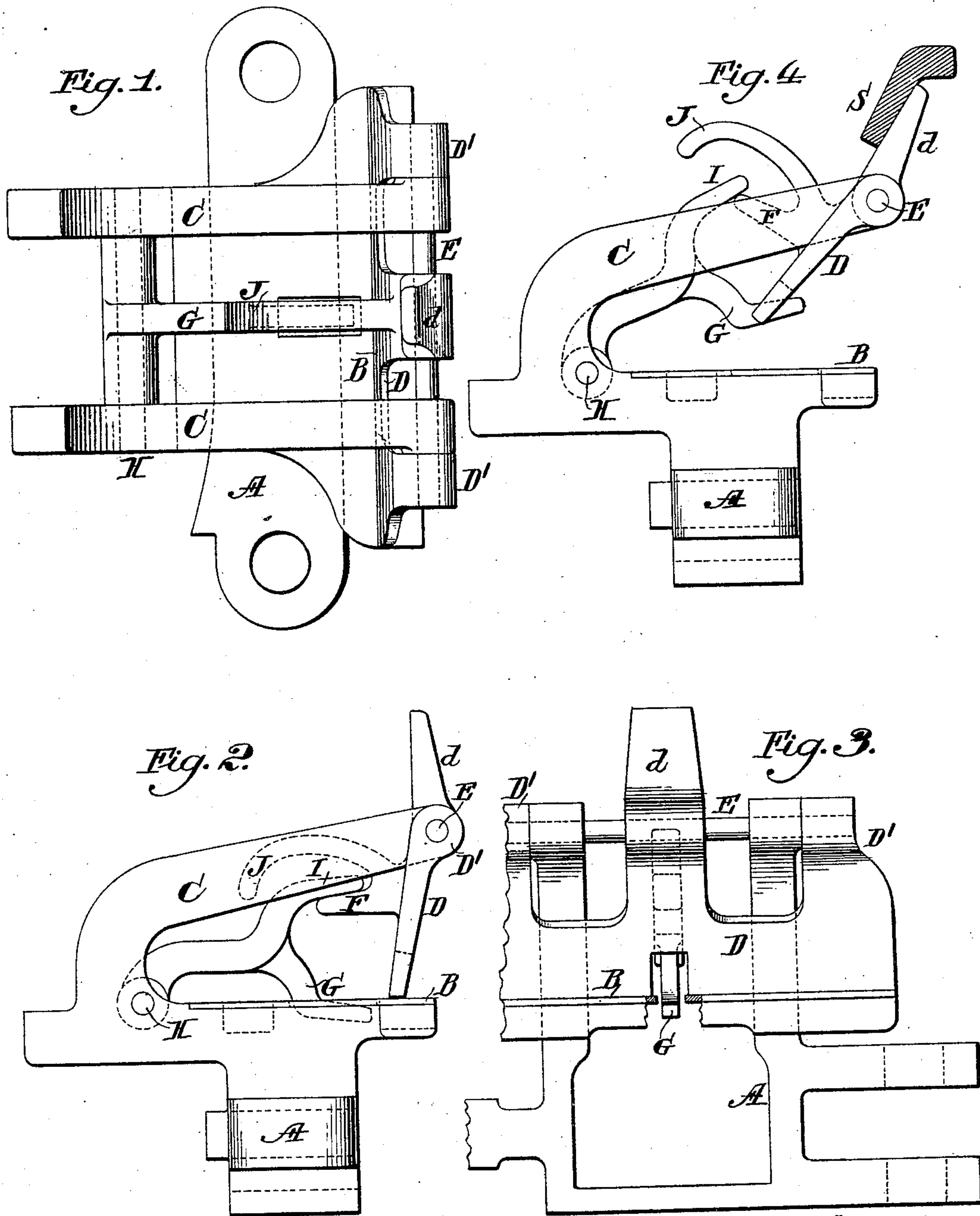


(No Model.)

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

No. 581,102.

Patented Apr. 20, 1897.



Witnesses.

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By *[Signature]*

Attorney.



# UNITED STATES PATENT OFFICE.

HARRY W. BUTTERWORTH, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR  
TO THE H. W. BUTTERWORTH & SONS' COMPANY, OF PENNSYLVANIA.

## AUTOMATIC CLAMP FOR TEXTILE MACHINERY.

SPECIFICATION forming part of Letters Patent No. 581,102, dated April 20, 1897.

Application filed September 9, 1896. Serial No. 605,271. (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  
5 an Improvement in Automatic Clamps for Textile Machinery, of which the following is a specification.

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

My invention comprehends certain improvements in cloth-clamps especially adapted to tentering-machines, and is designed to form a part of an endless conveyer. The clamp is provided with a fixed jaw and a movable or pivoted jaw, the latter being governed in its clamping action by the controlling-finger, the movements of which are controlled by the cloth after being properly placed within the clamp and before being gripped.

In carrying out my invention I provide the link of the chain with a fixed jaw and an overhanging arm, to which a movable jaw is pivoted, so that its gripping edge is pivoted to the movable or fixed jaw. Pivoted to the fixed jaw is a controlling-finger which is provided with a tooth arranged to work within a fork on the movable jaw, the said parts being so proportioned that they cannot normally become disconnected. In the operation the  
35 movable jaw is moved upward by any suitable cam device, and its action causes the controlling-finger to also be raised to permit easy entrance of the fabric. Upon the release of the movable jaw the controlling-finger falls  
40 on the fabric and is sustained thereby. By means of the tooth and fork the said controlling-finger also sustains the movable jaw out of contact with the fabric, but when the fabric is drawn from under the controlling-finger  
45 the latter drops and permits the movable jaw to quickly descend and grip the fabric at its extreme edge, clamping it between the clamping edge of said movable jaw and the fixed jaw. The controlling-finger and movable  
50 jaw are so proportioned and shaped that a movement of the movable jaw will not dis-

engage the controlling-finger, so that the latter shall not be accidentally displaced and rendered non-operative.

