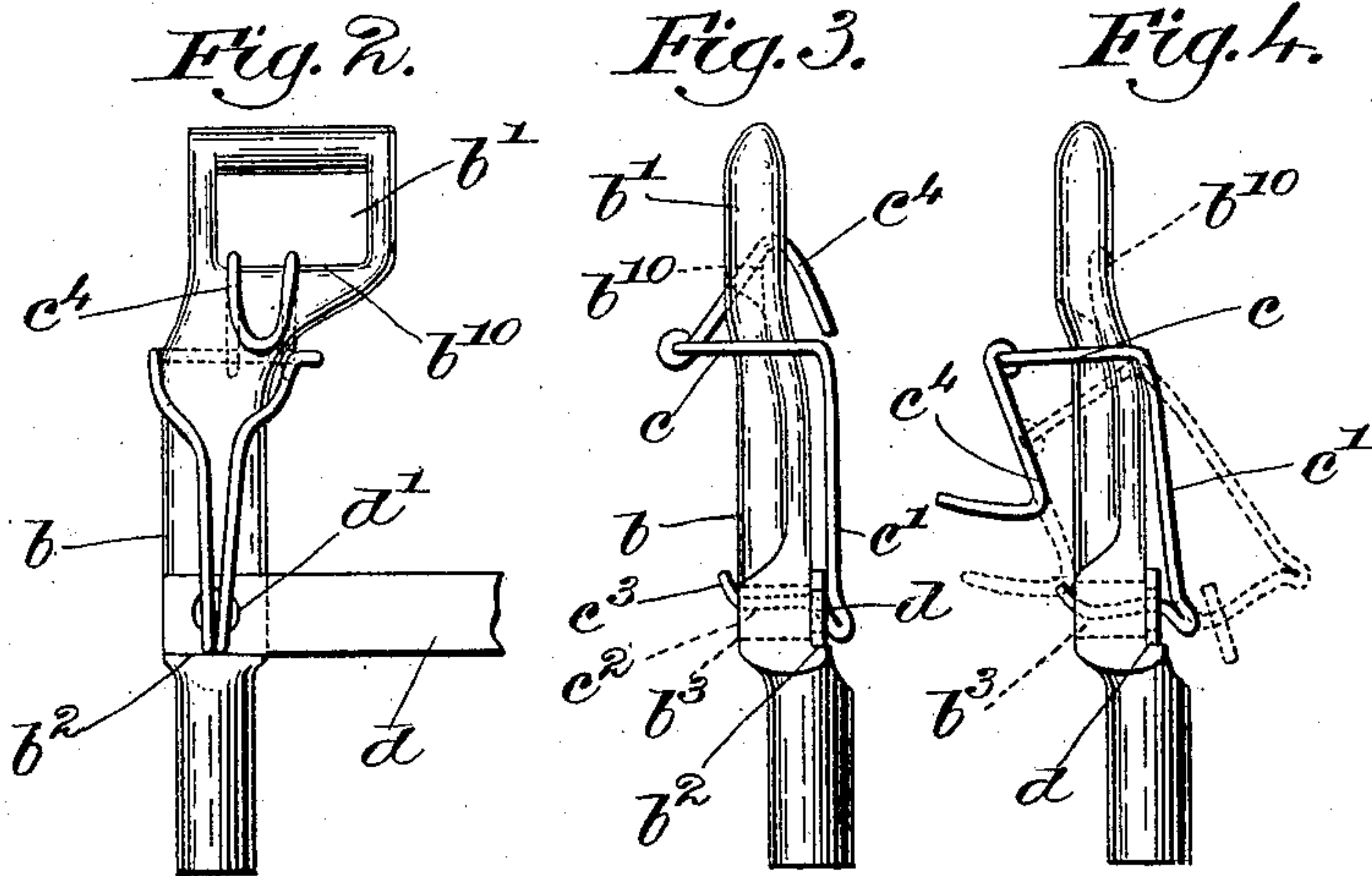
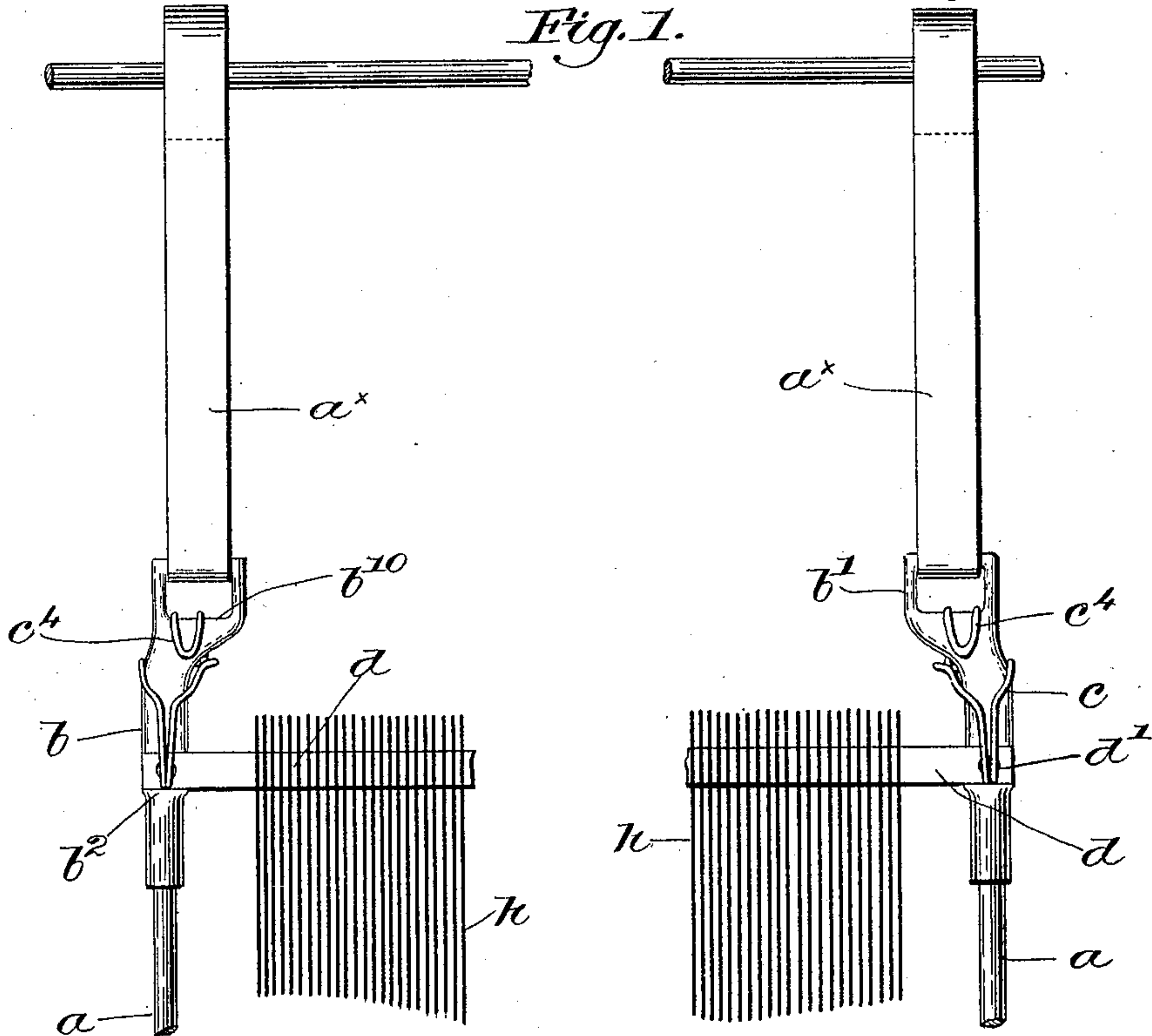


