

No. 609,190.

Patented Aug. 16, 1898.

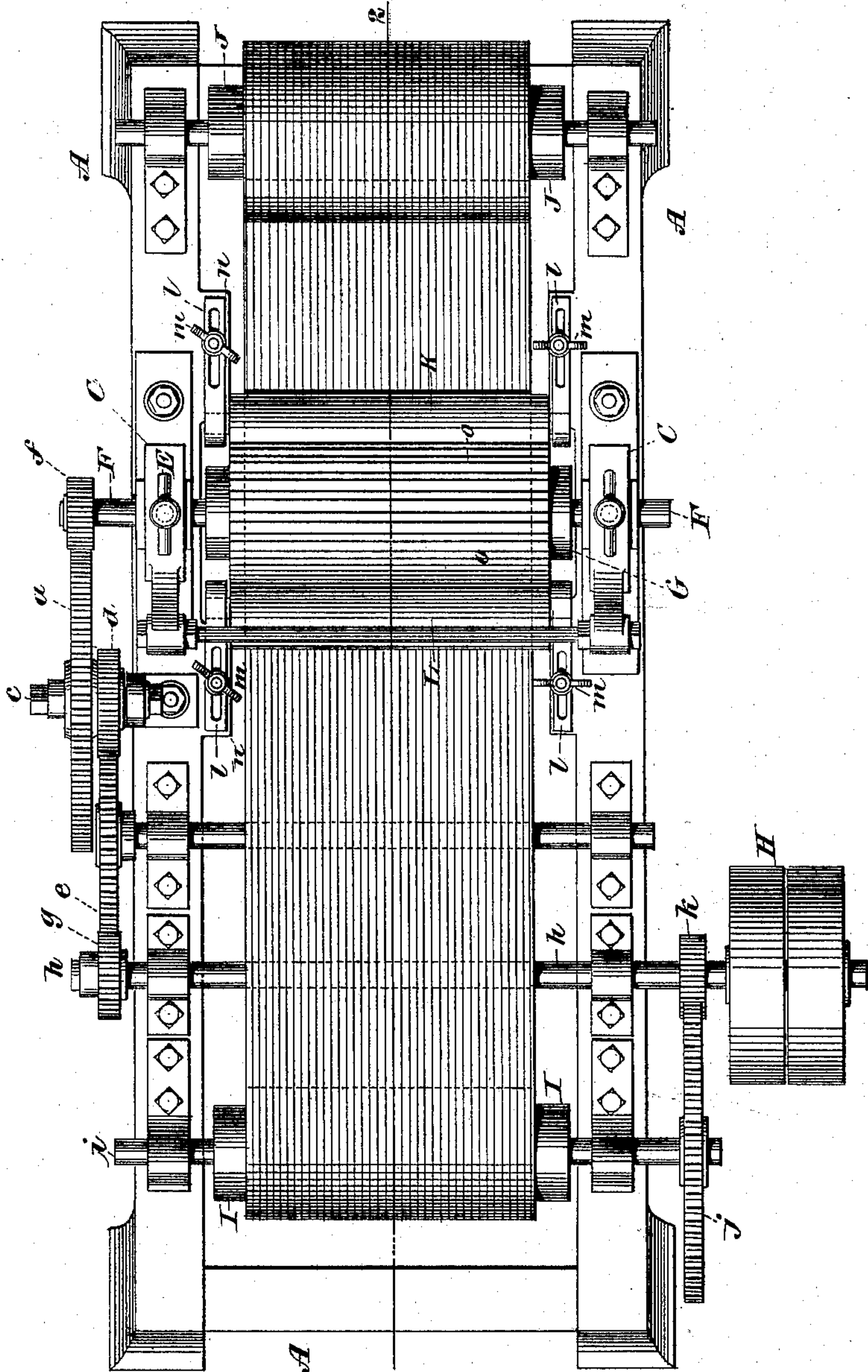
J. LANCASTER & C. WITTECK.
CLOTH ORNAMMENTING APPARATUS.

(Application filed Nov. 17, 1896.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



WITNESSES

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Fig. 2.

