

No. 818,019

PATENTED APR. 17, 1906.

C. H. DRAPER.
SHEDDING MECHANISM FOR LOOMS.
APPLICATION FILED JULY 17, 1905.

Fig. 1.

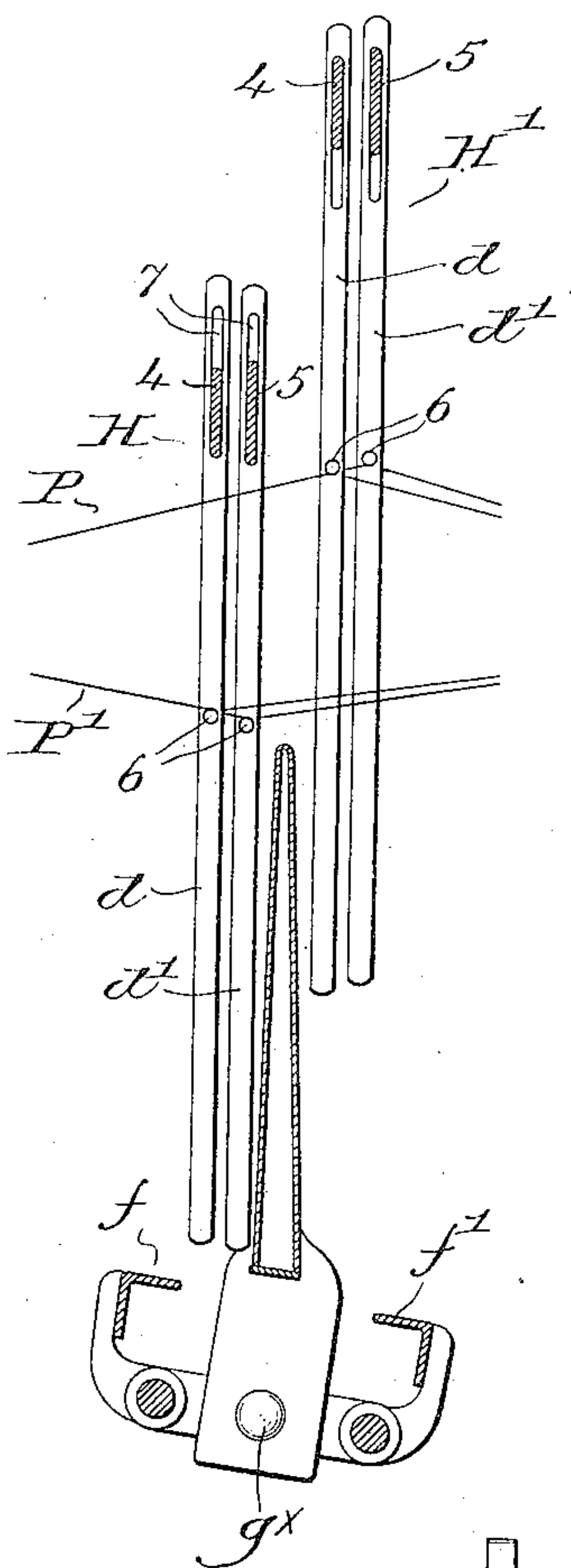
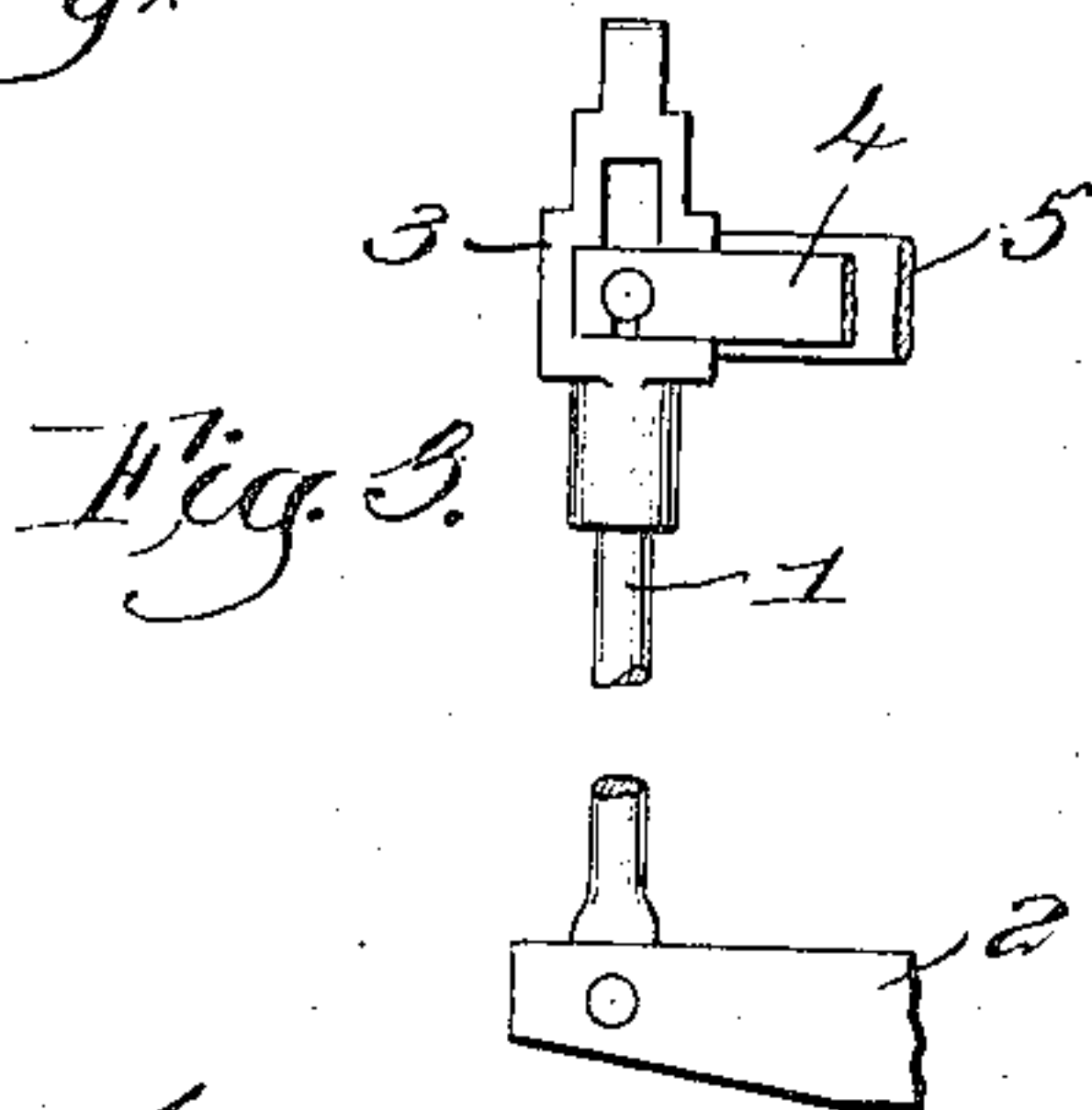
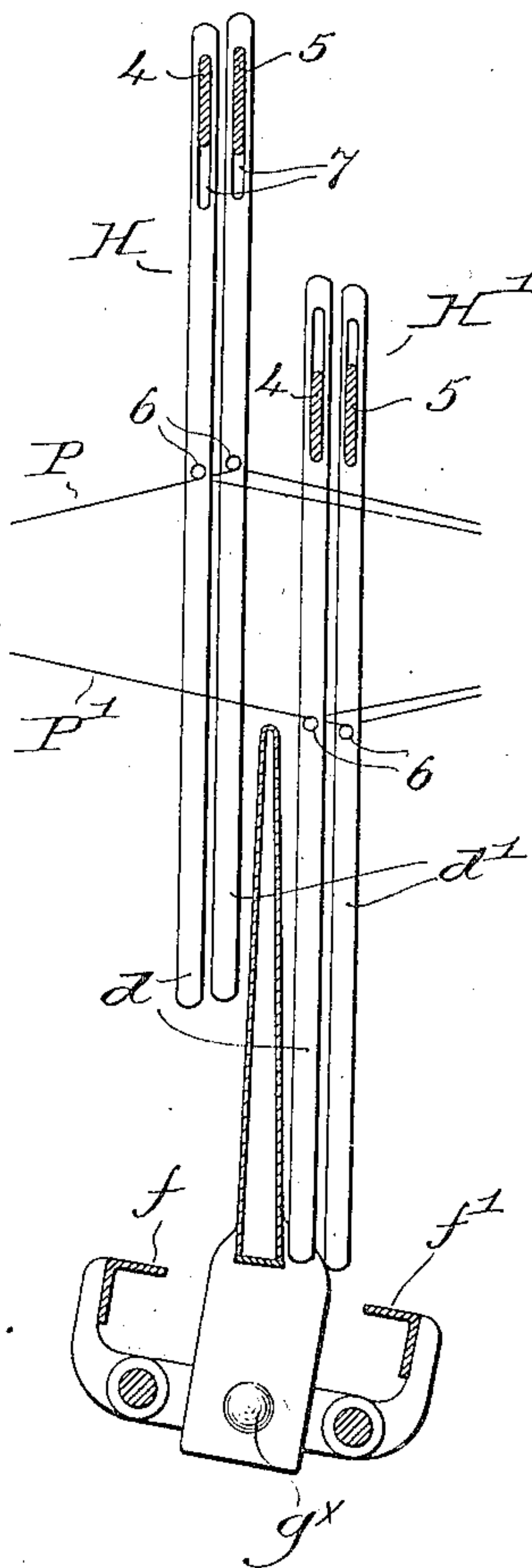


