

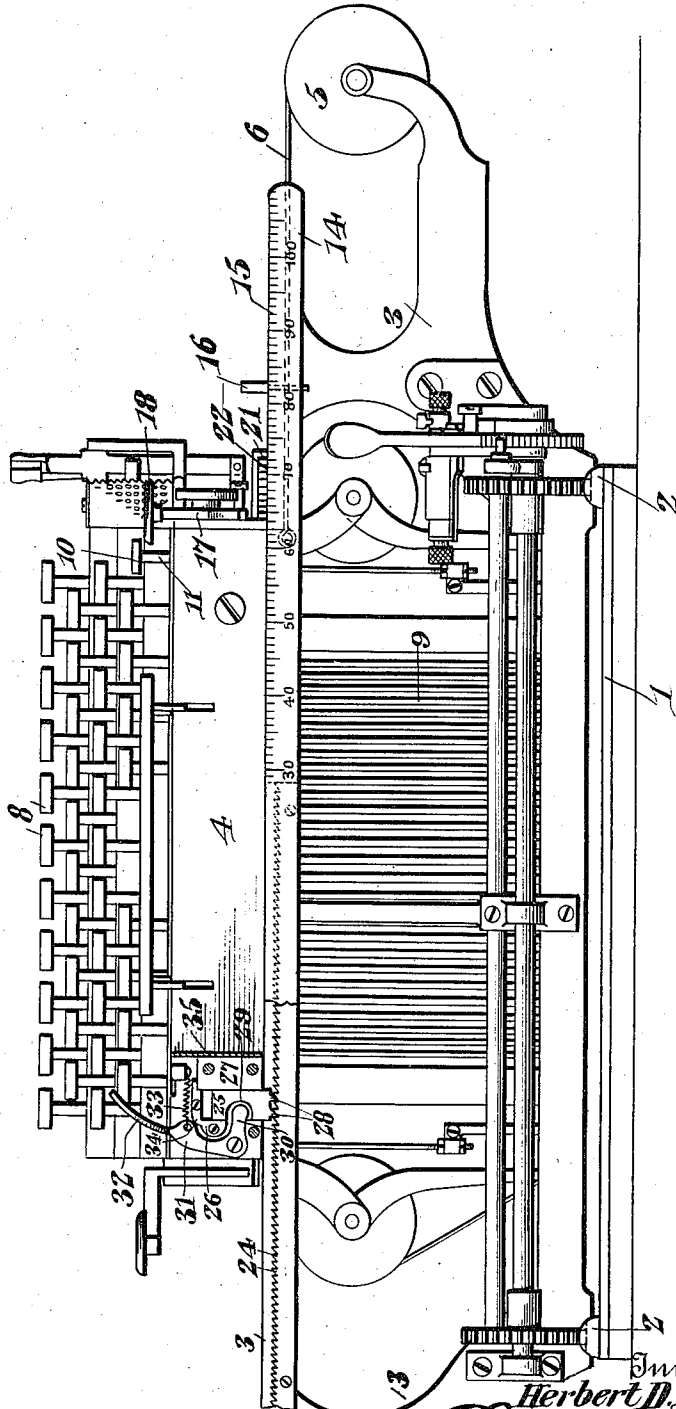
H. D. BOLTON.  
 REBOUND CHECK FOR TYPE WRITER CARRIAGES.  
 APPLICATION FILED APR. 3, 1907.

996,607.

Patented July 4, 1911.

3 SHEETS—SHEET 1.

Fig. 1.