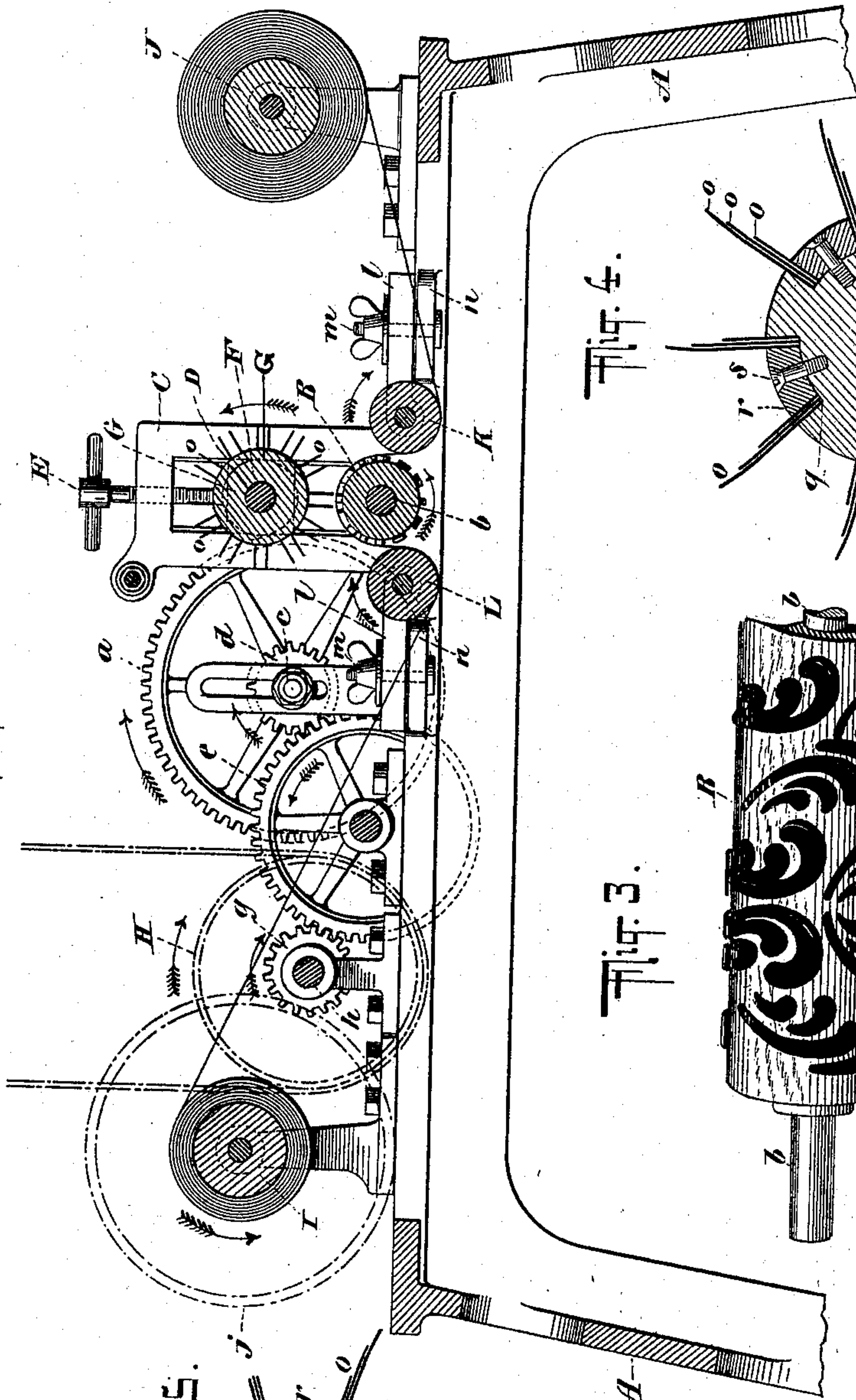


Fig. 4.

