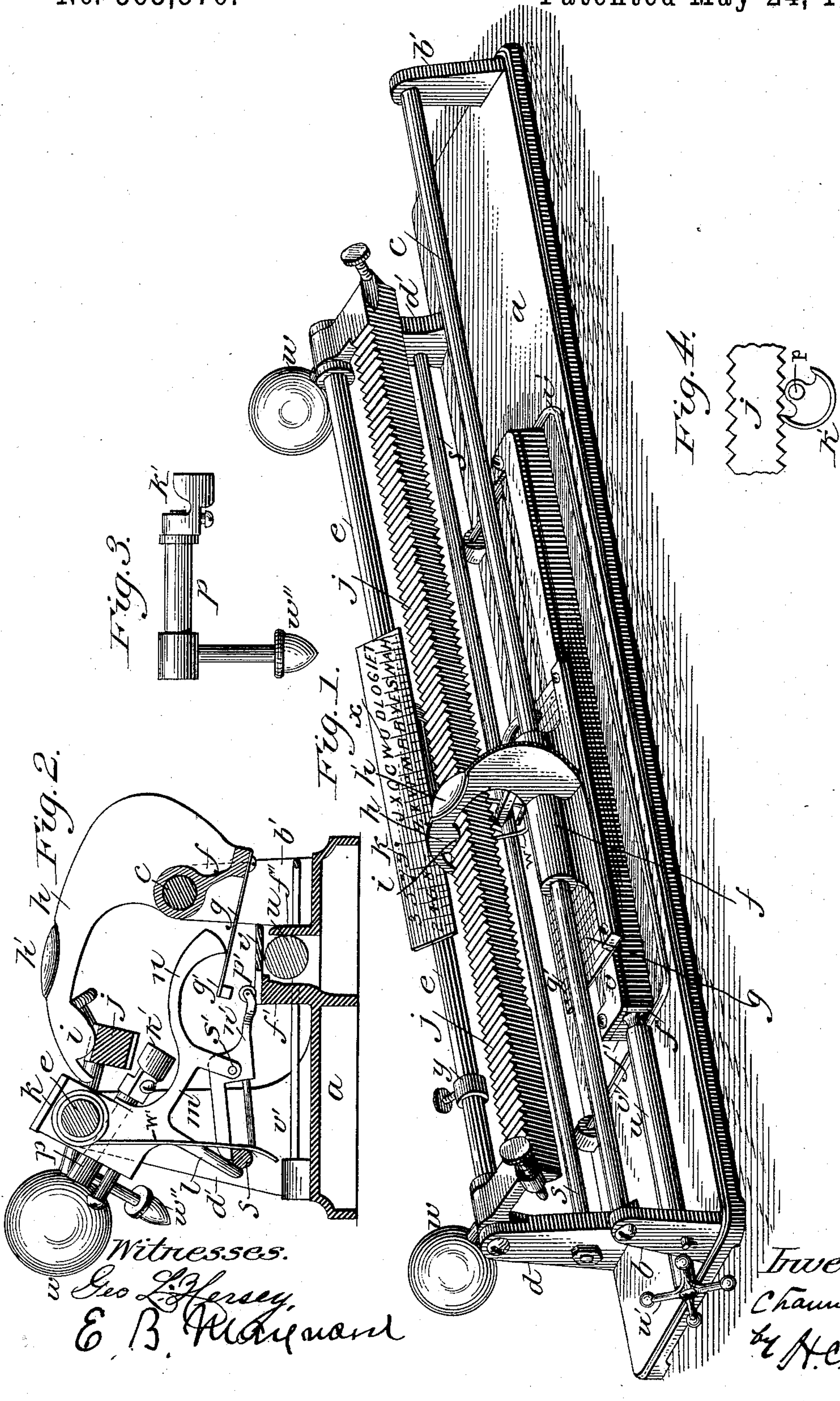


(Model.)

C. WING.  
TYPE WRITING MACHINE.

No. 363,570.

Patented May 24, 1887.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

CHAUNCEY WING, OF GREENFIELD, MASSACHUSETTS.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 363,570, dated May 24, 1887.

Application filed November 18, 1885. Serial No. 183,174. (Model.)

*To all whom it may concern:*

Be it known that I, CHAUNCEY WING, of Greenfield, Franklin county, Massachusetts, have invented a new and useful Improvement in Type-Writing Machines, of which the following is a specification.

My invention relates to a more simple class of type-writer, in which the letters are arranged upon the teeth of a comb and by proper lever motion pressed upon the paper beneath; and the object of my invention is to impart to the pressure-arm carrier a step-by-step motion of uniform length corresponding to the spaces between the letters, all of which is accomplished in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a perspective of the machine; Fig. 2, a vertical section; Fig. 3, a detail view of the shaft-carrying actuating-pawl; Fig. 4, a detail of pawl.

