **16***b* buried and so supported in the sand and the remainder of the blade in the mold space, which reaches over as well as under it as indicated by the dotted outline in Fig. 5. When the metal is poured and so occupies all the mold space the blade will remain embedded or cast-in in the web of the jaw as in Fig. 4, or with margin **16***b* projecting from that marginal portion of the web which in the completed clip is to stand presented toward the fixed jaw and the ends **16***a* projecting laterally. Upon removal from the mold the ends **16***a* are trimmed away and the jaw is so beveled (as in a double-bevel), preferably affecting both said marginal portion of the web and the margin **16***b* of the blade, as to develop an acute edge on the blade as shown in Fig. 1; while such edge is generally straight, it may be formed with notches at intervals as shown at **16***c* in Fig. 2. The blade is formed initially with a pair of holes **17**. When the pouring is effected some of the metal extends through these holes to form as it were integral rivets **18** which hold the blade securely in the groove in the web which it occupies.

I have found that if the blade is initially straight in plan, when the casting is effected the blade for some reason undergoes bending in its own plane in such manner that its margin **16***b* is concave, wherefore excessive bevelling to produce a straight edge is required; also that if the holes **17** are disposed near the ends of the blade, when this bending occurs the mentioned rivets **18** forming in the holes undergo forward straining and frequently fracture. Hence the blade is preferably initially formed as shown in Fig. 5 so that its said edge portion is convex; and the holes **17** are located more or less near the mid-portion of the blade, though spaced apart.

Having thus fully described my invention what I claim is:

1. A tentering clip of the class described including a metal frame having, with a base, a fixed-jaw support projecting forwardly from the base and having a transversely elongated terminal arranged directly to oppose the movable jaw of the clip when such movable jaw is in closed position and a movable-jaw support projecting upwardly from the base and over the first support and being notched at its forward side near the base, a metal plate to form the fixed jaw of the clip resting with one of its broad faces upon said terminal for substantially the full longitudinal extent thereof and having a forward edge substantially parallel with said terminal and a rear edge snugly engaged in the notch of the movable-jaw support, and a transversely extending welding mass uniting said plate and terminal substantially continuously and throughout the whole co-extent of the terminal and plate.

2. The tentering clip set forth in claim 1 characterized by the forward edge portion of the plate reaching forwardly of said terminal in a plane and said welding mass occupying the angle between such edge portion of the plate and the forward surface of said terminal.

3. A movable jaw for a tentering clip comprising a cast-metal body having a terminal web one marginal portion of which is to stand presented toward the fixed jaw of the clip, and an elongated cloth-gripping blade cast-in, and having one long edge thereof projecting from, said marginal portion and adapted to engage the fixed jaw, said blade being curved in plan and having said edge thereof its convex edge.

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