

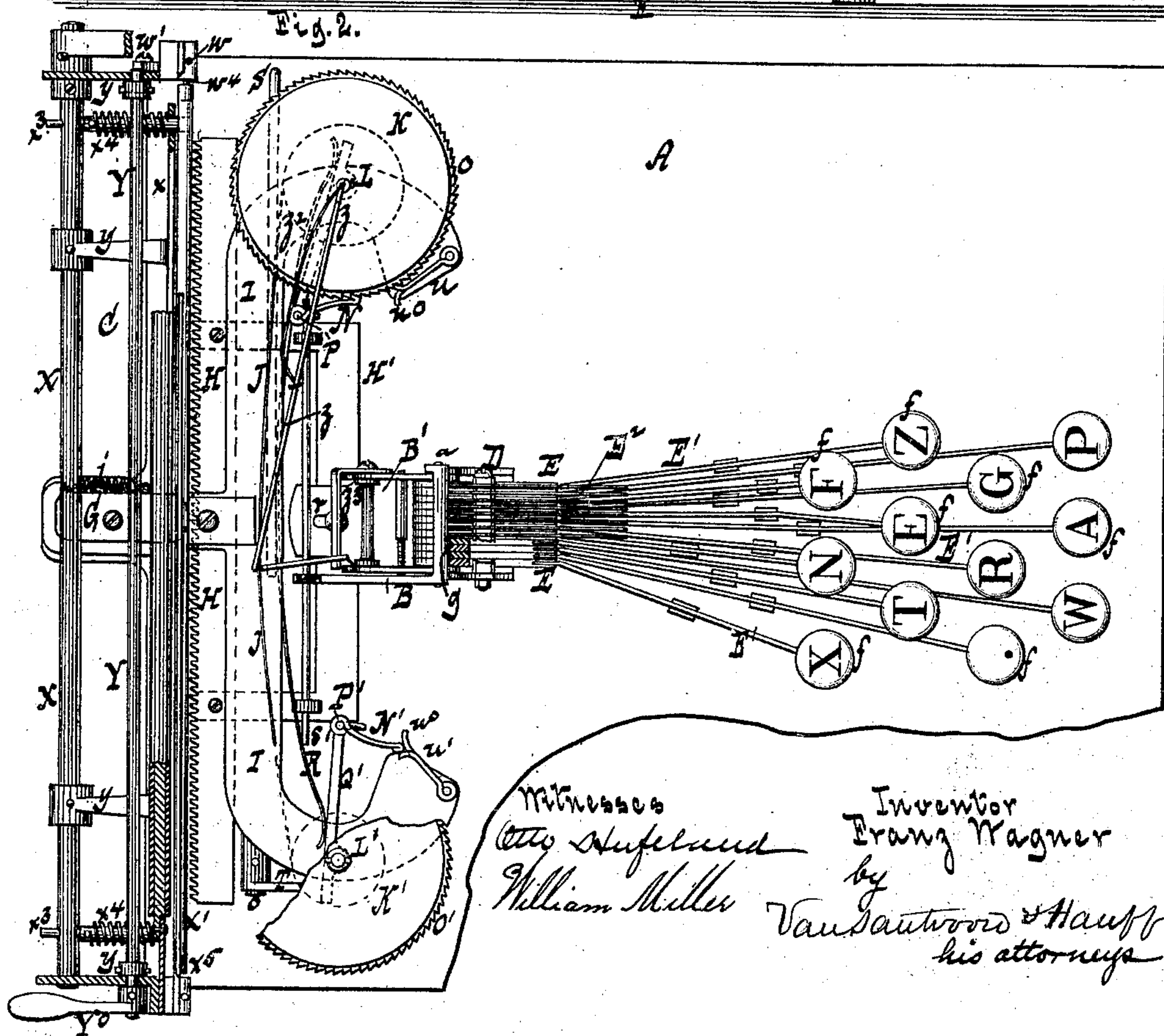
