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Patented Aug. 1, 1899.

J. A. & A. H. BEDWORTH.  
ESCAPEMENT FOR TYPE WRITING MACHINES.

(Application filed Nov. 14, 1898.)

(No Model.)

Fig:1.

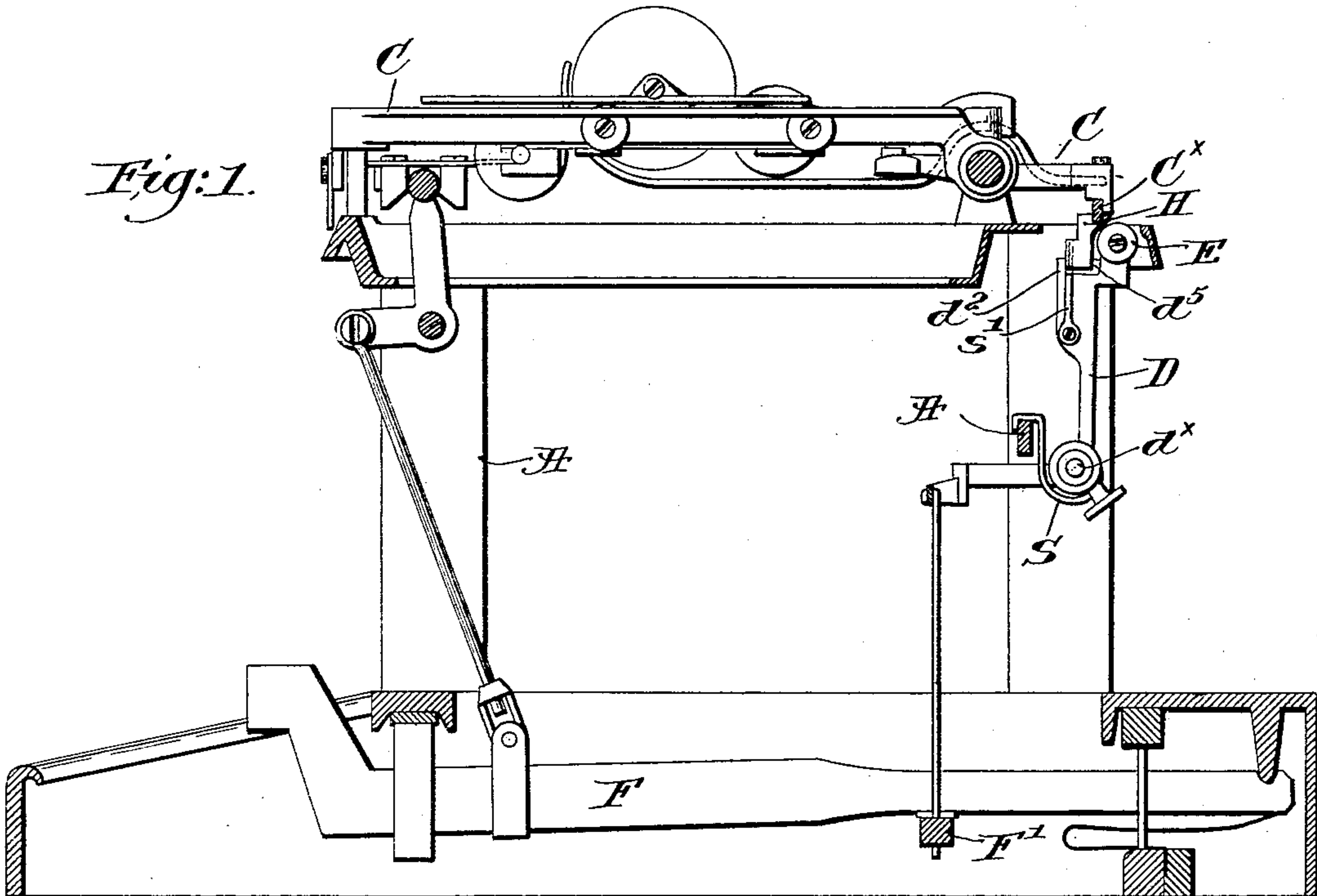


Fig:3.

Fig:4.