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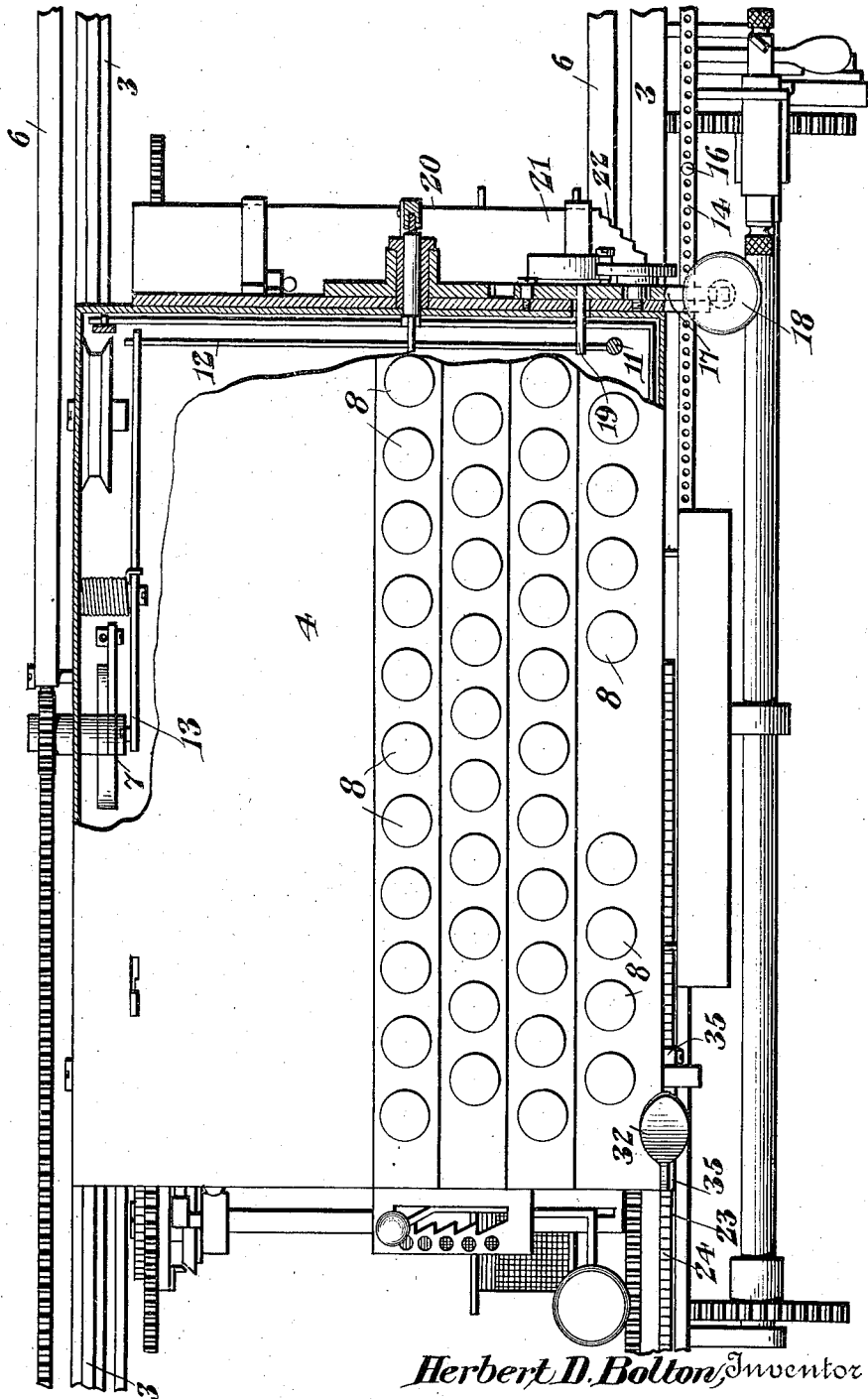
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3 SHEETS-SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 4.

