

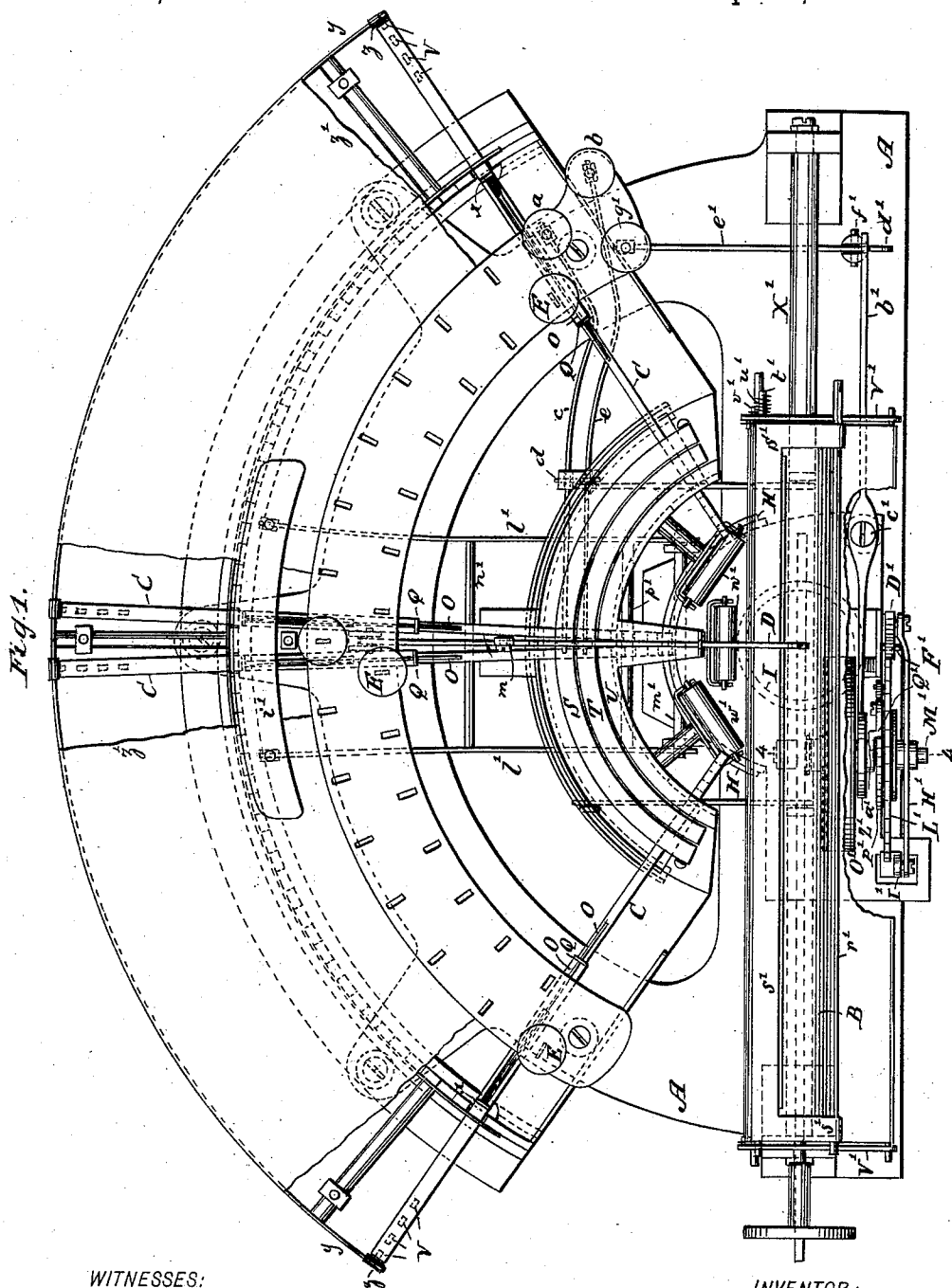
(No Model.)

4 Sheets—Sheet 1.

C. FLECKENSTEIN.  
TYPE WRITING MACHINE.

No. 472,445.

Patented Apr. 5, 1892.



WITNESSES:

*Edward Wolff*  
*William Miller*

INVENTOR:

*Cornelius Fleckenstein.*

BY

*Van Santvoord & Hauff*  
ATTORNEYS

(No Model.)