(No Model.)

M. J. ARMSTEAD.  
LOCKING CLAMP FOR HEDDLE BARS.

No. 603,808.

Patented May 10, 1898.



Witnesses:

Fred S. Grunhof.  
A. C. Harmon

Inventor:

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attys.



# UNITED STATES PATENT OFFICE.

MICHAEL J. ARMSTEAD, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO THE DRAPER COMPANY, OF PORTLAND, MAINE, AND HOPEDALE, MASSACHUSETTS.

## LOCKING-CLAMP FOR HEDDLE-BARS.

SPECIFICATION forming part of Letters Patent No. 603,808, dated May 10, 1898.

Application filed October 18, 1897. Serial No. 656,534. (No model.)

*To all whom it may concern:*

Be it known that I, MICHAEL J. ARMSTEAD, of Lowell, county of Middlesex, and State of Massachusetts, have invented an Improvement in Locking-Clamps for Heddle-Bars, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 This invention has for its object the production of a simple, strong, and readily-manipulated locking-clamp for retaining the heddle-bars of loom-harnesses in position; and it relates more particularly to that type

15 of loom-harness wherein a series of metallic heddles or warp-stop-motion actuators are employed—such, for instance, as is shown in United States Patent No. 536,969, dated April 2, 1895, to which reference may be had. In

20 the harness-frame therein shown the transverse heddle-bar is secured to the upright side bars by bolts and nuts, and these have been found in practice to jar loose or to be mislaid while changing the harness, and in

25 the latter case a wrench has to be employed to detach or replace the heddle-bar.