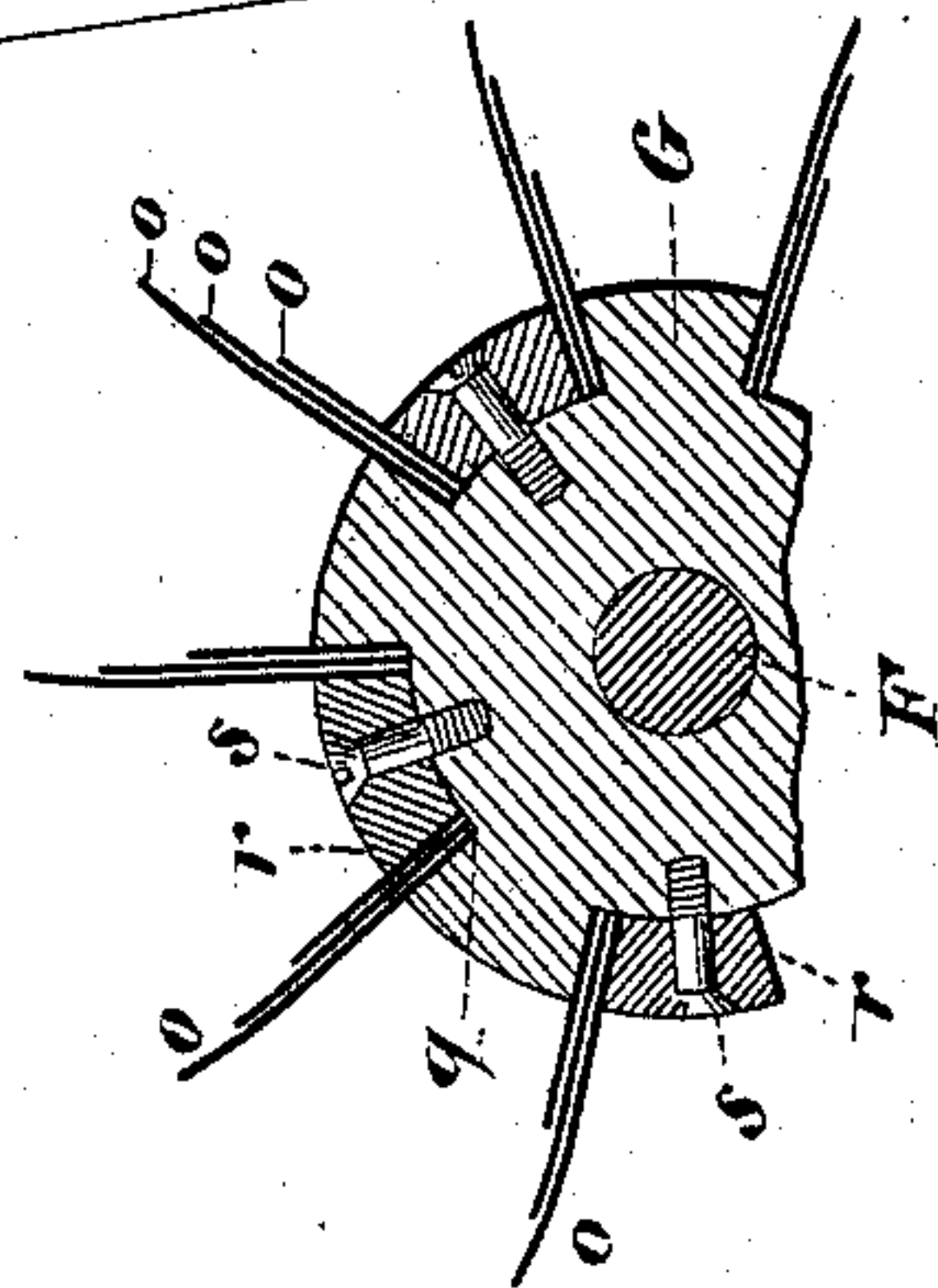


Fig. 3.