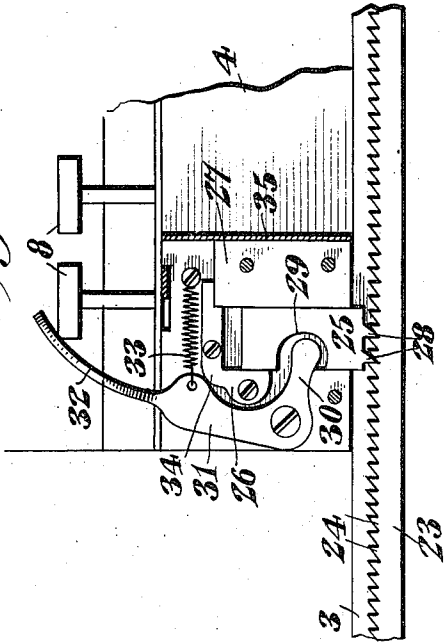


Fig. 6.

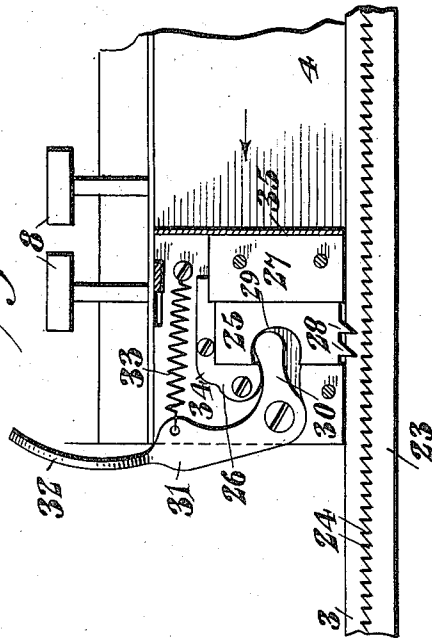


Fig. 3.

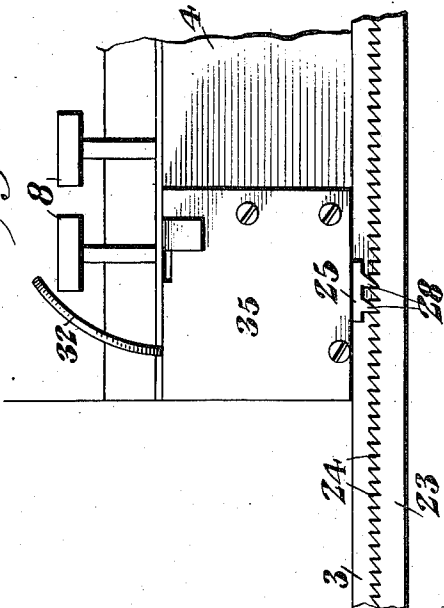
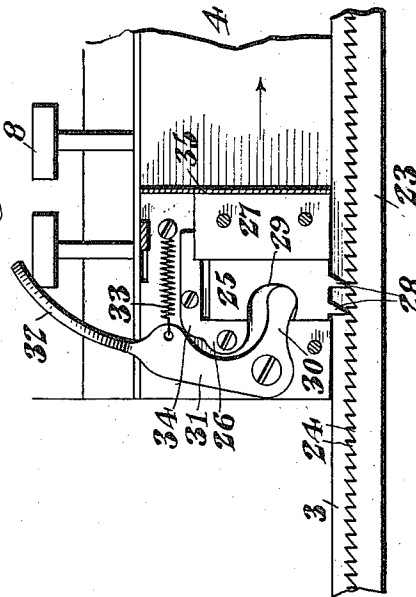


Fig. 5.



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# UNITED STATES PATENT OFFICE.

HERBERT D. BOLTON, OF NEW YORK, N. Y., ASSIGNOR TO ELLIOTT-FISHER COMPANY,  
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## REBOUND-CHECK FOR TYPE-WRITER CARRIAGES.

996,607.

Specification of Letters Patent.

Patented July 4, 1911.

Application filed April 3, 1907. Serial No. 366,176.

*To all whom it may concern:*

Be it known that I, HERBERT D. BOLTON, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Rebound-Check for Type-Writer Carriages, of which the following is a specification.

