

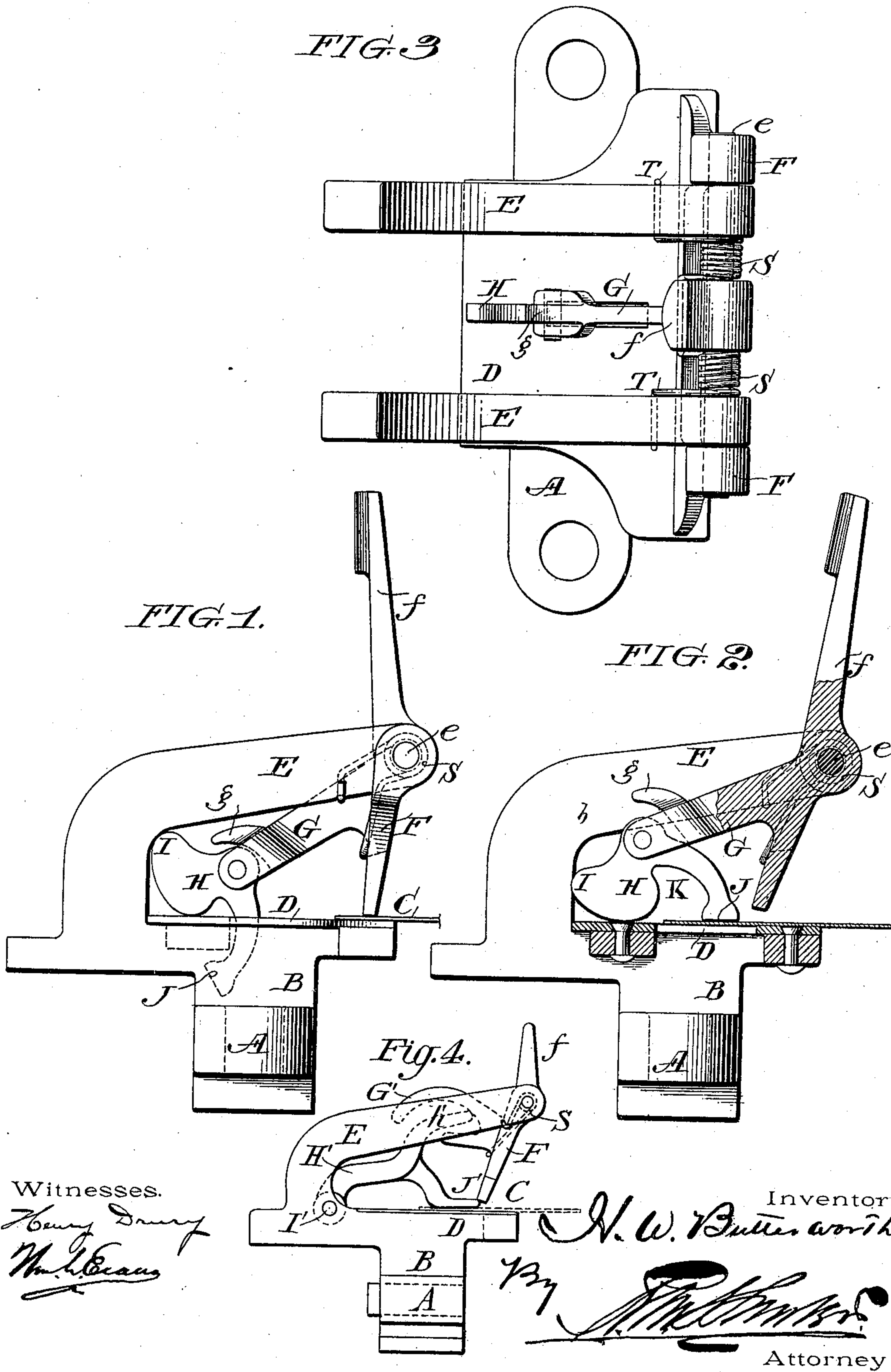
No. 629,491.

Patented July 25, 1899.