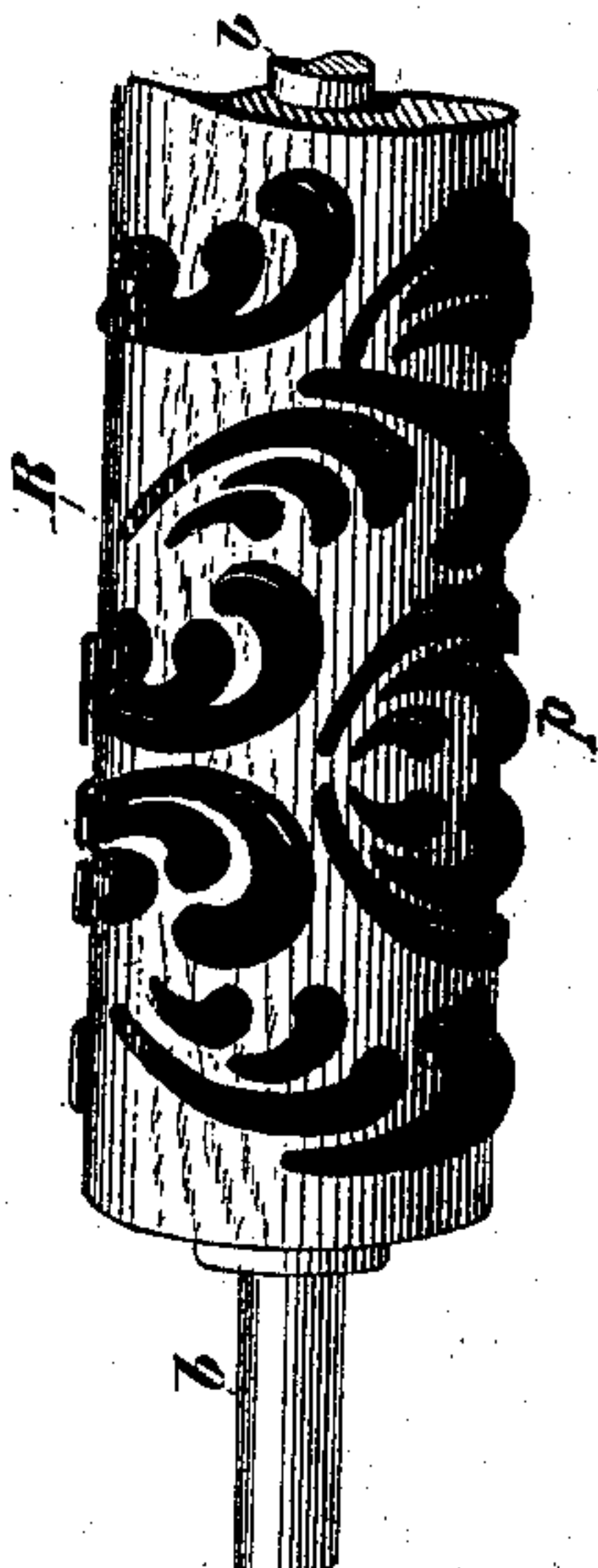
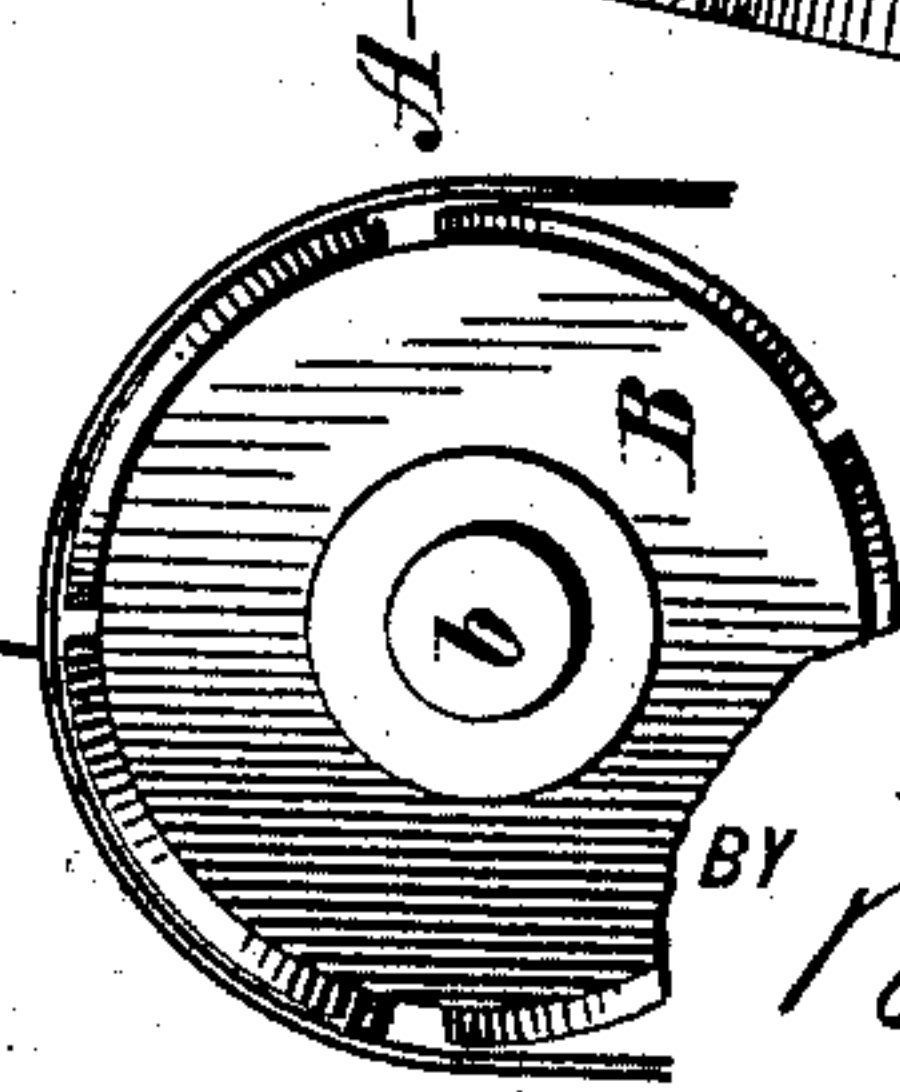
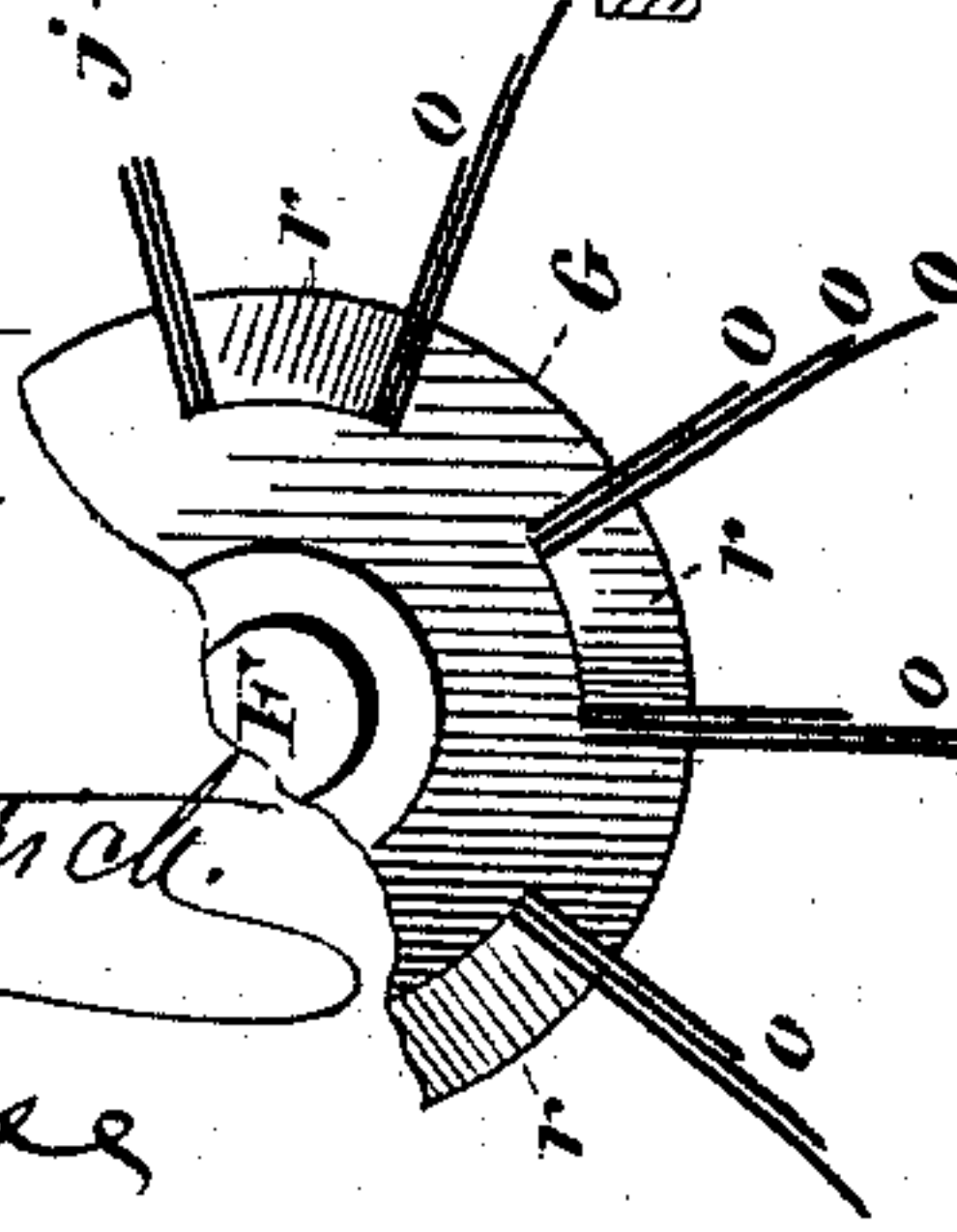


