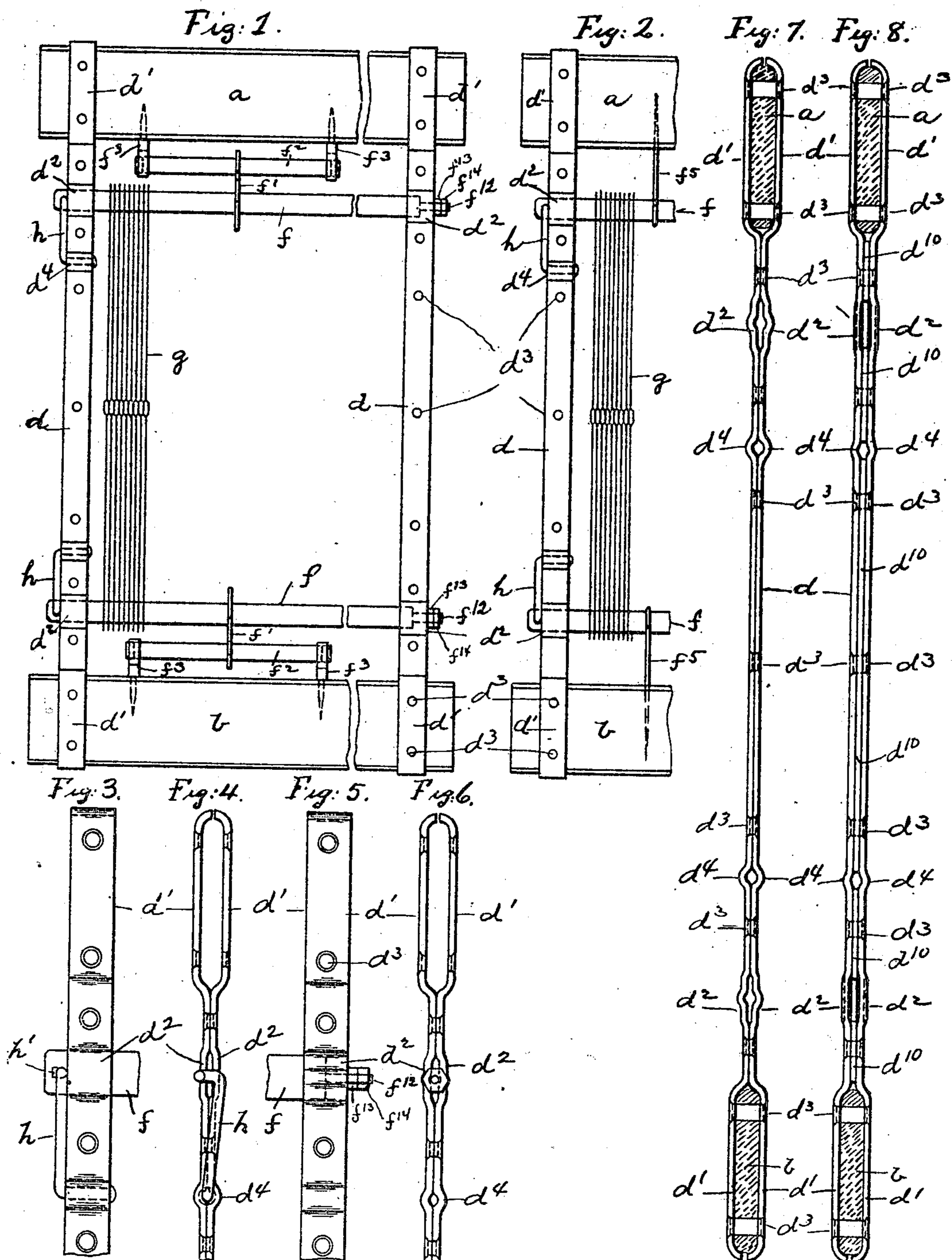


No. 837,264.

PATENTED NOV. 27, 1906.

W. FEHR.  
HEDDLE FRAME FOR LOOMS.  
APPLICATION FILED SEPT. 1, 1905.



WITNESSES:-  
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# UNITED STATES PATENT OFFICE.

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## HEDDLE-FRAME FOR LOOMS.

No. 837,264.

Specification of Letters Patent.

Patented Nov. 27, 1906.

Application filed September 1, 1905. Serial No. 276,700.

*To all whom it may concern:*

Be it known that I, WILLIAM FEHR, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Heddle-Frames for Looms, of which the following is a specification.

My invention has relation to a heddle-frame for looms, and in such connection it relates to such a construction and arrangement of the parts that a strong, light, and substantial frame may be readily manufactured.

The principal object of my present invention is to provide in a heddle-frame in connection with the relatively broad top and bottom cross-bars of the frame and the cross-rods upon which the heddles are supported of the end straps or braces each formed of two members, each member consisting of a thin flat strip of metal bent at either end into a half-loop to surround or inclose a cross-bar and each member being bent intermediate of its ends to form half of a sleeve into which the cross-rods may be passed when the two members are secured together.

