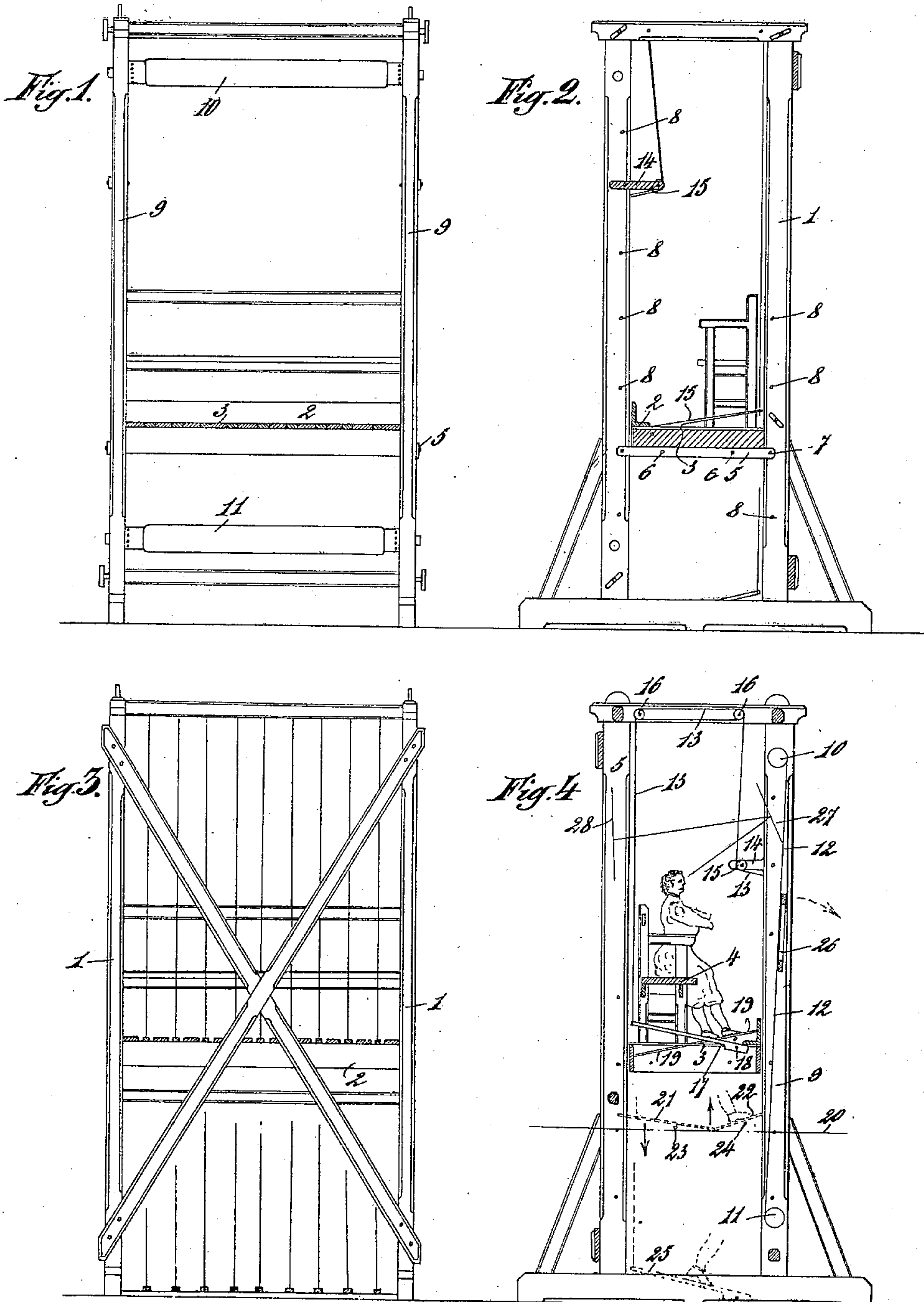


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A. A. F. THIÉRY.
LOOM.

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UNITED STATES PATENT OFFICE.

ARMAND AUGUSTE FERDINAND THIÉRY, OF LOUVAIN, BELGIUM.

LOOM.

No. 868,228.

Specification of Letters Patent.

Patented Oct. 15, 1907.

