

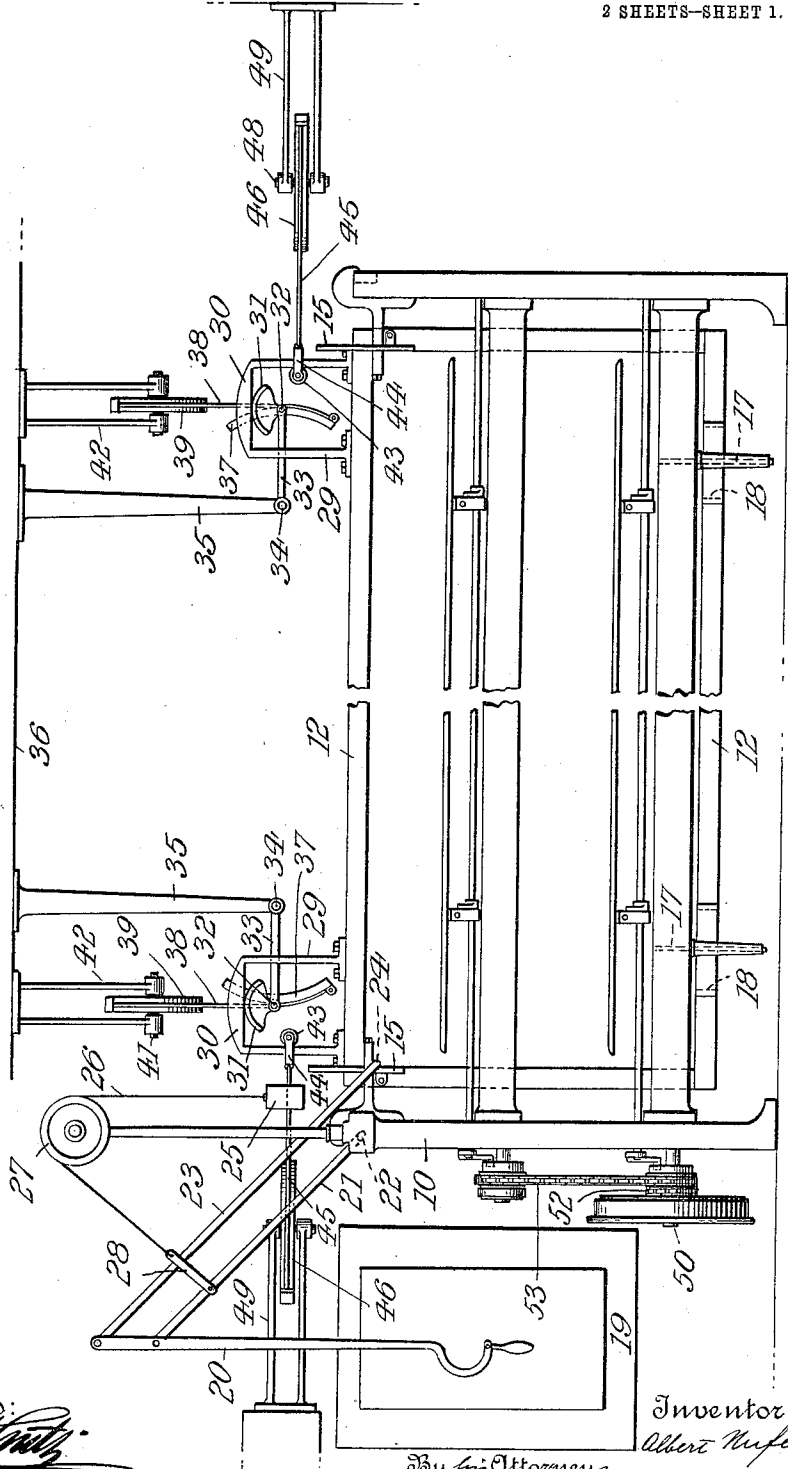
A. NUFER.
 EMBROIDERING MACHINE.
 APPLICATION FILED NOV. 27, 1912.

1,069,460.

Patented Aug. 5, 1913.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
Julius [Signature]
 Daniel Holmgren.

Inventor
 Albert Nufer
 By Attorneys
 Priesen & Grunpe

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2 SHEETS-SHEET 2.