This invention relates to typewriting machines, and more particularly to means for preventing the rebounding of the typewriter carriage when the latter is suddenly arrested, as for instance, by a tabulator stop.

The object of the invention is to equip a typewriter with a check device which will dog the forward movement of the carriage to hold the latter against rebound when suddenly arrested, and which will be disposed for convenient release by the operator as an incident to the retraction of the typewriter carriage to begin a new line of writing.

Subordinate to this object are others, which will hereinafter more fully appear.

In the accompanying drawings—Figure 1 is a front elevation of an Elliott-Fisher typewriter equipped in accordance with my invention. Fig. 2 is a plan view of a portion of the same machine, showing more particularly the tabulating mechanism including the column stop and the cooperating catch which is moved to its operative position by a key which simultaneously releases the carriage. Fig. 3 is a detail view of a portion of the machine with the carriage check in place. Fig. 4 is a similar view, with the casing of the check mechanism in section and showing the elements of said mechanism in their normal positions when the carriage is at rest. Fig. 5 is a view similar to Fig. 4, but showing the check or rebound dog in the act of riding over the teeth of the rack as the carriage advances, and Fig. 6 is still another detail view of the check mechanism with the parts in the positions they assume during the retraction of the carriage.

Each part is designated by the same reference character wherever shown.

In the drawings I have shown my invention applied to what is known commercially as the Elliott-Fisher billing machine, but it is to be distinctly understood that the invention is not limited to machines of this particular type, but is applicable to type-

writing machines generally which include a movable carriage adapted to be moved quickly and arrested suddenly, as the rebound of the carriage is objectionable in any form of typewriting machine. In the first place, such rebound produces objectionable wear. It also reduces the speed at which the machine may be operated because, if the carriage has not recovered from the rebound and assumed its normal position before the type strikes the work sheet, the characters are not properly spaced. Furthermore, the rebound if considerable, may result in the throwing in of the escapement before the recovery of the carriage, thus bringing the carriage to a standstill one or more spaces from the position in which it is arrested by the tabulator stop. The Elliott-Fisher typewriter is a machine of the flat platen or book type, and comprises a platen 1 equipped with tracks or guides 2 upon which the machine frame 3 travels longitudinally of the platen to line space the writing.

Movable transversely of the platen on the frame 3 is a carriage 4 drawn in one direction by carriage propelling mechanism including spring drums 5 and tapes 6 which connect the drums and carriage. The movement of the carriage to the right or in the direction of letter spacing is controlled by an escapement 7, which is operated, in a manner well understood in the art, from keys 8 to permit the step-by-step advance of the carriage in the direction of letter spacing, as the keys rise. The keys 8 and the printing devices 9 operated thereby, as well as the escapement 7, are mounted on the carriage 4 in this type of machine, and the carriage is also equipped with a release key 10 the stem 11 of which is operatively connected through levers 12 and 13 to the escapement, the character of the connection being such that upon the depression of the release key 10, the escapement will be rendered inoperative or thrown out, as it is termed, in order to permit the free advance of the carriage by its propelling mechanism.

Mounted on the frame 3 at the front side thereof, is what is known as the column stop bar 14 equipped with a scale 15, as shown in Fig. 1, and with one or more column stops 16 which are adjustable to various positions along the bar according to the position in which it is desired to arrest the carriage.

Coöperating with the column stop is what is termed a single unit catch 17 having the form of a plate pivoted to the right hand end of the carriage, as best shown in Fig. 2, and equipped with a key 18 by means of which the front end of the catch may be depressed from its normal inoperative position to its operative position. In the depressed or operated position of the unit catch it moves with the carriage 4 in a path obstructed by a column stop so that when the stop is reached, the catch 17 will contact therewith and arrest the carriage. It is usual to connect the catch 17 with the carriage release mechanism, as for instance by means of an arm 19 projecting from the catch and engaging the lever 12. Therefore, when the key 18 is depressed, the carriage is released and the catch 17 is simultaneously thrown to its operative position, so that the carriage will move swiftly or skip under the impulse of the carriage propelling mechanism until arrested by the contact of the catch 17 with a column stop 16.

