

No. 624,323.

Patented May 2, 1899.

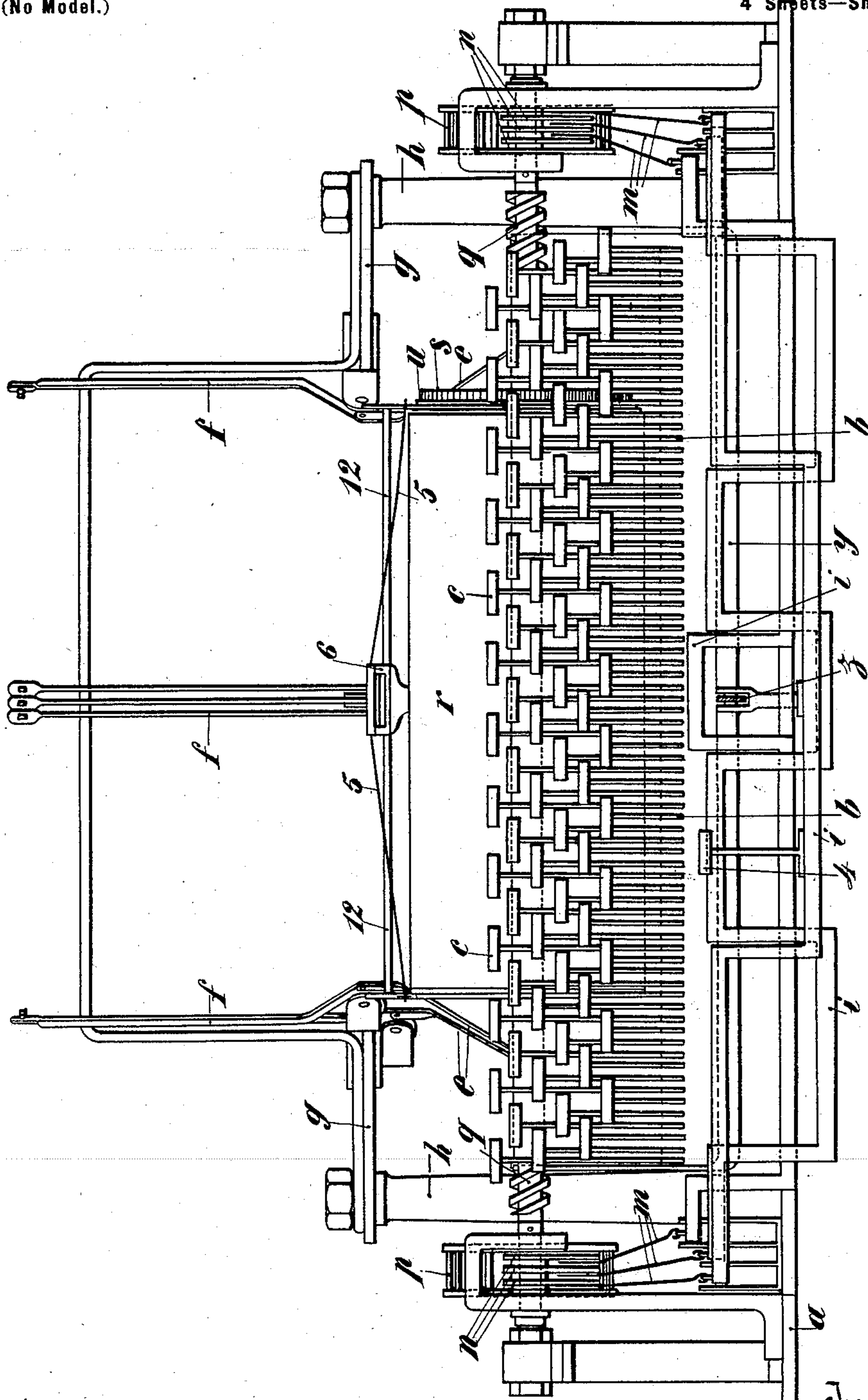
H. L. GAVEAU.  
TYPE WRITING MACHINE.

(Application filed Dec. 29, 1897.)

(No Model.)

4 Sheets—Sheet 1.

FIG. 1.