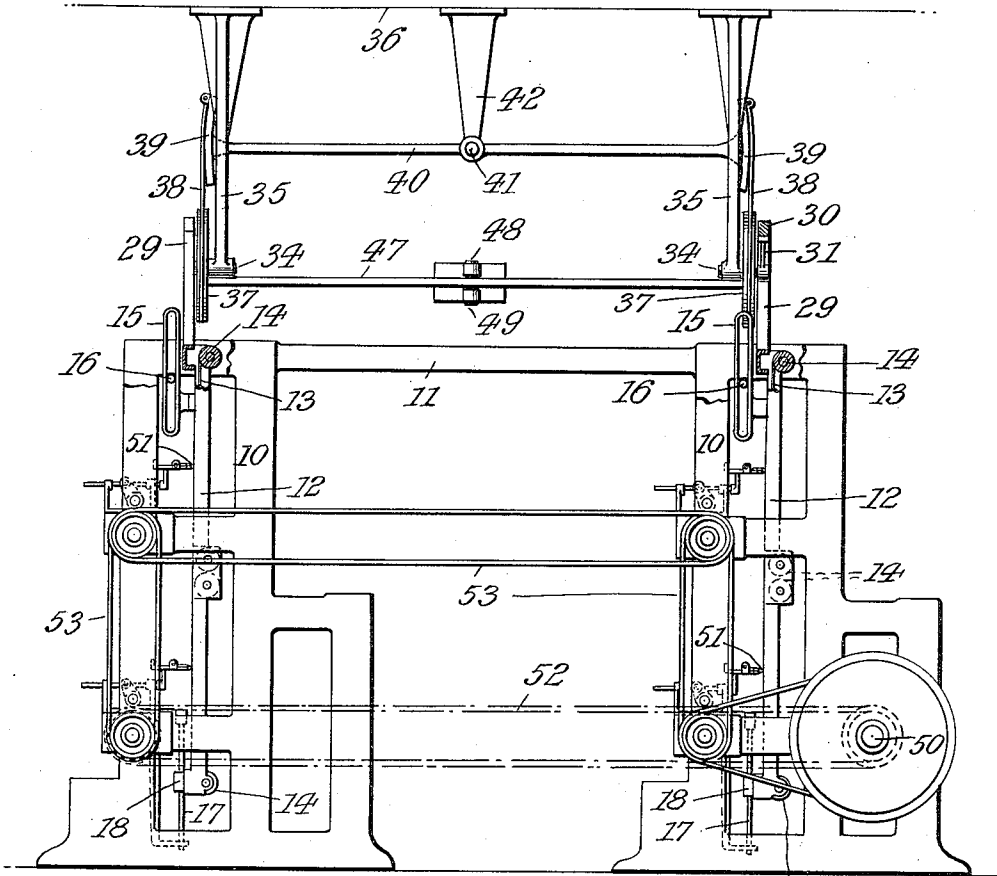


Fig. 2.

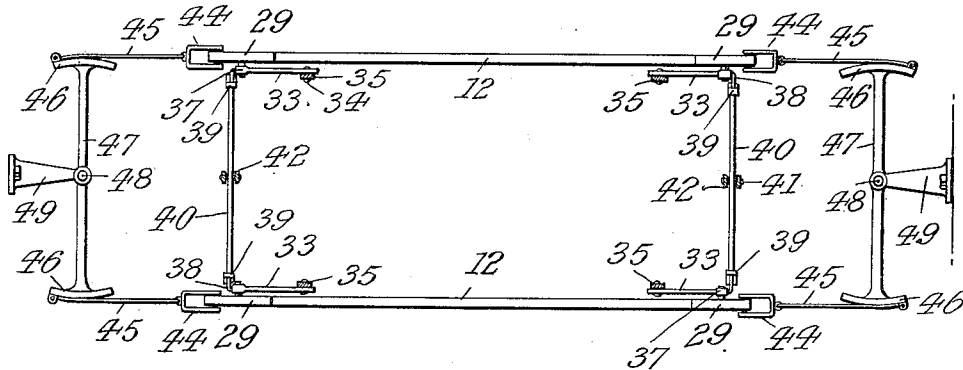


Fig. 3.

Witnesses:
Daniel Kolmgren.