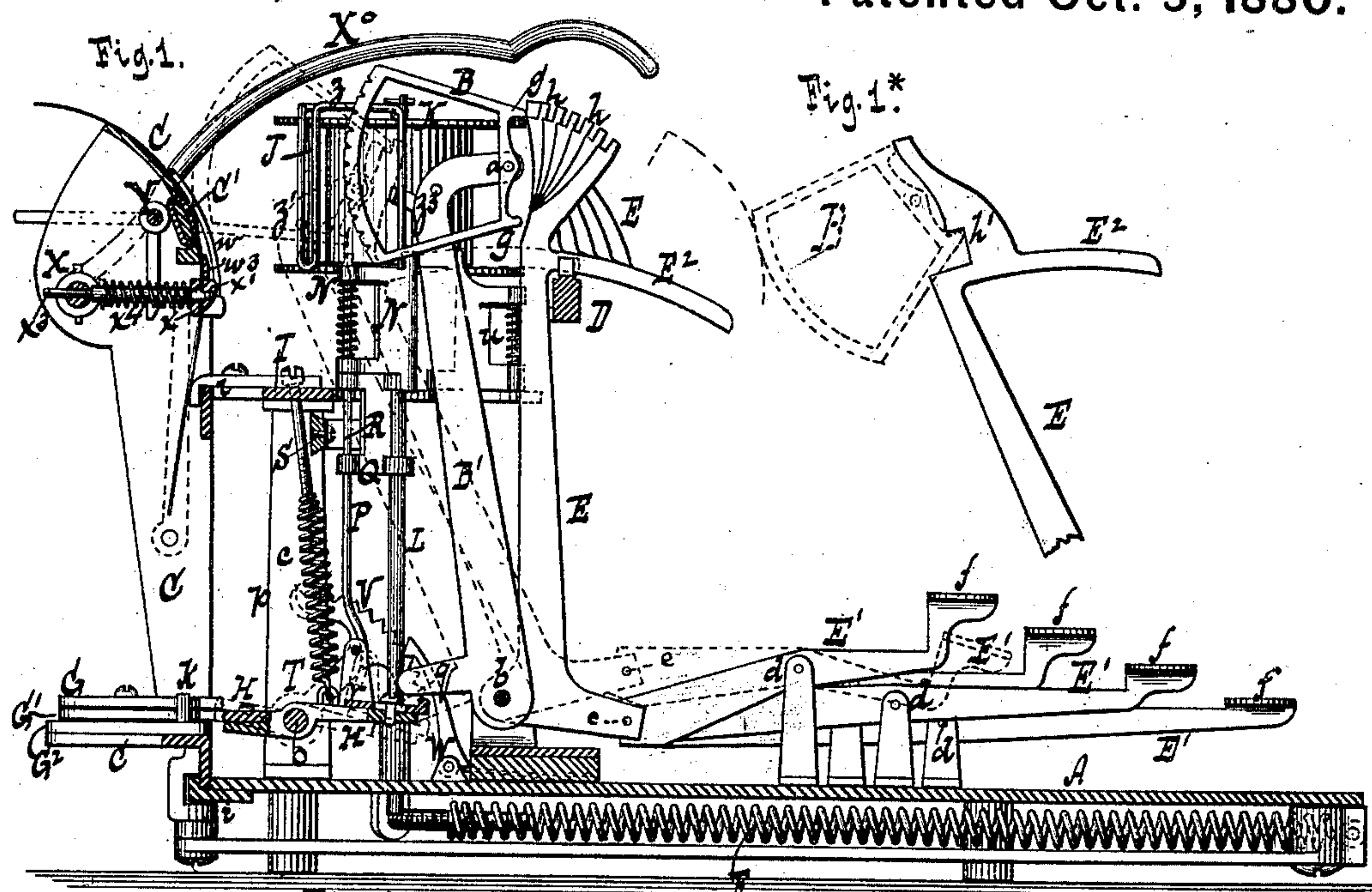
(Model.)