Witnesses  
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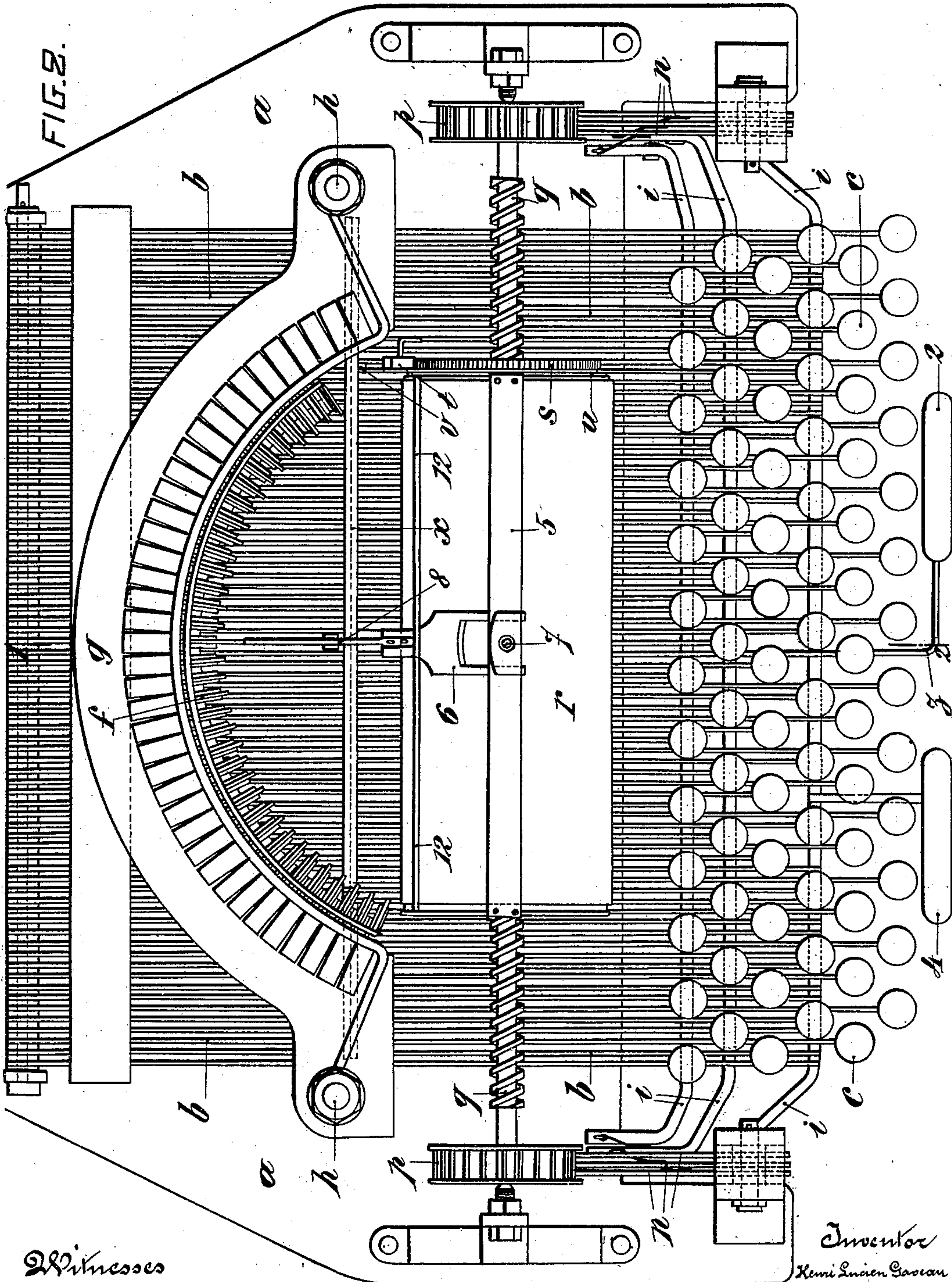
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4 Sheets—Sheet 2.



