(No Model.)

J. YEADON.

HEALD OR HEDDLE FOR LOOMS.

No. 409,725. Patented Aug. 27, 1889.

FIG. 1.

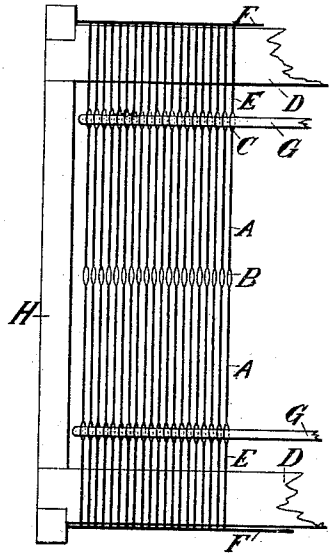


FIG. 2.

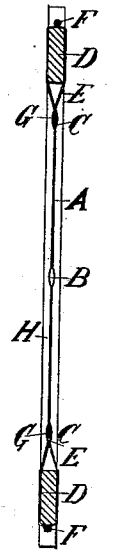


FIG. 3.

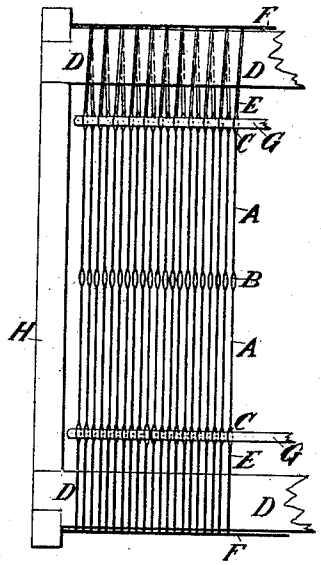


FIG. 4.

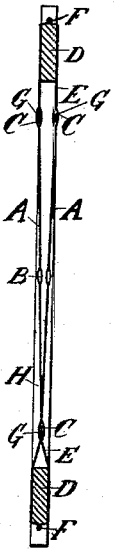


FIG. 5.

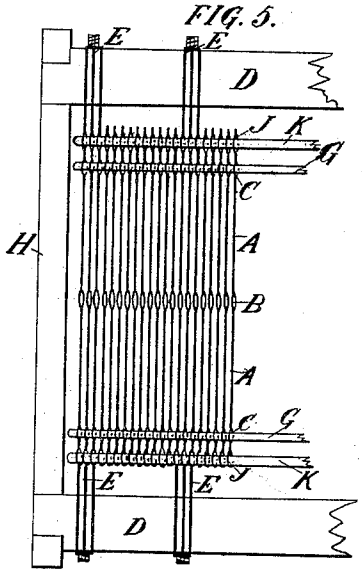


FIG. 6.

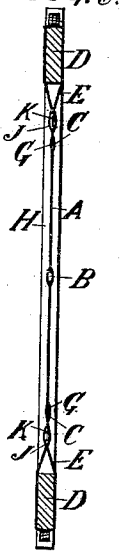
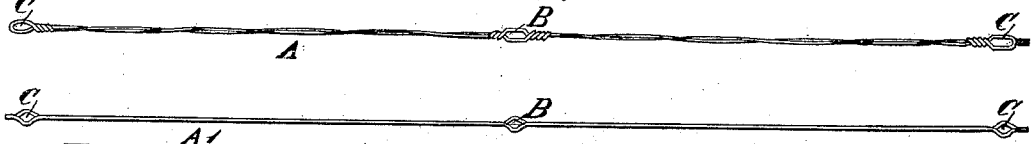


FIG. 7.



ATTEST:

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C. B. Waller.

INVENTOR.

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UNITED STATES PATENT OFFICE.

JOHN YEADON, OF IDLE, NEAR BRADFORD, ENGLAND.

HEALD OR HEDDLE FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 409,725, dated August 27, 1889.

Application filed July 5, 1887. Serial No. 243,385. (No model.)

To all whom it may concern:

Be it known that I, JOHN YEADON, a subject of the Queen of England, residing at Idle, near Bradford, England, have invented certain new and useful Improvements in Healds or Heddles for Looms, of which the following is a specification.

