

(No Model.)

3 Sheets—Sheet 1.

L. VEYRON.
LAPPET LOOM.

No. 566,551.

Patented Aug. 25, 1896.

Fig. 1.

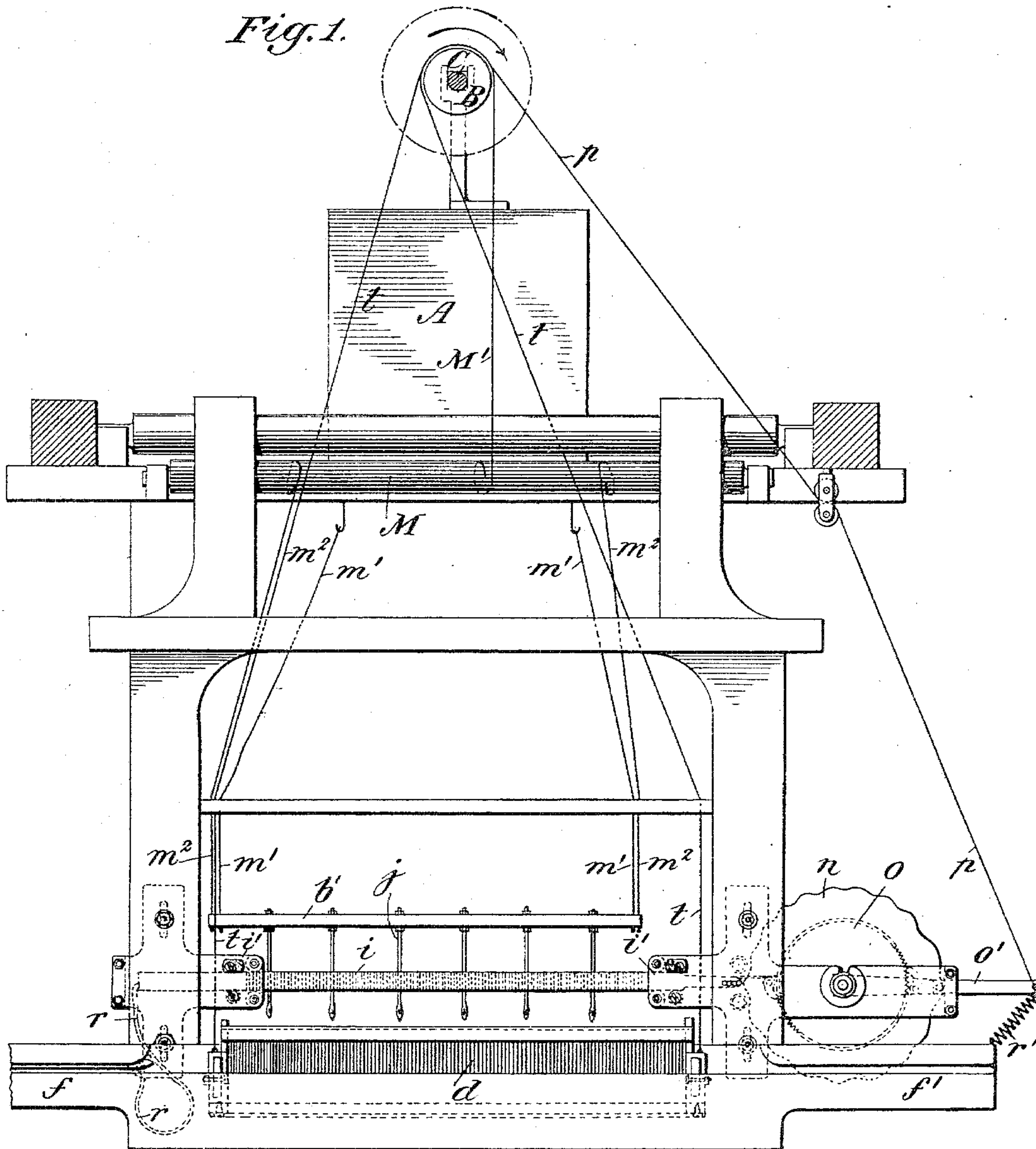
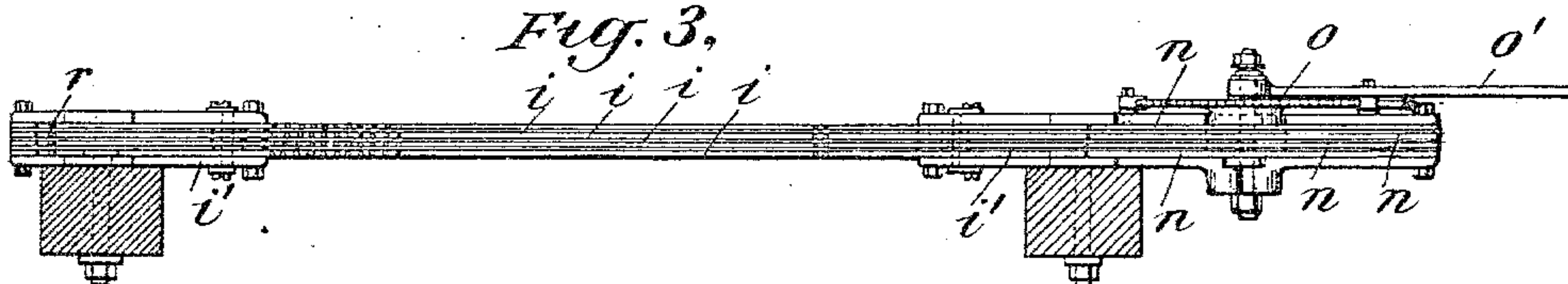


