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DETAILED DESCRIPTION.
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Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

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EDGAR F. HATHAWAY AND CHARLES D. LANNING, OF DORCHESTER, MASSACHUSETTS, ASSIGNORS TO AMERICAN WARP DRAWING MACHINE COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF M'VE.

DETAILED DETACHABLE OR THE LIKE.

1,120,135.


Original application filed May 9, 1907, Serial No. 372,729. Divided and this application filed November 6, 1908. Serial No. 461,328.

To all whom it may concern:

Be it known that we, EDGAR F. HATHAWAY and CHARLES D. LANNING, both citizens of the United States, and residing at Dorchester, in the county of Suffolk and State of Massachusetts, have invented an improvement in Detached Heddles or the like, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

Our invention relates to detached loom elements, such as heddles or the like, and more particularly to the constructing or fashioning of such detached heddles and their assemblage in an organized series, such that they may be capable of ready selection and separation.

This application is a division of our prior co-pending application, Serial No. 372,729, filed May 9, 1907.

In the drawings: Figure 1 is a side elevation of a metallic harness composed of a plurality of individual detached heddles embodying one form of our invention and shown for the sake of illustration in connection with the separating mechanism of a warp-drawing machine; Fig. 2 is a transverse section, showing in elevation, one of the individual heddles of the harness shown in Fig. 1; Fig. 3 is a similar view, showing the next adjacent heddle; Fig. 4 is a similar view, showing the heddle of Fig. 2 in relation to a heddle-releasing device; Fig. 5 is a detached view in side elevation, showing the action of the releasing device in conjunction with a separating and selecting mechanism; and Fig. 6 is a detail of the releasing device.

Referring to the drawings and to the embodiment of our invention which we have there shown for illustrative purposes, we have there shown in Fig. 1 the two ends of a loom harness composed of detached heddles, the intermediate portion of the harness being broken away for the sake of simplicity.

The heddle members, instead of being woven or knitted into a continuous structure, as are the heddles of an ordinary cotton harness, are independent or detached, and herein, although not necessary, are composed of thin metallic plates 1, perforated at 2 for the purpose of affording a heddle eye for the control of one or more warp threads. While the heddles may be supported in any suitable manner to form an organized series, they are preferably provided at their upper ends with openings 3, through which is inserted a heddle support 4, adapted to sustain the heddles in a compacted series, arranged with their adjacent flat faces in contact or close proximity.

To facilitate the separation and selection of the individual heddles in addition to the thread opening 2 each heddle is preferably so fashioned between its edges, as by the provision of the releasing opening 5, as to present a regular alternate variation in form between successive members of the series. This is provided for in the illustrated embodiment of our invention by forming the opening or perforation 5 with extension projecting in the case of one heddle upward, as at 6 (Fig. 2) and in the case of the next adjacent heddle downwardly, as at 7 (Fig. 3). It therefore follows that, while the perforations or openings 5 may be held in registration, the extensions 6 and 7 alternate in successive heddles, first up and then down and are maintained out of registration. This or other alternating characteristics in the formation of adjacent heddles may be employed to select and separate successive heddles from the series by means of a releasing member operating upon successive heddles. For this purpose there may be utilized any suitable form of releasing member adapted to cooperate with the alternate fashioning of the heddles. To illustrate one such releasing member adapted to operate in connection with the particular form of releasing opening herein shown, and to illustrate thereby the utility of the particular form of heddle disclosed, we have shown a releasing or separating member 8 comprising herein a rod 9 twisted to extend longitudinally through the perforations 5, being provided at its head 8 with a helical formation terminating abruptly in the shouldered portion 10. With the releasing member in position represented in Fig. 5, if a partial rotation is imparted thereto in the direction of forward inclination of the helix thereon, the shoulder 9,
which holds back the foremost heddle, will
soon be brought into alignment with the lat- 2
eral projections 6 or 7, as the case may be, of the perforation 5, leaving the foremost
heddle free to be advanced lengthwise the releasing member. A slight further move- 5
ment of the releasing member causes the helix to force the leading heddle to the end of the releasing member and discharge the same to any suitable positioning device such, for example, as the positioning worm 11. During this movement of the foremost heddle the next succeeding heddle, inasmuch as its lateral releasing projection is al- 10
rated with the releasing projection of the preceding heddle and spaced 180° there- from, is held back and, in turn, holds back the entire series or mass of heddles. When, however, the releasing member has com- 15
pleted a half revolution, the same operation is performed with reference to the next suc- ceeding heddle and so on, a fresh heddle being released and discharged to the positioning worm for each half revolution of the releasing member. It will be seen, therefore, that the alternate variation in the fashion- 20
ing of the heddle perforations provides a means for readily separating successive heddles from the mass.

As more particularly illustrative of the manner in which the separation of successive heddles in the specific type of harness shown can be effected by mechanism adapted to be utilized in an ordinary warp-drawing ma- 25
chine, we have shown in Fig. 1 portions of a heddle releasing mechanism adapted to be used in such a machine and with the specific form of harness herein illustrated. Acting in conjunction with the releasing member there is here shown a carriage 12 adapted to move with more or less resistance upon a suitable support 13 so as to main- 30
tain the mass of heddles, shown at the left (in Fig. 1) thereof, in a compacted condition. The inner edge 13 of the said carriage has its upper portion curved so as to slightly bend the upper ends of the resilient heddle outward, causing each one to spring away from the mass as it is released, thereby in- 35
creasing the effectiveness of the release.

The releasing rod 9 extends to driving mechanism at the right (as viewed in Fig. 1), not herein shown, as does also the shaft 14 for the positioning worm 11. With the advance, therefor, of the releasing member and positioning worm, together with the worm support 15 and carriage to the right (as viewed in Fig. 1) the heddles, may be individually and successively separated from the mass and delivered to the positioning worm 11, which is caused to advance them and finally turn their mid-portions through approximately 90° to present the thread perforations 2 to the drawing-in needle, as represented in Fig. 1. 40

While we have shown and described herein one specific form of our invention, it is to be understood that the same is presented only for the purpose of concrete illustration and that extensive deviations may be made from the details of construction herein shown without departing from the spirit of the invention. It will be obvious also that our invention not only contemplates the assemblage of a plurality of heddles into a metal harness, but also the assemblage into an organized series of drop heddles, sometimes called metallic drop bars or drop wires for stop motions, which are employed in connection with the warp of a loom.

Having thus described our invention, what we claim is:

1. As a new article of manufacture an individual heddle having a releasing opening provided with a lateral enlargement.

2. The combination of a plurality of heddles or similar loom elements having releasing openings provided each with a lateral offset, the offset in successive heddles being differentially located.

3. As a new article of manufacture an individual heddle or similar loom element comprising a flat metallic strip having a threading opening and having a heddle releasing opening intermediate its ends, such opening being provided with a lateral enlargement.

4. As a new article of manufacture a harness comprising a series of heddles each composed of thin sheet metal having each a releasing opening with a lateral offset, the offset in successive heddles pointing in opposite directions.

5. As a new article of manufacture a harness comprising a series of heddles each composed of thin sheet metal having each a releasing opening with a lateral offset, the offset in each alternate heddle pointing upward and in intermediate heddles pointing downward.

6. As a new article of manufacture an individual heddle consisting of flat sheet metal and having a releasing opening intermediate its ends provided with a lateral enlargement.

In testimony whereof, we have signed our names to this specification, in the presence of two subscribing witnesses.

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Witnesses:
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