

(No Model.)

2 Sheets—Sheet 1.

G. B. WEBB.
TYPE WRITING MACHINE.

No. 555,138.

Patented Feb. 25, 1896.

Fig. 1,

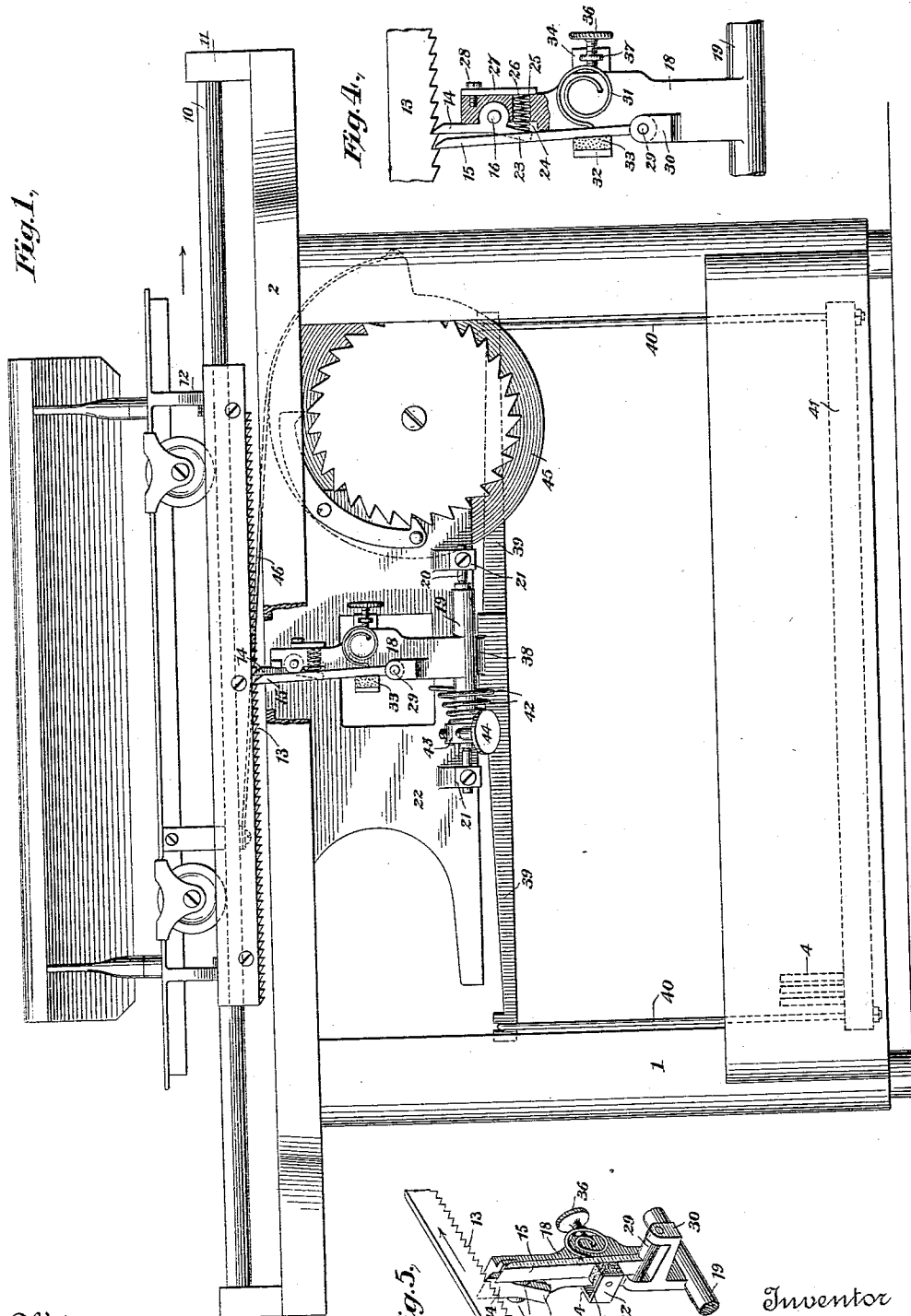


Fig. 4,

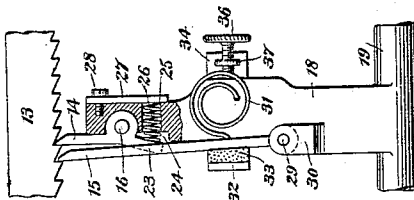
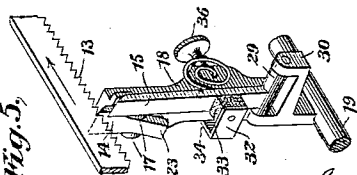