Fig. 5.



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Fig. 6.

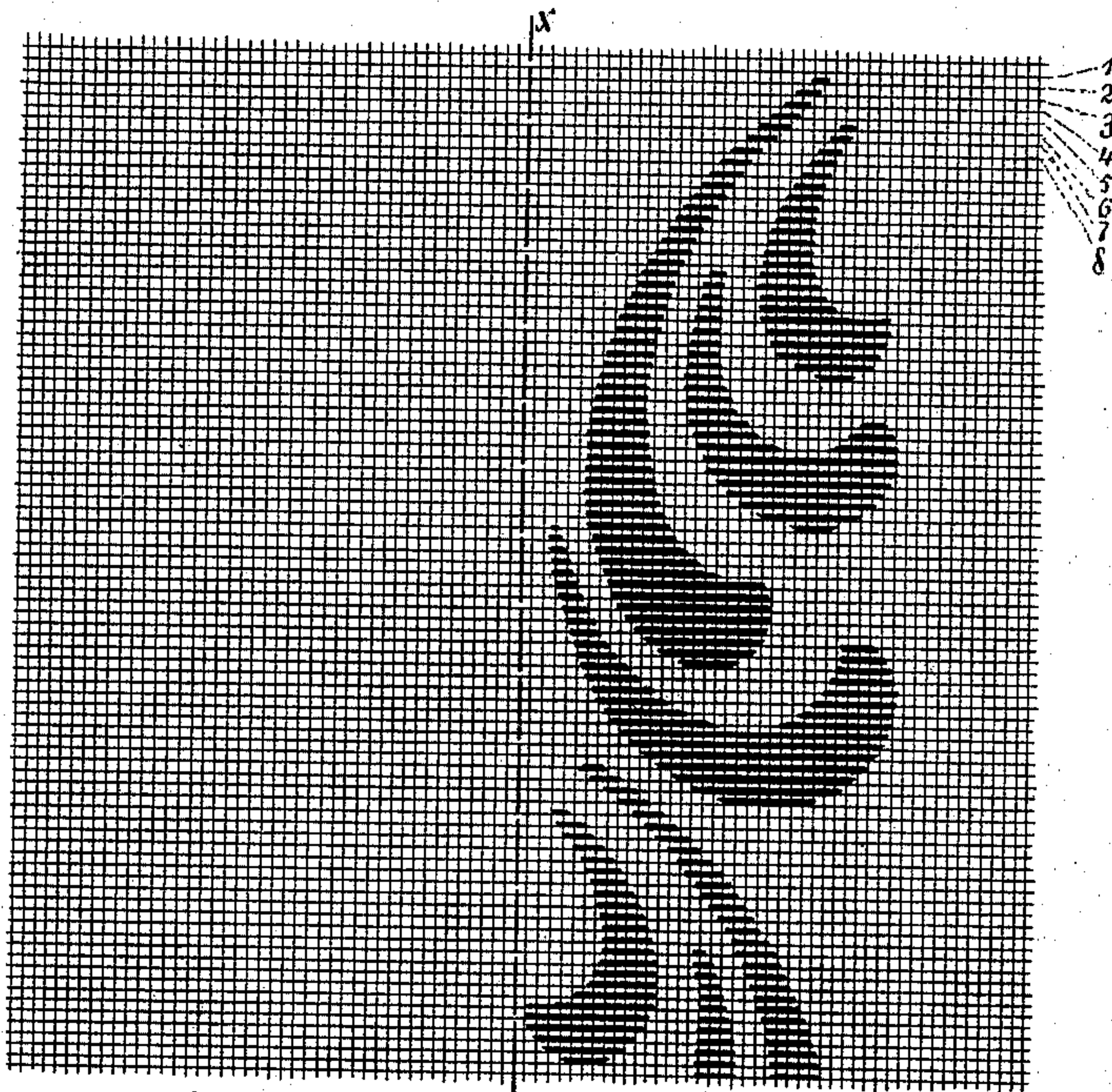
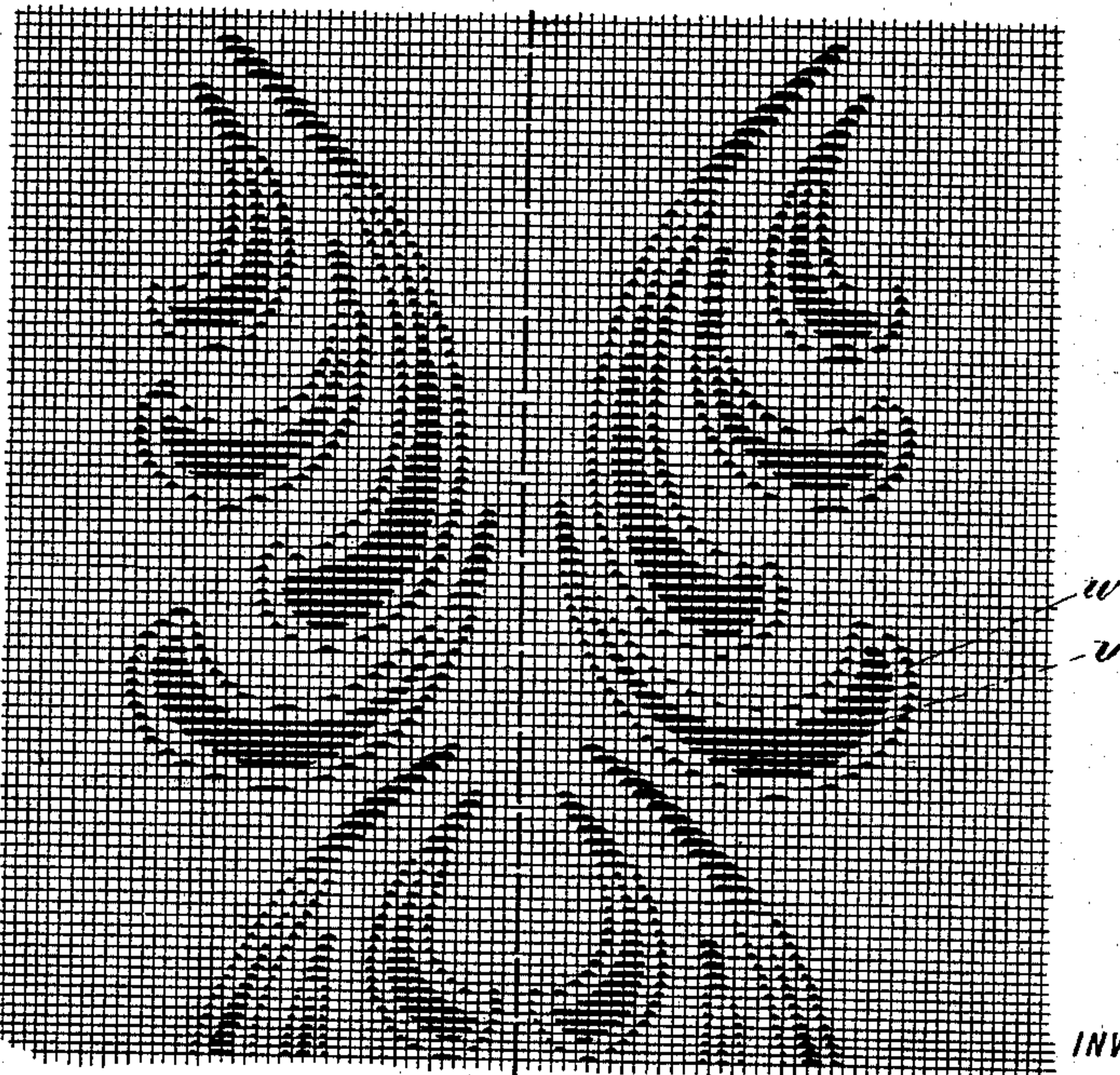