3 Sheets--Sheet 1.

F. WAGNER.
Type Writing Machine.

No. 232,913.

Patented Oct. 5, 1880.



N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D.C.

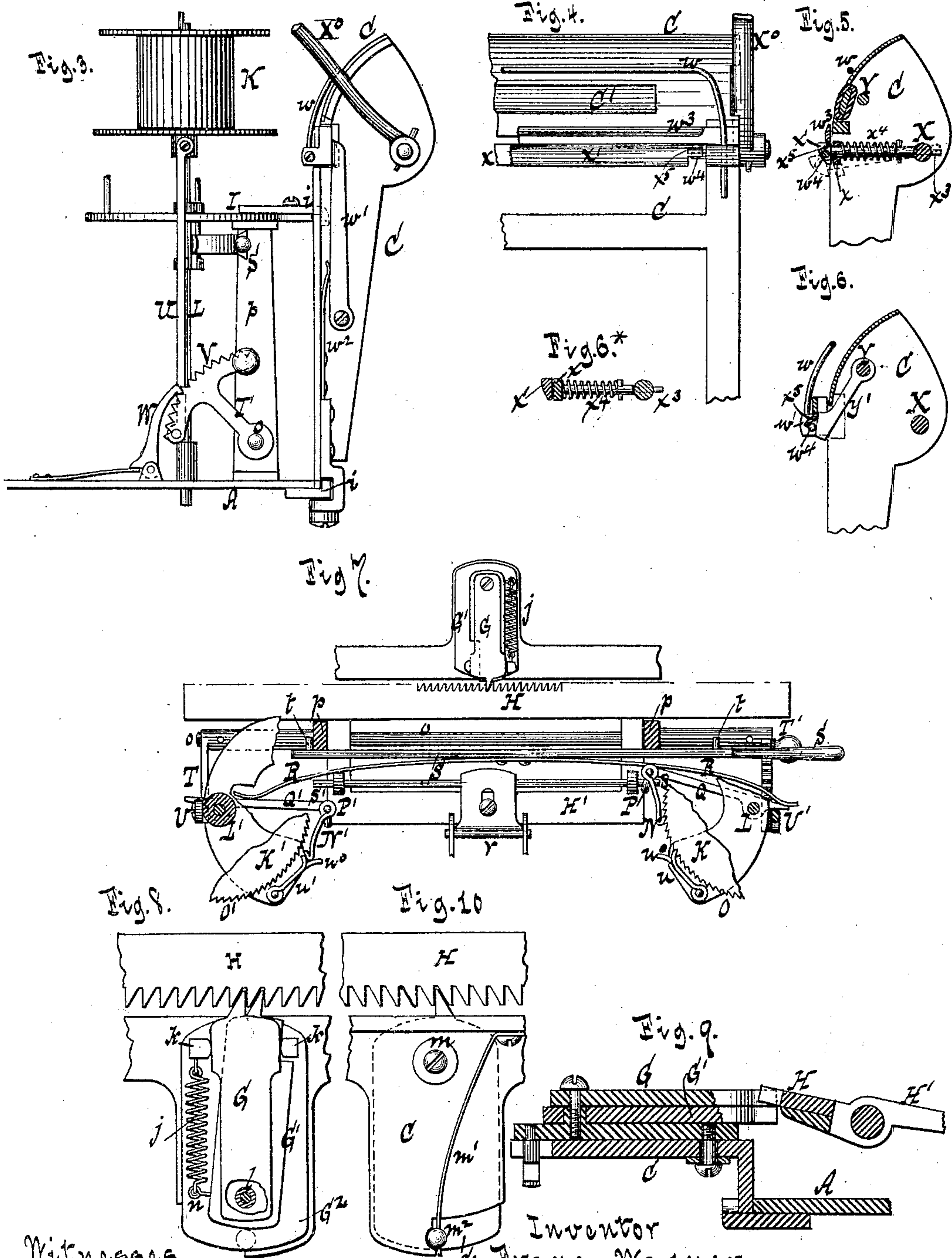
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3 Sheets--Sheet 2.

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Witnesses
Otto Aufhäuser
William Miller

Inventor
F. Wagner
by Van Santvoord & Haupp
his attorneys

(Model.)