All of the structure thus far described is common to the Elliott-Fisher typewriter of commerce, and the column stops and catch, together with the coöperating parts, constitute what is known broadly as tabulating mechanism. In addition to this single catch tabulating mechanism the Elliott-Fisher machine is also commonly equipped with what is known as the Laganke variable stop tabulator 20, the operation of which is similar to that of the single stop tabulator except that the catch numbered 21 is provided with a series of stop faces 22, any one of which may be thrown into interfering relation with the tabulator stop 16 for the purpose of arresting the carriage any desired number of letter spaces to the left of the point indicated by the stop, as for instance any desired number of spaces to the left of the decimal point of a column. These various devices constitute no part of my present invention, except in so far as they may enter into combination with the novel features to be hereinafter pointed out.

For a further disclosure of the construction of the Elliott-Fisher typewriter than is deemed necessary for present purposes, attention is directed to Patents Nos. 573,868 to R. J. Fisher, showing the general organization of the machine; 666,762 to C. F. Laganke, showing the variable tabulating mechanism; and 723,937 to John A. Smith, showing both the variable and single unit tabulating mechanism disclosed in the present application.

The use of tabulating mechanism for arresting the rapid advance of the carriage at any desired point is practically universal in the typewriter art. Necessarily the abrupt arrest of the carriage, particularly when the latter has been skipped a con-

siderable distance, causes the carriage to rebound more or less. As has heretofore been stated, this rebound of the carriage is objectionable, and the present invention contemplates the employment of mechanism for checking or dogging the carriage against backward movement so that, the recoil or rebound of the carriage when suddenly arrested will be absolutely prevented. To accomplish this end, I provide on the frame 3 of the machine a check rack 23 preferably interposed between the frame and the column stop bar 15 and provided with ratchet teeth 24. The teeth 24 of the check rack 23 are designed to be engaged by a check dog 25 slidably mounted between guides 26 and 27 secured to the front side of the carriage 4 at the left hand end thereof. The dog 25 is provided at its lower edge with a pair of ratchet teeth 28 which normally extend into two of the interdental spaces of the rack 23, the ratchet form of the coöperating teeth permitting the dog to click idly over the rack during the advance of the carriage, but serving by the abutment of their straight faces, to prevent movement of the carriage in the reverse direction. In one side edge of the dog 25, which is preferably in the form of an oblong plate, is a recess or socket 29 into which extends one arm 30 of an angular dog-retracting lever 31 fulcrumed on the carriage and provided at its upper end with a finger piece 32. The lever 31 is yieldingly held in its normal position by a retracting spring 33 which holds the lever against a stop 34 formed by the edge of the guide 26. In this normal position of the lever 31 the arm 30 thereof is held about midway of the upper and lower edges of the recess 29 in the dog 25, so that the check dog will have sufficient play to ride over the teeth of the rack 23 during the forward movement of the carriage without operating the lever 31.

It will be noted that the dog 25 gravitates to its operative position and necessarily rises as the teeth 28 of the dog ride over the teeth 24 of the check rack. If desired, the dog may be spring-urged to its engaging position, but this is an obvious variation of the illustrated construction and where the dog operates in a vertical plane, the use of a spring is unnecessary.

