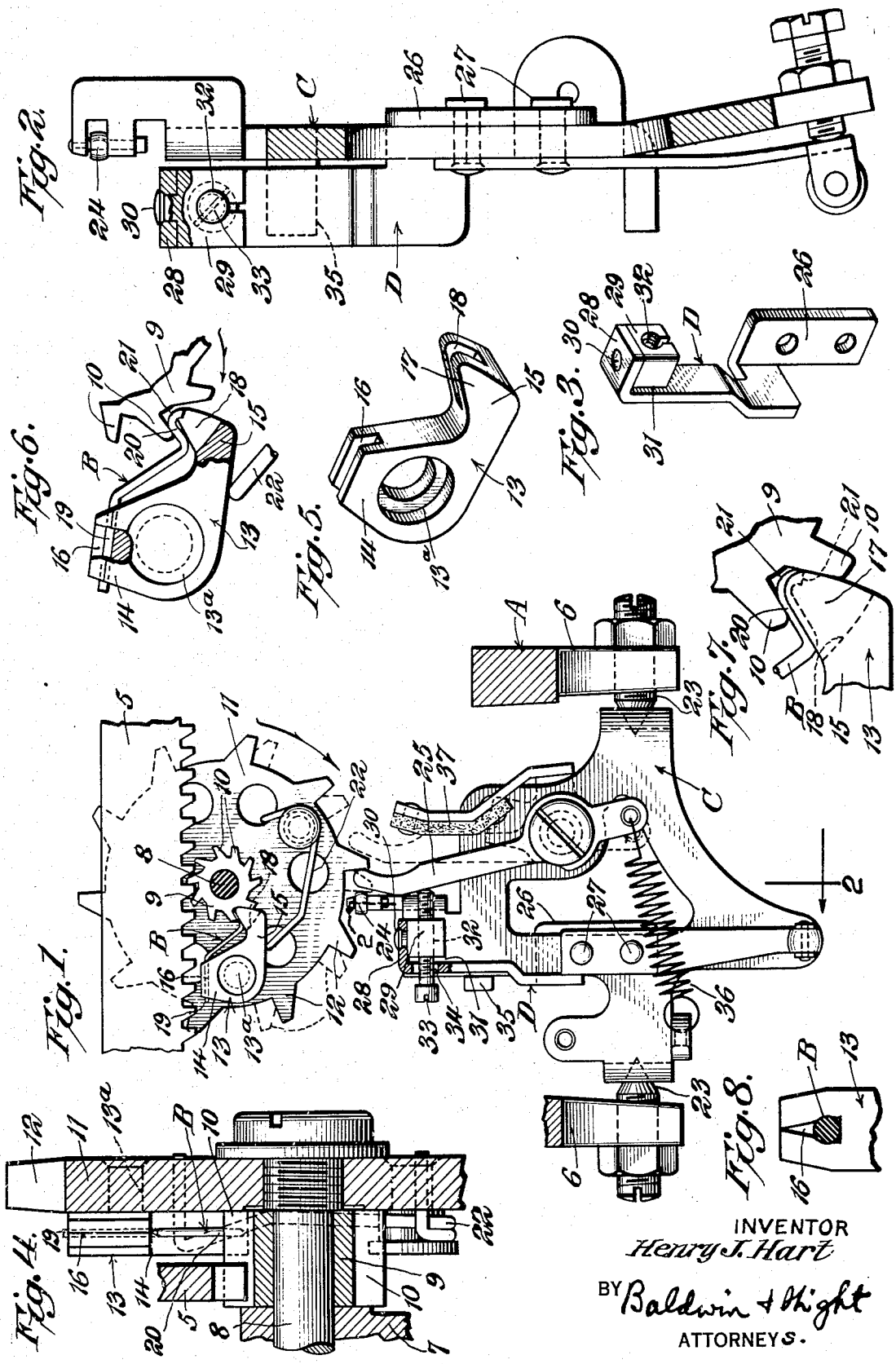
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TYPEWRITING MACHINE

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TYPEWRITING MACHINE

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3 Claims. (Cl. 197—82)

This invention relates to new and useful improvements in typewriting or like machines generally, although more particularly to the carriage escapement mechanism thereof.

Among the several objects of my invention is to provide an escapement mechanism wherein a quiet escapement action is produced during the step by step feeding movement of the carriage, and wherein a quiet action is produced between the escapement pinion and its back dog when the carriage is being moved in the opposite direction.

With these and other objects in view which will more fully appear, the nature of the invention will be more clearly understood by following the description, the appended claims, and the several views illustrated in the accompanying drawing.