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To all whom it may concern:

Be it known that I, ARMAND AUGUSTE FERDINAND THIÉRY, a subject of Belgium, residing at Louvain, Belgium, 1 Rue des Flamands, have invented new and useful Improvements in Looms, of which the following is a specification.

This invention relates to improvements in vertical warp tapestry looms.

As is known, vertical warp looms used for weaving tapestry have over horizontal warp looms the important advantage that they afford at all times ready access to the fabric, and enable the latter to be easily inspected. On the other hand horizontal warp looms have over vertical warp looms the advantage that their construction enables the weaver to use both hands for controlling the weft, but this advantage is secured at the cost of the advantages hereinbefore referred to as appertaining to vertical warp looms. Attempts have already been made to provide the latter with treadle gear analogous to that of horizontal warp looms, in order to combine in one machine the advantages of both types. The arrangements proposed for this purpose have, however, hitherto not given satisfactory results, since they in all cases involved the use of treadles which rendered it necessary for the operator to be located at the level of the ground or floor, thus necessarily restricting the amount of work which could be performed without winding up fabric, and occupying space normally used for holding the pattern, so that considerable inconvenience was involved in the manipulation of the machine.

The purpose of the present invention is to obviate these disadvantages, that is to say to secure for vertical warp looms the advantages of treadle gear without restricting the amount of work which can be performed in the intervals of winding up the fabric and without interfering with the manipulation of the pattern frame and the inspection of the work done or the pattern to be reproduced.

The invention substantially consists in mounting the heddle-controlling treadles in a movable frame adapted to be vertically displaced between the uprights of the loom and to be fixed at any desired level relatively to the fabric already woven.

In the practical realization of the invention the frame carrying the treadles is movable between uprights which form a kind of cage inclosing the operator, and the heddle-operating cords attached to the treadles are connected to the heddles behind the fabric in such a manner as to completely clear the space wherein may be arranged a pattern frame which is attached to the uprights behind the warp and adapted to be rotated about a horizontal or vertical axle or to be moved in suitable guides. A card is placed behind the operator and a mirror is suspended between the uprights, against the fabric, in order to reflect to the operator an exact image of the pattern to be produced.

The invention is illustrated in the annexed drawing by means of an example, Figure 1 being a front view of the loom, Fig. 2 a side view, and Fig. 3 a rear view. Fig. 4 is an elevation showing the side opposite that shown in Fig. 2 and diagrammatically indicating various positions of the movable frame and various kinds of treadles.

As shown in the drawings the structure or frame of the loom comprises uprights 1, 9 inter-connected by suitable cross-bars and ties to form a perfectly stable cage within which is arranged a frame 2 with a platform 3 supporting a seat 4 for the operator. The frame 2 is suitably guided by the uprights and is adapted to be adjusted at any desired level by means of cross-bars which are fixed to the frame at 6 and are adapted to be supported by means of pins 7 which engage holes 8 provided at intervals in the uprights.

The beams 10 and 11 may be of any desired length, and the height of the loom is also not in any way restricted by the particular arrangement to which the invention relates. The warp 12 is wound off the beam 10 and the fabric is wound on the beam 11, both warp and fabric being clear of the sides of the loom.

The heddles are operated by means of the cords which are guided by the roller 15 mounted in supports 14 and by the rollers 16 at the upper part of the loom, from which the cords descend behind the seat 4 in order to be attached to the treadles 17.

The treadle mechanism may of course be of any suitable construction. Fig. 4 illustrates several examples. The treadles 17 shown at the central part of the loom, that is to say where the frame 2 is mid-way between its lowest and uppermost positions, are mounted on a single axle 18 and are actuated by means of the operator's heel. They may also be arranged as shown at 19, to be actuated by the operator's toe, or as shown at the lower level 20 (where the frame 2 has traveled approximately one quarter of its course), the double treadles 21 and 22 having separate axles 23 and 24 and being arranged so that one operates the other. The dotted lines at 25 indicate the position of a heel-operated treadle when the frame 2 is at the bottom of its course.