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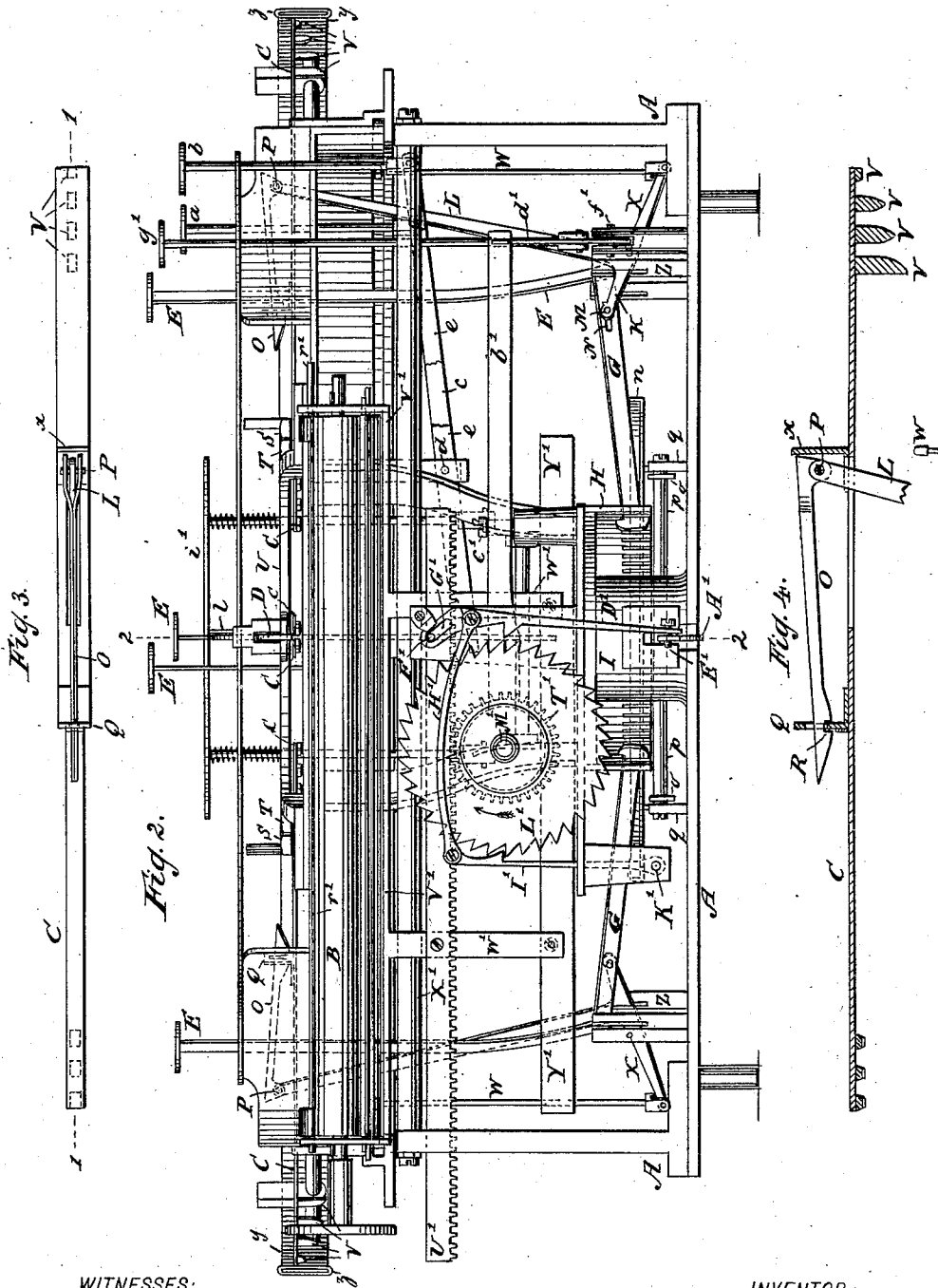


Fig. 3.

Fig. 2.

Fig. 4.

WITNESSES:

Edward Wolff.  
William Miller

INVENTOR:

Cornelius Fleckenstein.

