March 26, 1929. F. C. JERAULD 1,706,613

TENTER CLIP

Filed Sept. 14, 1927

Fig. 1.

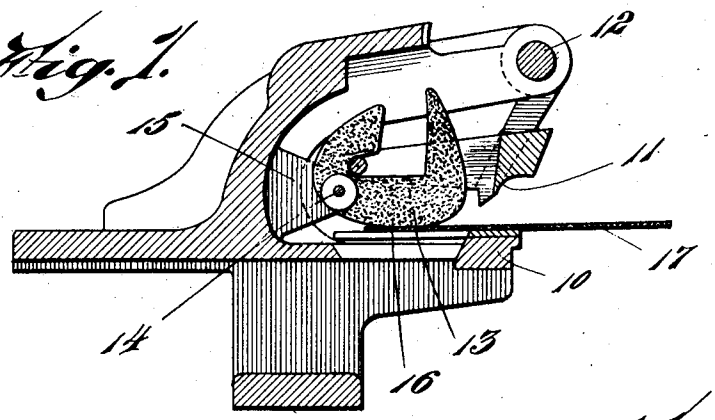


Fig. 2.

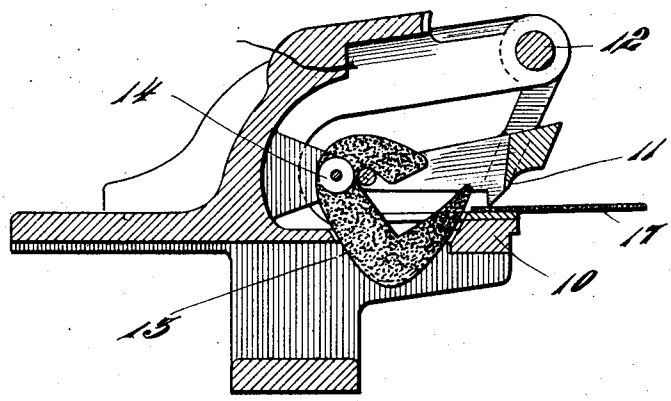


Fig. 3.

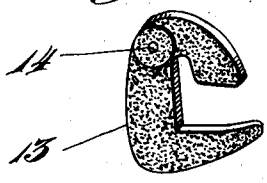


Fig. 4.



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UNITED STATES PATENT OFFICE.

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TENTER CLIP.

Application filed September 14, 1927. Serial No. 219,475.

This invention relates to an improved construction of tenter clip; and has for its object to provide in such a clip a non-metallic controller member which contains in its composition a product diminuent to wear.

A further object of the invention is to form this controller member of a non-metallic material which contains in its composition a fibrous material treated with a product such as phenol and formaldehyde to produce a wear-resisting controller member that has a working life greatly increased over that of such a member formed of metal.

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:

Fig. 1 is a sectional side elevation of a tenter clip showing my improved construction of controller member for the swinging jaw of the clip and showing the controller member as holding the swinging jaw out of gripping position.

Fig. 2 is the same as Fig. 1 but showing the controller member as having released the jaw to swing the clip on the edge of the cloth.

Fig. 3 is a perspective view of my improved controller member illustrating the same as formed of a material other than metal.

Fig. 4 is an edge view of the controller member.