Inventor
 Albert Nufer
 By *Attorneys*
Frisen & Zumpfe

UNITED STATES PATENT OFFICE.

ALBERT NUFER, OF JERSEY CITY, NEW JERSEY.

EMBROIDERING-MACHINE.

1,069,460.

Specification of Letters Patent.

Patented Aug. 5, 1913.

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To all whom it may concern:

Be it known that I, ALBERT NUFER, a citizen of the United States, residing at Jersey City, county of Hudson, and State of New Jersey, have invented a new and Improved Embroidering-Machine, of which the following is a specification.

This invention relates to a novel embroidering machine which comprises a pair of embroidering frames movable in parallel vertical planes and connected in such a manner that either frame is balanced by the other frame. In this way, the same amount of human labor which was heretofore requisite for operating a single artificially counterweighted frame, now suffices for simultaneously operating the two mutually balanced frames, so that the output of the machine is duplicated without a corresponding increase of labor.

In the accompanying drawing: Figure 1 is a front elevation partly broken away of an embroidering machine embodying my invention with some of the parts omitted; Fig. 2 a left hand end view of Fig. 1, and Fig. 3 a plan of the frame-connecting means and adjoining parts.

The machine frame comprises essentially a pair of like sections 10 placed behind one another and connected by intervening braces 11. To each section there is secured a vertically and laterally movable embroidery frame 12 to which the fabric 13 to be embroidered is adapted to be attached so as to be exposed to the action of the usual embroidery means, such as needles and shuttles, said means being not shown as not forming part of the present invention. The fabric 13 is wound upon rollers 14 journaled in frame 12, the drawing showing each frame adapted for the accommodation of two lengths of fabrics, arranged above one another. In order to guide frames 12 during their vertical and lateral movement in parallel vertical planes, they are provided with upper vertically elongated eyes 15 engaging fixed horizontal bars 16 of sections 10. At their lower ends, frames 12 are provided with horizontally elongated eyes 18 engaging fixed vertical guide bars 17 on braces 11.

One of the sections 10 is provided with a pattern board 19 to which an enlarged copy of the design to be embroidered is adapted

to be attached. Over this pattern board is manually guided a pantograph-lever 20 which is so connected to the corresponding frame 12 that the movements of the lever are transmitted, at a reduced scale to said frame. As shown, the connection between lever 20 and frame 12 consists of a lower inclined arm 21 pivoted to the machine frame at 22, and of an upper motion-transmitting link 23 pivotally secured to the embroidery frame at 24. The pantograph is counterbalanced by a weight 25 suspended from a rope 26 that passes over pulley 27 and is connected to arm 21 by coupling 28. As thus far described, the movement of the pantograph-lever will be so transmitted to the frame 12 to which it is attached, that the fabrics 13 carried by said frame are correspondingly displaced with relation to its needles, whereby the desired design will be produced.

Means are provided for so connecting the pantograph-actuated frame 12 to the other frame 12 that the movement of the former is transmitted to the latter, so that the output of the machine is duplicated without unduly lengthening the same. These means are so constituted that the two frames 12 will always counterbalance each other, thereby avoiding the use of counterweights and thus reducing the power necessary for operating the embroidery frames. In order to accomplish this desirable object, the construction is such that when one frame is made to ascend by the operation of the pantograph, the other counterbalancing frame descends and vice versa, thereby using up the entire human power expended for the useful function of simultaneously moving both embroidery frames. Of course, with this construction, one of the patterns will be embroidered upside down which however is not in any wise objectionable.

The connecting means above referred to between the embroidery frames are as follows: Each frame 12 carries near each end a yoke 29 of substantial inverted U-shape. The horizontal section or bar 30 of such yoke is engaged on its lower side by a rocker or rolling member 31 pivoted at 32 to a lever 33 which is at 34 fulcrumed to a hanger depending from the ceiling. This lever also carries a segment 37 which is, by a strap 38 connected to one of the segments 39 of

a vertically oscillable balance beam 40 fulcrumed at 41 to a hanger 42 that depends from ceiling 36 midways between machine sections 10. The correlation of the parts is such that beam 40 is operatively connected through the parts 39, 38, 37 to the corresponding levers 33 of the two embroidery frames, it being of course obvious that the balancing construction described for one end of the machine is duplicated for its other end. The outer shank or bar of each yoke 29 is engaged along its inner side by a roller 43 journaled in a fork 44 that straddles said shank. The two forks 44 located at either machine end are by straps 45 connected to the segments 46 of a horizontally oscillable beam 47 fulcrumed at 48 to a fixed bracket 49. The brackets 49 are also located midways between the machine sections 10 and may be either secured to the walls or to suitable pillars.