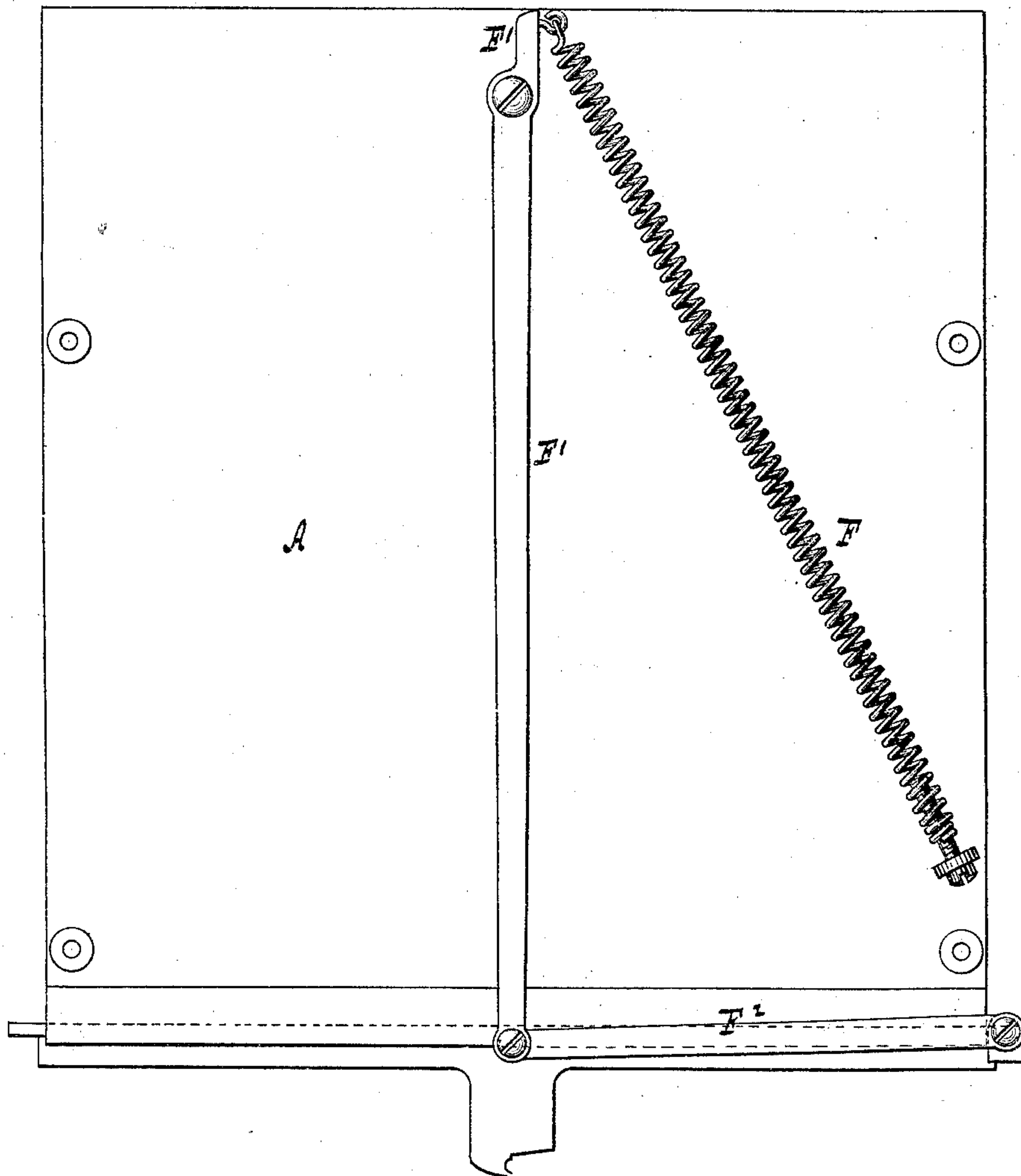
3 Sheets—Sheet 3.

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Fig. 11.