BY

Van Santvoord & Shaw

ATTORNEYS

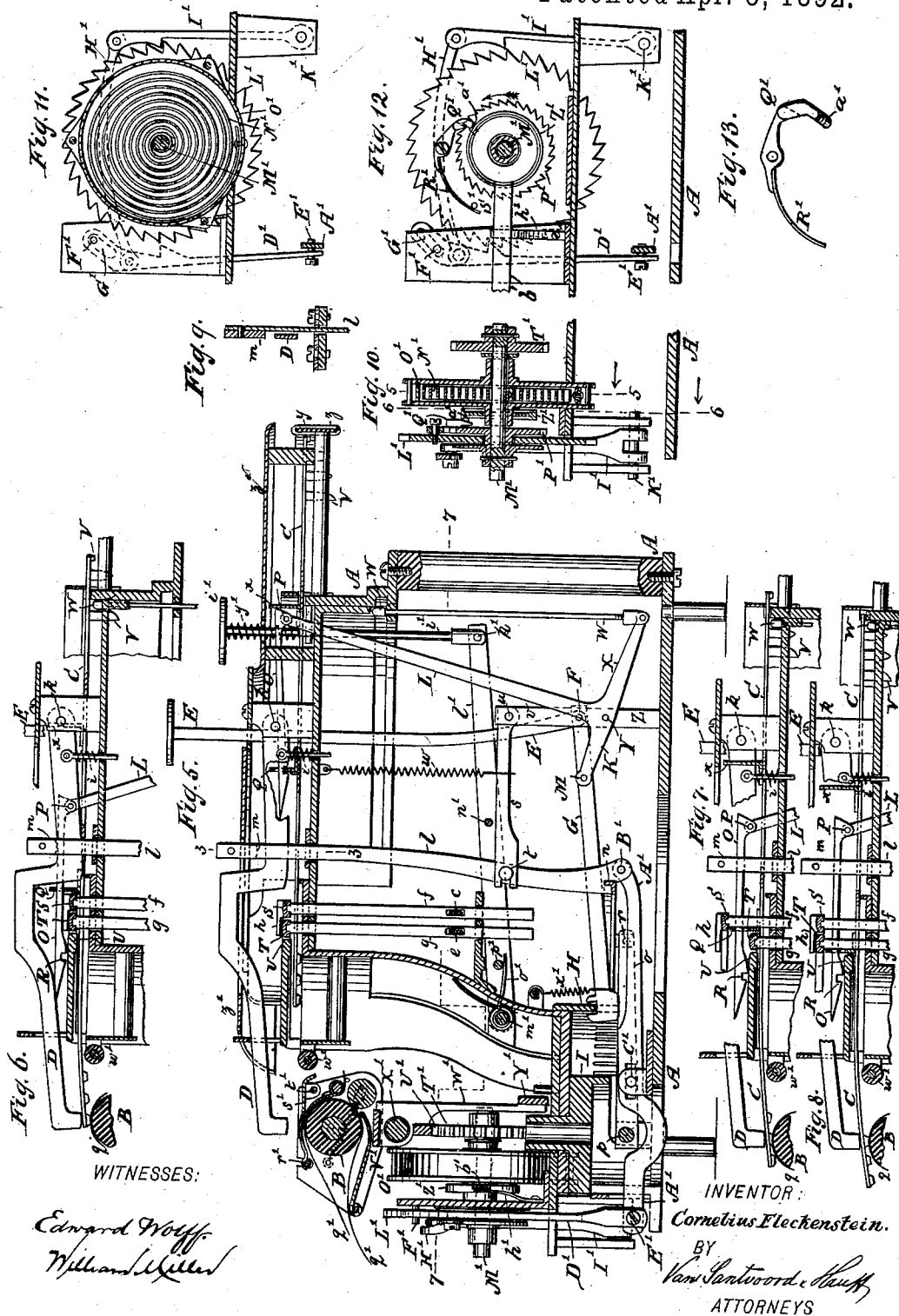
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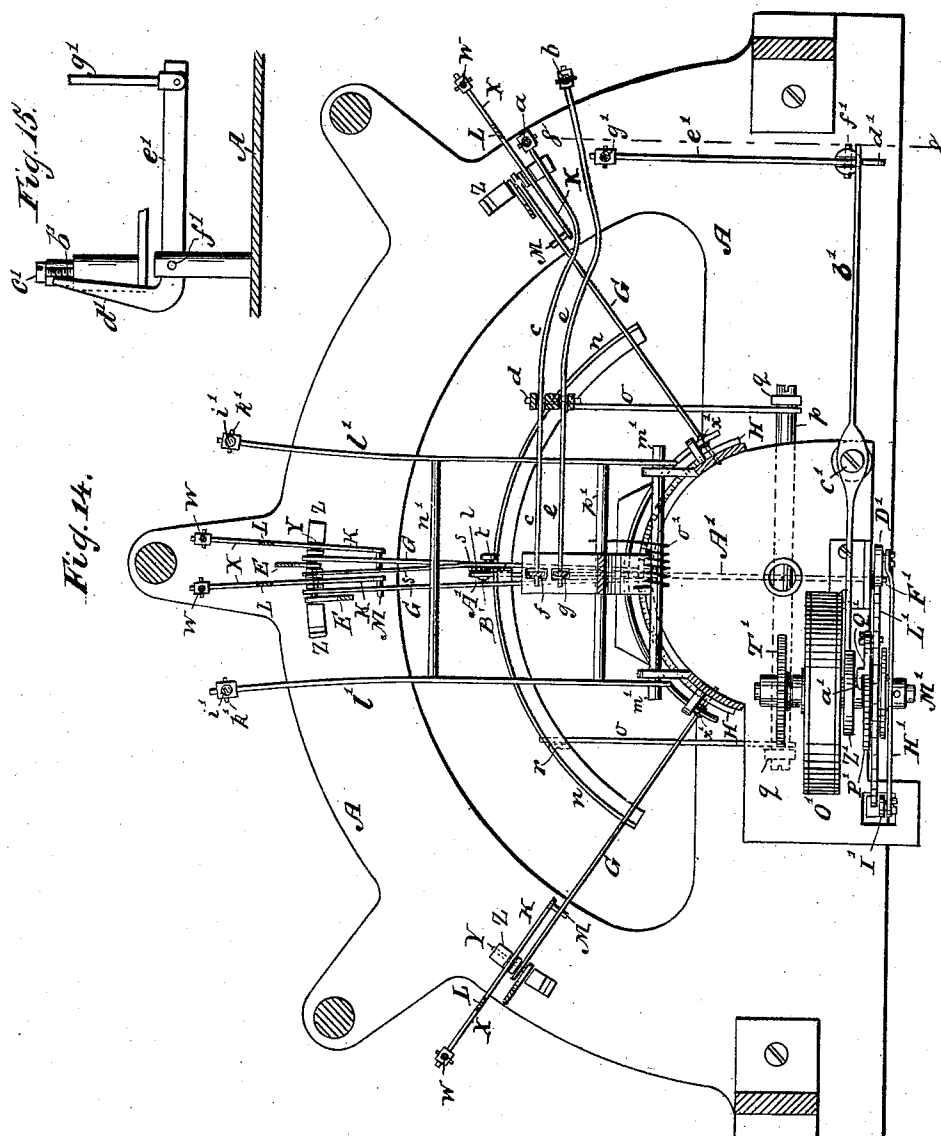
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# UNITED STATES PATENT OFFICE.