Fig. 3.



Witnesses:

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Inventor.

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By his attorneys
Horvath and Horvath

(No Model.)

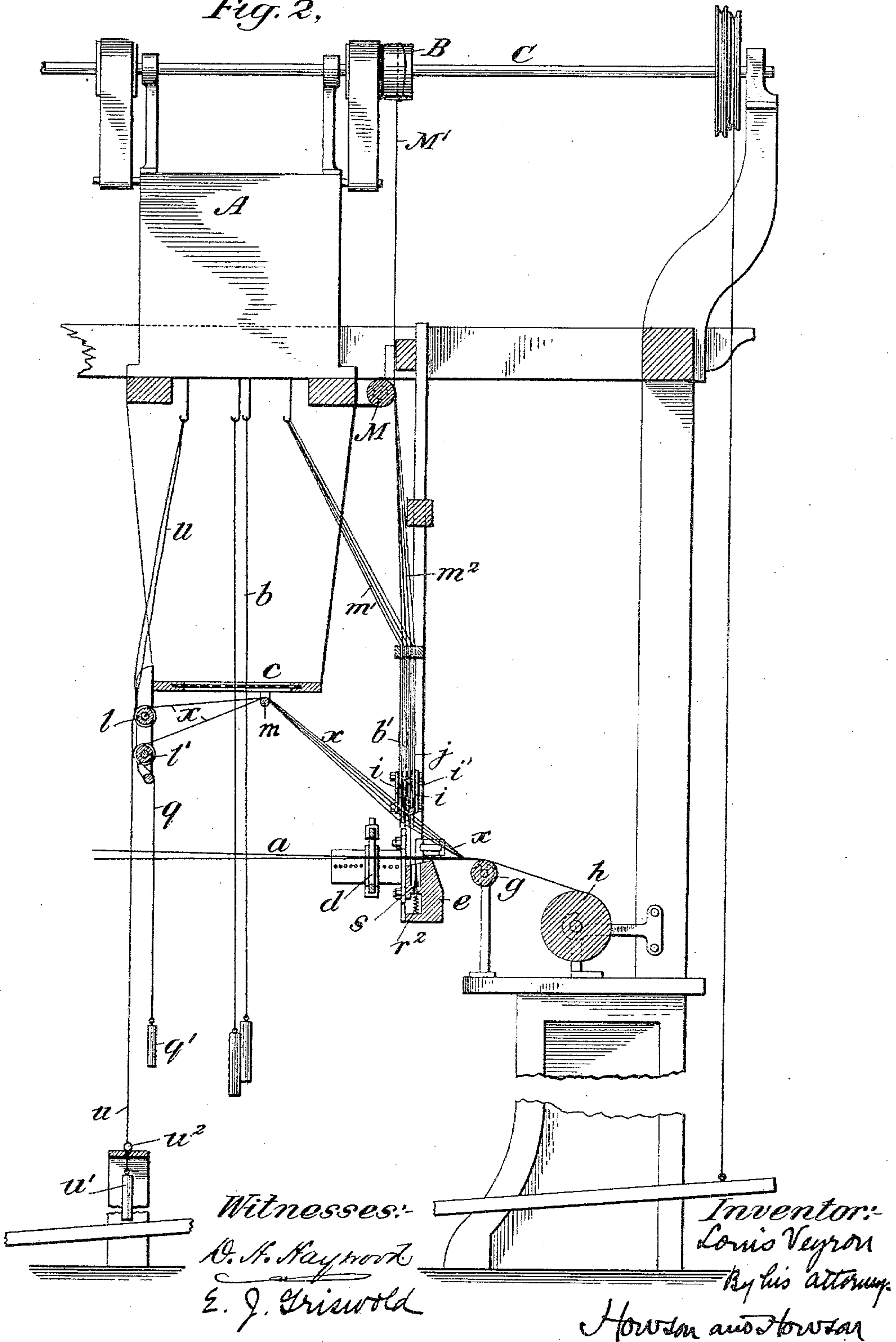
3 Sheets—Sheet 2.

