

(No Model.)

C. H. NIEDNER.
HEDDLE FRAME.

2 Sheets—Sheet 1.

No. 585,830.

Patented July 6, 1897.

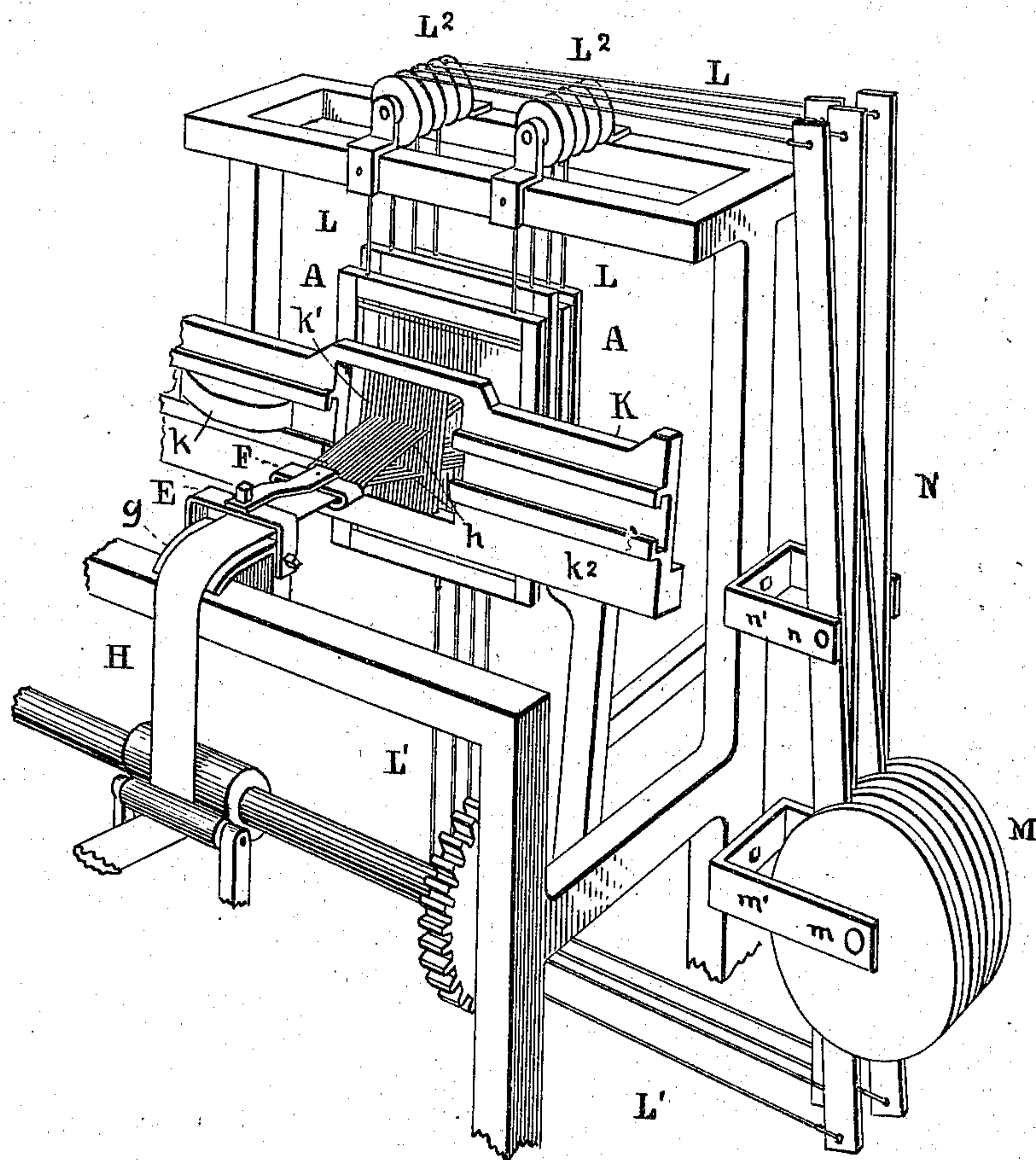


Fig. 1.