The several elements of the rebound preventing mechanism are preferably inclosed in a small casing 35, as shown in Fig. 3. The several straight faces of the teeth are separated by letter space intervals. Therefore, when the carriage is arrested by a tabulator stop in any given letter space position, the teeth of the check dog 25 will be in engagement with the teeth of the rack and will resist any tendency of the carriage to rebound when arrested suddenly by the stop. While the dog 25 constantly dogs the carriage, it opposes no resistance to the inten-

tional retraction of the carriage by the operator, the arrangement being such that the carriage may be retracted through the medium of the lever 31. The release of the check mechanism is thus incidental to the retraction of the carriage when the operator draws back on the upper end of the lever. The initial movement of the latter will cause the arm 30 thereof to lift the dog 25 to the position shown in Fig. 6, and further movement of the lever in this direction being arrested by the stop formed by the lower end of the guide 26, the carriage will be retracted to begin a new line of writing.

While the present embodiment of the invention comprehends a straight rack and a cooperating dog, the particular form of the rack is immaterial, since a straight rack is merely an arc of indefinite radius and, within the range of normal equivalents, the radius may be diminished until the rack assumes the form of a wheel. Therefore, the term rack as employed in the claims is intended to comprehend a rack of any form which, by cooperation with another element, will constitute a check mechanism for preventing the rebound of the carriage. Furthermore, it is immaterial which of the cooperating elements of the check mechanism are mounted on the respective primary elements, to-wit, the carriage and the frame of the typewriter, an inversion of the present arrangement of the invention comprehending the mounting of the dog on the frame and the rack on the carriage of the machine. In fact, in the broader aspects of the invention, the rack and dog may be mounted both on one of the primary elements of the typewriter in a manner similar to the mounting of the rack and dogs of the escapement in the Elliott-Fisher typewriter here shown.

It is thought that from the foregoing, the construction and operation of my device for preventing the rebound of the typewriter carriage will be clearly comprehended; but, while the present embodiment of the invention appears at this time to be preferable, I expressly reserve the right to effect such changes, modifications and variations of the illustrated structure as may come fairly within the scope of the protection prayed.

What I claim is:—

1. In a typewriter, the combination with a frame and a movable carriage, of carriage arresting means, a rebound check device for the carriage, and a finger piece mounted on the carriage to facilitate the retraction thereof and movable to release the check device to permit such retraction.

2. In a typewriter, the combination with a frame and carriage, of carriage arresting means, a rebound check device including a

rack and a cooperating dog relatively movable into and out of engagement, and a finger piece mounted on the carriage and having limited independent movement in the direction of the retraction of said carriage to effect relative movement of the rack and dog.

3. In a typewriting machine, the combination with a frame and a movable carriage, of carriage arresting means, a rebound check including a rack and a cooperating dog, one mounted on the frame and the other on the carriage, and a finger piece for moving the dog to an inoperative position to permit the retraction of the carriage.

4. In a typewriter, the combination with a frame and movable carriage, of a rack mounted on the frame, a dog movably mounted on the carriage and having a tooth engaging the rack, and a dog retracting device, said dog being movable independently of the retracting device as said dog rides over the teeth of the rack during the advance of the carriage.

5. In a typewriting machine, the combination with a frame and carriage, of rebound check mechanism including a ratchet-toothed rack mounted on the frame, a toothed dog mounted on the carriage and provided with a recess, a lever fulcrumed on the carriage and having one end thereof extended into the recess of the dog and having a finger piece at its opposite end, and a retracting spring for said lever.

6. In a typewriting machine, the combination with a frame and carriage, of a rebound check mechanism including a ratchet toothed rack mounted on the frame, a toothed dog mounted on the carriage to engage the rack, and a lever fulcrumed on the carriage to constitute a finger piece whereby the carriage may be retracted, said lever being cooperatively related to the dog to withdraw the same from the rack when the lever is urged to retract the carriage.

7. In a typewriter, the combination with a frame and a movable carriage, of carriage arresting means, a rebound check device for the carriage, said device including a ratchet member and a dog coacting therewith, and a dog retracting device, said dog being movable independently of the retracting device as said dog accommodates itself to the teeth of the rack during the advance of the carriage.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

HERBERT D. BOLTON.

Witnesses:

JOHN A. SMITH,  
CHAS. F. LAGANKE.