CORNELIUS FLECKENSTEIN, OF NEW YORK, N. Y., ASSIGNOR TO FRANZ X. WAGNER, OF SAME PLACE.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 472,445, dated April 5, 1892.

Application filed January 3, 1891. Serial No. 376,632. (No model.)

*To all whom it may concern:*

Be it known that I, CORNELIUS FLECKENSTEIN, 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 an improvement in type-writing machines; and the invention consists in the details of construction set forth in the following specification and claims, and illustrated in the annexed drawings, in which—

Figure 1 is a plan view of a type-writing machine. Fig. 2 is a rear view of Fig. 1. Fig. 3 is a detail plan view of a type-bar. Fig. 4 is a section along line 1, Fig. 3. Fig. 5 is a section along line 2, Fig. 2. Figs. 6, 7, and 8 are views similar to Fig. 5, showing different positions of the type-bar. Fig. 9 is a section along line 3, Fig. 5. Fig. 10 is a section along line 4, Fig. 1. Fig. 11 is a section along line 5, Fig. 10. Fig. 12 is a rear view of an escapement-wheel with adjacent mechanism sectioned along line 6, Fig. 10. Fig. 13 is a detail view of a pawl. Fig. 14 is a section along line 7, Fig. 5. Fig. 15 is a section along line 8, Fig. 14.

In the drawings, the letter A indicates a frame or support, and B is a platen or paper-carrier. Each type-bar C is shown as having three types, and when the parts are in position shown in Fig. 6 the outermost type of a bar is in position to print on the paper supported by the platen or roller B. When the parts are in the position shown in Fig. 7, the central type is in position to print, and in Fig. 8 the innermost type is in position to print.

Of course I do not limit myself to three types on a bar, as this number may be varied, it being evident that the machine would work, for example, with but one type on each bar. The hammer D forces the type-bar toward the platen or roller B, so as to cause a type on said bar to print. Motion is conveyed to a type-bar from a key E by a suitable mechanism, which will be now described.

The key E is jointed or pivoted at F, Fig. 5, to a lever G, fulcrumed at a rim H, extending from a post I on frame A. The arm K of bell-crank lever K L is connected to the lever

G by a pin-and-slot connection M N, Fig. 2. A link O is jointed or pivoted at P to the lever-arm L. The link O passes through an eye Q on the type-bar C. Said link has a shoulder or recess R, and when the parts are in the position shown in Figs. 3, 4, and 5 the recess R is in engagement with the rim of eye Q. When the key E is depressed, the levers G and K L are oscillated, so as to move the link O and type-bar C toward the platen or paper-carrier B. The free end of link R is inclined, and when the shifts S T are in the position shown in Figs. 5 and 6, the link R, after having moved toward the platen a sufficient distance, will have its incline riding along shift S, whereby the link R is swung about pivot P sufficiently to lift its recess R out of engagement with the eye Q. The link R then continues its motion toward the platen, while the type-bar is left stationary with its outermost type in position to print, Fig. 6. When the shift S is raised, Fig. 7, the link O is not lifted out of engagement with eye Q until the type-bar has been moved a sufficient distance to bring its central type in position to print, while if both shifts S T are raised, Fig. 8, the link O is not moved out of engagement with eye Q until the innermost type is in position to print. When the shift S is raised, the link O passes under said shift, so as to cause its incline to ride along shift T, while if both shifts S T are raised the inclined end of link O rides along the rim U, said link in last-named case passing under both shifts T. The arrangement for operating the shifts will be presently described.

When the type-bar is in its printing position, as in Figs. 6, 7, or 8, it is held in said position by a suitable lock or locking mechanism consisting of lugs or stops V on the type-bar and of a detent W, engaging said lugs. Said detent W is connected to the lever-arm X, extending from bell-crank lever K L. As the key E is depressed and the lever-arms K L X are oscillated the detent W is moved toward the type-bar, so as to enter the space between two lugs V and lock the type-bar in position. When the type-bar is in the position shown in Fig. 6, said bar is locked by the detent W entering between the innermost lugs V, while in Fig. 8 the detent W enters the

space between the outermost lugs. As the type-bar has to move a greater distance to reach the position shown in Fig. 8 than that shown in Fig. 6, the lugs V are varied in length, said lugs becoming shorter from the innermost one outward. By this shortening of the lugs the type-bar is enabled to reach the required printing position before the detent W enters between the required lugs V to lock said bar. The lever-arms K L X are fulcrumed at Y to a post Z, rising from the frame A. The various type-bars, each having its respective key, can be arranged in any suitable series to be convenient for the operator.

The shift S is operated by key *a*, and the shift T by key *b*. The key *a* is connected to a lever *c*, fulcrumed at *d*, and the key *b* to a lever *e*, also fulcrumed at *d*. Lever *c* is connected by a link *f* with shift S, and a link *g* connects lever *e* with shift T. From shift S extends an arm or shoulder *h*, Figs. 5 and 7, over shift T. When the key *a* is depressed the lever *c* and link *f* are actuated to raise shift S, Fig. 7. When key *b* is depressed, the lever *e* and link *g* are actuated to raise shift T, Fig. 8, and said shift T in its ascent carries with it the shoulder *h* and shift S, so that the depression of key *b* raises both shifts S and T. When the keys *a* and *b* are released, the weight of the shifts will restore the parts to their starting-point; but if this weight is not sufficient suitable restoring-springs (not shown) may be applied in any suitable well-known way.