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Fig. 2,



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3 Sheets—Sheet 3.

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Fig. 4,

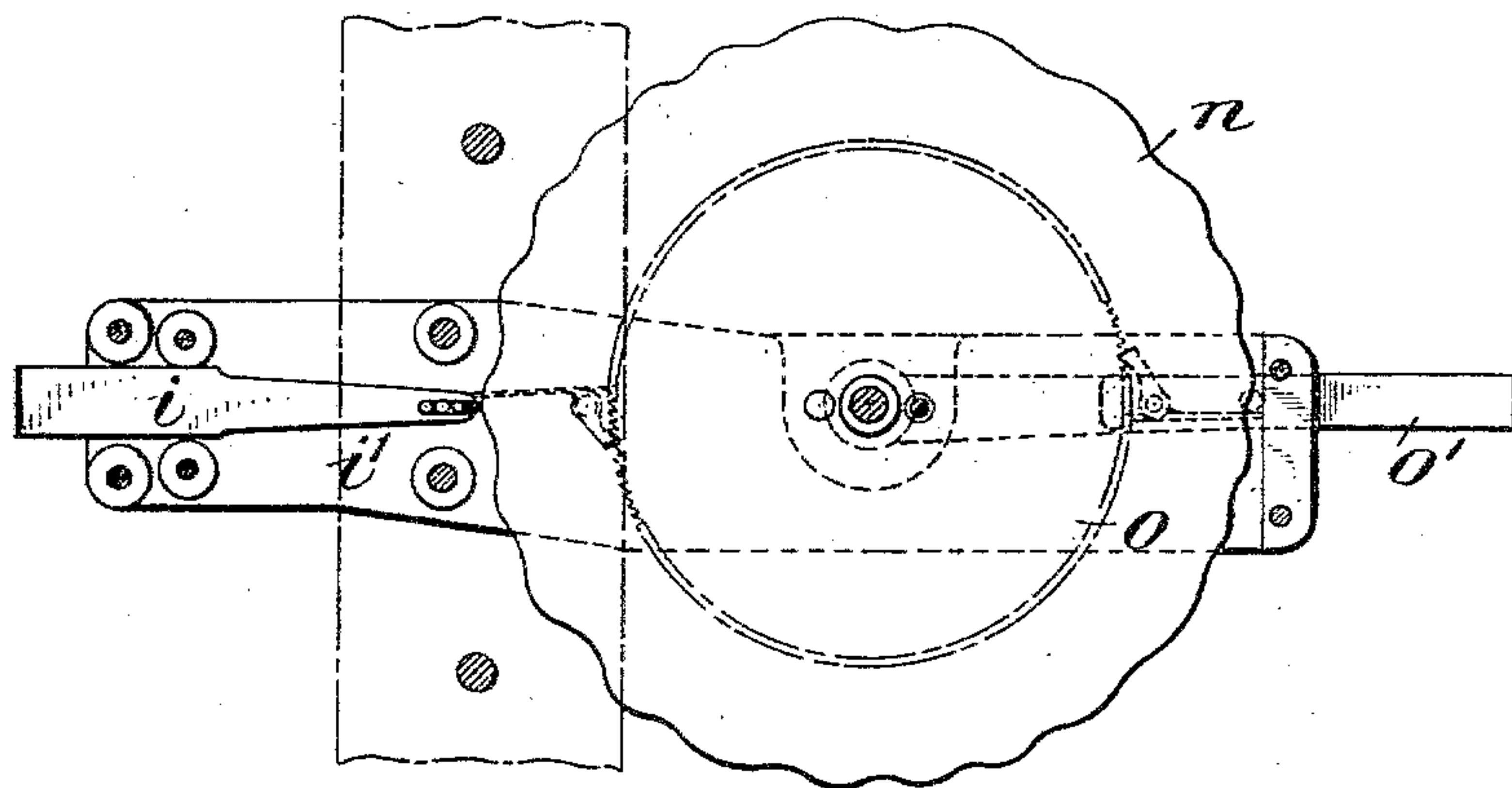


Fig. 5.

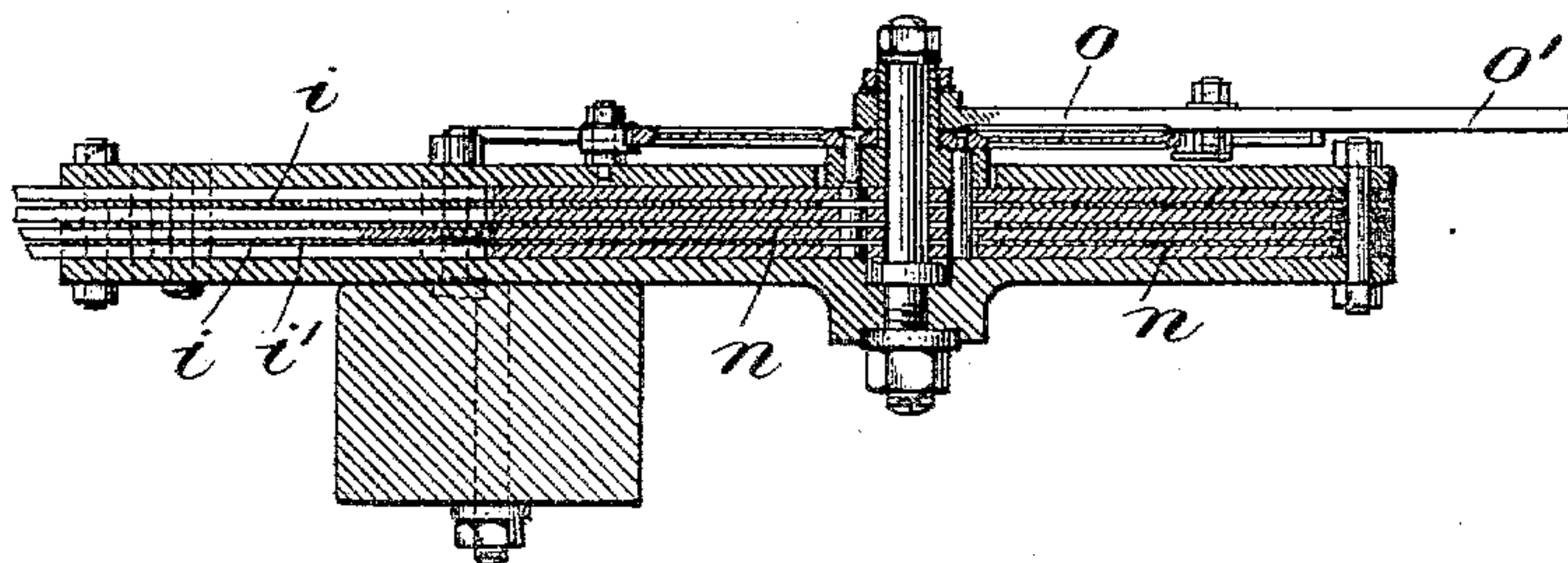
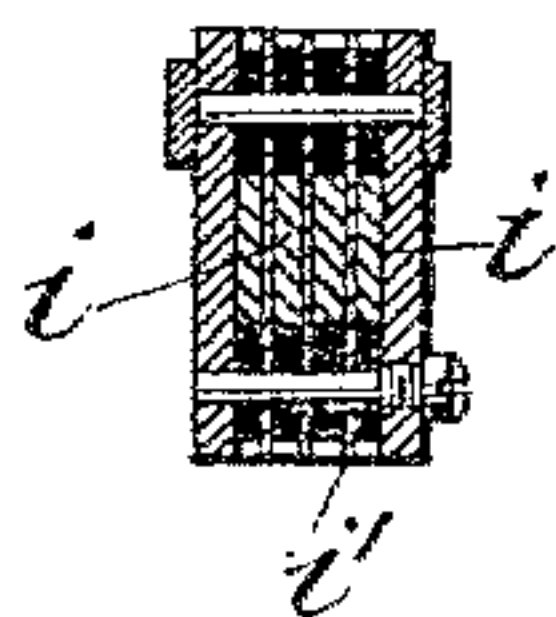