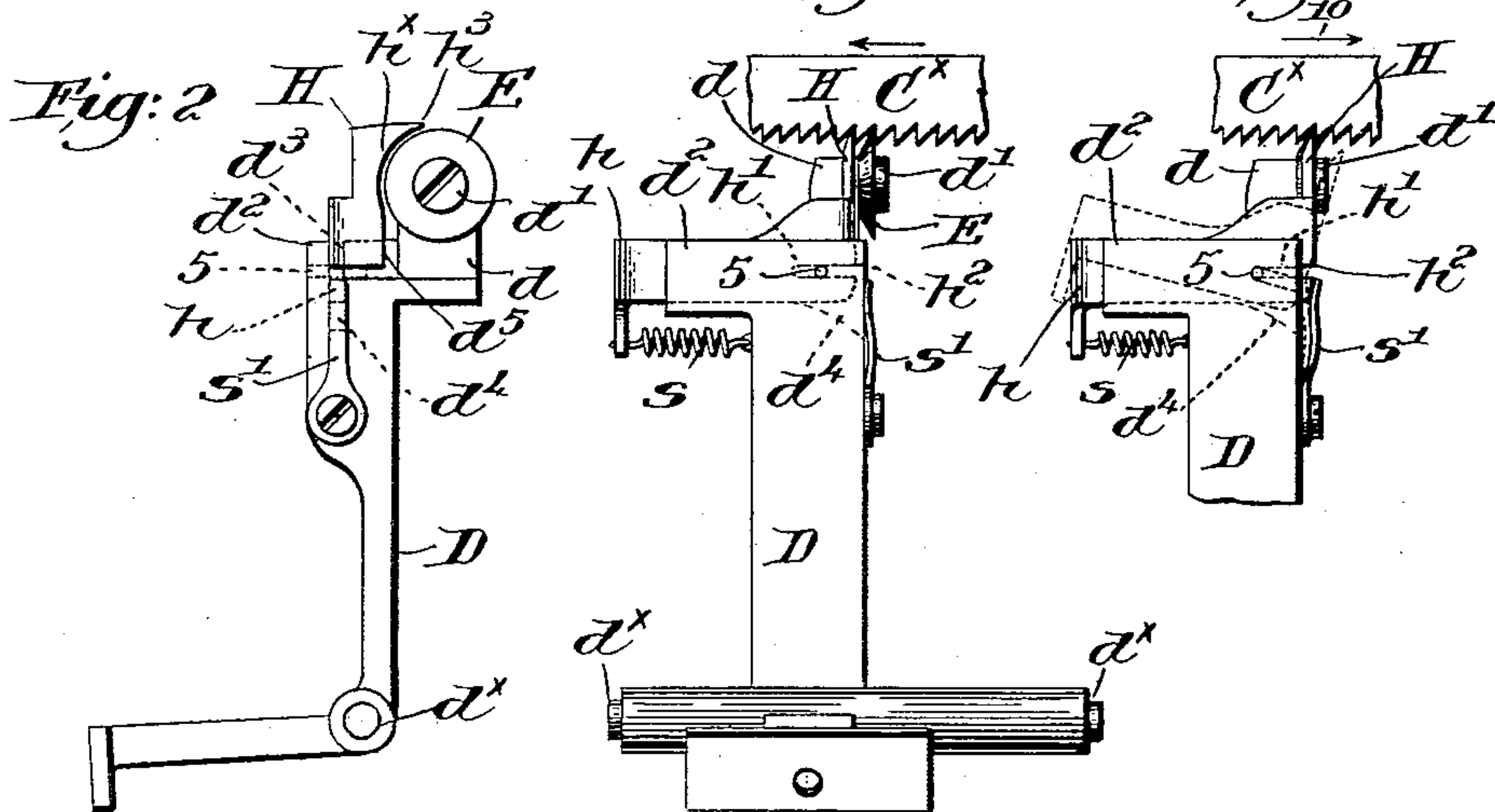