Fig. 5,



Witnesses
Geo. W. Breech
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By his Attorney

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H. D. Donnelly

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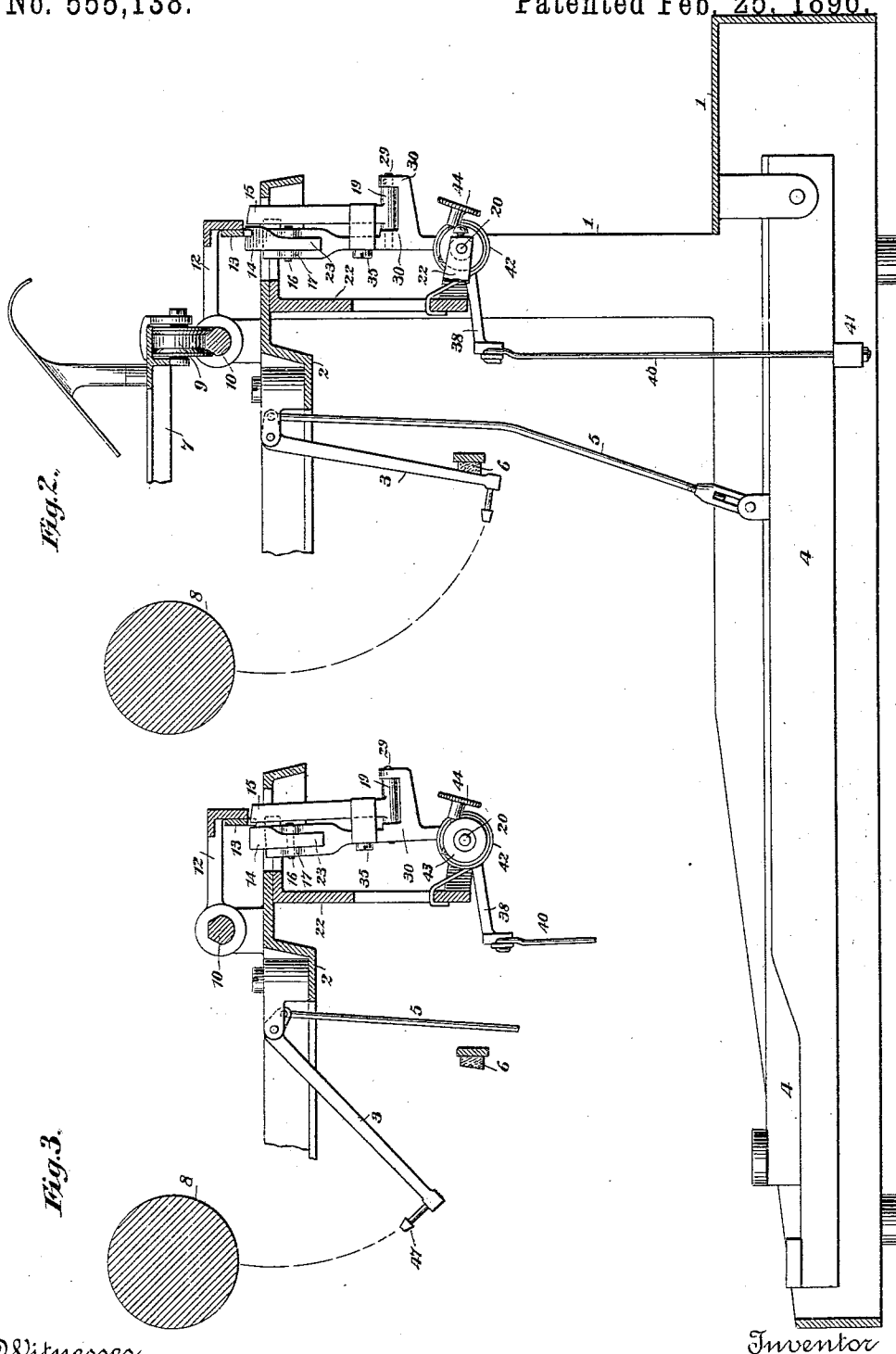


Fig. 2.

Fig. 3.

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Edward Thorpe.

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UNITED STATES PATENT OFFICE.

GEORGE B. WEBB, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE WYCKOFF, SEAMANS & BENEDICT, OF NEW YORK.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 555,138, dated February 25, 1896.