Fig. 6.

Witnesses:-

B. H. Hayworth

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Inventor:-

Louis Veyron
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UNITED STATES PATENT OFFICE.

LOUIS VEYRON, OF PARIS, FRANCE, ASSIGNOR TO LOUIS VEYRON & CO.,
OF SAME PLACE.

LAPPET-LOOM.

SPECIFICATION forming part of Letters Patent No. 566,551, dated August 25, 1896.

Application filed August 22, 1895. Serial No. 560,711. (No model.) Patented in France January 19, 1895, No. 244,458; in Belgium July 13, 1895, No. 116,517; in England July 15, 1895, No. 13,582; in Switzerland July 22, 1895, No. 10,579; in Spain September 19, 1895, No. 17,739; in Italy September 30, 1895, No. 39,413; in Austria October 11, 1895, No. 45/3,771, and in Hungary December 24, 1895, No. 4,970.

To all whom it may concern:

Be it known that I, LOUIS VEYRON, a citizen of the Republic of France, residing in Paris, France, have invented certain Improvements in Lappet-Looms, (for which I have obtained a patent in France January 19, 1895, No. 244,458; in Great Britain July 15, 1895, No. 13,582; in Austria October 11, 1895, No. 45/3,771; in Hungary December 24, 1895, No. 4,970; in Spain September 19, 1895, No. 17,739; in Belgium July 13, 1895, No. 116,517; in Italy September 30, 1895, No. 39,413, and in Switzerland July 22, 1895, No. 10,579,) of which the following is a specification.

This invention relates to improvements in looms; and it consists in adding certain mechanisms thereto, so as to enable plain weaving and embroidering to be effected simultaneously, so that figuring or embroidering and the foundation or ground of whatever kind, such as those produced by plain Jacquard or gauze weaving, may be produced at the same time and by means of the same loom, no matter what may be the design of the embroidery or the like, and without the need of special cards or supplementary shoots of the woof or weft.