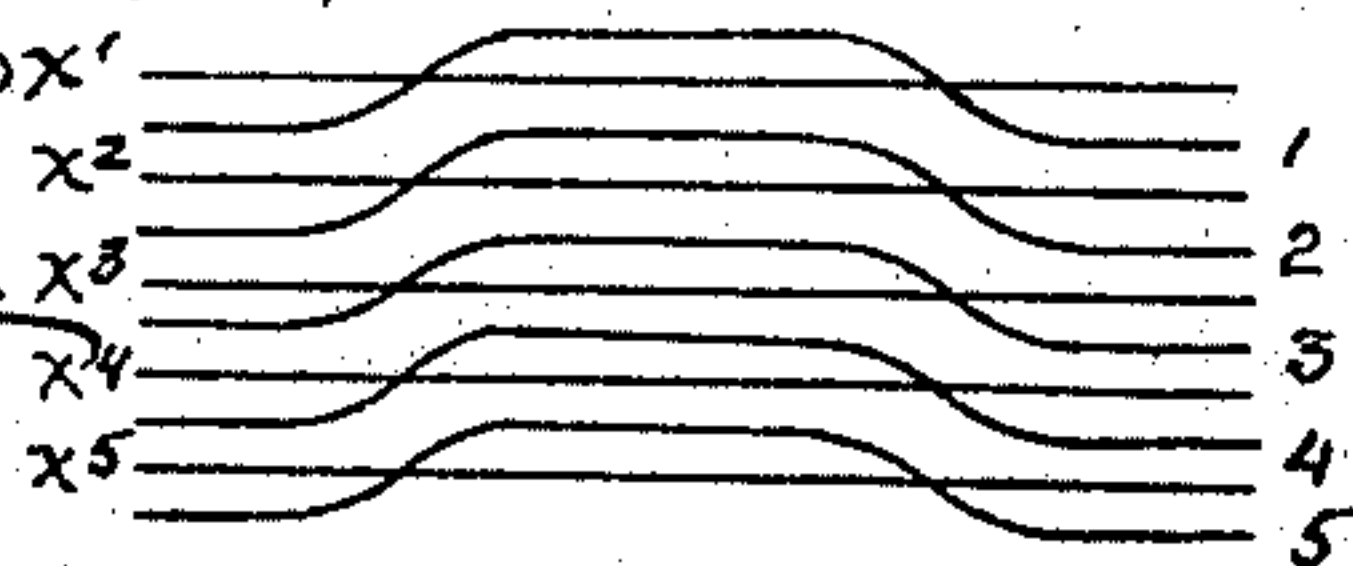
Fig. 7.