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

Figure 1 is a plan view of a cloth-clamp embodying my improvements. Fig. 2 is an end elevation thereof. Fig. 3 is a front elevation thereof with a portion broken away;  
60 and Fig. 4 is an end elevation similar to Fig. 2, but with the movable jaw and controlling-finger held upward under the action of the cam, so as to permit the entrance of the fabric.

A is a link and forms a portion of the endless conveyer commonly used in tentering-machines.

B is the fixed jaw and is formed upon the upper portion of the link. In practice the  
70 upper surface of the fixed jaw is covered with a thin brass plate to provide a surface which has no tendency to rust. The fixed jaw is provided with an overhanging arm C, cast integral therewith.

D is the movable jaw and is pivoted to the overhanging arm C at E and having the outer lateral extensions D' fitted upon the outside of the arms C to hold the jaw centrally disposed. The upper part of the jaw D is provided with an extension *d*, adapted to be actuated by a cam S, of any suitable construction, past which the clamp is moved. The rear side of the movable clamp D is provided with a fork F J, the part J extending backward  
85 and downward for a considerable length to form an obstruction in the path of the controlling-finger, should it accidentally be projected backward, and thereby prevents disengagement of the parts.

G is the controlling-finger and is pivoted to the fixed jaw at H. Its forward part is movable vertically through a slot or aperture J' in the fixed jaw. At its free end it is provided with an upwardly-extending tooth I,  
95 which works between the parts F J of the fork on the movable jaw. When the parts are in the position shown in Fig. 4, the cloth is entered, and after the projection *d* is liberated by the cam S the controlling-finger G  
100 falls upon the fabric, which rests upon the fixed jaw B, and the movable jaw D descends



until arrested by the arm J coming in contact with the tooth I. As the fabric is drawn from under the controlling-finger G it ultimately liberates said finger and permits it to fall.

5 In descending the tooth I thereof strikes the arm F of the fork on the movable jaw and forces the jaw upon the fabric. At this time the parts are in the position shown in Fig. 2. When it is desired to liberate the fabric, a  
10 second cam moves the movable jaw again into the position shown in Fig. 4 and liberates the fabric.

It is evident that my improved clamp might be formed for attachment to any endless conveyor other than a chain, though in practice  
15 it is common to employ a chain structure in tentering-machines, and I therefore prefer the specific form shown.

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

1. In a cloth-clamp for textile machinery, the combination of a fixed jaw having a slot or aperture in its face and an overhanging arm or frame, a movable jaw pivoted to the  
25 overhanging arm or frame adapted to operate with the fixed jaw and provided with a rearwardly-extending fork formed with teeth or arms of different length and in which the lower is the shorter, and a controlling-finger pivoted  
30 to the fixed jaw in the rear so as to be movable through the slot or aperture in the face thereof and provided with a tooth extending forward between the two teeth or arms of the movable jaw so as to be positively supported at all  
35 times in normal operation by the lower or shorter arm or tooth and having no contact with the movable jaw except between the pivots of the controlling-finger and movable jaw, whereby a positive movement of the  
40 movable jaw will lift the controlling-finger and a downward movement of the finger when released by the fabric acts to force down the movable jaw to grip the fabric.

2. In a cloth-clamp for textile machinery,  
45 the combination of a fixed jaw having a slot or aperture in its face and an overhanging arm or frame, a movable jaw pivoted to the overhanging arm or frame adapted to operate with the fixed jaw and provided with a rear-  
50 wardly-extending fork formed with teeth or

arms of different length and in which the lower is the shorter and the upper extends backward and downward to act as a stop for preventing disengagement of the controlling-  
55 finger when thrown upward, and a controlling-finger pivoted to the fixed jaw in the rear so as to be movable through the slot or aperture in the face thereof and provided with a tooth extending forward between the two  
60 teeth or arms of the movable jaw so as to be positively supported at all times in normal operation by the lower or shorter arm or tooth in position to be acted upon by the upper and longer tooth or arm at a point in advance of  
65 the pivot of the finger to insure it being forced downward into position if accidentally or abnormally held upward, and having no contact with the movable jaw except between the pivots of the controlling-finger and movable  
70 jaw, whereby a positive movement of the movable jaw will lift the controlling-finger and a downward movement of the finger when released by the fabric acts to force down the movable jaw to grip the fabric.

3. In a clamp for textile machinery, the  
75 combination of a fixed jaw B having the overhanging arm or frame C, movable jaw D pivoted to the overhanging arm or frame and provided with a fork composed of arms F J substantially as shown wherein the arm J ex-  
80 tends backwardly beyond the arm F and is also curved downward on the forward side of the pivot of the controlling-finger, and a pivoted controlling-finger G hinged to the rear of the fixed jaw and provided with an up-  
85 wardly and forward extending tooth I adapted to loosely engage the fork of the movable jaw so that the lower arm F sustains the finger before the cloth is placed in the clamp and the finger acting upon the upper arm J sup-  
90 ports the movable jaw when the cloth is in the clamp, and the curved end of said arm J prevents accidental disengagement of the finger from the fork.

In testimony of which invention I have here-  
95 unto set my hand.

HARRY W. BUTTERWORTH.

Witnesses:

R. M. HUNTER,  
R. M. KELLY.