Witnesses

Otto Stufeland
William Miller

Inventor

Franz Wagner.

by

Vansantwood & Hauff
his attys

UNITED STATES PATENT OFFICE.

FRANZ WAGNER, OF NEW YORK, N. Y., ASSIGNOR TO GEORGE W. N. YOST,
OF SAME PLACE.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 232,913, dated October 5, 1880.

Application filed July 9, 1880. (Model.)

To all whom it may concern:

Be it known that I, FRANZ WAGNER, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to type-writing machines; and it consists in certain novel combinations of parts hereinafter fully described, and pointed out in the claims.

This invention is illustrated in the accompanying drawings, in which Figure 1 represents a vertical section. Fig. 1* is a detail view of the compound adjusting and impelling levers. Fig. 2 is a part plan view and part section of the machine. Fig. 3 represents, in detail, a portion of the machine. Fig. 4 is a face view of a portion of the paper-carrier. Figs. 5, 6, and 6* are cross-sections thereof. Fig. 7 is a horizontal section of the machine, showing the reel-winding mechanisms and a portion of the carrier-feed mechanism. Figs. 8, 9, and 10 are detail views of the escape-dogs. Fig. 11 is an inverted plan view of the machine.

Similar letters indicate corresponding parts.

The letter A designates a bed-plate supporting the parts of the machine, and B a segment having types on the periphery thereof to adapt the same for printing. This segment B oscillates on a pivot, *a*, affixed to a support, B', which swings on a shaft, *b*, and which is subjected to the action of a spring, *c*, connected to a rack-frame, hereinafter described, for determining the rear or normal position of the segment.

The paper to be printed on is put on a carrier, C, which is opposite to the periphery of the type-segment B, and is moved to the required distance after each impresssion.

In the operation of the machine the type-segment B is first adjusted to bring the desired type into line, and then is impelled toward the paper-carrier, this purpose being accomplished by means of a compound adjusting and impelling mechanism, consisting, in this example, of levers E and keys E', the levers having a common axis with the swinging support B' of the type-segment, while the

keys are mounted on independent pivots *d*, and are connected to the levers, respectively, as at *e*.

On the outer or free ends of the keys E' are finger-buttons *f*, having marked thereon letters or characters corresponding to those on the type-segment B. The type-segment B is constructed with horizontal bars *g* on the rear part thereof and on opposite sides of its fulcrum, and the levers E are provided with notches *h* or *h'*, adapted to engage such bars.

The number of the levers E corresponds to the number of types on the segment B, and those levers appertaining to one portion of the types are bent rearwardly, while those appertaining to another portion of the types are bent in a forward direction at the upper end.

The notches *h* are in those levers which are bent in a rear direction—namely, at the extremities thereof—as shown in Fig. 1, while the notches *h'* are in those levers bent in a forward direction within the extremities thereof, as shown in Fig. 1*.

When either of the keys E' is depressed the corresponding lever E is actuated and the upper end of the latter is thrown in the direction of the type-segment B. The lever referred to now acts on the type-segment B to bring one of the bars *g g* into its notch *h* or *h'*, the other of such bars being at the same time presented to a solid portion of the lever, as indicated in Figs. 1 and 1*, and by this means the adjustment of the segment is produced. The segment B is then displaced by the lever, and swinging on the pivot *b*, with its support, is brought in contact with the paper-carrier C.

When the keys E' are released the parts are brought back to their normal positions by the spring *c* acting on the support B' of the type-segment.

For the purpose of guiding the levers E in their movements I provide the same with tail-pieces E², sliding in the top of a bracket, D, rising from the bed-plate.

The frame of the paper-carrier C is fitted to guides *i*, and the movement thereof is produced by a feed mechanism having an intermittent action subject to the operation of the keys E². This mechanism consists of a feed-

spring, F, two superposed dogs, G G', one fixed and the other movable, a spring, j, acting on the movable dog with a tendency to throw the same in the direction of the feed-motion, stops k k, for checking the movable dog, and an escapement-rack, H, arranged to engage with both dogs alternately to each type-impression.