The nature and scope of my invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, in which—

Figure 1 is a broken front elevational view of a heddle-frame embodying main features of my invention. Fig. 2 is a front elevational view of part of a frame, but illustrating a slightly-modified construction. Fig. 3 is an enlarged front view of one end of one of the straps connecting the top and bottom frame-pieces together. Fig. 4 is a side view of Fig. 3. Fig. 5 is an enlarged front view of one end of the other connecting-strap. Fig. 6 is a side view of Fig. 5. Fig. 7 is an enlarged vertical sectional view of the frame; and Fig. 8 is a view similar to Fig. 7, but illustrating a modified form of connecting-strap.

Referring to the drawings, *a* is the top and *b* the bottom bar of the frame. These bars *a* *b* are relatively broad and formed of wood or metal, as desired. The top and bottom bars *a* and *b* are held in parallel relationship by the end straps *d*, each of which is formed, preferably, of two members, and each mem-

ber is made of thin flat metal. Each member of a strap *d* is bent at either end, as at *d'*, to form a half-loop, and is also bent, as at *d''*, adjacent to each end into a half-sleeve-like projection. When the two members are assembled and secured together, there is formed at each end a loop surrounding the top or bottom bar *a* or *b* of the frame and a sleeve into which the cross-rod *f* may pass. The cross-rods *f* support the heddles *g* in the usual way and are in turn partly supported by the bars *a* and *b* in any suitable way. One way of thus supporting the cross-rods is illustrated in Fig. 1 and consists in securing the cross-rod *f* by a hook *f'* to a bar *f''*, which in turn is secured by the hook-pins *f'''* to the top *a* or bottom *b* of the frame. A second way is illustrated in Fig. 2 and consists in hooking the cross-rod *f* directly to the bar *a* or *b* by a hook-pin *f''''*, which enters the bar *a* or *b*.

The members of each strap *d* are united to each other preferably by means of rivets *d'''*, and, if desired, these rivets *d'''* may not only pass through the members of a strap *d*, but also through a bar *a* or *b* of the frame, as clearly illustrated in Fig. 7. The cross-rods *f* have more or less play in the sleeves formed in the straps *d*. In order that the cross-rods *f* may be locked against longitudinal movement and may be capable of longitudinal adjustment in the frame, I provide the following means: Each member of strap *d* is bent, as at *d''''*, so that when assembled each strap has an eye or opening *d'''''* some distance from the sleeve *d''*. Into this eye *d'''''* one end of a wire hook *h* is swiveled, and the other end of said hook is arranged to enter and fit in an opening *h'* in the end of a cross-rod *f*, as clearly shown in Figs. 1, 2, 3, and 4. The end of the hook *h* is turned at right angles to the rod *f* and then bent parallel to the face of said rod *f* to prevent the accidental dislodgment of the hook from the rod *f*. To advance or retract the cross-rod *f* in the straps *d*, the end of said rod *f* which is not locked by the hook *h* has a screw-threaded stem *f''''''* projecting through a loop *d''* and arranged to receive two nuts *f'''''''* *f''''''''*, one of which may be turned to advance or retract the cross-rod *f* in the straps and the other may be turned to lock or release the first nut.

In Fig. 8 a modified form of strap is illus-

trated in which the two members of the strap are reinforced by stiffening-pieces  $d^{10}$ , inserted between the members and locked thereto by the rivets or other fastening means.

The construction of frame is simple, light, and very strong. The end straps serve to hold the top and bottom bars of the frame in accurate parallel relationship and also serve as a firm and unyielding bearing for the cross-bars  $f$ , which support the heddles.

Having thus described the nature and object of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a heddle-frame, the combination of the top and bottom bars with the end straps each consisting of a plurality of thin flat metallic strips each bent at either end into a half-loop and said strips adapted when fastened together to surround the top and bottom bars of the frame and to hold said bars in parallel relationship to each other.

2. In a heddle-frame the combination of the top and bottom bars of the frame with metallic end straps uniting said bars in parallel relationship, each strap consisting of thin strips of metal bent at each end into a half-loop to partly surround the top or bottom bars of the frame, and fastening means passing through the members of the straps and through said bars of the frame to thereby secure said strap members to each other and to said bars of the frame.

3. In a heddle-frame, the combination of

the top and bottom bars with an end strap consisting of metal strips, said strips being bent at each end and united to form at each of said ends a loop for the reception of the top and bottom bars of the frame, and rivets uniting said strips firmly to each other.

4. In a heddle-frame, the top and bottom bars, the end straps each consisting of metal strips, said strips being bent at each end and united to form at each end a loop for the reception of said top and bottom bars, and each outer strip being bent adjacent to either end so that when united sleeves are formed, in combination with a cross-bar supporting the heddles and adapted to enter the sleeves formed in said straps, and to be secured therein, and means for fastening the strips to each other, substantially as described.

5. In a heddle-frame, the combination of the top and bottom bars with an end strap consisting of metal strips, each strip bent at each end and united to form at each of said ends a loop for the reception of the top and bottom bars of the frame, stiffening-pieces inserted between the strips and fastening means adapted to unite the strips and stiffening-pieces firmly together.

In testimony whereof I have hereunto set my hand this 29th day of August, 1905.

WILLIAM FEHR.

Witnesses:

HENRY E. EVERDING,  
FRED E. NUSPICKEL.