

No. 621,776.

Patented Mar. 21, 1899.

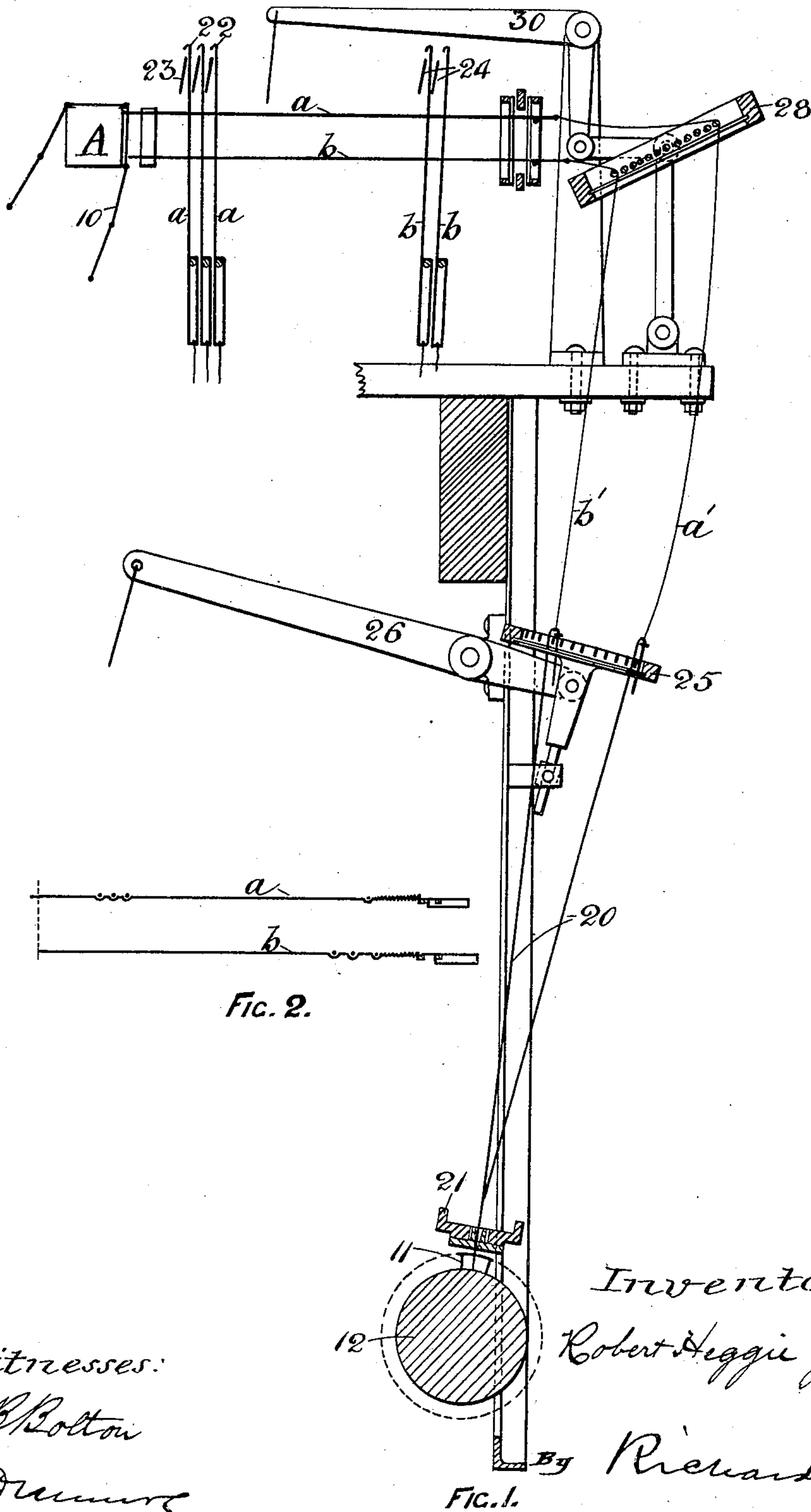
R. HEGGIE, JR.

APPARATUS FOR WEAVING FIGURED FABRICS.