The feed-spring F acts on the paper-carrier C through the medium of a lever, F', and connecting-rod F², (see Fig. 11,) these parts being located beneath the bed-plate A. The dogs G G' are both hung on a common pivot, l, projecting from a supporting-plate, G², which in turn is hung on a pivot, m, projecting from the frame of the paper-carrier C, and is held in place by a spring, m', and a stop-pin, m², so that the dogs are a part or fixture of the paper-carrier. The spring j is connected to the dog-supporting plate G² at one end through one of the stops k k, and is connected to the movable dog G' at the other end through a staple, n. The stops k k are on the face of the supporting-plate G², and the fixed dog G is fitted between them, while the movable dog G' is shaped to move between the stops a distance approximately equal to the distance between the teeth of the rack H. The rack H is secured to a frame, H', which is mounted on a shaft, o, to oscillate thereon, and is the part to which the spring c, hereinbefore mentioned, is connected. The shaft o has its bearings in standards p p, rising from the bed-plate A, and the spring c depends from a ledge, I, surmounting the standards. The point at which the spring c is connected to the rack-frame H' is forward of the shaft o, the rack being in the rear thereof, and the normal position of the rack-frame is determined by toes q, (but one of which is herein shown,) projecting from the swinging support B' of the type-segment and bearing on the front of the rack-frame. In other words, the spring c acts on this support B' through the rack-frame and such toes, while the latter, moreover, cause the rack-frame to partake of the motion or impulse of the type-segment.

At the point where the toes q bear on the rack-frame H' the latter is provided with an adjustable foot, r. The teeth of the rack H are in line with the ends of the pawls G G', and when the machine is at rest the rack engages with the movable pawl G'; but whenever either of the keys E' is depressed the rack is displaced by the action of the toes q on the rack-frame, and it releases the movable pawl to engage with the fixed pawl G, as shown in Fig. 9. When this takes place the movable pawl G' follows the action of its spring j, and takes the position shown in Fig. 8. If the actuating-key is now released the rack H returns to its first position, and the movable pawl G', catching in the rack, is thrown back by the action of the feed-spring F on the paper-carrier, whereby the latter is permitted to advance a sufficient distance for a fresh type-impression.

Between the paper-carrier C and the type-segment B is interposed an ink-ribbon, J, the opposite ends of which are connected to reels K K', to which, alternately, a step-by-step motion is imparted by winding mechanisms independent of each other. The reels K K' turn on vertical axes formed by shafts L L', and their winding mechanisms consist of spring-pawls N N', engaging with ratchet-wheels O O', which are a part of the reels, of vertical rods or spindles P P', carrying the pawls, pawl arms or levers Q Q', mounted on the reel-shafts L L', and a double spring, R, acting on the pawl-arms. The spring R is attached to a horizontal slide, S, moving in guides on the standards p p, the extent of its movement being regulated by stops t t, and having a suitable handle.

The ratchet-wheel O or O' of each winding mechanism is provided with a detent, u or u', affixed to the ledge I. The vertical rods or spindles P P' of the winding mechanisms both extend downward in front of the rack-frame H', and the latter is provided with trip-pins s s', adapted to act on the rods, as presently described.

When it is desired to wind the ink-ribbon J on the reel K, the slide S is pulled in the direction thereof, and by this means one end of the spring R is brought to bear on the pawl-arm Q with a tendency to force the pawl N in the direction of rotation of the reel and to bring the vertical rod or spindle P in close proximity to the trip-pin, s, the other end of the spring being at the same time brought to bear on the pawl-arm Q' with a tendency to force the pawl N' backward and to bring the rod or spindle P' away from its trip-pin s'. If the rack-frame H' is now tilted by the depression of either of the actuating keys E', the rod or spindle P is shifted by the trip-pin s, and forces the pawl N back against the action of the spring S, while as soon as the rack-frame is set free the pawl follows the action of this spring, and, acting on the ratchet-wheel O, advances the reel K one step. This operation takes place as often as either of the keys E' is depressed, the winding mechanism of the reel K' in the meantime remaining out of gear, and the ink-ribbon J being simply withdrawn from this reel as it is wound on the reel K, while when it is desired to transfer the ink-ribbon J to the reel K' the slide S is pushed in the direction thereof to reverse the action of the spring R on the winding mechanisms. When either of the winding mechanisms is thrown out of gear its pawl N or N' strikes a wing, u⁰, on the detent u or u' and displaces the latter to release the ratchet-wheel.