When by means of the pantograph, one of the frames 12 is raised, its levers 33 will through engagement of yokes 29 and rockers 31, be swung on the fulcrums 34, so that the other frame will descend to a like extent by its own weight, owing to the interpolation of balance beams 40 and straps 38. In a similar manner, the lowering of the pantograph-actuated frame will effect the raising of the other frame, as will be readily understood. So also, when the pantograph-actuated frame is shifted to the right or left, the other frame will through beams 47 and parts 45, 44, 43, 29 be moved in the opposite direction. During the vertical movement of the frames, rollers 43 will travel freely along the outer shanks of yokes 29 without impeding such movement, while during lateral displacement of the frames, the rockers will roll along the yokes.

In that machine section 10 which supports the pantograph, there is journaled the main power shaft 50 which serves to operate the stitch forming means, as well as the punches 51 which latter are frequently employed for piercing the fabric prior to the embroidering operation. Motion is transmitted from shaft 50 to the stitch forming means of the second machine section 10 by a belt or chain drive 52, while the punch-actuating means of the first section are operatively connected to the corresponding means of the second section by an independent chain drive 53, as illustrated in Fig. 2.

It will be seen that by the construction described, the two movable embroidery frames are so connected with each other that they may be simultaneously displaced in any direction desired, and that a minimum expenditure of energy by the operator is required for effecting the movement of the frames.

I claim:

1. An embroidery machine comprising a

pair of embroidery frames movable in parallel vertical planes, vertically disposed bars carried by the frames, curved members movable along said bars, horizontally oscillable beams, and means for operatively connecting the curved members to said beams.

2. An embroidery machine comprising a pair of embroidery frames movable in parallel vertical planes, horizontally disposed members carried by the frames, rolling members engaging said horizontally disposed members, segments operatively connected to said rolling members, balance beams fulcrumed between the frames, additional segments carried by said balance beams, and straps that connect the first named segments with the additional segments.

3. An embroidery machine comprising a pair of embroidery frames movable in parallel vertical planes, horizontally disposed bars and vertically disposed bars carried by the frames, curved members engaging the horizontally disposed bars, vertically oscillable beams operatively connected to said curved members, additional curved members engaging the vertically disposed bars, and horizontally oscillable beams operatively connected to said additional curved members.

4. An embroidering machine comprising a pair of embroidering frames, a pair of yokes carried by each frame, levers engaging the yokes, and vertically oscillable balance beams operatively connecting the levers of one frame with the corresponding levers of the other frame.

5. An embroidering machine comprising a pair of embroidering frames, a pair of yokes carried by each frame, rolling members engaging the yokes, levers to which the rolling members are pivoted, and vertically oscillable balance beams operatively connecting the levers of one frame with the corresponding levers of the other frame.

6. An embroidering machine comprising a pair of embroidering frames, a pair of yokes carried by each frame, rolling members engaging the yokes, levers to which the rolling members are pivoted, segments on the levers, vertically oscillable balance beams, segments on the balance beams, and straps connecting the lever-segments to the balance beam-segments.

7. An embroidering machine comprising a pair of embroidering frames, a pair of yokes carried by each frame, rollers engaging the yokes, and horizontally oscillable beams operatively connected to said rollers.

8. An embroidering machine comprising a pair of embroidering frames, a pair of yokes carried by each frame, rollers engaging the yokes, forks straddling the yokes and carrying the rollers, horizontally oscillable beams, segments on said beams, and straps connecting said segments to said forks.

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9. An embroidering machine comprising a pair of vertically oscillable balance beams, levers operatively connected to opposite ends thereof, rolling members on said levers, yokes
5 engaged by said rolling members, embroidering frames suspended from said yokes, a pair of horizontally oscillable beams, and additional rolling members also engaging said yokes and operatively connected to opposite ends of said last named beams.
ALBERT NUFER.

Witnesses:

FRANK V. BRIESEN,
KATHERYNE KOCH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