Owing to the present day practice of rapid travel required of the chain in tentering machines, the old style controller member in the tenter clip which is made of metal soon wears out rendering the action of the clip imperfect and unsatisfactory. In other words, the constant severe banging or hammering action on the clips of the fast traveling tenter chain in opening and closing the swinging clip jaw to engage and release the work acts upon the delicately mounted controller member which oscillates on its pivot pin in the clip with such force as to soon crystallize and destroy that member when it is made of any kind of metal, one reason for this rapid deterioration being that no oil can be employed at this pivoting point on account of injury to the expensive fabric engaged by the clip. Therefore, the pivot eye becomes quickly worn and the further motion permitted by such wear causes a lateral loose swinging vibration which again increases the wearing action which multiplies rapidly and soon the controller becomes crystallized and cracked and fails utterly to control the swinging jaw and the effective action of the clip ceases. A great variety of notable wear-resisting metals have been tried but none appear to be effective and none will stand the strain but for an extremely limited period. Therefore, to obviate this difficulty, I have constructed the controller member of a non-metallic material and I preferably employ one which contains in its composition a product which has inherent lubricating properties to serve as a diminuent to wear, as synthetic plastic or artificial resins such for instance as a product containing a phenol and formaldehyde to which composition in some instances wood fibers or cotton fibers may be added, the whole being condensed or compressed by heat or pressure or both to form a very hard, tough, wear-resisting material similar to that known in the trade as bakelite. It has been found by practical tests that a controller formed of my improved construction will stand by actual wear-resisting tests from twenty to fifty times longer than a controller made of any kind of metal. For instance, relative tests made in a wear-testing machine in which the controller is mounted as in a tenter clip, show that metals of different characters will stand the required banging or hammering action similar to that to which it is subjected in a fast running tenter clip about one and one-half to three hours according to the character of the material, when it will become crystallized, cracked, broken or disintegrated, while a controller member made of my improved non-metallic material having inherent lubricating qualities will under the same conditions run for at least one hundred hours or some twenty-five to fifty times longer than the metal, without showing sufficient wear to impair its proper operation as a controller in a tenter clip; and the following is a detailed description of the present embodiment of my invention and showing one construction of controller member by which these advantageous results may be accomplished:

With reference to the drawings, 10 designates the usual fixed jaw of a tenter clip

and 11 the swinging jaw of the clip which is pivotally mounted on a pin 12. This jaw is controlled in its swinging action by a controller or feeler member 13 which is delicately pivoted on a small pin 14 in the bracket 15 of the clip, the back portion 16 of this delicate controller or feeler being shown in Fig. 1 as resting upon the work 17 while in Fig. 2 the work 17 is shown as being drawn outwardly permitting the controller to drop and release the swinging jaw to advance and grip the edge of the work against the fixed jaw 10.

It is found in practice that owing to the rapid travel of the present day speed requirements in tentering machines this controller member which is necessarily of light construction to work on the finer grades of light silks when made of metal will not stand up and the eye at its pivot point soon wears permitting sufficient lost motion and lateral cramping movement to cause still greater wear and soon the controller will crack through the eye permitting a still greater lost motion causing it to fail to control the swinging jaw and in many instances cause it to tear and damage the expensive goods engaged thereby. To obviate this serious difficulty, I have found by long and careful experiment that it is necessary to provide a controller member which will last much longer than will one made of metal, and owing to the fact that no oil can be used on the pivot pin of the controller on account of injury to the often expensive work engaged by the clip. A synthetic plastic or artificial resin material of a character which may be formed into a permanent solid at normal temperatures and pressures and containing some sort of inherent lubricating qualities must be employed, and to accomplish this I have adopted a material which contains a somewhat oily, viscous composition such for instance as phenols and formaldehydes and which in some instances also contains a fibrous material such as wood, animal or cotton fibers. This product after undergoing the proper treatment which in some instances is that of being subjected to a high degree of heat or pressure or both forms a hard, tough and wear-resisting product which admirably serves my purpose and a controller or feeler for a tenter clamp formed of this material is found to provide one having a wearing life much longer than that of metal and which permits the practical running of the tentering machine at the high speeds now required.

The foregoing description is directed solely towards the construction illustrated, but I desire it to be understood that I reserve the privilege of resorting to all the mechanical changes to which the device is susceptible, the invention being defined and limited only by the terms of the appended claims.

I claim:

1. A tenter clip having a fixed jaw, a swinging jaw and a pivotally mounted controller member for said swinging jaw, said controller member being formed of a non-metallic synthetic plastic material containing in its composition a product having qualities serving as a diminuent to wear.

2. A tenter clip having a fixed jaw, a swinging jaw, and a pivotally mounted controller member for said swinging jaw, said controller member being formed of a non-metallic material containing in its composition a condensation product of a phenol and formaldehyde.

3. A tenter clip having a fixed jaw, a swinging jaw, and a pivotally mounted controller member for said swinging jaw, said controller member being formed of a non-metallic material containing in its composition a fibrous material treated with a product of phenol and formaldehyde.

In testimony whereof I affix my signature.

FRANK CHESTER JERAULD.