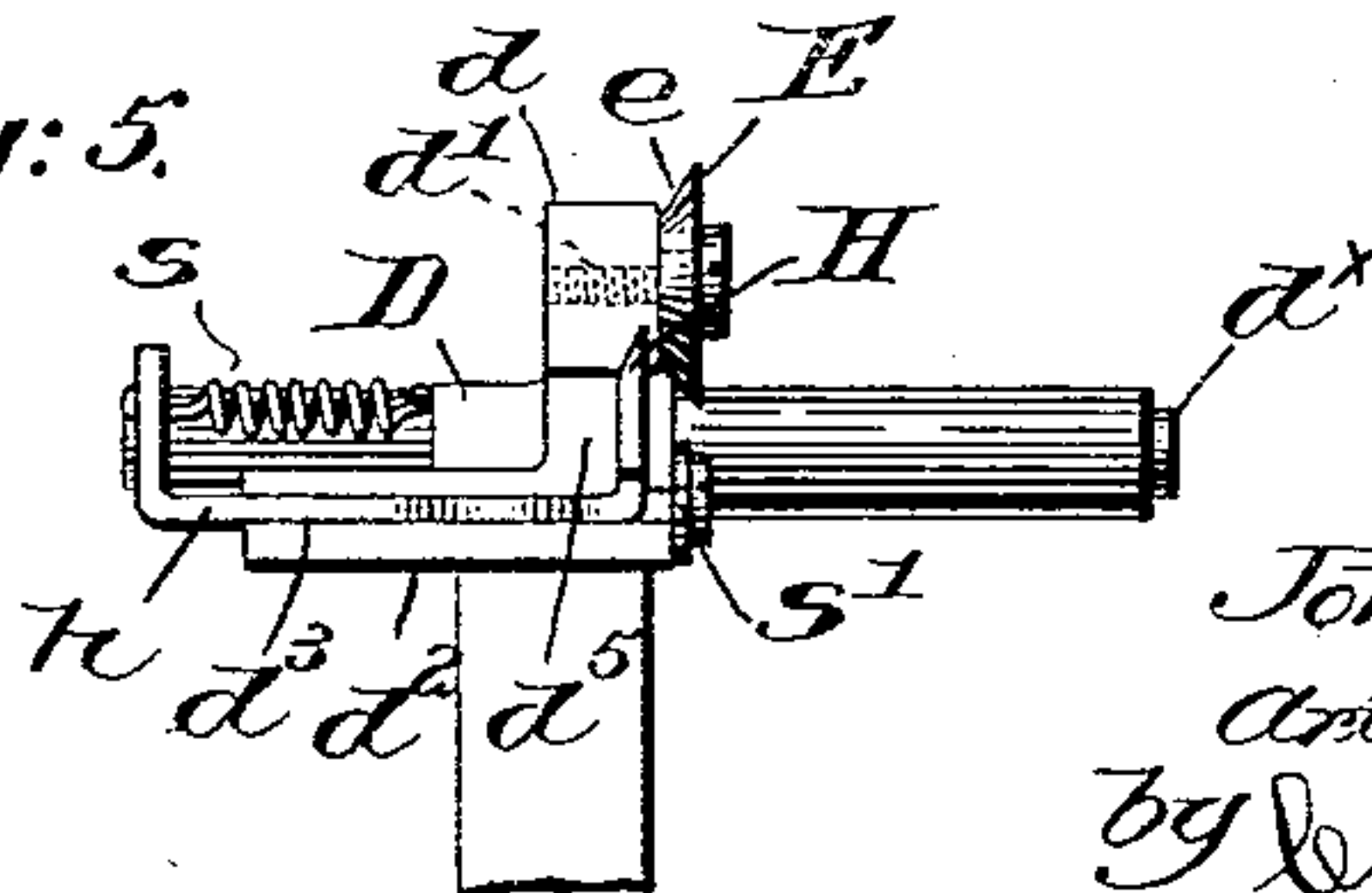