The reel-shafts L L' have their bearings in the bed-plate A and ledge I, in which they are arranged to slide, and with the same is combined an adjustable support, so that the shafts, together with the reels K K', can be set to any desired height for bringing a fresh portion of the ink-ribbon into a position for printing. This adjustable support consists of oscillat-

ing arms T T', fixed on the rack-frame shaft o, rods U U', connecting the oscillating arms with the axes L of the reels at points just below the said reels, toothed segment V, (see Fig. 3,) integral with one of the oscillating arms, and a spring pawl or detent, W, engaging the toothed segment. One of the arms T T' is provided with a knob for taking hold of the same, and by oscillating the arms on the shaft o the reel-shafts and reels can be readily elevated or lowered, while by the pawl W the parts are firmly held in the desired position.

The face of the paper-carrier C is curved in cross-section, and is preferably constructed with a pad, C', along the line of contact of the type-segment. On the face of the paper-carrier C is arranged a paper-holding clamp consisting of a yoke-bar, w, the ends of which are adjustably attached to pivoted arms w' w', which are respectively subjected to the action of a spring, w², whereby the clamp-bar is held against the face of the carrier. The clamp-arms w' w' are connected together by a cross-bar, w³, and have inwardly-projecting pins w⁴, one to each arm, whose function will be presently described.

The paper resting on the carrier is adjusted to space the lines of printing by means of a griper, which is adapted to receive a reciprocating motion, and which is constructed to retract the clamp simultaneously with the action of the griper on the paper, so that the clamp releases the paper during that time. This griper and its operating mechanism consist of a base-bar, x, which extends longitudinally to the paper-carrier, and is secured to the ends of arms y, (see Fig. 2,) projecting from a rock-shaft, X, a griper-bar, x', which bears against the base-bar in its normal position and is secured to the ends of slide rods x³, extending through the base-bar and the rock-shaft, and of springs x⁴, (see Fig. 5,) which are coiled on the slide-rods and act thereon with a tendency to hold the griper-bar in its normal position.

When a sheet of paper is put on the carrier it is inserted between the base-bar x and griper-bar x' and beneath the clamp-bar w. A reciprocating motion of the parts of the griper is produced by the motion of the rock-shaft X, and for the purpose of operating the shaft it is provided with a handle, X⁰. At the opposite ends of the griper-bar x' are formed oblique cams x⁵, and in the upward movement of the griper the backs of these cams strike the inwardly-projecting pins w⁴ of the clamp-arms and displace the same against the action of the clamp-springs w², thus forcing the clamp-bar w away from the paper-carrier and allowing the movement of the paper by and with the griper. In the downward movement of the griper the oblique cams x⁵ ride over the pins w⁴ of the clamp-arms, and by this means the griper-bar x' is retracted or forced away from the base-bar x against the action of the griper-springs x⁴, leaving the paper at rest.

In order to facilitate the insertion or adjustment of the paper on the carrier, a device is used for retracting the griper and the clamp independently of the griper-operating mechanism. This retracting device consists of a rock-shaft, Y, which is provided with a handle, Y⁰, and carries arms y', which are so shaped and arranged that by a proper motion of the rock-shaft these cams strike the inwardly-projecting pins w⁴ of the clamp-arms and the oblique cams x⁵ of the griper-bar, as shown in Fig. 6, thus displacing both the griper and the clamp.