Fig. 2.



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UNITED STATES PATENT OFFICE.

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SHEDDING MECHANISM FOR LOOMS.

No. 818,019.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CLARE H. DRAPER, a citizen of the United States, and a resident of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Shedding Mechanism for Looms, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates more particularly to the so-called "steel" harness mechanism for looms, wherein thin flat metal plates or strips act as warp-stop-motion-controlling detectors and serve also as heddles—as, for instance, in United States Patent No. 732,885, dated July 7, 1903—and especially my invention applies to such harness mechanism when each harness-frame carries a plurality of series of the detector-heddles in parallelism across the frame.

Heretofore the several series of such heddles on each frame have been suspended from cross-bars fixedly secured to and forming a part of the harness-frame, the cross-bars being of equal depth and passing through longitudinal slots in the heddles. When the shed is formed, the warp-threads controlled by the front series of heddles will not be alined in actual practice with the threads controlled by the rear series of heddles, and the planes of the shed, both upper and lower, will not be smooth and even and substantially in a single plane. This is objectionable, as the shuttle-path is not as open and clear as it should be, and a slight difference in tension will be imparted to the two sets of threads.

My present invention has for its object the production of means whereby in mechanism of the general character referred to all of the warp-threads in either plane of the shed will be in alinement, and thus located in a single plane.

The various novel features of my invention will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a transverse sectional view through the harness-frames of a loom having my invention embodied therein, the rear harness member being raised, showing the alinement of the warp-threads in the planes of the shed. Fig. 2 is a similar view, but with the

position of the two harness-frames reversed; and Fig. 3 is a front elevation of one side of a harness-frame with the side bar broken out.

I have shown my invention as applied to a plain or two-harness set for simplicity and convenience of illustration, the detector-heddles of each harness-frame being divided into parallel series in a manner familiar to those skilled in this art.

Each harness-frame in practice comprises two upright side bars 1, (see Fig. 3,) one at each side, connected at their lower ends by a bottom cross-bar 2, the upper ends of the side bars having enlarged heads 3, to which are attached the cross-bars which form the top of the frame and from which the detector-heddles are suspended.