(Application filed Dec. 20, 1898.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses:
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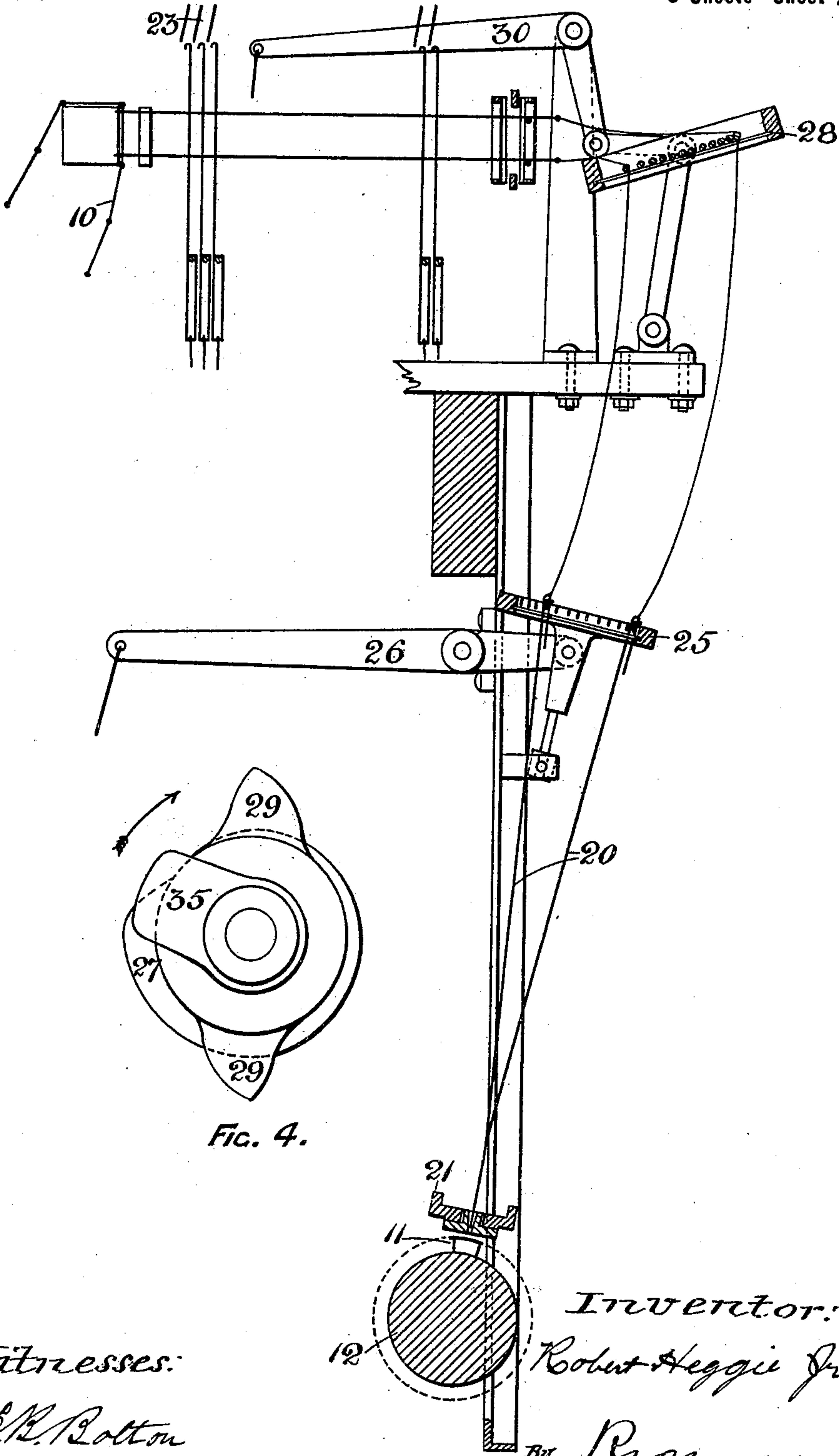


FIG. 4.

FIG. 3.

