

(No Model.)

R. P. WINSOR.  
CLOTH CLAMP FOR TEXTILE MACHINERY.

No. 604,103.

Patented May 17, 1898.

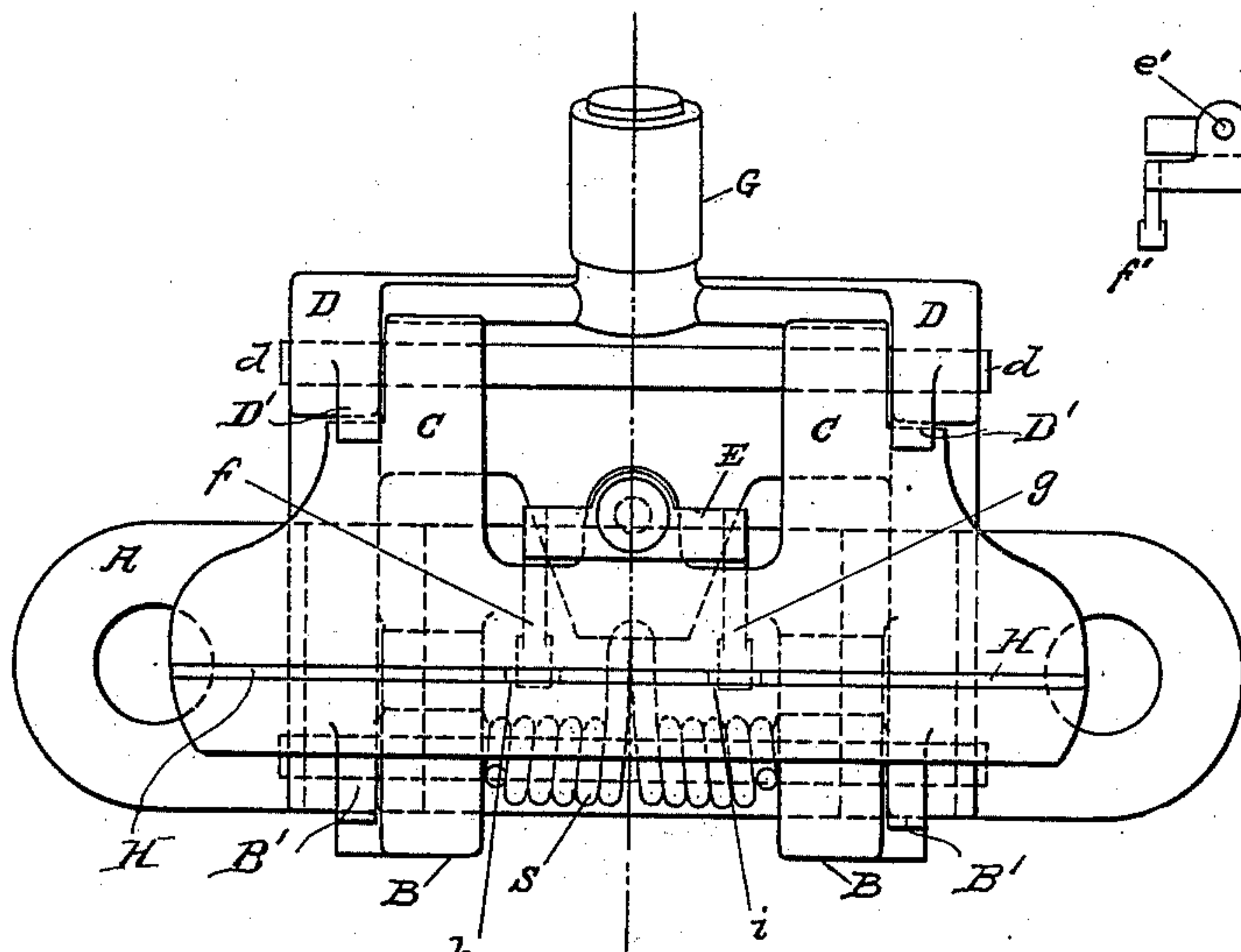


Fig. 5.