In order to better understand the mechanism both in construction and operation, I will refer in the following detailed description to the accompanying drawings, which illustrate the said mechanism applied to a loom weaving with Jacquard mechanism.

Figure 1 is a front view of a loom provided with my special mechanism. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a horizontal section taken at the level of the lay or batten. Figs. 4, 5, and 6 show detail views of one of the ends of my improved mechanism.

The warp-threads *a* unwind from the warp-beam.

b are the heddles or leashes operated by the Jacquard mechanism *A*, situated at the upper part of the loom.

c is the comber-board for the heddles *b*.

d is the comb, through which pass the

warp-threads *a*, the lower part being fixed to the back of the lay or batten *e*.

f and *f'* are the shuttle-boxes fixed to the ends of the batten *e*, and *g* is the roller over which the fabric passes before being wound on the front cloth-beam *h*, operated by the regulator in the formation of the fabric.

All the aforesaid parts, which are of the ordinary construction, are supported on a suitable frame, while the operation of the Jacquard mechanism, the batten, and the shuttles is obtained in any well-known manner.

I will now describe in detail the mechanism which forms the subject of the present invention. This mechanism comprises, essentially, a series of thin metal or wooden blades or plates *i*, situated at the upper part of the apparatus in front of the comb or reed *d* and sliding in guides *i'*, which keep them apart and which are fixed to the arms of the batten of the loom. These plates can be displaced horizontally by means of cams, hereinafter described, or by any other equivalent means, the amount of movement being capable of variation at each moment. Holes are formed in the said plates for the passage of needles *j*, (varying in number according to the design of the embroidery or pattern to be produced,) their points turning downwardly toward the warp and each being pierced with a hole or eye, through which passes the pattern or embroidery thread *x*, fed from one of the rollers *l* and passing over the guide-roller *m*. The number of these rollers carrying the pattern or embroidery thread corresponds with that of the needle-blades. All the needles for the same blade are fixed to a corresponding bar *b'*, there being as many bars *b'* as there are blades, and each bar being suspended at each of its ends to two cords *m'* *m''*, one being used for lowering and the other for raising. The lowering-cords *m'* are each connected to a hook of the Jacquard mechanism, while the raising-cords *m''* are wound on a roller *M*, connected by a reversely-wound cord *M'*, wound on a drum *B*, which is keyed on the driving-shaft *C* of the Jacquard mech-

anism A. The winding or rolling up of the cord M' and of the cords m^2 is such that when the Jacquard mechanism is in operation the said cords m^2 are unwound, setting free all the needles and permitting those of the cords m' under the influence of the Jacquard mechanism to liberate their corresponding needles, which then pass through the warp, together with the embroidery or pattern threads which they carry. The horizontal displacement of the blades i , and consequently of the needles j , can be caused to take place at the proper time and in the right direction by means of cams n of a configuration suitable to the design to be produced and which are arranged at one of the ends of the said blades, operating on them endwise through the intervention of a roller or the like. Springs r of any suitable kind insure constant contact between the blades and their corresponding cams. The cams n , which correspond in number to the blades, are keyed on a shaft provided with a suitable pawl and ratchet-wheel o , the lever o' , carrying the pawl, being connected by a cord p or in any other suitable manner to the drum B or any other like part fixed on the said shaft C, operating the Jacquard mechanism. This last-mentioned cord p is kept constantly in tension by a spring r' . The shaft carrying the cams and pawl and ratchet-wheel constituting the regulating device is supported on one of the arms of a batten and moves with it. It will be noticed that the parts supporting this shaft are in one with that guide i' which supports the adjacent ends of the blades i . It will also be noticed that the guide-pieces i' for the said blades can be adjusted vertically on the arms of the batten. The rollers l and l' , carrying the pattern or embroidery threads, are subjected to a suitable tension, which can be slackened when the needles carrying the threads pass through the warp. This tension may be provided for each roller by means of a cord q with a counterweight q' or in other manner, and the loosening or slackening of this tension may be obtained for each roller by means of a cord u , connected to the Jacquard mechanism and operated thereby, winding up on the said roller and provided with a counterweight u' and a stop u^2 for stopping its downward movement.