Witnesses,

Carroll Turner

H. V. Upham

Inventor,

Charles H. Niedner,

By A. B. Upham,

His Attorney

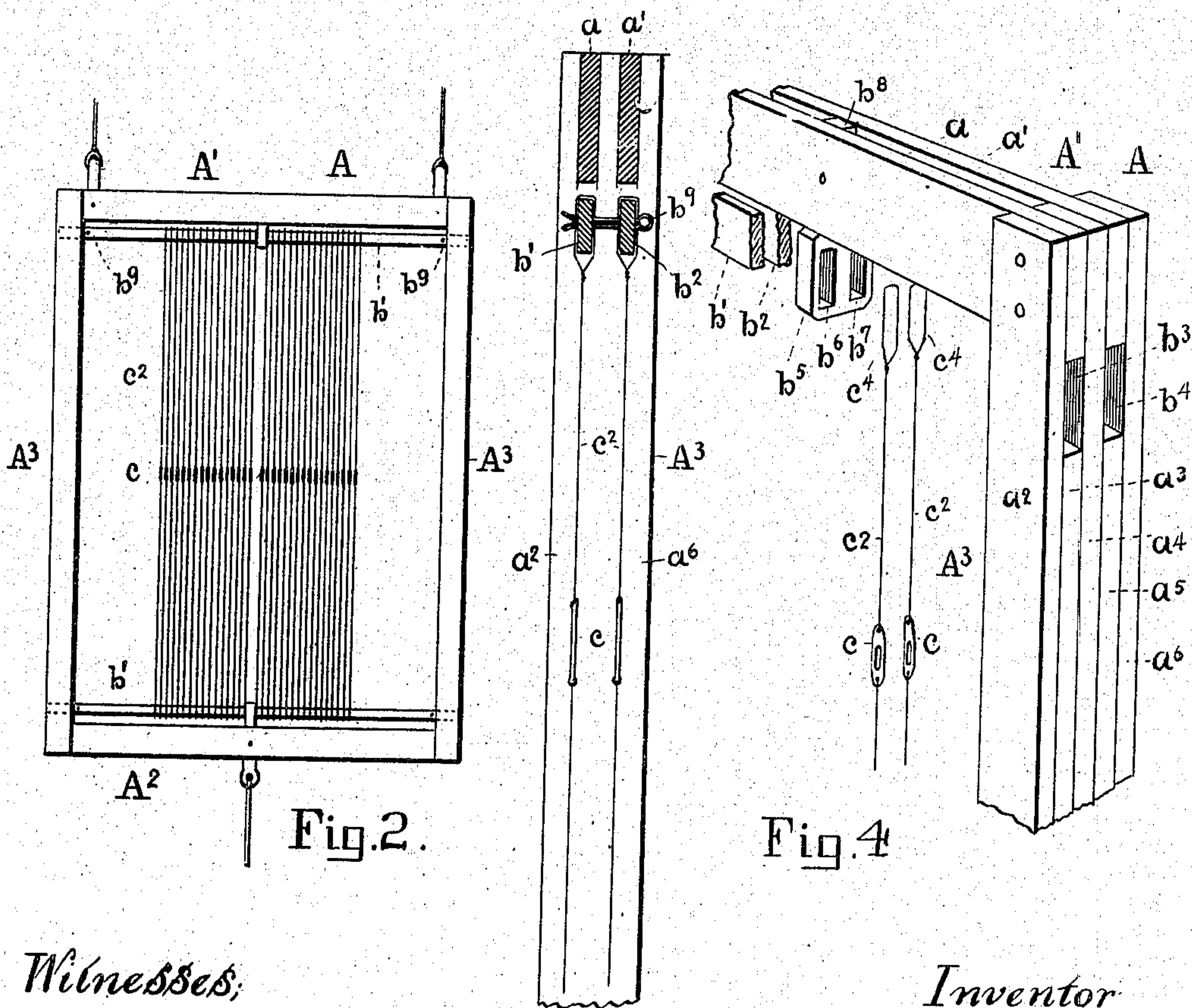
(No Model.)

2 Sheets—Sheet 2.

C. H. NIEDNER.
HEDDLE FRAME.

No. 585,830.

Patented July 6, 1897.



Witnesses,

Carroll Turner.

J. C. V. Upham

Inventor

Charles H. Niedner.

By A. B. Upham.

His Attorney.

UNITED STATES PATENT OFFICE.