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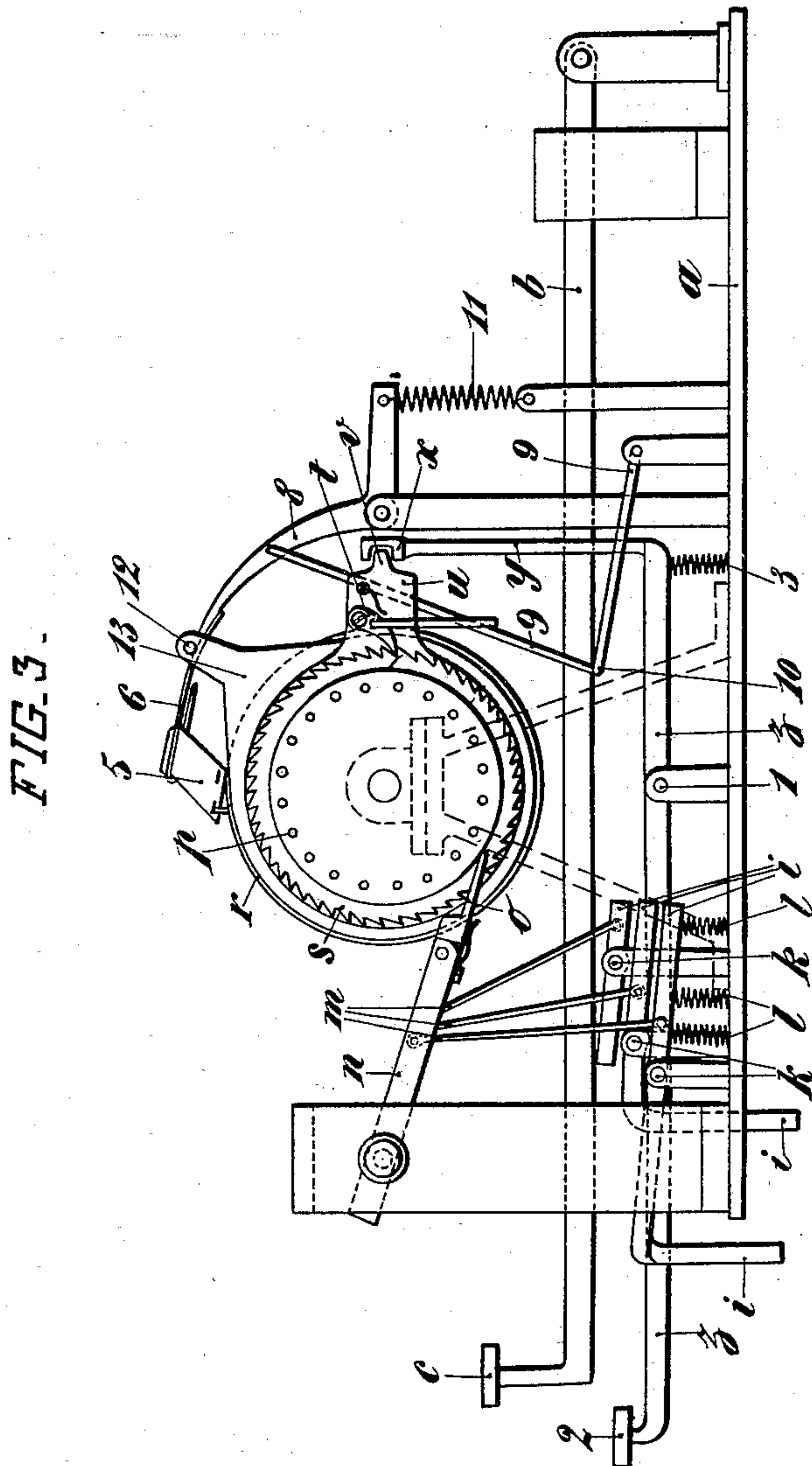
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(No Model.)