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Fig. 8.



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UNITED STATES PATENT OFFICE.

JOHN LANCASTER AND CHARLES WITTECK, OF NEW YORK, N. Y.

CLOTH-ORNAMENTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 609,190, dated August 16, 1898.

Application filed November 17, 1896. Serial No. 612,505. (No model.)

To all whom it may concern:

Be it known that we, JOHN LANCASTER and CHARLES WITTECK, both residents of the city, county, and State of New York, have invented certain new and useful Improvements in Apparatus for Ornamenting or Decorating Fabrics, of which the following is a specification.

Our invention has especially reference to ornamenting fabrics, more particularly gro-
10 grain fabrics, and has for its object to produce a new and useful machine for ornamenting fabrics.

Our invention will be understood by referring to the accompanying drawings, in
15 which—

Figure 1 is a plan view of a machine for operating on the fabric. Fig. 2 is a section thereof on line 2 2 of Fig. 1. Fig. 3 is a broken-away enlarged detail view of a pattern of the
20 machine. Fig. 4 is a broken-away sectional detail view, on an enlarged scale, of the thread displacing or distorting roller. Fig. 5 is a broken-away sectional view of the distorting or displacing roller and the pattern-roller in
25 operative relation. Fig. 6 is a diagrammatic face view of the fabric as it comes from the machine, and Fig. 7 is a diagrammatic face view of the fabric after it has been pressed. Fig. 8 is a detail view, on an enlarged scale,
30 showing the crossing of the threads, as hereinafter described.

In the drawings, A indicates the bed or body of the fabric-manipulating machine, which said body is provided with a pattern, such as
35 the roller B, which may be carried upon the shaft *b*, mounted in bearings in the body A. Adjacent to the shaft *b* is a frame or bracket C, in which slide movable bearings D, which may be raised or lowered by adjusting screws
40 E. These bearings carry a shaft F, upon which is mounted a warp-thread-displacing roller G. This roller G is adapted to cooperate with the pattern-roller to displace the warp-threads of a fabric in the plane of the
45 said fabric. The shaft F of the displacing-roller is provided with a gear *f*, which meshes with a large gear *a*, carried upon a shaft *c*, which shaft also carries a gear *d*, which meshes with a gear *e*, which in turn meshes with a
50 gear *g*, carried upon the shaft *h*, which shaft

carries a pulley H, which is driven from a suitable source, power and motion being transmitted through the train of gearing to the thread-displacing roller G. The machine-body is also provided with a take-up beam I,
55 whose shaft *i* is provided with a gear-wheel *j*, which meshes with a gear-wheel *k* on the driven shaft *h*, so that motion may be transmitted to the said take-up beam from the driven shaft. At the end of the machine
60 opposite to the take-up beam I we provide a cloth-beam J, which is shown as having a bolt of doubled cloth wound upon it, which cloth passes from the cloth-beam J to the cloth-beam I under a roller K, which is free to be
65 propelled by the cloth, over the pattern-roller B, which is also propelled by the cloth, and under another roller L, mounted in the frame and rotated by the cloth, and thence to the take-up beam I.

The rollers K and L are shown as provided
70 with devices for adjusting them toward and from the pattern-roller B, the said adjusting devices being in the present case slotted plates *l* and adjusting-screw and wing-nut
75 devices *m*, which screws pass through a lug *n* on the body.

The pattern-roller is shown in detail in Fig. 3 and is exhibited as provided with a raised rubber pattern *p* on the periphery thereof.
80 Its cooperating thread-displacing roller is shown as provided with thin suitably-set springy blades *o*, which may be slightly curved, as shown, and which are exhibited in Fig. 4 as seated in grooves *q* in the pe-
85 riphery of the roller G and held in place therein by tongues *r*, seated in the said grooves and secured by screws *s*. These blades may be suitably arranged with respect to the axis of the roller-shaft.
90