H. W. BUTTERWORTH.
CLOTH CLAMP FOR TEXTILE MACHINERY.

(Application filed Aug. 6, 1898.)

(No Model.)



UNITED STATES PATENT OFFICE.

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CLOTH-CLAMP FOR TEXTILE MACHINERY.

SPECIFICATION forming part of Letters Patent No. 629,491, dated July 25, 1899.

Application filed August 6, 1898. Serial No. 687,903. (No model.)

To all whom it may concern:

Be it known that I, HARRY W. BUTTERWORTH, of the city and county of Philadelphia, State of Pennsylvania, have invented an Improvement in Cloth-Clamps for Textile Machinery, of which the following is a specification.

My invention has reference to cloth-clamps for textile machinery; and it consists of certain improvements which are fully set forth in the following specification and shown in the accompanying drawings, which form a part thereof.

This invention has particular reference to clamps for tentering and stretching machines for cloth, and embodies certain improvements upon the construction of clamp set out in Patent No. 573,065, dated December 15, 1896. It is also equally adapted to the class of clamps shown in Letters Patent granted to me on April 20, 1897, and numbered 581,102. In clamps as set out in said patents the automatic action is defective under certain conditions—namely, the extra smoothness of the fabric or coating of the clamping-surfaces with starch derived from the fabric. These causes make the fabric tend to slip out of the jaws before firmly gripped. This is largely due to the fact that the movable jaw does not snap upon the fabric quickly enough and with sufficient force when the cloth is moving under the controlling-finger to throw the jaw into action. Heretofore I have in using the above-patented inventions relied upon gravity to cause the parts to operate upon the cloth; but while this is amply sufficient under some conditions it is not so in all cases, as above pointed out; and in these cases I cause the clamping-jaw to be operated by a spring and indirectly thereby make the controlling-finger respond more rapidly. In doing this, however, I prefer to modify the leverage of the controlling-finger, so as not to put an excessive strain upon the cloth.

My improvements will be better understood by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of a cloth-clamp embodying my invention when in the act of clamping the cloth. Fig. 2 is a sectional view before the cloth has been drawn from under

the controlling-finger. Fig. 3 is a plan view of my improved clamp, and Fig. 4 is a side elevation of a modification of my invention.

A is a link of a chain of any suitable conveyer.

B is the fixed jaw and may be formed integral with the conveyer-link. In practice this jaw is made of iron and covered with a plate C, of brass, to avoid rust, which would be injurious to the fabric. The fixed jaw B is provided with overhanging arms E, to which is pivoted at *e* the movable jaw F, the gripping edge of which is movable to and from the plate C of the fixed jaw. The movable jaw is provided with an upward extension *f*, adapted to be operated by a suitable cam, as is customary. Arranged about the pivot-pin *e*, on each side of the part *f* and intermediate of it and the arms E E, I arrange coil-springs S, the outer ends being adapted to be held by said arms at T and the inner ends being united, so as to act upon the movable jaw to force it down. By means of these springs the movable jaw snaps down quickly and with some force when the trip liberates it. The rear portion of the movable jaw F is provided with an arm G, to the lower end of which is pivoted at *h* the freely-moving controlling-finger H. The controlling-finger consists of a small casting inverted-U-shaped and having two extensions relatively disposed upon each side of its pivot, one of which, I, extends rearwardly and the other and longer of which, J, projects toward the movable jaw and is arranged to freely play through a slot D in the fixed jaw. The space between the parts I and J is recessed, as at K, so that the rear part I acts as a fulcrum upon the movable jaw and the forward part J presents a flattened surface to act upon the fabric. The controlling-finger H is free to swing upon its pivot *h*, and may be provided with a stop-shoulder S to limit the backward movement, so as to prevent the part J catching upon the movable jaw when the parts are thrown downward.