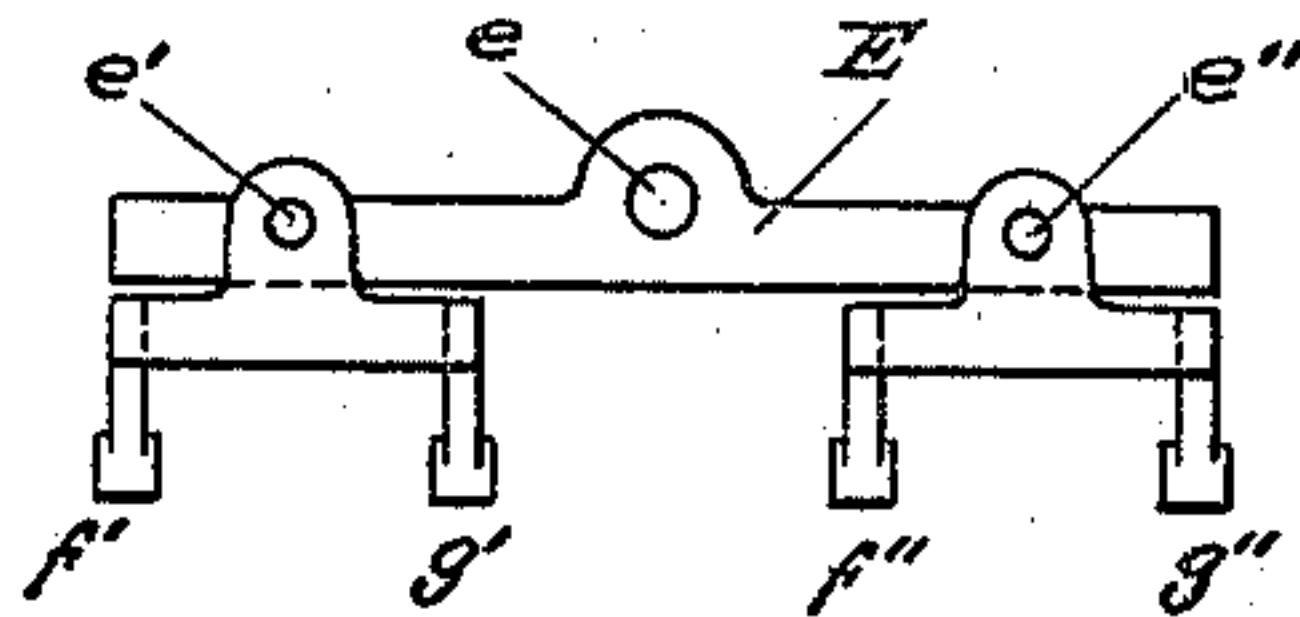


Fig. 4.

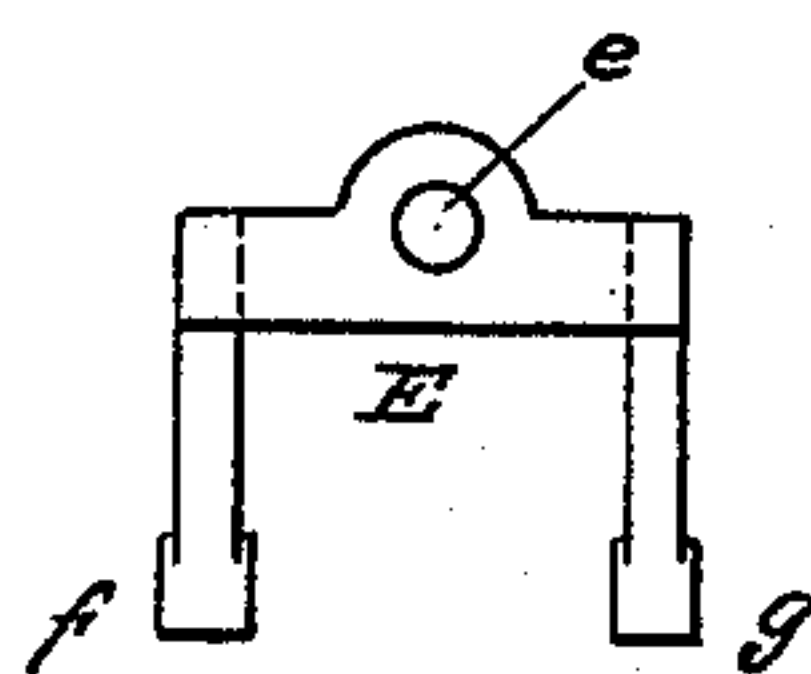


Fig. 3.