4 Sheets—Sheet 3.



2 Witnesses  
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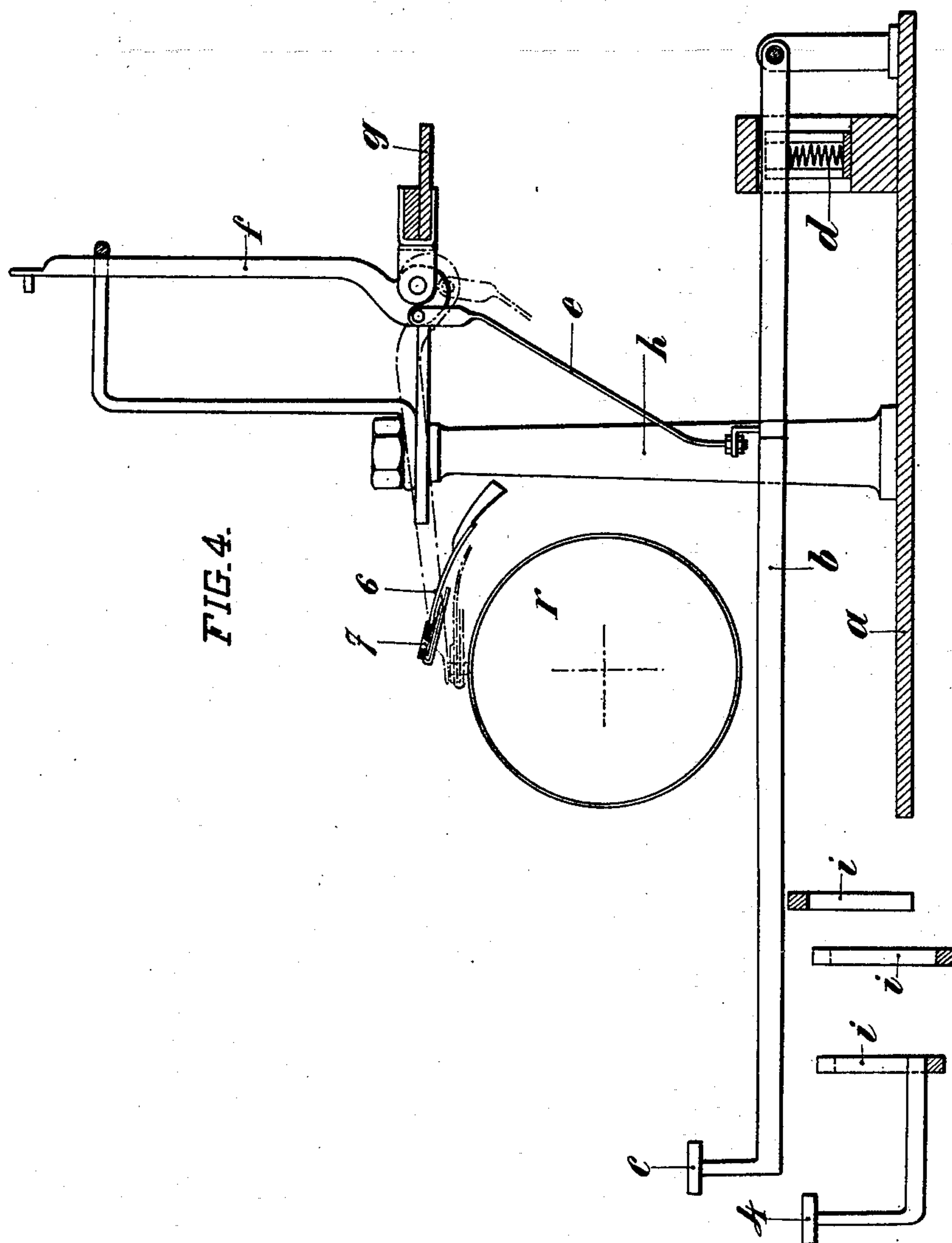
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4 Sheets—Sheet 4.



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# UNITED STATES PATENT OFFICE.

HENRI LUCIEN GAVEAU, OF PARIS, FRANCE.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 624,323, dated May 2, 1899.

Application filed December 29, 1897. Serial No. 664,378. (No model.)

*To all whom it may concern:*

Be it known that I, HENRI LUCIEN GAVEAU, of the city of Paris, France, have invented Improvements in Type-Writing Machines, (for which I have obtained Letters Patent in France for fifteen years, dated March 6, 1897, No. 264,705,) of which the following is a full, clear, and exact description.

This invention relates to type-writing machines; and the improvements have particularly for their object a means whereby to equalize the spacing between the letters by making the feed of the paper proportional to the width of the character printed, the feed for capitals differing from that for the small letters and the feed for letters with one downstroke, such as "i," "l," "t," differing from that for letters with several downstrokes, such as "m," "w."

Reference is to be had to the accompanying drawings, forming part of this specification, wherein—

Figure 1 is a front elevation, Fig. 2 a plan, and Fig. 3 a side elevation, of the improved type-writing machine. Fig. 4 is a vertical section on line 1 2, Fig. 2, showing the type-lever-operating mechanism.

The same letters and numerals of reference indicate the same parts in all the figures.

*a* is the base, *b* the key-levers, and *c* the keys. The levers *b* are raised by springs *d* and are connected by links *e* to the type-levers *f*, pivoted to an arc-shaped frame *g*, supported on pillars *h*.