The hammer D is actuated as follows: Said hammer is held in its free or inactive position by a spring *i*, Fig. 5, said hammer being mounted on a pivot or turning point *k*. A link *l* has a shoulder *m*, Fig. 9, and when said link *l* is depressed the shoulder *m* draws the hammer toward the platen. Said link is secured to the universal bar *n*, and when said bar *n* is depressed by the action of a lever G and key E said bar *n* draws down the link *l* and the hammer D is brought into action. On releasing the parts the spring *i* restores the hammer D to its starting-point. The universal bar *n* is carried by arms *o*, extending from the rod *p*, which is journaled in posts *q*, rising from frame A. The bar *n* and arms *o* are jointed or connected to one another at *r*, Fig. 5. A link *s*, Fig. 5, is jointed or pivoted at *t* to the link *l* and at *u* to a post *v*, extending from the frame A. A spring *w* is connected to said link *s*, and when the key E is released the spring *w* restores the link *l*, lever G, and key E to the starting position. The link *l* in rising to its starting-point draws up the universal bar *n*. The return of the lever G to its starting-point also restores the type-bar C to its starting position. The bar C has a shoulder *x*, and as the lever-arm L and link O are moved by the lever G on its return to their starting position said link O strikes against the returning shoulder *x* and moves the type-bar C back to its starting-point. A stop or stop-rim *y* prevents the

type-bars C from moving too far back, and said stop *y* may be padded or provided with rubber rings or cushions *z* to take up the jar of the returning type-bar.

A lever A' is jointed or pivoted at B' to the link *l*, and as said link rises and falls said lever A' is oscillated about the fulcrum C'. An arm or pawl D' is jointed or pivoted at E' to lever A', and the free end of said arm D' is guided by a pin-and-slot guide F' G', Figs. 11 and 12. A link H' connects the arm D' with arm or pawl I', having its turning-point at K'. Said arms D' I' have each a tooth engaging an escapement-wheel L'. The arms D' I' form an escapement for the wheel L', and as the lever A' moves the arms or pawls D' I' from the position shown in Fig. 11 to that shown in Fig. 12 and then back to that shown in Fig. 11 the escapement-wheel L moves one tooth in the direction of the arrow, Figs. 2 and 12. By this motion of the escapement-wheel the platen B is fed along, as will be presently explained.

The escapement-wheel is mounted loosely on the shaft M'. To said shaft is secured one end of a spring N', Fig. 11, the other end of said spring being secured to a fixed drum or box O'. The spring N' tends to drive the shaft M' in the direction of the arrow, Fig. 12. The motion of the shaft M' in the direction of said arrow is communicated to the escapement-wheel by a clutch consisting of a ratchet P' and a pawl Q'. The ratchet P' is fixed to shaft M' and the pawl Q' is mounted or pivoted on the escapement-wheel L'. A spring R' presses the pawl into engagement with ratchet P'. Said spring is braced against stud S', Fig. 12, rising from the escapement-wheel L'. To the shaft M' is secured a toothed wheel T', gearing into the feed-rack U' of the platen B. As the escapement-wheel L', shaft M', and gear T' rotate in the direction of the arrow, Figs. 2 and 12, the platen B is fed along. When the platen B is to be set back it need, only be pushed toward its starting-point, since the pawl Q' allows the ratchet P' and shaft M' to turn in the direction opposed to the arrow, Fig. 12, while the escapement-wheel L' is at rest, the pawl in this last-named case riding over the ratchet.

The platen B is mounted or journaled in a frame or carriage V', having guide-arms W', provided with eyes through which passes the bar X', along which the platen-carriage moves back and forth. The arms W' may have a bar Y' at their lower end to steady the platen and its carriage.

The pawl Q' can be thrown out of engagement whenever desired by the rim or releasing-ring Z', sitting about shaft M'. The pawl Q' has an inclined face or part *a'*, and when the releasing rim Z' is pressed toward the pawl said inclined face *a'* rides outward on the rim Z' and the pawl is disengaged from the ratchet, so that the clutch mechanism formed by the ratchet and pawl is thrown out of action. The rim Z' is actuated by the le-

ver  $b'$ , fulcrumed at  $c'$ , Fig. 14, and said lever  $b'$  is engaged by the arm  $d'$  of bell-crank lever  $d' e'$  fulcrumed at  $f'$ . The bell-crank lever  $d' e'$  is shown plainly in Fig. 15, and the arm  $d'$ , abutting against lever  $b'$ , so that when the arm  $e'$  is depressed by the key  $g'$  the arm  $d'$  moves the lever  $b'$  so as to throw the rim  $Z'$  against the inclined face  $a'$ , Figs. 10 and 13, of pawl  $Q'$ , and then lift the pawl to its releasing position. The arm  $e'$  is connected to the key  $g'$ , and when said key is depressed the lever  $c'$  is moved so as to carry the rim  $Z'$  against the pawl  $Q'$ . When the key  $g'$  is released, the spring  $h'$ , Figs. 5 and 12, throws the rim  $Z'$  away from pawl  $Q'$ , so that the spring  $R'$  can again throw the pawl into gear with ratchet  $P'$ . The purpose of throwing the pawl  $Q'$  out of engagement is to thereby release the ratchet  $P'$  and shaft  $M'$ , so that the platen can freely or rapidly slide or move forward to any desired point at which the writing on a certain line is to commence.