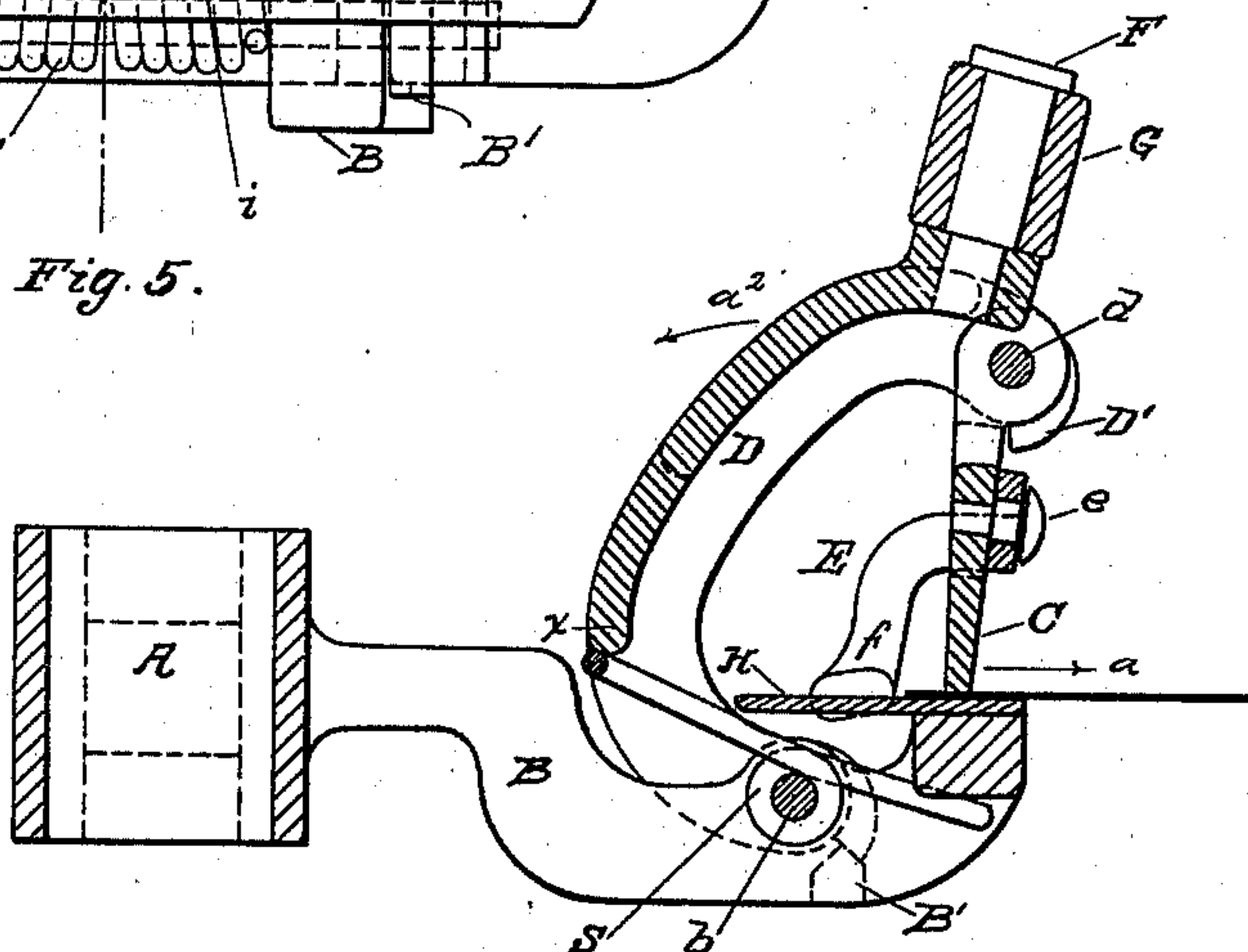


Fig. 2.