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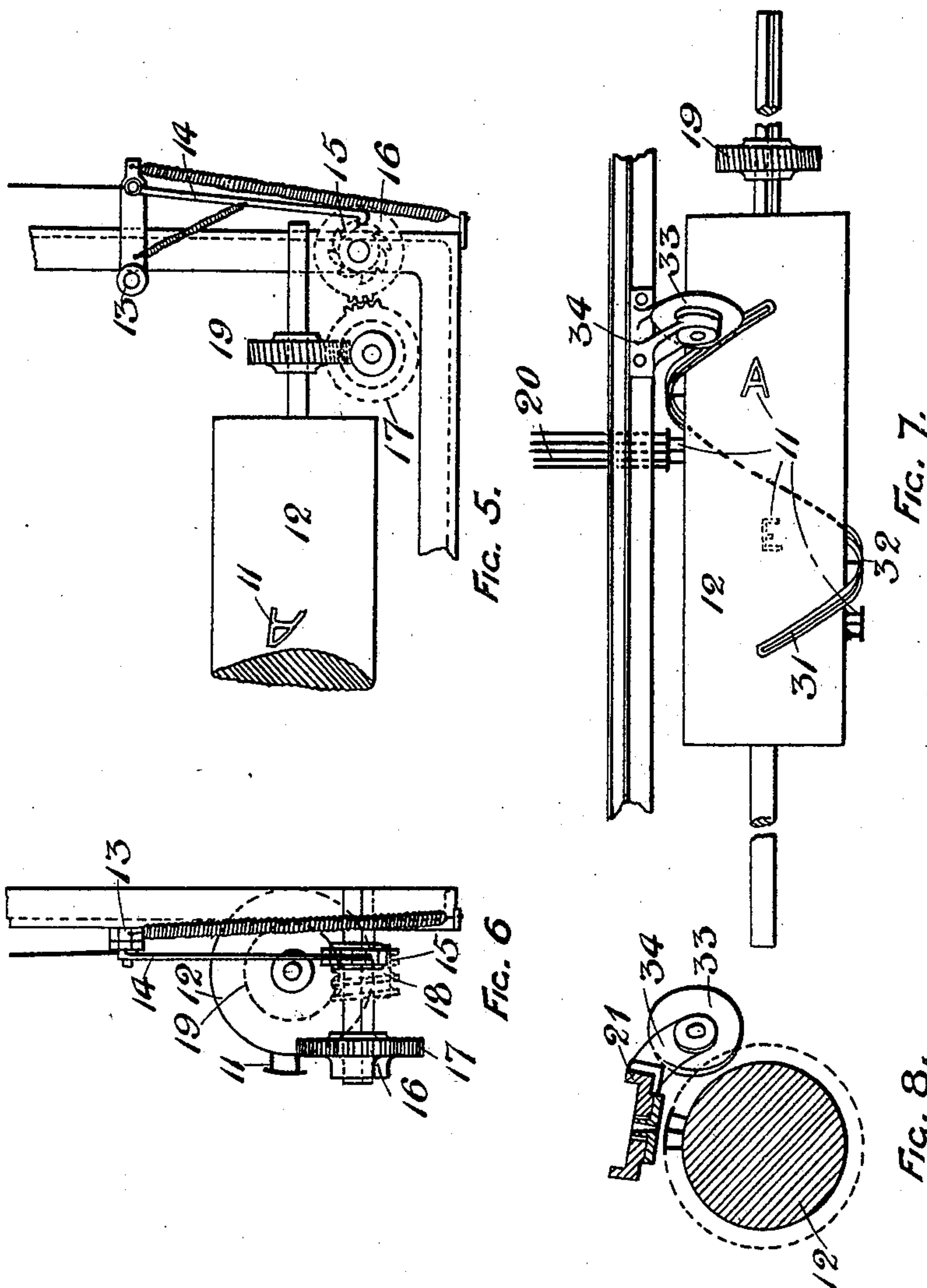
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APPARATUS FOR WEAVING FIGURED FABRICS.

(Application filed Dec. 20, 1895.)

(No Model.)

3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

ROBERT HEGGIE, JR., OF KIRKCALDY, SCOTLAND.

APPARATUS FOR WEAVING FIGURED FABRICS.

SPECIFICATION forming part of Letters Patent No. 621,776, dated March 21, 1899.

Application filed December 20, 1898. Serial No. 699,862. (No model.)