The spacing-key  $i'$ , Fig. 5, is jointed at  $k'$  to lever  $l'$ , fulcrumed at  $m'$ . Said lever is shown composed of two parts or duplicates, Fig. 1 carrying rod  $n'$ , and as the key  $i'$  and lever  $l'$  are depressed the rod  $n'$  depresses links  $s$  and  $l$ , so as to actuate the lever  $A'$ , whereby the platen  $B$  is caused to move. When the spacing-key is released, the restoring-spring  $o'$ , pressing against rod  $p'$ , returns the key to the starting-point.

The platen  $B$  supports the paper  $q'$ , as seen in Fig. 5, a presser-bar  $r'$  holding the paper down on top of platen. The bar  $r'$  is carried by a frame  $s'$ , Fig. 1, journaled at  $t'$  to the platen-carriage  $V'$ , and a spring  $w'$ , secured to the axle  $t'$  and braced against a stud  $v'$ , presses the frame  $s'$  and bar  $r'$  down on the paper  $q'$ . In addition to the restoring-spring  $w$ , a restoring-spring  $x'$ , Fig. 5, can be secured to each lever  $G$ , and the spacing-key  $i'$  may also have a restoring-spring  $y'$ .

In order to protect the parts as much as possible, covering-plates  $z'$ , Fig. 5, may be applied, which can be removed whenever required, so as to allow cleaning and repairing. The types on the bars  $C$  are inked by being carried past the ink-rollers  $w'$  as said bars slide back and forth.

The ink-roller can be variously located. I have found a convenient arrangement to be that shown in Fig. 1, where one ink-roller is placed parallel to the platen and two other rollers are placed at angles to the first roller, so that the several rollers correspond as nearly as possible with the radiating directions of the type-bars.

The type-bar is constructed of elastic material or its type-carrying portion is made elastic, so that the hammer  $D$ , as seen in Figs. 6 to 8, can press the bar against its elasticity for printing with a type. As the type-bar receives its motion from link  $O$  and the hammer  $D$  receives its motion from an independent mechanism—namely, the link  $l$ —the motions of the type-bar and hammer can be read-

ily timed to take place at the proper instant with respect to one another. As the levers  $G$  lie equally across the universal bar and as said levers are equally actuated by their keys, the connection between the keys and the universal bar is such that the universal bar is equally moved by the keys, and the action of the hammer is thus uniform for all the keys and type-bars. By arranging the levers  $G$  radially, as shown, a compact structure can be obtained occupying but little space.

It will be noticed that the link  $O$ , by its engagement of the eye  $Q$  and shoulder  $x$  of the type-bar, moves said type-bar positively in both directions, so that a positive connection is formed between the key and the type-bar by means of the link and levers  $G K L$ . The lever-arms  $K L X$  may be considered as forming a three-armed bell-crank lever actuating the link  $O$  and detent  $W$ , so as to form a positive connection between the key, the link, and the detent. The detent, it is noticed, is moved at all times the same distance whenever the key is depressed irrespective of whether the type-bar moves a greater or less distance. The movement of the link  $O$  and type-bar  $C$  being a sliding movement, said bar is easily actuated, since it does not have to be raised or moved against its own weight. The type-bars  $C$  radiate toward a common point and the ink-rollers are inclined toward one another, so that the various type-bars can readily slide past the respective ink-rollers, said ink-rollers being placed in the paths of the type-bars to ink the type.

The hammer  $D$ , being made to press from above down onto the type-bar, is in position to exert considerable force, and as the printing is done along the top of the platen the printing as it progresses is constantly visible to the operator, the platen-carriage  $V'$  being open at its top.

When a key  $E$  has been depressed and the escapement mechanism has been moved to the position shown in Fig. 12, the spring  $N'$  tends to rotate the escapement-wheel so as to force the parts back to the position shown in Fig. 11, and this tension of spring  $N'$  is transmitted through lever  $A$  to the universal bar and thence to the key  $E$ , so that the actuating-spring  $N'$  at the same time acts as a restoring-spring for the key  $E$ . When a key  $E$  is depressed, the lever  $G$  is depressed so as to depress the universal bar  $n$  and move the lever  $A'$  to carry the pawl  $D'$  to the position shown in Fig. 12 and the tension of the spring  $N$  causes the escapement-wheel  $L'$  on its respective tooth to press on the pawl  $D'$ , so as to return said pawl with the levers  $A' G$  and key  $E$  to the starting-point, so that the spring  $N'$ , in addition to its other functions, operates to return the keys to the starting-point when said keys are released by the operator.

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

1. The combination, with a key and a movable type-bar, of mechanism, substantially as

described, for conveying motion from the key to the type-bar and a lock for preventing retrograde motion of the bar, said lock being located at and made to act on the outer end of the bar, substantially as described.

2. The combination, with a key and a longitudinally-movable type-bar, of a series of types arranged along the bar in the direction of its motion, mechanism, substantially as described, for conveying motion from the key to the type-bar, and a series of locks for said bar, said locks being arranged to hold the bar in the respective positions required for printing by the various types on said bar, substantially as described.