When the clamp is thrown wide open, the movable jaw F, together with the controlling-finger, is lifted rearwardly and upwardly, leaving a clear space between the fixed jaw and the overhanging structure E, into which

the cloth passes. When the cloth is inserted, the movable jaw is allowed to fall, and as it approaches the cloth the extension I of the controlling-finger strikes the fixed jaw, while the forward extension J is received upon the cloth, as shown in Fig. 2. This action holds the movable jaw away from the cloth. As, however, the cloth is drawn from under the extension J this part of the controlling-finger is wholly liberated and it falls through the slot D, permitting the clamping-jaw F to descend under the action of the springs S. The cloth is in this manner gripped close to its selvage, as shown in Fig. 1.

The quick and positive action of the spring in a clamp of this character insures the cloth being properly and positively gripped, and overcomes any tendency to the slipping of the fabric under the gripping-jaw from any of the causes above pointed out. The practical effect of the blow given to the gripping-jaw under the spring action is to cause its edge to practically indent or embed itself into the fabric, and thus hold it firmly and positively.

My invention would be the same with the other type of clamp shown in my Patent No. 581,102, before referred to, as the special type of controlling-finger or its method or position of pivoting is immaterial. This modification is shown in Fig. 4, in which the rear arm on the movable jaw is formed like a jaw G', between the two parts of which the part h' of the controlling-finger H' operates. The rear end of this controlling-finger is fulcrumed at I' to the main frame E and the forward end J' rests upon the cloth. The spring S is applied to the movable jaw as in the other figures.

It is to be understood that there is a limit to the power which may be practically employed, as too much pressure would either prevent the controlling-finger properly acting or would injure the cloth by cutting or abrading it.

I do not confine myself to any particular way of applying the spring so long as it positively acts to close the movable jaw upon the fabric and cause it to quickly act with force irrespectively of the action of gravity.

What I claim as new, and desire to secure by Letters Patent, is—

1. A cloth-clamp for textile-machines consisting of a fixed jaw, combined with a movable jaw, a spring directly acting at all times upon the movable jaw to force its clamping edge down upon the fabric between the jaws, and a controlling-finger pivoted to the rear of the movable jaw on an axis parallel to the clamping edge of the jaw said finger having an extension on one side of its pivot acting as a fulcrum in connection with the fixed jaw

and a forward free end on the other side of its pivot governed by the cloth when between the jaws and adapted to oppose the action of the spring and hold the movable spring-actuated jaw out of action until the cloth is properly adjusted thereunder.

2. In a cloth-clamp, the combination of a fixed jaw with a movable jaw movable to or from the fixed jaw, a spring to force the movable jaw toward the fixed jaw, and a controlling-finger hinged to the rear of the movable jaw and provided with a rear fulcrum extension adapted to come in contact with the fixed jaw, and a forward controlling extension adapted to be received and temporarily sustained by the cloth to hold the movable jaw open against the action of its spring until the cloth is drawn from under said controlling extension to permit the spring to force the movable jaw down with pressure and rapidity.

3. In a cloth-clamp, the combination of a fixed jaw having an aperture or recess in its face and provided furthermore with an overhanging fixed arm, a jaw pivoted to said arm and having its clamping edge movable to and from the fixed jaw, a spring acting at all times directly upon the movable jaw to move it toward the fixed jaw when unsupported to clamp the cloth, and a movable finger acting as a lever fulcrumed at one end upon the fixed jaw and having the forward or free end movable through the recess in the face thereof and adapted to be sustained by the cloth between the jaws and also having a connection between its fulcrum and free end with the pivoted jaw to hold the same elevated against the action of its spring until the cloth is moved into proper position to release the free end of said finger and permit it to pass into the recess.

4. The combination of the fixed jaw B having overhanging arms E E, a pivoted jaw F journaled to the overhanging arms and having an upward central extension f for operating it, a transverse pivot-pin e carried by the overhanging arms and acting as the pivot of the movable jaw, springs S surrounding the pivot-pin having one end acting on the overhanging arms and the other end upon the movable jaw and further interposed between the overhanging arms and the projection f of the movable jaw, and a controlling-finger operating upon a rear extension from the pivoted jaw and controlled by the cloth between the jaws.

In testimony of which invention I hereunto set my hand.

HARRY W. BUTTERWORTH.

Witnesses:

R. M. HUNTER,

J. W. KENWORTHY.