The object of this invention is to make of metal that portion of the healds or heddle which is exposed to the action of the warp during the operation of weaving, and at the same time preserve the flexibility of the common heddle formed of thread of fibrous material.

Figure 1 of the accompanying drawings represents a front view of a portion of a heddle-frame having my invention applied thereto, and Fig. 2 is a section of the same. Fig. 3 is a similar view to Fig. 1, representing a heddle adapted to be used when the warp-threads are very close together; and Fig. 4 is a section of the same. Fig. 5 is also a similar view to Fig. 1, illustrating a method of adjusting the spaces between the wires; and Fig. 6 is a section thereof. In Fig. 7 the metallic portion of the heddles are represented on a larger scale.

The heddle-wires A are sufficiently long to extend above and below the warp when the shed is opened for the passage of the shuttle, and thus the wear and tear occasioned by the up-and-down motion of the heddle through the warp are entirely upon the heddle-wires. The said heddle-wires are formed each with a central eye B, through which the warp is passed, and an eye C is also provided at each end of the wire to enable them to be attached above and below to the shafts D by means of the looped heddle yarn or thread E, which is knitted in the ordinary manner to the cord F, running along the top and bottom of the upper and lower shafts, respectively. By this means of attachment the flexibility of the heddle is preserved, and consequently inequalities in the warp more readily pass through the eye B. The wires G are of flat section, and they are threaded through the eyes C, and are used as a guard to prevent the heddle-wire becoming entangled with the warp in case any of the loops E break. The upper and lower heddle-shafts are preferably connected at each end by the connecting-pieces H, so as to keep the parts together when the set of heddles are being changed or being removed from the loom.

In Figs. 3 and 4 the heddle-wires are alternately attached to opposite sides of the top shaft D, which mode of attachment throws the eyes B alternately out of line, and therefore allows them to more freely pass the warp lying between such heddles. A guard-wire G is threaded through each row of eyes C at the top of the heddle-wires.

In Figs. 5 and 6 the heddle-wires are only attached at intervals to the shafts D, and the attachments are capable of being moved along the shafts, so as to permit the distance between the heddle-wires to be adjusted. For this purpose the heddle-wires are provided with additional eyes J at each end, through which the suspending-wires K are passed in order to support the heddle-wires not immediately connected to the shafts D. The said wires are connected to the shaft at intervals greater than the interval between any two adjacent heddle-wires by the looped yarn E, attached to three of the heddle-wires and tied round the shaft, so as to be capable of sliding thereon. The guard-wires G are also employed in case the top or bottom eye in the heddle-wires should break.

The heddle-wires employed are of ordinary construction, two forms of which are represented in Fig. 7. The wire A is made of fine wire bent and twisted to the form shown, and A′ is made from wire of flat section and the eyes B and C punched therein.

I am aware that heddle-wires provided with terminal eyes have been supported by transverse cords suspended from loops of flexible material, and I do not claim, broadly, a heddle provided with eyes with a transverse support extending through the eyes.

My invention is distinguished from the construction above referred to by the fact that I support the heddle upon wires, which, being stiff and rigid and supported by flexible loops, will maintain each heddle in its place even should the wire be broken from its end connections; and, further, should the supporting-loops break, the stiffness and rigidity of the wire will maintain the lateral relations of the heddles, which would not result in case the support were of flexible material.

I claim.

1. The combination, with the heddle-wires provided with central eyes and the eyes at their ends, of the looped yarns or threads E, whereby the heddle-wires are connected with the upper and lower heddle-shafts, respectively, and the rigid guard-wires G, passing through the said eyes at the ends of the heddle-wires, substantially as and for the purpose set forth.

2. The combination, with the shafts, of a heddle, the heddle-wires A, having eyes C and J at each end, the guard-wires passing through the eyes C, the suspending-wires passing through the eyes J, and the series of looped yarns E, attached to certain of the eyes J at intervals greater than the interval between two adjacent heddle-wires, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of the two subscribing witnesses.

JOHN YEADON.

Witnesses:
DAVID HOWELL,
SAMUEL A. DRACUP.