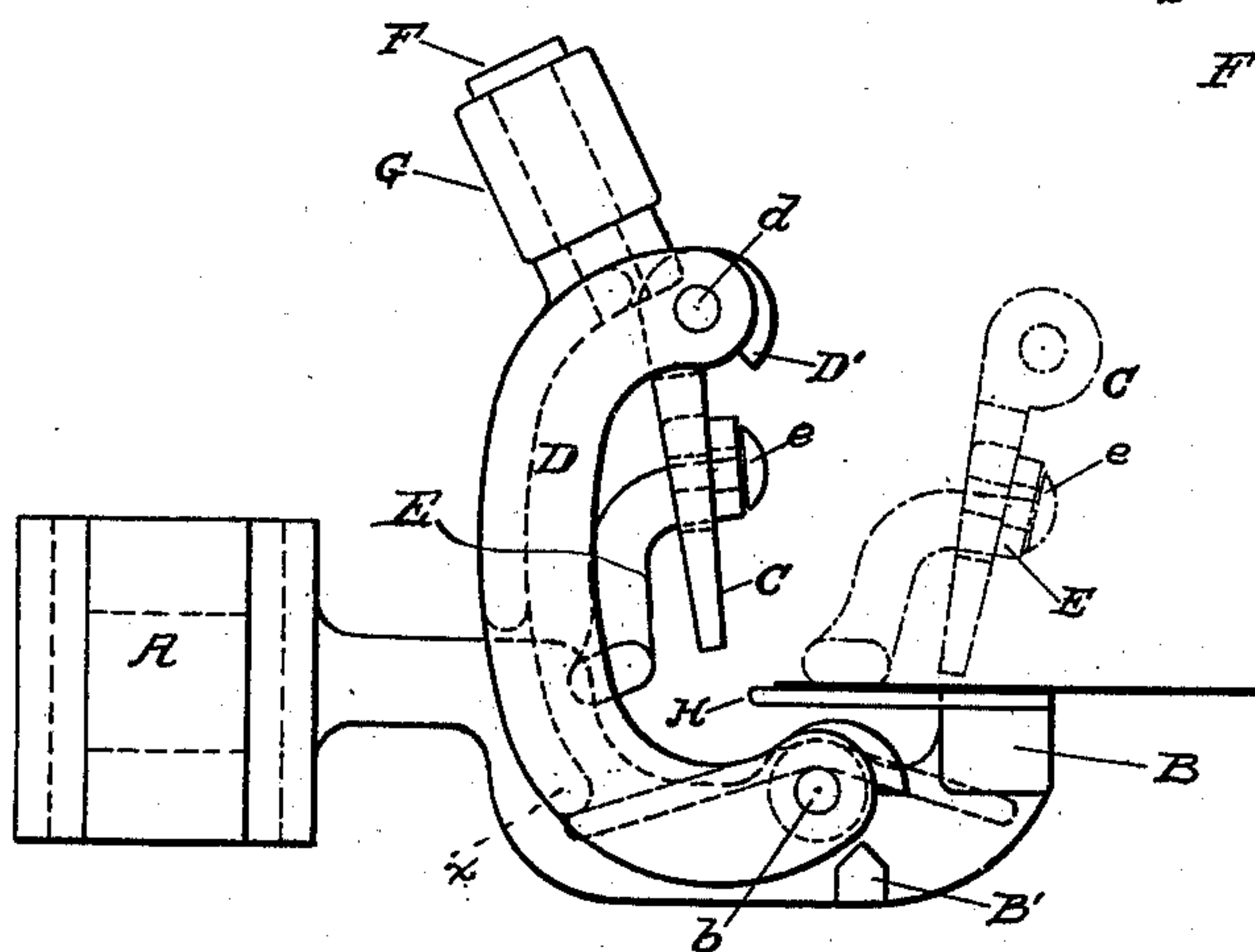


Fig. 1.

Witnesses:

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# UNITED STATES PATENT OFFICE

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## CLOTH-CLAMP FOR TEXTILE MACHINERY.

SPECIFICATION forming part of Letters Patent No. 604,103, dated May 17, 1898.