I have devised a simple and effective locking-clamp which cannot work loose by the jarring of the loom, is always at hand when

30 needed, and which can be instantly locked or unlocked by the use of the fingers only without the aid of any tools whatever.

Figure 1, in front elevation and centrally broken out, represents the upper portion of a

35 harness-frame with my invention applied thereto. Fig. 2 is an enlarged view of the upper end of one of the side bars with the clamp in locked position. Fig. 3 is a left-hand end elevation thereof. Fig. 4 is a like

40 view, but with the locking-latch released to permit removal of the heddle-bar; and Fig. 5 is a perspective view of the clamp shown in Figs. 1 to 4.

I have herein shown the side bars *a* as provided at their upper ends with extensions *b*, slightly offset at their tops to form stirrups *b'* for the usual overhead connections *a<sup>x</sup>*. Each extension is flattened on its front face and provided with a transverse shoulder *b<sup>2</sup>*

50 to form a supporting-seat for the transverse heddle-bar *d*, the latter passing through elon-

gated slots in the heddles or detectors *h*, as in the patent referred to.

The heddle-bar has holes *d'* therein near its ends, which register with apertures *b<sup>3</sup>* in the extensions *b* adjacent and just above the seats *b'*, the heddle-bar resting on its lower edge on the said seats, as clearly shown in the drawings.

I have herein shown each side bar as provided with a clamp to retain the heddle-bar in place, the clamp preferably being made of stout spring-wire bent to form an open-body portion *c*, which loosely embraces the extension *b*. The ends of the wire are then brought together and bent down at *c'*, and then bent rearwardly to form a retaining-tongue *c<sup>2</sup>*, preferably having an upturned tip *c<sup>3</sup>*. The tongue is adapted to enter the hole of the heddle-bar and the aperture in the extension *b*, the tip of the tongue resting against the back of the extension, as shown in Fig. 3, when the clamp is locked.

A hook-shaped latch *c<sup>4</sup>* is pivotally mounted on the body, the curved end of the latch entering the opening of the stirrup *b'* and engaging its edge *b<sup>10</sup>* nearest the heddle-bar and acting to draw the tongue tightly into place, Fig. 3, while the shape of the latch prevents its release by accident.

To release the clamp, the attendant pushes the latch *c<sup>4</sup>* out of operative position, as in Fig. 4, and thereupon the depending part *c'* of the body can be moved into dotted-line position, Fig. 4, withdrawing the tongue *c<sup>2</sup>* from the aperture *b<sup>3</sup>*, so that the heddle-bar can be lifted from the tongue. Release of the latch permits the tip *c<sup>3</sup>* of the tongue of the clamp to drop sufficiently to enable the ready withdrawal of the tongue.

The manipulation of the clamp is entirely effected by the fingers, without tools of any kind, and the clamp is always in place on the harness-frame, so that it cannot be mislaid.

By making the clamp of spring-wire the heddle-bar is held in place firmly and securely, without rattling, and yet in such manner that it may be instantly released when desired.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A harness-frame comprising side bars



provided with seats, a detachable heddle-bar adapted to be supported by the seats, and locking-clamps to retain said bar in place, said clamps having each an open body to embrace the side bar, a fixedly-attached retaining-tongue to engage the heddle-bar, and a spring-latch pivotally mounted on the body of the clamp to engage the side bar.

2. A harness-frame comprising side bars provided each with a transverse open seat and an adjacent aperture, a detachable cross-bar having registering openings and adapted to be supported on said seats, combined with locking clamps having open bodies to loosely embrace the side bars, retaining-tongues fixed on said bodies to enter the openings in the side and cross bars, and retain the cross-bar in place, and a pivotally-mounted latch on each clamp-body, to hold the latter in place on its side bar.

3. A harness-frame comprising upright, apertured side bars provided with stirrups at their upper ends, a clamp mounted on each and including an open body provided with a retaining-tongue, and an oppositely-turned hook-shaped spring-latch pivotally mounted

on the body, and a detachable heddle-bar having apertures to register with the apertures of the side bars, the tongues of the clamps entering the apertures of the side bars and heddle-bar, and being held in place by the latches extended into the stirrups.

4. A harness-frame comprising upright side bars having upper and lower openings therein, a detachable heddle-bar having apertures to register with the lower openings of the side bars, and a clamp removably mounted on each side bar, each clamp comprising a body having a bent tongue at its lower end to enter the registering openings of the side and heddle bars, and a spring-latch pivotally mounted on the upper end of the body, to enter the upper opening of the side bar and thereby hold the clamp in position and prevent withdrawal of the tongue.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MICHAEL J. ARMSTEAD.

Witnesses:

GEORGE W. POORE,  
THOMAS O'LAUGHLIN.