Application filed December 26, 1890. Serial No. 375,787. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. WEBB, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

The carriage feeding or escapement mechanism of type-writing machines should be so constructed and arranged as to allow of ample time for easy movement of the carriage from space to space; but as such mechanisms have heretofore been made and applied the desideratum referred to has not been realized. A lack of sufficient time for the carriage to move easily from space to space results in irregular spacing and uneven alignment in the writing produced. It has heretofore been attempted to remedy this difficulty in two ways—first, by making a lighter carriage, and, secondly, by increasing the pull or tension on the same. As the carriage must necessarily have sufficient strength and rigidity to resist vibrations and accidental strains, it has been found impracticable to cure the trouble alluded to, without presenting new difficulties or drawbacks, by making a carriage of less weight. If the second remedy—namely, high tension—be applied, numerous other objections are encountered, such as heavy friction on the dogs and consequent speedy wear, hard and resisting touch to the finger-keys, which must move the dogs as well as the type-bars, shock and vibration of the carriage at each stoppage, a twisting of the carriage, due to its being stopped at its rear, while its center of inertia is at the middle, a grinding of channels in the guide-rod, a rapid wear of the yoke-blocks, both due to the twisting action referred to, and finally resistance to the return of the carriage to its initial position.

In the old construction of machines the ascending type-bar strikes the platen and then drops to its initial position against the type-rest. During its return, and when about half-way back, the carriage is released and its forward movement begun. As the next bar is moved, so as to pass the descending bar at about the middle of its return movement, in

order to get all the speed possible, it will be seen that all the time in which the carriage has to move to the next place or notch is while the ascending bar is moving between a point half-way up and the platen or printing point, which is perhaps the fiftieth of a second. As it is practically impossible to move the carriage in this brief time, without encountering some of the objections hereinbefore recited, it will be readily understood how desirable it is that the carriage be released at an earlier period.

My invention has for its main object to release the carriage before the printing is done and while the type-bar is moving to print; and to this end my invention consists in arranging the carriage-feeding devices with reference to the movement of the type-bars in a manner such that the carriage shall be released for a full letter-space while the type-bars are moving to print and shall be in transit at the moment of impact of the type in printing. This peculiar action I have designated as the "reverse feed," since, as will be seen, it is the opposite of that which obtains in the ordinary escapement mechanism. According to my invention the carriage is released for the full letter-space during the downstroke of the key, and after the release and before the arrest of the carriage the type makes its impression, which is the reverse of what occurs in the old feeding mechanisms.

In the accompanying drawings, Figure 1 is a rear elevation, partly in section, of a type-writing machine embodying my improvements. Fig. 2 is a central vertical section of the same. Fig. 3 is a side sectional detail view of the type-movement and escapement devices. Fig. 4 is a rear sectional elevation of the escapement devices, enlarged; and Fig. 5 is a perspective view of the same.

In the several views the same part will be found designated by the same numeral of reference.

1 represents the framework of the machine, which, as will be observed, is substantially like that of the well-known Remington machine.

2 is the type-ring or top plate, around which the type bars or levers 3 are arranged in the usual way.

4 are the key-levers, and 5 the connecting-rods for coupling them to the type-bars, which latter in their normal positions lie against a rest or support 6.

7 is the paper-carriage, which may be of the usual construction and carry the paper-platen 8. The rear side of the carriage is provided with antifriction-rollers 9, which travel on a hinge and guide rail 10 mounted in brackets 11 on the framework or top plate. Hinged to the carriage in the customary manner is a frame 12 bearing a vertically-arranged feed-rack 13, with which engages alternately two dogs 14 and 15. The dog 14, I designate the "holding" or "detaining" dog, as its function is to arrest or stop the carriage when in engagement with the feed-rack, and the dog 15, I designate the "spacing" or "feeding" dog, as its function is to so co-operate with the rack as to govern the actual feed or letter-spacing movement of the carriage.

The dog 14 is preferably pivoted at 16 in ears 17 at the upper end of a dog holder or support 18, which at its lower end is provided with trunnions 19, whose ends are pivotally supported by pins or journals 20 fixed in lugs 21 in a depending framework 22. The said dog 14 when pivoted as above is provided with an extension or tailpiece 23, arranged at an angle to the dog proper so as to leave a gap or space, as at 24, between the inner face of the tailpiece and the face of the dog-holder, for a purpose which will hereinafter appear. Within a housing 25 in the dog-holder is arranged a spiral spring 26, bearing at one end against said tailpiece and at the other against an abutment or arm 27 attached by a screw 28 to the dog-holder. The action of the spring 26 is such as to normally hold the dog in an upright position parallel with the dog-holder and against one side or face thereof, which acts as a stop and in opposition to said spring.

