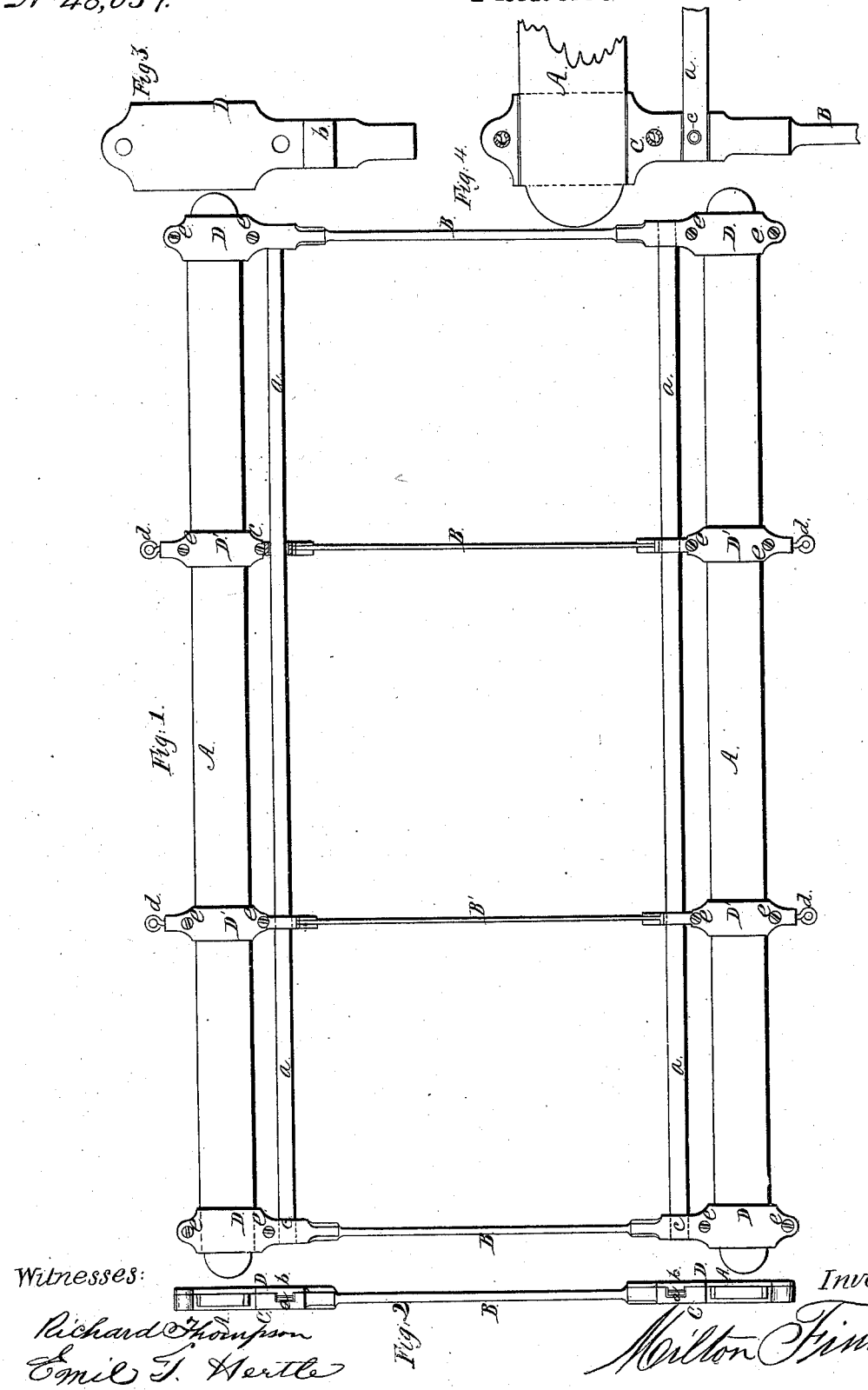
M Finkle.

Weaving Heddle Frame.

No. 48,057. Patented Jun. 6, 1865.



Witnesses:

Richard Thompson

Emil T. Hertle

Inventor.

Milton Finkle

UNITED STATES PATENT OFFICE.

MILTON FINKLE, OF NEW YORK, N. Y.

IMPROVEMENT IN HEDDLE-FRAMES FOR LOOMS.

Specification forming part of Letters Patent No. **48,057**, dated June 6, 1865.