3. The combination, with a key and a movable type-bar, of mechanism, substantially as described, for conveying motion from the key to the type-bar, and a lock for said bar, said lock consisting of a series of lugs or stops on the bar, and a detent or pawl for engaging said stops, and mechanism, substantially as described, for conveying motion from the key to the detent, substantially as described.

4. The combination, with a key and a type-bar constructed of elastic material, of mechanism, substantially as described, for conveying motion from the key to the type-bar, a hammer for pressing the type-bar against its elasticity, and a link and mechanism, substantially as described, for conveying motion from the key to the hammer, said link being made to act on the hammer between its pivot or support and its striking end, substantially as described.

5. The combination, with a key and a type-bar constructed of elastic material, of mechanism, substantially as described, for conveying motion from the key to the type-bar, a hammer for pressing the type-bar against its elasticity, and a link and mechanism, substantially as described, for conveying motion from the key to the hammer, said link being made to act on the hammer between its pivot or support and its striking end and being capable of a certain amount of play or motion independent of the hammer, so as to allow the type-bar to reach the printing position before the hammer is actuated by said link, substantially as described.

6. The combination, with a key and a type-bar constructed of elastic material and provided with two or more types, of mechanism, substantially as described, for conveying motion from the key to the type-bar, a hammer for pressing the type-bar against its elasticity, and a link and mechanism, substantially as described, for conveying motion from the key to the hammer, said link being made to act on the hammer between its pivot or support and its striking end, substantially as described.

7. The combination, with a key and a movable type-bar, of mechanism, substantially as described, for conveying motion from the key to the type-bar, a lock for said bar, and a re-

storing-spring operating on said key, said lock being located at and made to act on the outer end of the bar, substantially as described.

8. The combination, with a key and a type-bar carrying two or more types, of a link or connection for conveying motion from the key to the type-bar and one or more shifts for throwing said link out of action, substantially as described.

9. The combination, with a key provided with a connecting-link, of a type-bar carrying two or more types and provided with a connecting eye or shoulder engaged by the link and one or more shifts for throwing said link out of action, substantially as described.

10. The combination, with a key and a type-bar, of a link or connection for conveying motion from the key to the type-bar and a returning shoulder on the type-bar detachably engaged by said link, substantially as described.

11. The combination, with a key and a type-bar, of mechanism, substantially as described, for conveying motion from the key to the type-bar and a lock for said type-bar, consisting of a series of lugs or stops on the bar and a detent for said lugs or stops, said lugs or stops being of various lengths, so as to be engaged sooner or later by the detent as the type-bar has to travel a less or greater distance, substantially as described.

12. The combination, with a key, a type-bar carrying a series of type and a link or connection, substantially as described, for conveying motion from the key to the type-bar, of a series of shifts for disengaging the link at various times and an arm or shoulder, as *h*, for conveying motion from one shift to another, substantially as described.

13. The combination, with a key, a type-bar carrying a series of types, and mechanism, substantially as described, for conveying motion from the key to the type-bar, of a shift or shifts for disconnecting the key and the type-bar and a key or keys for moving said shift or shifts, substantially as described.

14. The combination, with a key, a type-bar carrying a series of types, and mechanism, substantially as described, for conveying motion from the key to the type-bar, of a lock made to act on the outer end of the type-bar, a shift or shifts for regulating the movement of the type-bar, and a key or keys for moving said shift or shifts, substantially as described.

15. The combination, with a key, a type-bar, and mechanism, substantially as described, for conveying motion from the key to the type-bar, of a lock made to act on the outer end of the type-bar and a stop for arresting the return movement of said bar, substantially as described.

16. The combination, with a key, a type-bar, and mechanism, substantially as described, for conveying motion from the key to the type-bar, of a hammer made to act on the type-bar and a universal bar actuated by the key, sub-

stantially as described, and connected to the hammer between its pivot or support and its striking end, substantially as described.

17. The combination, with a key, a type-bar, a lever, as G, and mechanism, substantially as described, for conveying motion from the lever to the type-bar, of a hammer made to act on the type-bar and a universal bar actuated by said lever, and a link extending from the universal bar and made to engage the hammer between its pivot or support and its striking end, substantially as described.

18. The combination, substantially as described, with a type-bar and a hammer, of a series of keys and a universal bar which co-operates with the keys and which is connected to the hammer between its pivot or support and its striking end, and means, substantially as described, connected to the type-bar to move the latter, substantially as described.

19. The combination, with the type-bars, of a series of type-bar-actuating keys, a hammer made to act on the bars, and a universal bar made to actuate the hammer, said universal bar being connected to the keys so as to properly co-operate with and to be moved equally by said keys and being made to act on the hammer between its pivot or support and its striking end, substantially as described.

20. The combination, with the type-bars, of a series of type-bar-actuating keys, a hammer made to act on the bars, a universal bar provided with a link made to act on the hammer between its pivot or support and its striking end, and a series of levers lying across the universal bar and connected to the keys in position to be moved equally by said keys, substantially as described.