In Fig. 1, *a* is the base of the machine, having upon posts or standards *b* and *b'* rod *c*, and upon posts *d* and *d'* rod *e*. Upon rod *c* is loosely fitted sliding and swinging type-carrier *f*, sliding loosely thereon. This carrier is provided with comb *g*, having a series of teeth, *g'*, to which, upon the under surface near the end are attached the several letters of the alphabet, numbers, &c. The arm or pointer *h* is provided with key *h'* and extension *i*, which engages toothed rod *j*. Rod *j* is loosely attached to rod *e* at its extremities, as shown, and by means of counter-weights *w* normally bears up against the blade *i* of arm *h*.

Loosely attached to rod *e* is sliding and swinging impression-arm carrier *k*, provided with arms *l* and *m* and finger *n*. The arm *l* normally, by reason of the spring *W'*, bears against the rod *s*. Through arm *l* passes loosely shaft *p*, carrying upon one end counter-weight *w''*, and upon the other the segmental or moon-shaped pawl *k'*, secured, as shown, in an arc concentric with the center of shaft *p*. This pawl is adapted to engage the notched rod *j* at a point a little to the left of a vertical line passing through the center of shaft *p* when the rod *j* is swung down upon it. The counter-weight *w''* is adapted to be shifted to the opposite side of shaft *p* when it is desired to change in an opposite direction the motion of

carriage *k*. To arm *m* of impression-arm carrier *k* is pivoted at *s'* the bifurcated lever *n'*, one branch of which extends over and the other under rod *s*. At the end of lever *n'* is arranged the inking-roll *p'*, as shown. Finger *n* extends over the comb *g* sufficiently to engage a tooth of comb *g* when the machine is operated.

Between the projections *f'* and *f''* at the base of the machine is loosely-adjusted roll *u*, which may be conveniently revolved by means of radial arms *u'*. This roll is normally pressed upward against plate *v* by means of wire spring *v'*, which impinges upon the roller in the two grooves, as shown. Impression-arm carrier *k* is provided with letter-plate *x*, and the rod *e* is provided with the stop *y*, by means of which the movement of the impression-arm carrier *k* is limited.

The practical operation of my said device is as follows: Between the roll *u* and the plate *v* is passed a sheet of paper in the usual manner. The range of motion of the impression-arm carrier *k* is proportioned to the width of the sheet by means of stop *y*. The impression-arm carrier *k* is then slid on its support until the lettered plate *x* comes over the part of the paper which it is desired to print. Type-carrier *f* is then slid on rod *c* until pointer *h* is over the desired letter. By a pressure upon the key *h'* the blade *i* engages notched rod *j* in a tooth under said letter, and upon further pressure swings said toothed rod down upon the pawl *k'*. This pressure, owing to the direction in which the force is applied, crowds the impression-arm carrier *k* one space to the right. At the same time the finger *n* engages a lettered tooth of comb *g*, and forces it down by the inking-roll *p'* upon the paper beneath, which is thereby imprinted. The inking-roll *p'* is kept in appropriate position for contact with the teeth by means of its engagement with rod *s*.

Owing to the peculiar shape of the pawl the downward pressure swings it on its axis, the shaft *p*, and at the same time crowds the impression-arm carrier *k* to the right until the opposite horn of the pawl touches rod *j*. As will be readily seen, this contact limits the space over which the impression-arm carrier is moved at one impulse on the key, one horn



of the pawl operating as a propelling element to impart motion to the carriage and the other as a detent to arrest such motion when the proper limit is reached. On removing the pressure the pointer returns to first position and the pawl, by reason of counter-weight  $w''$ , swings back and is in position to engage the next notch on the rod  $j$ .

Should it be desired to move the impression-arm carrier  $k$  to the left, it is only necessary to shift the position of the weight  $w''$  to the opposite side of shaft  $p$ .

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

1. In a type-writer, the combination, with the impression-arm carrier  $k$ , provided with pawl  $k'$ , and type-carrier  $f$ , provided with key  $h'$  and blade  $i$ , of notched rack  $j$ , adapted to engage said pawl and blade when the key is pressed upon, substantially as described.

2. In a type-writer, the combination, with the impression-arm carrier, of a pawl pivoted to the carrier, and a pivoted rack,  $j$ , the pawl

engaging the rack at a point lateral of a perpendicular line passing through said pivotal connection, and thereby imparting lateral motion to said carrier, substantially as described.

3. The combination, with the impression-arm carrier, of the weighted and reversible segmental pawl centrally pivoted to a shaft journaled in said carrier, and the rack, whereby the direction of motion of the carrier may be reversed, substantially as described.

4. In a type-writer, the combination, with a laterally-movable portion, as pressure-arm carrier  $k$ , and a laterally-immovable portion or rack,  $j$ , of a pawl arranged, substantially as described, with reference to its pivotal attachment to the movable portion and its point of contact with the immovable portion, so that when the two portions are caused to approach each other a lateral motion will be imparted to said carrier.

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Witnesses:

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