To all whom it may concern:

Be it known that I, ROBERT HEGGIE, Jr., a subject of the Queen of Great Britain and Ireland, residing at Kirkcaldy Power Loom Linen Works, Kirkcaldy, in the county of Fife, Scotland, have invented a new and useful Improvement in and Relating to Apparatus for Weaving Figured Fabrics, of which the following is a specification.

My invention relates to improvements in the weaving of figured textile goods, the object being to apply to looms apparatus which will allow of a design being woven on the cloth independent of or in addition to a standard design which is produced by the ordinary cards and to make provision for the changing of such designs at the discretion of the operator.

It is sometimes desirable that certain pieces of cloth, such as hotel towels and the like, be woven with the name of the hotel or the proprietor thereon in addition to the ordinary pattern. When the quantity of cloth ordered is small, the expense incurred in preparing cards with the required name, figure, or design is quite out of proportion to the cost of the goods as made without such special supplementary name, figure, or design. By means of my new and improved apparatus any suitable required design may be added to or substituted for the standard design at a small additional cost. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of those parts of the loom which are necessary to show how the jacquard uprights may be actuated by the supplementary or subsidiary pattern. Fig. 2 is a plan showing how the needles may be constructed in order that they may be suitable for actuation by the subsidiary pattern. Fig. 3 is a view similar to Fig. 1, but showing the feelers clear of the subsidiary pattern and the uprights vertical. Fig. 4 is a side elevation of the necessary cams. Fig. 5 is a part front elevation showing how the subsidiary pattern-cylinder may be actuated. Fig. 6 is an end elevation of same. Fig. 7 is a front

elevation showing a modified form of subsidiary pattern-cylinder, and Fig. 8 is an end elevation of same.

Similar letters and numerals refer to similar parts throughout the several views.

I weave the figured cloth by means of a main pattern-cylinder A and cards 10 in the usual way, producing thereby the standard design. When it is wanted to introduce the supplementary or subsidiary design, the cards may be disengaged or rendered inactive by punching where wanted and the supplementary or subsidiary design woven in the cloth by means of a special pattern 11, which through suitable connections controls the uprights of the jacquard, such special pattern taking the place of the ordinary cards. A complete design can be woven by means of such special pattern and its appurtenances and that without the aid of the ordinary cards. The pattern-cylinder 12 is of suitable diameter and width, and I give to it a suitable rotary or rotary and transverse motion. On such cylinder I fix the required pattern 11, such pattern being preferably cut out of sheet metal and so placed relatively to the surface of the cylinder that there is a space beneath to allow of the points of the supplementary feelers or needles (which are afterward described) passing into it. It is to be understood that although I have said a sheet-metal pattern may be used, yet any other method by which an indented or perforated surface of definite design may be applied to the cylinder will serve equally well. Instead of a cylinder I may use a flat plate for carrying the pattern, giving to it the desired motion by suitable mechanism.

The drawings illustrate how the subsidiary design 11 may be made to actuate the uprights, and only the necessary parts of the loom required to illustrate this are shown.

The pattern-cylinder 12 may be made to intermittently move around at intervals of one, two, or more shots. This is done by means of a lever 13, which is lifted by a cord actuated by a suitable uptake-cam 27.

14 is a pawl which engages with and inter-

mittently pulls around a ratchet-wheel 15, which in turn causes the wheels 16 and 17 to rotate, the latter moving around the worm 18 and worm-wheel 19, which is keyed to rotate with the shaft of the cylinder 12.

The feelers 20 are of metal, and their lower points are arranged in line to pass, side by side, through a slot in the guide 21, such slot being provided with partitions to keep the feelers in position. The needles are connected to the feelers by the cords *a' b'*.

In Fig. 1 I have shown one needle, *a*, with its feeler 20 resting on the top of the pattern and the other, *b*, with its feeler 20 off such pattern—that is to say, the needle *a* is not influenced by its feeler, because its weight is supported by the pattern, and therefore the uprights 22 are not clear of the brander 23, and consequently they will be lifted when such brander rises and the warp will be raised just as if the needle had passed into the hole in the card. The needle *b*, on the other hand, is influenced by the pattern 11, because the feeler 20 is unsupported by such pattern, and consequently its weight pulls the needle *b* forward, this action being assisted by the forward motion of the guide 28 at the moment of releasing the hooks, and so causes the uprights 24 to clear the brander, which will rise without lifting them and the warp will not be raised, even though such needle *b* be opposite a hole in the card.