21. The combination, with the type-bars, of a series of type-bar-actuating keys, a hammer made to act on the bars, a universal bar provided with a link made to act on the hammer between its pivot or support and its striking end, and a series of radiating levers lying across the universal bar and connected to the keys in position to be moved equally by said keys, substantially as described.

22. The combination, with a key and a type-bar, of a stop for arresting the return movement of the bar, an eye and a returning shoulder on said bar, and a link connected to the key and made to engage said eye and shoulder, so as to form a positive connection between the key and type-bar, said eye and shoulder being situated underneath the type-bar, so that the link can be readily lifted out of engagement, substantially as described.

23. The combination, with a key and type-bar, of a link made to actuate the type-bar, a bell-crank lever connected to the key and to the link for actuating the latter, and a detent for said type-bar, said detent being connected to the bell-crank lever, so that said bell-crank lever and detent move simultaneously, substantially as described.

24. The combination, with a key and a type-

bar, of a link for actuating the bar, a detent for said bar, and a bell-crank lever joined to the key, said link and detent being joined to the bell-crank lever, so that a positive connection is formed between the key, the link, and the detent and that the detent moves simultaneously with the key, substantially as described.

25. The combination, substantially as described, with a type-bar having several types, of means, substantially as described, for moving said type-bar various distances, lugs or shoulders secured to said type-bar, and a detent for engaging said lugs, said detent being arranged to be unaffected by the degree of movement of the type-bar, so as to move at all times the same distance, substantially as described.

26. The combination, with a key and a type-bar, of a link made to slide parallel with the bar for actuating the bar, and intermediate mechanism, substantially as described, for conveying motion from the key to the link, substantially as described.

27. The combination, with the type-bar, of a key, an oscillatory bell-crank lever actuated by the key, a link slid lengthwise by the bell-crank lever, pivotally connected thereto at one end, and having its opposite end portion detachably engaged with the type-bar, devices for disengaging the link from the type-bar as it is slid lengthwise by the bell-crank lever, and a spring for returning the parts to normal position, substantially as described.

28. The combination, with a type-bar, a key, and mechanism, substantially as described, for conveying motion from the key to the type-bar, of a paper-carrier, an escapement for the paper-carrier, and mechanism, substantially as described, for conveying motion from the key to the escapement, said escapement consisting of a toothed wheel engaged by oppositely-located detents supported by independently-pivoted arms or supports linked to one another near their free ends, substantially as described.

29. The combination, with a spacing-key, a paper-carrier, and a universal bar, of mechanism, substantially as described, for conveying motion from the spacing-key to the universal bar, and an escapement for the paper-carrier, said escapement being connected to the universal bar and composed of a toothed wheel, and detents located at opposite points of the wheels and supported by independently-pivoted arms linked to each other near their free ends, substantially as described.

30. The combination, with a key, of an escapement-wheel and arms or pawls, one of which is provided with a slot-and-pin guide, mechanism, substantially as described, for conveying motion from the key to one of the pawls, the clutch mechanism on the shaft of the escapement-wheel, and a gear made to engage the carriage-rack, substantially as described.

31. The combination, with the carriage and

- rack, of an escapement-wheel having an actuating-spring, the gear and clutch mechanism on the shaft of said wheel, pawls or arms made to engage the escapement-wheel, a pin-and-slot guide for one of said pawls, and means, substantially as described, for alternately bringing said pawls into and releasing said pawls from engagement with the escapement-wheel, substantially as described.
- 10 32. The combination, with the carriage and rack, of an escapement-wheel having an actuating-spring, the gear and clutch mechanism on the shaft thereof, independently-pivoted pawls or arms made to engage the escape-  
15 ment-wheel, a link made to connect the pawls, and mechanism, substantially as described, for throwing said pawls into and out of engagement with the escapement-wheel, substantially as described.
- 20 33. The combination, with the carriage and rack, of an escapement-wheel having an actuating-spring, the gear and clutch mechanism on the shaft of said wheel, a releasing-rim on said shaft, a key for actuating said releasing-  
25 rim, independently-pivoted pawls or arms made to engage the escapement-wheel, and mechanism, substantially as described, for actuating said pawls, substantially as described.
- 30 34. The combination, with a key, a type-bar, and a platen, of mechanism, substantially as described, for conveying motion from the key to the type-bar, and mechanism, substan-  
tially as described, for conveying motion from the key to the platen, and an actuating-spring, 35 as N', for driving the platen, said spring being made to return the key to the starting-point, substantially as described.
35. The combination, with a paper carrier or platen, a key, and a type-bar made to pass 40 over the paper-carrier, of mechanism, substantially as described, for conveying motion from the key to the type-bar, a hammer made to press from above down upon the type-bar, and a link and mechanism, substantially as de- 45 scribed, for conveying motion from the key to the hammer, said link being made to act on the hammer between its pivot support and its striking end, substantially as described.
36. The combination, with a horizontally- 50 sliding type-bar, of a vertically-reciprocating hammer made to act on said type-bar, mechanism, substantially as described, for actuating the type-bar, and a link and mechanism, 55 substantially as described, for actuating the hammer, said link being made to act on the hammer between its pivot or support and its striking end, substantially as described.
- In testimony whereof I have hereunto set my hand in the presence of two subscribing 60 witnesses.

CORNELIUS FLECKENSTEIN.

Witnesses:

WILLIAM C. HAUFF,  
E. F. KASTENHUBER.