It will be seen that with the heddle-operating mechanism described, in combination with the frame enabling the operator to be placed at the level at which the weaving operation is being performed, the work can be inspected without winding or unwinding fabric on or from the beam 11, and that owing to the fact that the heddles are operated from the rear the part at which the weaving operation takes place is cleared, so that a pattern frame 26 may be connected to the uprights behind the warp. This pattern frame is easily movable, and may for that purpose be rotatable about a horizontal or vertical axle, or may be slidable in suitable guides. Any suitable arrangement may be adopted for this purpose, and the construction is not shown in detail in the

drawing, as being obvious to any person skilled in the construction and working of looms. The pattern frame may be marked in such a manner as to enable it to be exactly replaced by a simple mechanical operation 5 when it has been temporarily removed. Between the uprights 9 a mirror 27 is suspended by means of cords, so that it can be placed at any desired level. This mirror reflects to the operator an image of the colored card 28 arranged at the rear of the loom, so that the operator 10 can at all times examine the pattern without turning her head.

What I claim as my invention and desire to secure by Letters Patent of the United States is:—

1. In a vertical warp loom the combination with a frame 15 of beams mounted in the latter, a platform vertically adjustable in said frame, means for fixing said platform in the positions in which it is adjusted, heddles, and means for operating said heddles from said platform, substantially as described and for the purpose set forth.

2. In a vertical warp loom the combination with a frame 20 forming a cage of beams mounted in said frame, a platform vertically adjustable in the cage formed by said frame, means for fixing said platform in the positions in which it is adjusted, heddles, and means for operating said 25 heddles from said platform, substantially as described and for the purpose set forth.

3. In a vertical warp loom the combination with a frame forming a cage of a beam mounted in the upper part of 30 said frame, a beam mounted in the lower part of said frame, a platform vertically adjustable in the cage formed by said frame, means for fixing said platform in the positions in which it is adjusted, heddles so located that they are faced by the reverse side of fabric woven in the loom, and means for operating said heddles from said platform, sub- 35 stantially as described and for the purpose set forth.

4. In a vertical warp loom the combination with a frame forming a cage of a beam mounted in the upper part of 40 said frame, a beam mounted in the lower part of said frame, a platform vertically adjustable in the cage formed by said frame, means for fixing said platform in the positions in which it is adjusted, heddles so located that they are faced by the reverse side of the fabric produced in the loom, cords for actuating said heddles, rollers which guide said cords to the rear of the loom, and treadles supported

by the platform and adapted to actuate said cords sub- 45 stantially as described and for the purpose set forth.

5. In a vertical warp loom the combination with a frame of beams mounted in said frame, a platform vertically adjustable in the latter, means for fixing said platform 50 in the positions in which it is adjusted, heddles so located that they are faced by the reverse side of fabric woven in said loom, cords adapted to actuate said heddles, treadles supported by said platform and adapted to actuate said cords, a pattern frame so located that it is faced by the 55 right side of the fabric woven in said loom, and means for removing said pattern frame from said fabric, substantially as described and for the purpose set forth.

6. In a vertical warp loom the combination with a frame of beams mounted in said frame, a platform vertically adjustable in said frame, means for fixing said platform 60 in the positions in which it is adjusted, heddles so located that they are faced by the reverse side of fabric woven in said loom, means for actuating said heddles from said platform, a pattern frame so located that it is faced by 65 the right side of the fabric, means for removing said pattern frame from the fabric, a pattern card arranged at the rear of frame, and an adjustable mirror adapted to reflect an image of said pattern card towards said platform, sub- stantially as described and for the purpose set forth.

7. In a vertical warp loom the combination with a frame 70 forming a cage of a beam mounted in the upper part of said frame, a beam mounted in the lower part of said frame, a platform vertically adjustable in the cage formed by said frame, means for fixing said platform in the posi- 75 tions in which it is adjusted, heddles so located that they are faced by the reverse side of fabric woven in the loom, cords adapted to actuate said heddles, rollers adapted to guide said cords to the rear of the looms, treadles sup- ported by the platform and adapted to actuate said cords, 80 a pattern frame faced by the right side of the fabric, means for removing said pattern frame from the fabric, a pattern card arranged at the rear of the cage, and an adjustable mirror arranged at the front of the cage and adapted to reflect towards the platform an image of said pattern card, 85 substantially as described and for the purpose set forth.

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

ARMAND AUGUSTE FERDINAND THIÉRY.

Witnesses:

GEORGE BEDE,

GREGORY PHELAN.