The operation of the machine shown in Figs. 1 to 4 is as follows: The adjusting-screws E are adjusted to bring the blades *o* into contact with cloth passing over the pattern-roller B, as shown in Fig. 5. The fab-
95 ric, which comes in a continuous roll or bolt, is folded along its median line *x y* and the edges brought together and preferably secured by tacks. In this condition the cloth is wound upon the cloth-beam J and the cloth-
100

beam mounted in place. The doubled fabric is then led, as shown, under the roller K, over the pattern-roller B, (see Fig. 5,) under the roller L, and thence passes to the take-up beam I, power being applied to the shaft *h*, so that the take-up beam I will proceed to wind the cloth upon itself, drawing it over the course indicated from the cloth-beam J. The take-up beam, as will be seen, constitutes a cloth-propelling means. As the cloth passes over the pattern-roller it propels the said roller, and the weft-thread-displacing roller, being driven at a much greater speed than the speed of the cloth, has the effect of irregularly displacing the weft-threads 1 2 3 4 5 6 7, &c., of the thickness of the cloth which lies uppermost on the roller, the weft-threads of the lower thickness of cloth being undisturbed. These weft-threads are not displaced throughout their entire length, but only at the portions thereof which are over the design of the pattern, so that one-half of the cloth receives by means of such displacement a distinct trace of the pattern. This is clearly shown in Fig. 6, wherein in the left side of the cloth the weft-threads run in an undisturbed course, whereas in the right-hand side of the cloth in this figure the weft-threads are shown as displaced or undulated sidewise out of their true alinement, thereby giving the appearance of a figure.

When the cloth has all been wound upon the take-up beam I, it is reeled from said beam to and through a pressing or calendering machine, and thereby the design on one thickness of the cloth is transferred also to the other thickness of the cloth, the displaced threads of the patterned side crossing the straight threads of the unpatterned side and serving as a die to impress the image of the pattern upon the unpatterned side, so that one side of the fabric is a counterpart of the other, but with this difference, that while the displaced weft-threads on the patterned side of the fabric remain displaced the weft-threads on the opposite side of the fabric remain in their original straight condition, and whenever a displaced weft-thread of one portion of the doubled fabric crosses a straight thread of the other portion of the doubled fabric the straight thread is thereby indented, so that the resulting figures will present a solid portion, as *v*, surrounded by a line *w*. This effect is such as is shown in Fig. 7, wherein the fabric lying to the right of the median line is the portion of the fabric having the displaced weft-threads and the portion of the fabric lying to the left of the median line *x y* in Fig. 7 has its weft-threads straight. This operation is clearly indicated in Fig. 8, wherein the threads 1, 2, 3, 4, and 5 are the displaced weft-threads of the right-hand side of the pattern in Fig. 6 and the threads *x'*, *x*², *x*³, *x*⁴, and *x*⁵ are the straight threads on the left-hand side of the pattern. This figure

shows the threads as much exaggerated; but it will be obvious that when the threads in the fabric are thus displaced the bent or displaced threads will impress their form upon the left side of the fabric when pressed, so as to produce the effect shown in Fig. 7.

It will be obvious that the pattern-roller and weft-thread-displacing roller may be varied in form and construction and that they may be rotated in opposite directions.

What we claim, and desire to secure by Letters Patent, is—

1. In a machine for ornamenting a completed strip of fabric, the combination of a traveling pattern, driving mechanism therefor, cloth-propelling means for bringing the fabric up to the pattern, and means for displacing the weft-threads of the fabric laterally in the plane of the fabric, the said displacing means coöperating with the pattern to reproduce the pattern on the fabric, substantially as described.

2. In a cloth-ornamenting machine, the combination of a pattern-roller and a weft-thread-displacing roller coöperating with the pattern-roller and means for driving the weft-thread-displacing roller at a higher rate of speed than the pattern-roller.

3. In a cloth-ornamenting machine, the combination of a pattern-roller having a yielding pattern thereon and a weft-thread-displacing roller, substantially as described.

4. In a cloth-ornamenting machine, the combination of a traveling pattern and a weft-thread-displacing device provided with blades coöperating with the pattern, substantially as described.

5. In a cloth-ornamenting machine, the combination of a pattern-roller and a weft-thread-displacing roller and means for adjusting the weft-thread-displacing roller to and from the pattern-roller.

6. In a cloth-ornamenting machine, the combination of a pattern-roller provided with a yielding pattern, a weft-thread-displacing roller provided with springy blades and means for rotating the weft-thread-displacing roller at a greater speed than the pattern-roller.

7. In a cloth-ornamenting machine, the combination of a pattern-roller, a weft-thread-displacing roller, a cloth-beam and a cloth-take-up beam, substantially as described.

8. In a machine of the character described, the combination with means for feeding a cloth and a weft-thread-displacing roller, of a pattern-roller provided with a raised pattern thereon, substantially as described.

9. In a cloth-ornamenting machine, the combination with cloth-propelling mechanism and a pattern-roller, of a weft-thread-displacing roller comprising in its structure one or more gangs consisting of superposed springy blades adapted to mutually support each other.

10. In a cloth-ornamenting machine, the

combination of a rotating roller with means
for driving the same, cloth-propelling means,
and means for irregularly displacing the weft-
threads of a fabric laterally in the plane of
5 the fabric, reaching contact with the fabric
as it passes over the rotating roller and co-
operating with the said roller to produce the
effect set forth whereby the irregular dis-

placement of the weft-threads of the fabric
will produce a pattern on the fabric.

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Witnesses:

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