Fig. 3 shows all the feelers 20 lifted clear of the pattern 11. This operation is performed by lifting the brander 25 by means of the lever 26, such lever being actuated by a suitable cam 35, the feelers being lifted clear of the pattern previous to the moving of the cylinder.

The guide 28 is shown in its upward position in Fig. 3. Its movement takes place at every shot by means of the double cam 29 and the lever 30. In the drawings I have shown the three cams 35, 27, and 29 mounted on the same shaft, such shaft being arranged to rotate in the direction of the arrow once for every two shots. The cam 29 tightens the cord and actuates the lever 30 at the moment of selection of the uprights by the brander 23, thus moving the guide 28 into the position shown in Fig. 3. Immediately after the selecting-cam 29 is cleared the feeler-frame cam 35 begins to act, and when such frame 35 is fully lifted the uptake-cam 27 commences to operate and to move forward the pattern 11. It is obvious that the cams 35 and 27 should work synchronously, although they need only be timed to act as often as is considered necessary for the kind of cloth being woven, but the selecting-cam 29 must operate at every shot.

One of the uses to which my invention may be put is as follows: It is sometimes desirable that a name or particular device be woven on

cloth, such device being in conjunction with any other desired pattern. If cards only be employed to produce such a combination, they must be specially cut. By employing the supplementary pattern the ordinary cards may be used to produce the standard design and the supplementary design may be added at intervals, or it may be interwoven with the standard design, as may be found desirable.

Instead of merely causing the pattern-cylinder 12 to rotate, as previously described, I may cause it not only to rotate, but also to move laterally along its axis and so cause a spiral pattern to come beneath a group of feelers, in this manner weaving a long and narrow design. One way of carrying this into effect is illustrated by Figs. 7 and 8. The worm-wheel 19 is splined to the shaft of the cylinder 12 by means of a sliding key in order that such cylinder while constrained to turn may be free to move laterally. A spiral guide 31, with a slot or groove 32 in it, is fixed to the cylinder 12. A wheel 33, which is free to rotate, but which cannot move laterally, is carried by a bracket 34, fixed to the guide 21. The rotation of the cylinder 12 causes the spiral 32 to bear against the fixed wheel 33 and so constrains such cylinder to move side-wise.

Although I have illustrated and described how my invention may be applied to a Jacquard loom, yet it is evident that the arrangement and construction may be modified without departing in any way from the spirit and scope of my invention.

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

1. In combination, the needles *a*, *b*, the main pattern-cylinder for operating them, the uprights controlled by the needles, means for raising the uprights, a supplemental pattern-cylinder and connections therefrom to the needles *a*, *b*, whereby said needles will be acted on both by the main and supplemental pattern-cylinder, substantially as described.

2. In combination, the main pattern-cylinder, the needles controlled thereby, the uprights controlled by the needles, the brander for operating the uprights vertically, a supplemental pattern-cylinder, feelers actuated by the supplemental pattern-cylinder and connections between said feelers and the needles, substantially as described.

3. In combination, the needles, the main pattern-cylinder for operating them, the uprights controlled by the needles, means for raising the uprights, a pattern-cylinder, means for rotating it, means for giving it longitudinal movement comprising the spiral guide and the feelers between said cylinder and the needles, substantially as described.

4. In combination, the needles, the main pattern-cylinder for operating them, the up-

rights controlled by the needles, means for
raising the uprights, the pattern-cylinder, the
feelers resting on the pattern and adapted to
fall by their weight when not influenced by
5 the raised parts of said pattern, and the con-
nections between the feelers and the needles,
the guide 28 through which the connections
extend, means for operating the guide, the
branders 25 through which the feelers extend

and means for operating the brander 25, sub- 10
stantially as described.

In witness whereof I have hereunto set my
hand in presence of two witnesses.

ROBERT HEGGIE, JR.

Witnesses:

GEO. C. DOUGLAS,
JESSIE C. SHEPHERD.