No. 726,489. PATENTED APR. 28, 1903.

C. B. YAW.

CARRIAGE ESCAPEMENT DOG.

APPLICATION FILED AUG. 5, 1901.

NO MODEL.

Fig. 1

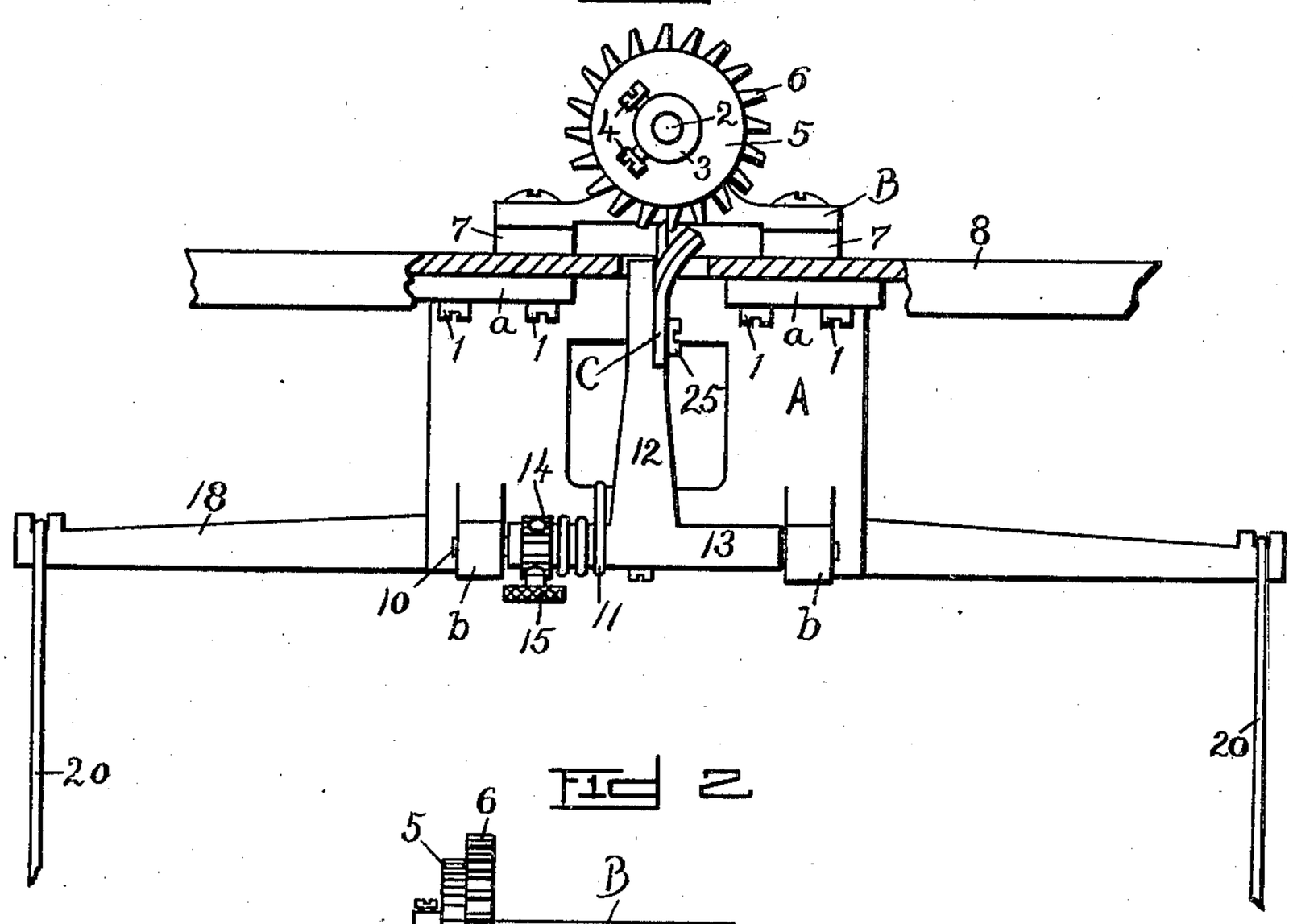


Fig. 2

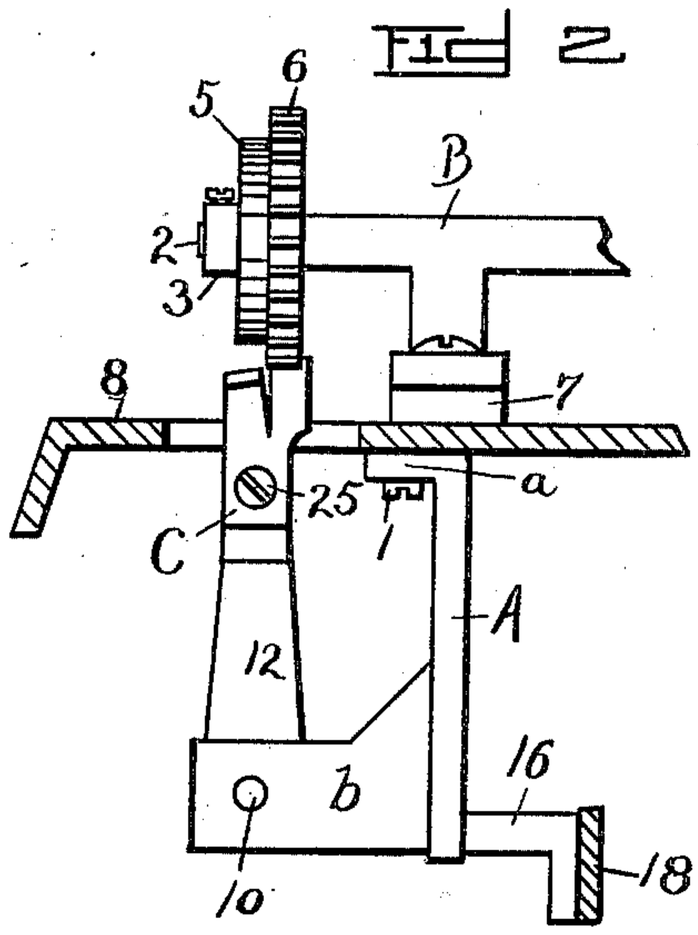


Fig. 3.

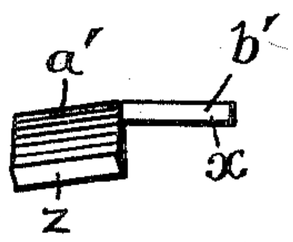
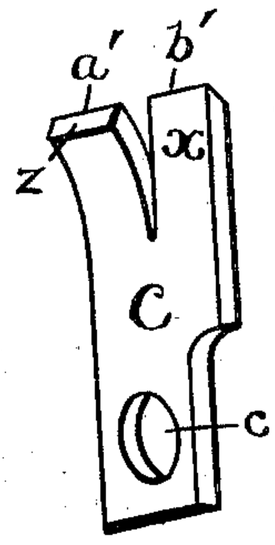


Fig. 4



WITNESSES.

R. J. Davenport.

M. Boekhoff.

INVENTOR

Cleo B. Yaw

PER Geo. W. Ives.

ATTORNEY

UNITED STATES PATENT OFFICE.

CLIO B. YAW, OF OMAHA, NEBRASKA.

CARRIAGE-ESCAPEMENT DOG.

SPECIFICATION forming part of Letters Patent No. 726,489, dated April 28, 1903.

Application filed August 5, 1901. Serial No. 70,921. (No model.)

To all whom it may concern:

Be it known that I, CLIO B. YAW, residing at Omaha, in the county of Douglas and State of Nebraska, have invented certain useful Improvements in Carriage-Escapement Dogs; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to a new and novel improvement in type-writers.

The object of my invention is to provide a carriage-escapement for type-writers so arranged that the carriage will be permitted a duplex or double movement when a key is operated, the movement being divided so that the carriage advances part of the distance on the downward movement of the key and the remaining part of the distance on the upward movement of the key.

The invention further embodies an escapement-dog, as will be more clearly described hereinafter.

In the accompanying drawings I have shown in Figure 1 a rear view of a portion of a type-writer, disclosing the arrangement of my carriage-escapement dog. Fig. 2 shows a side view thereof. Fig. 3 shows a top view of the escapement-dog, while Fig. 4 shows a perspective view of the dog as used in my invention.