The ink-ribbon J is moved toward and from the paper-carrier C at each operation of the machine, and when the whole is at rest the ribbon is away from the paper-carrier, as shown in Fig. 2. The advantage thus gained is that the face of the paper-carrier is laid bare, and the matter that is being printed is plainly visible to the operator. The movement of the ink-ribbon J is produced by connecting the same to the swinging support B' of the type-segment, as by means of a wire frame, z, which swings on the axis of one of the reels K K', and is bifurcated, as at z', Fig. 1, to receive the ribbon, a spring, z², acting on the wire frame with a tendency to force the ink-ribbon in the direction of the paper-carrier, and a tipper, z³, adjustably attached to the swinging support and engaging the wire frame.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writer, the combination of an oscillating type-segment mounted upon a swinging support, a compound segment adjusting and impelling mechanism having a common axis with the swinging support, and actuating levers or keys connected to the compound adjusting and impelling mechanism arranged to adjust and impel the type-segment by a continuous movement imparted to said mechanism, substantially as described.

2. In a type-writer, the combination, with a paper-carrier, of an oscillating type-segment mounted upon a swinging support, a compound segment adjusting and impelling mechanism having a common axis with the swinging support, an intermittent carrier-feed mechanism, and actuating levers or keys connected to the compound segment adjusting and impelling mechanism and common both to the said mechanism and to the intermittent carrier-feed mechanism, substantially as described.

3. In a type-writer, the combination of a paper-carrier, an oscillating type-segment, a swinging support for the type-segment, compound adjusting and impelling levers having a common axis with the swinging support, and actuating-keys connected to the compound levers, the whole constructed and adapted to operate substantially as described.

4. In a type-writer, the combination, with the paper-carrier and printing device, substantially as described, of the ink-ribbon, the ribbon-reels arranged upon shafts adapted to be

vertically adjusted, and the adjustable reel-supports consisting of the oscillating arms with toothed segments fixed upon rack-frame shaft *o*, vertical rods connecting said arms with the reel shafts, and pawls engaging the toothed segments, substantially as described.

5. In a type-writer, the combination, with a paper-carrier, of a spring paper-holding clamp, a vibrating griper for line-adjusting the paper, constructed to retract the clamp simultaneously with the action of the griper on the paper, and a griper-operating mechanism, the whole constructed and adapted to operate substantially as described.

6. In a type-writer, the combination, with a paper-carrier, of a spring paper-holding clamp, a reciprocating griper for line-adjusting the paper, constructed to retract the clamp simultaneously with the action of the griper on the paper, a griper-operating mechanism, and a device for retracting both the clamp and the griper independently of the griper-operating mechanism, the whole constructed and adapted to operate substantially as described.

7. In a type-writer, the combination, with the sliding paper-carrier, a spring for impelling said carrier, and a vibratory rack-bar, *H*, of the plate *G*², pivoted to the frame of the paper-carrier and held in position to present the dogs carried thereby to the rack-bar by spring-pressure, the fixed dog *G*, and a pivoted oscillating dog, *G'*, acted upon by a spring and arranged between suitable stops, said dogs being both carried by the pivoted plate and being arranged in position to alternately engage the

teeth of the vibratory rack-bar, substantially as described.

8. In a type-writer, the combination, with the paper-carrier and the type-segment with its swinging support, of the ink-ribbon interposed between the paper-carrier and the type-segment, and the herein-described spring-frame connected with the swinging support of the type-segment and with one of the reel-axes, said frame receiving the ribbon and moving the same toward and from the paper-carrier, substantially as described.

9. In a type-writer, the combination, with the reels provided with ratchets *O O'*, of the pivoted arms *Q Q'*, pawls *N N'*, spring *R*, and the sliding rod *S*, said elements being constructed and adapted for operation substantially as herein shown and described, for the purpose specified.

10. In a type-writer, the combination, with a paper-carrier, of a vibrating printing device, the ink-ribbon, and mechanism for moving the ribbon back and forth with the printing device, the said printing device being arranged upon vertical supports, and the face of the paper-carrier being in substantially a vertical plane above the bed of the machine, substantially as described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

FRANZ WAGNER. [L. S.]

Witnesses:

W. HAUFF,

CHAS. WAHLERS.