To all whom it may concern:

Be it known that I, MILTON FINKLE, of No. 146 West Twenty-fourth street, in the city and county and State of New York, have invented a new and useful Improvement in Heddle-Frames for Weavers' Harness; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a front view of a heddle-frame made according to my invention. Fig. 2 is an end view. Fig. 3 is a detailed view of the cap of one of the heads of the frame. Fig. 4 is a detailed view of one of the heads, which receive the shafts of the frame.

This invention relates to the construction of heddle-frames for weavers' harness.

It consists in a new method of making them so that heddles, whether made of wire or twine, can be placed on them with greater ease than on frames constructed in ways heretofore known. They are adjustable to any length, firmer, stiffer, stronger, and more durable. The heddles will wear much longer when put up in this way, as there is no strain on the heddles when the harness is operated.

A A are the upper and lower shafts of the frame, made of wood in this example of my invention, for the sake of lightness. They may be made of any metallic substance, if desired. The ends of the shafts are received into recesses made transversely across the heads C, which are afterward covered by caps D, as seen in Fig. 2. The heads and their caps are made of metal in this example of my invention, and they are united by means of screws *e*, two or more for each cap. The heads C have also smaller transverse recesses made across their shanks to receive the ends of rods *a*, on which the end loops of the heddles are strung in making harness. Those heads C which are opposite to each other in the frame are connected by metallic rods B of suitable thickness, length, and strength for the size and weight of the harness. The cap-pieces D cover the inner faces of the heads, and they each have a lock, *b*, said locks fitting within the recesses of the several heads, which receive the rods *a*, thereby confining and locking the caps and heads C together firmly to the shaft A A, when the screws *e* are driven home. Moreover, in the bottom of the recesses, which receive the rods, I place pins *c*, one of which is seen in Fig. 4, and whose places are indicated in Fig. 1, which pins *c* pass through holes made for them in the ends of rods *a*. By this means the latter are kept distended and prevented from having end play in the frames, and also prevented from becoming bent.

D′ D′ D′ D′ designate stays and caps, made substantially similar to the heads and caps C D, above described, and secured to each other in the same way.

d d d d designate eyes by which the frame or "leaf" of the harness, as it is sometimes called, is suspended and operated to produce the shed in the warp. These stays are connected by rods B′; but if the harness is of small size and weight, the connecting-rods B′ may not be considered necessary. In larger-sized and heavy harness they will be found of great advantage in stiffening the frame and preventing it from being strained and preventing vibration during its reciprocations, since the pull or lift of the frame will be transmitted by the rods B′ from one stay to that immediately opposite, and thereby the shafts will be relieved of the strain.

In order to fill the frame with heddles, whether made of wire, twine, or other material, preparatory to making up the harness, the frame (see Fig. 1) is laid down upon a floor or bench, the caps D are removed, and the rods *a* taken out of their recesses and supplied with whatever number of heddles they are to receive. They are then laid in their recesses, the caps are replaced, and one leaf of the harness is ready for use.

By means of my invention the heads C, caps D, the stays D′, and their connecting-rods B′, and the rods *a* can be made ready for the weaver and packed in small compass and transported to the factory where they are to be used, at which place the shafts A can be made and applied.

It will be observed also that by this mode of construction the frame can be made of any required length according to the width of the loom in which it is to be used, by giving the proper length to the shaft, and by making the

rods *a* of suitable length. The same heads and caps and the same stay-pieces and central connecting-rods will serve for harness of various lengths.

It will be observed that the shafts A are clamped and firmly held in place between the faces of the heads and their several caps, and that the mode of constructing the frame which I have described enables the weaver to shorten the harness, as when about to change from wide to narrow cloth, by sliding the heads on one or both ends of the frame. When such a change is made the rods *a* will need to be perforated at proper points for the length of harness required to receive the pins *c* of the shanks of the heads.

The stays D′ not only provide means for hanging the frame in the loom, but they also serve to support and hold in place and give steadiness to the rods *a*, and thus prevent excessive vibration during the operation of forming the sheds in weaving. They also stiffen the frame and prevent undue strain upon the heads when they are connected by the rods B′. The stays D′ can also be changed in position so as to alter the points of suspension of the frame whenever it is desirable or necessary to do so, which, in the old style of frame, where the shanks of the eyes are secured into the shafts, cannot be done without boring new holes in the shafts.

Having thus described my improvement in heddle-frames, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The adjustable heads C, constructed in the manner substantially as above described, for receiving the ends of the shafts A and rods *a*.

2. The combination of the heads C and caps D, made and applied substantially as above described.

3. The stays D′, with hooks or eyes attached, with or without the connecting-rods B, substantially as above described.

MILTON FINKLE.

Witnesses:

RICHARD THOMPSON,

EMIL T. HERTLE.