Application filed April 6, 1897. Serial No. 630,961. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT P. WINSOR, a citizen of the United States of America, and a resident of Auburn, in the State of Rhode Island, have invented a new and useful Improvement in Cloth-Clamps for Textile Machinery, of which the following is a specification.

This invention relates to the cloth-clamps of tenters and other textile-machines; and it consists in certain novel combinations of parts hereinafter described and claimed, which are embodied in an improved "automatic" clamp of simple construction.

The leading objects of this invention are to render the improved clamp equally applicable to both of the two styles of endless-chain tenting-machines now in common use, to render the same free from any locking device, and to combine therein the advantageous qualities of the spring-clamps and automatic clamps heretofore separately used, so as to render it self-accommodating to different thicknesses of cloth and free from liability to injury by excessive strains and at the same time self-adjusting with reference to the selvage of the cloth.

A distinguishing characteristic of the improved clamp results in a more effective toggle action in the movable jaw. The gripping-pawl of this jaw is adapted to travel with the stretched cloth, while the tension of the spring is gradually increased until said pawl reaches its position of greatest hold, when both jaws become unyielding in the direction of the cloth. The improved clamp is then in effect a spring-clamp, holding by frictional contact with both sides of the cloth and by spring-pressure in an effective manner, as herein-after more fully set forth.

A sheet of drawings accompanies this specification as part thereof.

Figure 1 of the drawings is a side elevation of my improved cloth-clamp, showing the upper jaw moved back to permit the cloth to enter and also showing in broken lines the position of the gripping-pawl of the upper jaw and its controller when the cloth has first entered and before the stretch of the cloth has drawn it from under the controller. Fig. 2 represents a central cross-section on the line 2 2, Fig. 5, showing the parts of the clamp in

normal position with the cloth clamped along its selvage. Fig. 3 is a front view of the controller shown in Figs. 1 and 2 detached. Fig. 4 is a like view of a modified controller, and Fig. 5 is a front view of the clamp as shown in Fig. 2.

Like letters of reference indicate corresponding parts in all the figures.

The part lettered A is a link of a tenter-chain; B, the rigid under jaw of the clamp projecting from said link; C, a gripping-pawl forming part of the movable upper jaw; D, a laterally-swinging arm attached at its lower end to the under jaw by a pivot *b* and to the upper end of said pawl by a pivot *d*, said pivot *b* being located beneath the cloth-support and close behind the plane of said pawl in its effective position, Fig. 2, and S is a spring conveniently coiled around the horizontal pivot *b* and acting upon said arm D with the front bar of the under jaw B at its abutment to return the upper jaw to said normal position and to hold the cloth by spring-pressure. A stop B' on said under jaw B, engaged by a projection at the lower end of said arm D, as in Fig. 2, supports the arm in said normal position. It is forced back from this position temporarily, as in Fig. 1, to expose the cloth-support by a suitable cam on a relatively-fixed part of the tenting-machine, and to coact with such cam is provided in the drawings with a stud-pin F, carrying an antifriction-roller G.

When the arm D is restored to its normal position, Fig. 2, by the spring S, the pawl C and controller E drop by gravity first into the position in which they are shown by broken lines in Fig. 1, and when the selvage of the cloth is drawn from beneath the controller they drop into the position in which they are shown in Fig. 2.

As the cloth is stretched the pawl C is preferably permitted to travel outward therewith, as represented by the arrow *a*, Fig. 2, so as to become well seated on the cloth and to gradually increase its hold. The upward toggle-like pressure due to the changing angle of the pawl is transferred by the pivot *d* to the arm D and causes the latter to turn on its pivot *b*, as represented by the arrow *a*<sup>2</sup>, Fig. 2, so as to increase the tension of the spring S, which reacts on the pawls, and the



increased spring-pressure is made to determine the maximum resistance to the strain, and thus to protect the parts against undue stress, as well as to adapt the clamp to cloth of different thicknesses. A stop D' on the arm D limits said travel of the pawl C with the cloth by engaging with said pawl, so as to arrest it in its most effective position. The cloth is then held by the frictional contact of both jaws with the respective sides of the cloth and by spring-pressure exerted by the spring S through said arm D, pivot *d*, and pawl C.