I have herein shown two top cross-bars, as 4 5, for each harness-frame, set on edge and in parallelism, the front harness-frame being indicated as a whole at H and the back frame at H'.

The harness-frames are alike in structure and only one need be described in detail; the front bar 4 being made of less depth than the rear bar 5 on each frame, as clearly shown in the drawings, so that the upper edge of bar 5 will rise a little higher and its lower edge will descend a little lower than the corresponding edges of the companion front bar 4.

The two banks or series of warp stop-motion-controlling detectors d d' are made as thin flat metal strips or plates, each having a warp-eye 6 and a longitudinal slot 7 near the upper end, the cross-bar 4 being loosely extended through the slots of the series d , while the cross-bar 5 is similarly extended through the slots of the series d' for each harness-frame.

The detectors not only act to detect warp failure, but they also serve as heddles in well-known manner and by coöperation with the oppositely-moving feelers ff' , mounted on a normally rocking shaft g^x , effect stoppage of the loom automatically in well-known manner upon warp failure.

In order that the warp-threads controlled by the two series of heddles of each harness-frame shall be alined or lie in the same plane of the shed, it is necessary, manifestly, to elevate the rear series of heddles a little higher than the front series when the harness-frame is raised and to depress the rear series a little

lower than the front series when the harness-frame is depressed. This I accomplish by making the rear cross-bar 5 deeper than the front cross-bar 4, and, viewing Fig. 1, it will be seen that the lower edge of the bar 5 of the front frame H, which is depressed, has carried the heddles d' down far enough to bring their warp-threads into alinement with the threads of the adjacent series d on the cross-bar 4 in the lower plane P' of the shed. So, too, the upper edge of the bar 5 of the back harness-frame H' has lifted its heddles d' higher than the front series d of the bar 4, bringing all the warp-threads into alinement in the upper plane P of the shed.

In Fig. 2 the harness-frames H and H' have been reversed in position, so that the former is raised and the latter depressed, and the alining of the two groups of warp-threads in each plane of the shed is clearly shown.

The construction is exceedingly simple, but it is thoroughly efficient in practice and provides smooth and even planes when the shed is opened, improving the product and obviating any difficulties or objections due to irregular or non-alined warp-threads in either plane of the shed.

Should there be more than two series of detector-heddles for each harness-frame, the cross-bars will be made of increasing depth as they are farther from the front, as herein shown for two cross-bars on each frame.

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

1. In a loom, reciprocating harness-frames each provided with a plurality of parallel series of detector-heddles having limited longitudinal movement relative to their frames, and means to position the heddles of a frame to bring the warp-threads controlled thereby into alinement in a plane of the shed.

2. In a loom, reciprocating harness-frames

each provided with a plurality of parallel cross-bars, and a series of longitudinally-slotted detector-heddles mounted on each cross-bar of a frame, said cross-bars being constructed and arranged to position the several series of heddles on a frame to bring the warp-threads controlled thereby into alinement in either plane of the shed.

3. In a loom, reciprocating harness-frames each provided with a plurality of parallel series of warp stop-motion-controlling heddles, and means to raise the rear series of a frame higher, and depress the same lower, than the front series, to thereby cause the warp-threads controlled by both series to be alined when the shed is opened.

4. In a loom, reciprocating harness-frames each provided with two parallel cross-bars, and a series of longitudinally-slotted detector-heddles suspended from each cross-bar and having limited longitudinal movement relative thereto, the rear cross-bar extending higher and lower than the front cross-bar, to lift its series of heddles higher and depress them lower than the series on the front cross-bar, to thereby aline the warp-threads of both series in both planes of the shed.

5. In a loom, reciprocating harness-frames each provided with two series of detector-heddles, each heddle coöperating with a warp-thread, and means to effect a different vertical movement of the two series of heddles, to thereby cause the warp-threads of both series to be alined in the planes of the shed when the latter is opened.

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

CLARE H. DRAPER.

Witnesses:

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