CHARLES H. NIEDNER, OF MALDEN, MASSACHUSETTS.

HEDDLE-FRAME.

SPECIFICATION forming part of Letters Patent No. 585,830, dated July 6, 1897.

Application filed February 1, 1897. Serial No. 621,404. (No model.)

To all whom it may concern.

Be it known that I, CHARLES H. NIEDNER, a citizen of the United States, residing at Malden, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Looms, of which the following is a full, clear, and exact description.

This invention relates particularly to looms which are designed for weaving linen fire-hose; and the special improvements which I have devised are in the line of certain details hereinafter set forth.

In weaving fire-hose it is necessary to employ so large a number of warp-threads in order to make the hose sufficiently heavy and impervious that eight harness-frames have usually been used. This of course requires an equal number of harness-actuating cams and other operative mechanisms and adds very considerably to the cost and size of the loom. The reason why so large a number of harness-frames is required is because a lesser number would pack the heddles so thickly together as to interfere with the motion of the warp-threads and in addition subject the same to undue wear.

In the course of my experiments I discovered that although for the reasons above given I could not double the number of heddles in the same vertical plane in each harness-frame, yet by so arranging said frames that they could each carry two sets of heddles in separate planes, one directly behind the other, I could supply my loom with all the warp-threads necessary and still diminish the number of harness-frames to four, or one-half of what were usually employed. After further experiment I succeeded in constructing the duplex harness, which forms the main subject-matter of this application.

In the drawings forming part of this specification, Figure 1 is a perspective view of a loom provided with my improvements. Figs. 2, 3, and 4 are detail views of my harness-frame.

Referring to Fig. 1, A A A A are the harness-frames, actuated by the cams M, acting through the agency of the levers N, cords or chains L L', and suitable sheaves I.².

k is the shuttle, reciprocating in the race-

way k² of the lay K, and h are the warp-threads passing between the dents of the reed k' and through the heddles of the harness-frames A.

H represents the woven portion or completed hose passing downward over the stand g. Over this stand g is bolted a bridge E, spanning the completed hose. To this bridge is secured the guide F.

In Fig. 2 is shown my duplex harness-frame complete, while in Figs. 3 and 4 are given sectional and perspective views of parts thereof upon a larger scale. In making this frame the top A' and also the bottom A² are each composed of two thin strips of metal a and a'. These strips are separated one from the other a space about equal to their own thickness. The sides A³ are also each formed from strips of metal, but five in number, a² a³ a⁴ a⁵ a⁶. Three of said strips a², a⁴, and a⁶ receive between their ends the strips a a', composing the top and bottom, and by means of rivets or other fastenings form inflexible joints at such points. Two of the strips a³ a⁵ in each side A³ are shorter than their fellows, forming thereby the openings b³ b⁴. At the center of the frame top and bottom A' A² are the two blocks b⁵, having the eyes b⁶ b⁷ in line with the openings b³ b⁴. These blocks are secured in position by being provided with a stem b⁸, riveted between the strips a a'.

Through the openings b³ b⁴ and the eyes b⁶ b⁷ pass the rods b' b², by means of which the heddles c are supported. These heddles are attached to wires c², having loops c¹ at their ends, through which loops pass the rods b' b². Said rods are prevented from accidental removal by means of the cotter-pins b⁹, inserted therein and bearing against the frame sides.

As will be readily seen, this arrangement permits of the employment of two sets of heddles in each harness-frame, one set being in a plane immediately behind the other, and, as previously stated, enables double the number of warp-threads to be carried by each frame.

What I claim as my invention, and desire to secure by Letters Patent, is as follows, to wit:

In a loom, the harness-frame composed of the top and bottom, A', A², each formed of two thin strips, a, a', the sides, A³, each

formed of the five thin strips, a^2 , a^3 , a^4 , a^5
and a^6 , all secured together as set forth and
so arranged as to leave the apertures, b^3 , b^4 ,
in combination with the rods, b^1 , b^2 , passing
5 through said apertures, and the heddles sup-
ported by said rods, substantially as and for
the purpose set forth.

In testimony that I claim the foregoing in-
vention I have hereunto set my hand and
seal this 22d day of January, in the year 1897. 10

CHARLES H. NIEDNER. [L. S.]

Witnesses:

A. B. UPHAM,
CARROLL TURNER.