Fig:5.



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Fred S. Grunke,  
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# UNITED STATES PATENT OFFICE.

JOHN A. BEDWORTH AND ARTHUR H. BEDWORTH, OF BOSTON, MASSACHUSETTS.

## ESCAPEMENT FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 630,025, dated August 1, 1899.

Application filed November 14, 1898. Serial No. 696,323. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN A. BEDWORTH and ARTHUR H. BEDWORTH, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Escapements for Type-Writing Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to an escapement particularly adapted for use in type-writing machines to effect the step-by-step movement of the traveling paper-carriage, one step for each letter or space of the printing; and our invention has for its object the production of novel escapement or spacing mechanism whereby the wear upon the parts is greatly reduced, the accuracy of operation increased, and the coöperation of parts made more positive.

Figure 1 is a vertical sectional view, front to rear, of a sufficient portion of a well-known form of type-writing machine to be understood, with one embodiment of our invention applied thereto. Fig. 2 is an enlarged detail in side elevation of the escapement or spacing mechanism. Figs. 3 and 4 are front elevations of said mechanism, showing different positions of the spacing-dog; and Fig. 5 is a top or plan view of the escapement mechanism.

We have shown our invention as applied to a "Remington Standard" type-writing machine, wherein the frame A, traveling carriage C, the rack-frame C', pivotally connected therewith, and the rack-bar C<sup>x</sup>, having teeth on its lower edge, may be and are of usual or well-known construction, the carriage C being moved forward by a spring, as usual, with a step-by-step motion.

As in machines now in use, the step-by-step movement of the carriage is controlled or effected by an escapement comprising a stop-dog and a yielding spacing-dog, the latter having a movement equal to the length of one tooth of the rack-bar, said dogs being mounted on a carrier vibratable at right angles to the length of the rack-bar.

We have herein shown the vibratable carrier D as provided with journals d<sup>x</sup>, which are mounted in suitable bearings in the main

frame, the forward movement being effected by the action of the finger-keys and levers F acting on the universal space-bar F', and the carrier is thrown back by a suitable spring S, Fig. 1, coiled about one of the journals of the carrier and attached at its ends to the latter and the frame A, respectively.

The carrier D has at its upper end an offset upturned ear d, on which is mounted the stop-dog, or, as sometimes termed, the "rigid" dog, herein shown as a disk E, preferably of hardened steel and beveled around its periphery, as at e, away from the plane outer face of the disk, said stop-dog being rotatably supported on a screw-stud d', as shown in dotted lines, Fig. 5.

By making the stop-dog as a rotatable disk the wear caused by contact with the rack-bar is evenly distributed, and so, too, the friction is decreased as the dog is moved into and out of engagement with the teeth, and the peculiar form of the dog is of great advantage for another reason, as will appear.

An extension d<sup>2</sup> at the upper end of the carrier is longitudinally recessed or grooved, as at d<sup>3</sup>, to form a guide for the foot h of the yielding or spacing dog H, the latter being upturned and substantially at right angles to its foot, so that the face of said dog will normally be parallel to or in the plane of the stop-dog E, the upper edge of the spacing-dog being beveled, as shown in Figs. 3 and 4.

The spacing-dog has a sliding movement in its guide in parallelism with the rack-bar C<sup>x</sup>, so that the engagement of said dog and rack-bar is positive and productive of much less wear than with a dog swinging on a pivot during such engagement.

A suitable spring s, attached at its ends to the foot h and the carrier D, normally returns the spacing-dog into substantial alinement with the stop-dog E, a slightly-yielding finger s', located in front of the path of the foot, limiting return movement of the spacing-dog when under the control of spring s.

The foot h is slotted longitudinally at h' (see dotted lines, Figs. 3 and 4) to receive a retaining-pin 5, extended across the groove d<sup>3</sup> of the guide, whereby the spacing-dog is held from accidental removal, said pin also



serving as a fulcrum on which the dog H can tip when the carriage and rack-bar are returned to starting position in the direction of arrow 10, Fig. 4, the dog being shown as tipped, by dotted lines. The groove  $d^3$  is deepened below the pin 5, as at  $d^4$ , to permit such tipping movement, and when the spacing-dog is tipped the shoulder  $h^2$  thereof engages the upper end of the finger  $s'$ , the latter acting as a stop to limit such movement.

Between the guide and the ear  $d$  the part  $d^5$  of the carrier extends behind the spacing-dog and serves as a back-stop therefor when said dog is in engagement with the rack-bar, as shown in Figs. 3 and 5, the rack-bar being omitted in the latter figure for the sake of clearness.

As most clearly shown in Fig. 2, the side of the spacing-dog nearest the stop-dog E is concaved at  $h^x$  to correspond to the curvature and receive a portion of the periphery of said stop-dog when the two dogs are in alinement, the point  $h^3$  of the spacing-dog extending well over toward a vertical line through the axis of the dog E, giving the spacing-dog "lead," as it may be termed.

When the spacing-bar  $F'$  is depressed, the carrier D is rocked to the left, Fig. 1, and the periphery of the dog E fully engages a tooth before the spacing-dog H is disengaged from the next tooth, so that the edges of the tooth and dog E have no opportunity to grind past each other, with consequent wear of both, as is the case when the point of one dog engages its tooth just as the point of the other dog is disengaged from its tooth. The complete engagement of the dog E is followed by complete disengagement of the spacing-dog H, and it slides back by virtue of spring  $s$  into alinement with the stop-dog E, as in Fig. 4. On the reverse movement of the carrier D to the right, Fig. 1, the lead of the spacing-dog comes into play, the dog E retaining full control of its engaged tooth of the rack-bar until the spacing-dog is well across the path of the tooth, so that when the dog E is completely withdrawn from engagement the spacing-dog H is in proper position for full engagement, and the carriage-spring then draws the carriage and rack-bar to the left, viewing Fig. 3, the spacing-dog sliding with it in its guide into the position shown in Fig. 4.