The aim of my invention is more particularly to provide an escapement for type-writers of that class using an escapement-wheel and in connection with which I use a dog comprising two rigid members extending in different planes. According to my construction the teeth of the escapement-wheel are always in engagement with one of the rigid members of a double-membered and integral dog, both of said members being rigid and relatively fixed. The continual engagement of the escapement-wheel with a rigid dog imparts a steady and regular movement to the paper-carriage. These rigid dog members can be so bent and have their faces so positioned that the carriage is advanced, say, one-half the distance on the downward stroke of the key and the remaining distance on the upward movement of the key.

By means of my improvement the distance traveled on each movement or stroke of the key may be varied to suit the touch of the operator, so that an elective speed may be imparted to the carriage.

In the accompanying drawings I have shown the top plate of an ordinary type-writer of that class within which escapement-dogs are used. This top plate is marked 8 and is suitably supported. This plate 8 is provided with the lugs 7 7, to which is secured a bearing B, through which bearing passes a shaft 2, which shaft holds and supports an ordinary escapement-wheel provided with the collar 3, the hub 5, and the projecting teeth 6, as is usual in certain classes of type-writers. This shaft 2 is the shaft that permits the escapement of the spring-actuated carriage, as is usual in the Remington make of type-writers, for instance. Positioned below the top plate 8 is a hanger A, provided with the ears *a*, which by means of the screws 1 1 is secured below the plate 8. This hanger A is provided with the bearing-lugs *b*, within which is held a rocker-shaft 10, an ordinary coil-spring 11 forcing this rocker-shaft in one direction in being wound about the lower portion 13 of the T-shaped rocker-arm 12. The tension of the spring 11 is regulated by means of the collar 14, adjusted by means of the set-screw 15, so that this rocker-arm is normally carried outward in one direction by means of the spring 11. Secured to the rocker-arm 12 is an arm 16, which arm has secured to it a hanger 18, which hanger is suitably connected to the finger-keys, so that the dog is actuated by each movement of any of the keys. Secured to the rocker-arm 12 is a one-piece dog C, which dog is formed of thin flat metal and has at its lower end an opening *c*, as is shown in Fig. 4, through which extends a suitable screw 25, by means of which the dog C is secured to the rocker-arm 12. This one-piece dog is split or bifurcated, so as to provide the members *a'* and *b'*, these members being beveled so that the teeth 6 of the escapement-wheel readily strike against the same. This dog is so set that the teeth 6 of the escapement-wheel come against

the flat side x of the dog member b', but against the beveled end z of the dog member a', the dog as an entirety rocking from side to side and permitting the escape of the teeth 6 between the opening formed in spreading these members a' and b'. It will also be observed that the member b' occupies a vertical plane and is in alinement with the body portion of the dog, while the member a' is bent forwardly and away from the member b', so that a space is formed between said members to permit passage of the teeth 6 of the escapement-wheel during the movement of the dog. By bending the member a' in the manner described the same occupies an angular plane with relation to the member b', and the member a' is thus effectually braced against the impact of the teeth 6, so that breakage of the member a' from such impact is reduced to a minimum. Moreover, the end of said member is thereby presented for contact with the teeth of the escapement-wheel rather than its side, and by beveling said end it will also be seen that the same presents a very narrow flat surface for contact with the teeth 6, whereby the friction between said end and the teeth 6 is reduced to a minimum degree. Furthermore, by forming the dog of thin flat metal the same may be stamped from suitable blanks, after which the member a' may be bent to the angular position which it occupies, thus enabling the dogs to be expeditiously made in large quantities and at a trifling cost, which features are decided advantages in articles of this character. Now in the operation of this one-piece dog it will be noticed that both the dog members a' and b' are immovable, and in operating a type-writer provided with this escapement-dog in depressing any key the teeth 6, one of which is normally engaged with the face x of the member b', is permitted to escape, so that the next tooth engages the solid dog member a' to strike against the face z, and when the key is released the spring 11 carries the rocker-arm back to permit the escape of that tooth from the face z of the member a' and allows it to come in contact with the face x of the member b'. From this it will be seen that the carriage in order to travel the space of one letter moves twice, part of the distance being permitted when the first tooth escapes and the remaining movement when the second tooth escapes from the rigid member a' to strike the second rigid member b'. This one-part dog can be easily made and is much simpler in its construction and operation than the dog usually employed, in which one member rocks or is movable and spring-actuated. This one-piece dog can further be attached to any type-writer in which an ordinary escapement-wheel is used. There are a number of advantages embodied in the use of one of these dogs, as in securing the same but one adjustment is required, which is permanent. I further provide a durable and lasting device. But a very little movement of the dog is required to permit the operation of the escapement-wheel, which results in a much more rapid movement and insures a light action or touch of the keys. The greatest advantage possible is that in the use of this one-piece dog the uncertainty incident to the use of dogs having movable parts is eliminated. The carriage moving twice insures a lessening or diminution of the shock incident to the sudden stopping of the carriage, which prevents a blurring of the letters. As most type-writer carriages are drawn in one direction by means of a spring, it is quite essential to do away with the recoil of the carriage when it is suddenly checked after a key has been struck. In dividing one long movement of the carriage into two short movements I greatly eliminate and lessen the shock or recoil of the carriage, which is of great value in type-writer construction.