The mechanism comprises cranked rocking bars *i*, having return ends, which are pivoted at *k* on the base *a*, the intermediate portions of these bars, which extend beneath the key-levers, being so cranked or shaped as to be adapted to be depressed each by any one of the levers of a given set, the levers being supposed to be divided into three sets, according to the width of the type they carry, a different rocking cross-bar corresponding to each set. These cranked bars *i* are raised by springs *l* and connected by links *m* with as many corresponding levers *n*, each terminated by a pawl *o*, adapted to engage with the pins of a lantern-wheel *p*, fast on the leading screw-shaft *q*, by the revolution of which longitudinal motion is imparted to the roller *r*, carrying the paper, the springs *l*, links *m*, levers

*n*, pawls *o*, and lantern-wheels being duplicated at the two sides of the machine, the two sets of a pair acting together as one at the opposite ends of the screw-shaft.

When a key *c* is depressed, its lever *b* bears on and depresses the corresponding cranked bar *i*, which, in oscillating about its centers *k*, actuates, through links *m*, the pawl-levers *n*, whereof the pawls slip over the pins of wheels *p*. When the key rises, the cranked bar is also raised by its springs *l*, and the pawls *o* turn the wheels *p* and rotate the leading screw *q* a certain extent, thereby giving a longitudinal or letter-spacing motion to roller *r*, the extent of this motion depending on which key has been depressed, and consequently on which cranked bar *i* and pair of pawls *o* have been actuated, the different bars *i* being adapted to give different extents of motion to the lantern-wheels *p* and screw-shafts *q*. The interverbal spacing is effected by a spacing-key 4, connected to one of the cross-bars *i*. A ratchet-wheel *s* is fixed to one end of the roller *r*, and with it engages a pawl *t*, mounted on a ring *u*, loose about the screw-shaft *q* and provided with an arm and slide-block *v*, engaged in a guide-slot *x*, mounted on a fork *y*, connected to a lever *z*, pivoted at *l*, and terminated in a line-spacing key 2. When this key is depressed, the guide *x* is raised and carries up with it the pawl *t*, which slips over the teeth of the wheel *s*, and as soon as the line-spacing key 2 is released the parts are returned to their original position by a spring 3, the downward motion of guide *x* imparting, through pawl *t* and ratchet-wheel *s*, partial rotation to roller *r* for shifting the paper the distance required for inter-linear spacing.

When a key-lever is struck, the type-lever *f*, connected thereto by its link *e*, is depressed, as shown in broken lines in Fig. 4, and the type strikes the paper through an inked ribbon 5, which gives the impression. This ribbon is attached by its extremities to roller *r* and is normally held out of contact with the paper by a central type-guide 6, having a conical hole for guiding the type and insuring proper alinement and position. The guide 6 is depressed along with the type, being for this purpose mounted on an elbow-lever 8, one



member of which is connected by a link 9 with a cross-bar passing under and actuated by all of the key-levers *b*, while to the other member of the elbow-lever 8 a spring 11 is  
5 connected, the rise of the guide 6 being limited by a bar 12, mounted in arms carried by rings 13, loose about the screw *q*.

When a key-lever is struck, the corresponding type is depressed and strikes the ribbon  
10 through the guide-hole 7 of guide 6, which is also depressed, thus producing the impression on the paper. At same time the key-lever has depressed the corresponding cross-bar *i* and shifted the corresponding pawl *o*  
15 back over the pins of wheel *p*. When the key-lever rises, the type-lever *f* and guide 6 rise and the pawl *o* turns wheel *p* and screw-shaft *q*, thus moving roller *r* along a distance  
20 proportional to the width of the character which has been thus printed.

I claim—

In a type-writing machine, the combination of feed mechanism whereby the extent of feed is varied according to the width of the letter printed, so as to obtain uniformity of spacing, 25 such mechanism comprising a plurality of key-levers, cross-bars adapted to be operated by certain only of said key-levers, a separate pawl connected to each of said cross-bars and a wheel with which said pawls are adapted to 30 coöperate to shift the platen to a greater or less extent accordingly as one or another of said pawls is operated.

The foregoing specification of my improvements in type-writing machines signed by me 35 this 14th day of December, 1897.

HENRI LUCIEN GAVEAU.

Witnesses:

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MAURICE HENRI PIGNET.