When the Jacquard mechanism does not affect the cords u , the rollers l l' are subjected to the tension of the cords q and the embroidery or pattern threads x are placed in tension; but when the Jacquard mechanism operates the cords u the latter break the tension of the cords q , causing the cylinder to turn and the desired amount of thread to be delivered or fed out.

The pattern-threads are so fed just when the needles pass into the warp, and this is obtained by the cards of the Jacquard mechanism, which, in addition to the ordinary perforations for the formation of the foundation

of the fabric, have perforations for the operation of the needles and the slackening or releasing of the thread.

In addition to the embroidering or pattern mechanism already described the batten e may carry an auxiliary comb or reed s in front of the plane of the needles j for protecting the latter, whose teeth when engaged in the warp serve as guides for the shuttle carrying the weft-thread, which passes transversely from one side box to the other. This auxiliary comb s is controlled by springs r^2 which tend to withdraw it from the weft, so as to permit of the pattern or embroidery threads being carried by their needles in one direction or the other. The said auxiliary comb or reed is suspended by cords t , attached to the aforesaid drum B of the shaft C, driving the Jacquard mechanism, which by winding them up raises or lifts said auxiliary comb or reed s a little in front or before the throw of the shuttle, or the said auxiliary comb or reed may be raised by any other suitable means.

The apparatus is operated in the following manner: The Jacquard mechanism is set in motion by any of the ordinary means, for instance by applying pressure to a pedal, and operates on the warp-threads in the ordinary manner, so as to produce the foundation or back of the fabric. The embroidery or pattern needles j , being set free by the said mechanism, pass by their own weight through the warp, taking their threads with them, the tension of the latter being slackened, so as to allow the necessary amount to be taken. The auxiliary comb or reed s then passes through the said warp and the shuttle is thrown across by the hand or any other suitable means through the path thus opened for its thread, which thus engages at the back of the fabric all the pattern or embroidery threads of the needles which have passed therethrough. When the pedal is released, the Jacquard mechanism stops working and the drum B, by means of the cords M' and m^2 , raises the needles which have passed through the fabric and operates the regulating pawl and ratchet-wheel operating the cams n , which, by the projections or depressions on their faces, cause or allow the blades i to move laterally, so as to bring the pattern or embroidery needles into the fresh position which they must occupy above the warp. These movements are repeated for every depression of the pedal. When the cams have completed one revolution, the subject of the pattern is finished and is then started again. The form and arrangement of the cam-surfaces will depend both on the subject of the design and the length which it is desired to occupy on the fabric. Thus the weaving or the groundwork of the fabric and of the patterns or embroidery thereon is accomplished simultaneously, that is to say, at the same time and without increase on the time occupied in ordinary weaving. The patterns or

embroideries are formed in one with the fabric proper, and their threads are perfectly united therewith, and whatever be the size of the patterns to be used a good result can always be obtained.

The dimensions and forms of the various parts of the mechanism hereinbefore described may vary according to the nature of the loom to which they are applied, and the invention is not limited to the exact number of the blades or of the needles which they carry and the number of rollers carrying the pattern or embroidery threads.

I claim as my invention—

1. In a loom for weaving, the combination of the batten with a series of bars carrying needles, a corresponding series of horizontal blades through which the needles pass, pattern mechanism for raising and lowering the needles in the said blades, and pattern-cams to act on the several blades to move them

horizontally, all substantially as and for the purpose described.

2. In a loom for weaving, the combination of the batten and ordinary comb with a series of bars carrying needles, a corresponding series of horizontal blades through which the needles pass, pattern mechanism for raising and lowering the needles in said blades, pattern-cams to act on the several blades to move them horizontally and an auxiliary comb or reed s, and means whereby it is caused to engage in the warps when the shuttle is thrown, substantially as described.

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

LOUIS VEYRON.

Witnesses:

LÉON FRANCKEN,
EDWARD P. MACLEAN.