The dog 15 is pivoted at 29 in ears 30, formed integral with the dog-holder and in rear of the dog 14. A coiled spring 31, connected at one end to the dog-holder and at the other end bearing against said dog, is provided to move said dog to the right, considered from the front of the machine. The movement of said dog in this direction by the spring is limited by a stop 32, having a soft or cushioned face 33, the stop being arranged at one end of a slidable bar 34, which is connected to the front side of the dog-holder by a supporting-screw 35, and which is moved or slid thereon by an adjusting screw and nut 36 and 37. The return or opposite movement of the dog 15 is limited by the dog-holder, against which it strikes.

Formed integral with the trunnions and dog-holder and extending forwardly is a rocker-arm 38, to which is secured a long cross-bar 39, to each end of which is hooked the upper end of a connecting-rod 40, whose lower end is attached to one end of a transverse universal bar 41, underlying all of the key-levers, so as to be actuated thereby.

Upon one of the trunnions 19 is mounted a coiled spring 42, one end of which is connected to a collar 43 on said trunnion and the other end is hooked over the framework 22, means being provided at 44 to regulate the tension of said spring and hence the return movement of the dog-holder and its appurtenances and connections.

In the normal or unused position of the parts the holding-dog 14 stands in engagement with the feed-rack and prevents the carriage from being propelled in the direction of the arrow by the usual spring-actuated driving drum or disk 45, to which it is connected by the belt or band 46, and the feeding-dog 15 stands in rear thereof and one notch or space to the right, as seen at Figs. 1, 2, 4, and 5.

Upon the depression of a key-lever the dog-holder is vibrated forward through the universal bar, connecting-rod, and rocker-arm and the dog 14 moved out of engagement with the teeth of the feed-rack and the dog 15 moved into engagement, but in rear of the tooth which the dog 14 at first resisted. As soon as the dog 15 engages with the rack, the driving power being stronger than the spring 31 operates to pull the carriage in the direction of the arrow until the dog 15 has been brought against the dog-holder and stopped thereby, at which time the points or upper ends of both dogs lie in line or in the same vertical plane. When the key-lever is released, the spring 42 operates to return the parts and the rigid or holding dog enters the identical notch which the dog 15 occupied, thus preventing any movement of the carriage at this time. As soon as the dog 15 is moved rearwardly out of the rack, its spring 31 throws it to the right, as seen at Figs. 1 and 4, into position to engage the next notch or tooth when the dog 14 is withdrawn again.

By referring now to Fig. 3 it will be observed that when the type 47 has moved about half-way up to the platen the holding-dog 14 has been withdrawn from the rack and the feeding-dog 15 has been engaged therewith. At this moment therefore the carriage begins to move, and while this movement is taking place the type strikes the paper on the platen, or effects the printing of its character. As the last half or portion of the movement of the type-bar is very rapid the impression is made before the carriage has moved more than two or three thousandths of an inch on its way to the next stop. The paper is therefore printed while the carriage is moving, but moving slowly.

I have carried out my invention in practice and find it perfectly feasible to print while the carriage is in transit, and by thus organizing the machine I am enabled to produce better alignment and better spacing, while at the same time decreasing the friction of the dogs, the wear on the dogs, the finger-key action or touch, the resistance to return of the carriage, the friction and wear of all the moving

parts, and the shock or vibration of the carriage in stopping.

By giving the carriage more time to move between spaces less driving power and tension are required, and hence I am enabled to effect the desiderata above referred to and also to produce a machine which may be operated with greater rapidity.

The dog 14 is pivoted at 16 for the sole purpose of enabling the carriage to be returned easily and quietly and without unnecessary wear on the dog or the rack.

In returning the carriage the dog 14 vibrates on its pivot or yields against the tension of its spring, the gap or space between the oblique tailpiece of the dog and the dog-holder permitting the upper end of the dog to swing to the right as the rack is pulled over it in contact.

If it be not desired to provide for the easy and quiet return of the carriage, the dog 14 may be made rigid or unyielding.

The main feature of my invention includes the dog 14, whether fixed or pivoted.

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

1. In a type-writing machine, the combination of a printing mechanism, a paper-carriage, and a reverse feed for the carriage; substantially as set forth.

2. In a type-writing machine, the combination of a paper-carriage, type-bars, connecting-rods, key-levers, a universal bar, and a reverse-feed escapement mechanism for the paper-carriage connected to and operated from the universal bar; substantially as set forth.

Signed at New York city, in the county of New York and State of New York, this 18th day of December, A. D. 1890.

GEORGE B. WEBB.

Witnesses:

GEO. W. WEIFFENBACH,
JACOB FELBEL.