It will be obvious from the foregoing description that there is no possibility of grinding of the dogs and the edges of the teeth, nor can the dogs miss teeth or strike on their sides, so that not only is improper spacing prevented absolutely, but wear is reduced to a minimum.

The construction is very strong, durable, and simple, the carrier, supporting-ear  $d$  for the stop-dog, and guide for the spacing-dog being made of a single solid piece of metal, the escapement being positive and accurate in its operation.

Our invention is not restricted to the precise construction and arrangement herein

shown and described, as we have shown one operative and practical embodiment of our invention, without attempting to show the various modifications which may be made within the spirit and scope of our invention.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

1. A traveling carriage and its rack-bar, and an escapement therefor, comprising a rotatable disk-like stop-dog, a spring-controlled sliding spacing-dog, and a vibratable carrier on which said dogs are mounted.

2. A traveling carriage and its rack-bar, and an escapement therefor, comprising a rotatable disk-like stop-dog, an adjacent spring-controlled spacing-dog concaved at its side to conform to the periphery of the stop-dog, and a vibratable carrier on which said dogs are mounted.

3. A traveling carriage and its rack-bar, and an escapement therefor, comprising a vibratable carrier, a disk-like stop-dog rotatably mounted thereupon, a guide on the carrier, and a spring-controlled spacing-dog adapted to slide in said guide and concaved at its side adjacent the stop-dog, to conform to and receive a portion of the periphery of the latter.

4. A traveling carriage and its rack-bar, and an escapement therefor, comprising a vibratable carrier, a rotatable disk thereon forming a stop-dog, a guide on the carrier, a spring-controlled spacing-dog adapted to slide in said guide, and a slot-and-pin connection between the guide and spacing-dog, permitting the latter to tip.

5. A traveling carriage and its rack-bar, and an escapement therefor, comprising a vibratable carrier, a rotatable disk thereon forming a stop-dog, a guide on the carrier, a spring-controlled spacing-dog adapted to slide in said guide, a slot-and-pin connection between the guide and spacing-dog, permitting the latter to tip, and a stop to limit such tipping movement.

6. A traveling carriage and its rack-bar, and an escapement therefor, comprising a vibratable carrier, a rotatable disk thereon forming a stop-dog, a guide on the carrier, a spring-controlled spacing-dog adapted to slide in said guide, a slot-and-pin connection between the guide and spacing-dog, permitting the latter to tip, and a yielding finger to limit such tipping movement and also acting to return the spacing-dog to normal position.

7. A traveling carriage and its rack-bar, and an escapement therefor, comprising a vibratable carrier, a beveled disk rotatably mounted thereon to form the stop-dog, and a cooperating spacing-dog mounted to slide and tip on the carrier.

8. A traveling carriage and its rack-bar, a carrier vibratable at right angles to the latter, a disk-like stop-dog rotatably mounted on the carrier, a longitudinally-grooved guide on the carrier, a spacing-dog having its side



adjacent the disk concaved to receive a portion of the latter, a foot for the spacing-dog, longitudinally slotted and mounted to slide in the guide, a pin extended through the slot to retain the spacing-dog in the guide and to provide a fulcrum on which said dog may tip, and a controlling-spring for the spacing-dog.

9. A traveling carriage and its rack-bar, and an escapement therefor, comprising a rotatable, circular stop - dog, a cooperating spring-controlled spacing-dog having "lead" relative to the stop-dog, and a vibratable carrier on which the said dogs are mounted.

10. A traveling carriage and its rack-bar, and an escapement therefor, comprising a vi-

bratable carrier, a circular rotatable stop-dog mounted thereon, a cooperating spring-controlled spacing-dog mounted on said carrier to slide into and out of alinement with the stop-dog and having "lead" relative to the latter when said dogs are in alinement.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN A. BEDWORTH.

ARTHUR H. BEDWORTH.

Witnesses:

JOHN C. EDWARDS,

AUGUSTA E. DEAN.