The stops B' and D' are conveniently duplicated at the lateral ends of the clamp, as shown in Fig. 5; but their number and location are immaterial.

The relative locations of the pivots *b* and *d*, as above described, facilitate exposing the cloth-support, as in Fig. 1, provide for said toggle action of the pawl C, and facilitate supplementing the spring S with sufficient leverage to render the hold by spring-pressure sufficient, such leverage being determined by the greater distance from the pivot *b* to the point *x*, Figs. 1 and 2, where the spring S presses against the arm D, as compared with the distance from said pivot *b* to the lower end of the pawl C in Fig. 2.

The upward pressure of the spring S against the arm D is converted into a downward pressure at the pawl C by giving said arm a suitable curved or equivalent shape, as represented in the drawings, which shape lends itself to the accommodation of the controller E within the concavity of the arm, as in Figs. 1 and 2. The spring S is at the same time so located as to preclude its contact with the cloth or with the hands of attendants.

The cloth-support is conveniently formed in customary manner by a horizontal plate H, preferably of copper or brass, fixedly attached to the top of the jaw B and adapted to coact with the controller E. The specific controller represented in Figs. 1, 2, 3, and 5 of the drawings is attached centrally to the pawl C by a swivel *e* and is constructed with a pair of fingers *f* and *g*, matching which slots *h* and *i*, Fig. 5, are formed in said cloth-support plate H. When the cloth first enters the clamp, the fingers *f* and *g* rest upon the cloth, as in broken lines in Fig. 1, and as the cloth is drawn outward the slots *h* and *i* admit the fingers *f* and *g*, which permits the pawl to grip the cloth, as above described, and shown in Fig. 2.

The enlarged lower ends of the fingers *f* and *g* cross the warp of the cloth at points some distance apart, and the swivel *e* permits them to equalize the pressure on the cloth, so as not to penetrate it, however thin the cloth may be. To further distribute the pressure of the controller upon the cloth, it may, in ef-

fect, be duplicated, as represented in Fig. 4, the swivel *e* attaching a top bar, to which a pair of attachments similar to the controller E, Fig. 3, are swiveled at *e'* and *e''*, and each of these attachments having a pair of fingers *f' g'* and *f'' g''*. With this construction of the controller two sets of the slots *h* and *i*, corresponding to the two pairs of fingers *f' g'* and *f'' g''*, must be made in the plate H.

Having thus described said improvement, I claim as my invention and desire to patent under this specification—

1. In a cloth-clamp, the combination with the under jaw having a cloth-support of an upper jaw swinging laterally to expose said support and comprising an arm pivoted below said support and a gripping-pawl pivoted to said arm above said support and a spring pressing against said arm which restores the upper jaw to normal position, and acts upon said pawl through the medium of said arm to hold the cloth by spring-pressure.

2. In a cloth-clamp, the combination with the cloth-support of an arm pivoted below said support, a gripping-pawl pivoted to said arm above said support and having a limited travel with the cloth in the direction of stretch, and a spring, acting upon said pawl through the medium of said arm to hold the cloth by spring-pressure and to determine the strain to which the arm is subjected by the toggle action of the pawl.

3. In a cloth-clamp, the combination with a slotted cloth-support of a curved arm pivoted below said support, a gripping-pawl pivoted to said arm above said support, a spring acting upon said pawl through the medium of said arm to hold the cloth by spring-pressure and a controller swiveled to said pawl and having fingers with enlarged ends which cross the warp and equalize their pressure while they rest upon the cloth, and drop through the slots in the cloth-support to locate the grip of the pawl near the selvage.

4. A cloth-clamp for textile machinery having an upwardly-pressing spring, a laterally-swinging lever-arm against which said spring presses, and which converts such pressure into downward stress, a gripping-pawl pivoted to the upper end of said arm and provided with a suitable controller, a cloth-support beneath said pawl, and stops limiting the travel of said pawl with the cloth in the direction of its stretch and arresting said arm in its normal position, substantially as hereinbefore specified.

In testimony of which invention I hereunto set my hand.

ROBERT P. WINSOR.

Witnesses:

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