As ordinarily constructed the writing-machine escapement is so arranged that the paper-carriage remains at rest while the type is advancing to the printing-point and moves a whole letter-space while the type is receding from the printing-point. This causes the letters to overlap and appear out of alinement when operated by an exceedingly fast operator, but does not allow the type to drop back to the full point of rest before striking the next letter, so that the paper-carriage is not permitted sufficient time in which to move the full letter-space between strokes.

The one-piece escapement-dog, as is disclosed in my invention, permits the paper-carriage to move forward part of the letter-space while the type advances to the point of printing and the remaining distance while the type recedes from the printing-point, thereby giving the paper-carriage the longest possible time to move the shortest possible distance. From this it will be noticed that in the operation of this dog member both the dog members a' and b' are immovable, and in operating a type-writer provided with this escapement-dog, while suitably connected with the finger-levers, the depression of any key will operate the dog, and during this movement the teeth 6 of the escapement-wheel, one of which is normally engaged with the face x of the member b', is permitted to escape and the next tooth becomes engaged with the other rigid member a' striking against the face z of the dog and held there by the rigid member a' until released by a second escapement, which results from the dog moving to its normal position, and engages the next tooth with the face x of the member b'. From this it will be seen there are two escapements and engagements of the teeth 6 with the rigid members of the dog—one while the dog is passing in one direction and the other while the dog is returning—in-

suring two regular advance movements of the carriage while it is going the space of one letter, it moving part of the distance with the first escapement and the remaining distance with the second escapement.

In the above description and for the purpose of better illustrating my invention I have described auxiliary parts or members now commonly used in type-writer construction in disclosing suitable connection between the spring-actuated carriage and the finger-keys. It should be understood that I do not limit myself to the particular mechanism or construction of such parts or members as are auxiliary to my escapement.

It is impossible to make the carriage of a machine skip or catch during its movements over the letter-spaces with one of my one-piece escapement-dogs, and the latter further permits a lighter tension on and shorter drop to the universal bar, which is due to the fact that the degree of depression of the universal bar is materially lessened by the use of the present invention.

Having thus described my said invention, what I claim as new, and desire to secure by United States Letters Patent, is—

In a type-writer, the combination with the escapement member thereof, of a dog coacting therewith and comprising a thin flat body having its upper end bifurcated to form a pair of integral members, one of said members occupying a vertical plane and being in alinement with the body portion of the dog, and the other member bent forwardly and away from the first-mentioned member to occupy an angular plane with relation thereto, whereby said bent member is braced against the impact of the teeth of the escapement member and the end thereof presented for contact with the teeth of said escapement member, the end of said bent member being beveled to present a narrow flat surface for contact with the teeth of the escapement member, whereby the friction between said end and said teeth is reduced to a minimum.

CLIO B. YAW.

In presence of—
RAY J. DAVENPORT,
MARGARET E. BOEKHOFF.