In the drawing:

Figure 1 is a rear elevation, partly in section, of an escapement mechanism constructed in accordance with my invention,

Figure 2 is an enlarged section taken on the line 2—2 of Figure 1,

Figure 3 is a perspective view of the flexible stop for the pivoted pawl,

Figure 4 is an enlarged section taken through the escapement wheel, the pinion, the rack and the back dog,

Figure 5 is a perspective view of the back dog,

Figure 6 is an enlarged detail view showing the relation between the pinion, the back dog and the spring arm immediately prior to the rest position of the pinion,

Figure 7 is a similar view but showing the relation of the parts when the pinion is in rest position, and

Figure 8 is a detail elevation of the back dog showing the means for securing the spring arm thereon.

In the accompanying drawing, 5 indicates the usual rack which is attached to the carriage, and supported on the main frame of the machine below the rack is a frame A for supporting the escapement mechanism. The frame A includes two spaced horizontal arms 6, 6 and an upwardly extending vertical arm 7. Journaled in the vertical arm 7 is a shaft 8 on which is rotatable a pinion 9 having teeth 10 for engaging the rack 5. Fixed to the shaft 8 is an escapement wheel 11 having teeth 12. A back dog 13 for the pinion 9 is pivoted as at 13a to the escapement wheel 11.

In machines as heretofore constructed a spring has been employed to yieldably retain this back dog in engagement with the teeth 10 of the pinion 9. This construction resulted in a very pronounced clicking noise during the return movement of the carriage, due to the spring causing the nose of the dog to ride over each tooth of the pinion and snap against the adjacent tooth. By means of my invention I have removed this objection by eliminating said clicking noise.

The back dog 13 is in the form of a bell crank lever and comprises arms 14 and 15 arranged at substantially right angles to each other. The end of the arm 14 is provided with a longitudinal slot 16. The end of the arm 15 terminates in a nose 17 which projects in the same general direction as the arm 14 and is provided with a longitudinal slot 18 which is arranged in alinement with the slot 16. A spring arm B which has one end portion 19 securely clamped in the slot 16 as shown in Figure 8, extends from the slot 16 towards the slot 18, and the free end is provided with an offset 20 located immediately in front of the nose 17 as shown in Figure 6. The offset 20 terminates in a rounded end 21 which is located in the slot 18 to thereby retain the spring arm against lateral movement with respect to the back dog but permitting the offset portion 20 to become partially positioned in the slot 18 as shown in Figure 7. A spring 22 carried by the escapement wheel 11 engages the back dog 13 and yieldably urges the latter into engagement with the teeth 12 of said wheel. The tension of the spring 22 is sufficient to move the dog from the position shown in Figure 6 wherein the dog is shown in position immediately prior to its rest position, to its rest position as shown in Figure 7.

In operation, when the carriage is being returned the rack 5 is moved therewith and in a direction toward the left as viewed in Figure 1. The escapement wheel 11 which supports the back dog 13 is held against rotation by a limber dog as will be hereinafter described. The movement of the rack rotates the pinion 9 on the shaft 8, and the nose of the back dog 13 slides over the teeth of the pinion, but is retained from snapping against the following teeth by the spring arm B, the rounded end 21 sliding over the teeth.

Thus it will be seen that the back dog 13 contacts the teeth 10 of the pinion through the medium of the spring arm B, and consequently the clicking noise incident to the dog snapping

against the next following teeth of the pinion is avoided.

The escapement wheel 11 is intermittently released during the step by step feeding movement of the carriage by the following noise-reducing mechanism: Pivoted on the horizontal arms 6, 6 of the escapement supporting frame A as at 23, 23 is a dog rocker C which carries a fixed dog 24 and a pivoted or limber dog 25 which intermittently engage the teeth 12 of the escapement wheel in the usual manner whenever the dog rocker C is rocked by the key levers.

A flexible stop arm D for the pivoted dog 25 is preferably formed from flat spring steel, and includes an attaching bracket 26 which is positioned against the front face of the rocker C and is secured thereto by rivets 27, the stop arm being disposed in rear of the rocker and extending upwardly from and at right angles to the bracket 26. The upper end of the flexible stop arm D is bent laterally towards the pivoted dog 25 to form an ear 28. A metal block 29 is positioned against the under face of the ear 28 and is secured to said ear by a rivet 30. The block 29 is in loose contact with the arm D as indicated at 31 in Figure 1, and is formed with a horizontal threaded opening 32 for adjustably receiving a stop screw 33, said screw extending into the opening 32 through an alined opening 34 formed in the arm D. The diameter of the opening 34 is slightly greater than the diameter of the stop screw, and this functions to permit the block 29 and the stop screw 33 to receive the impact of the pivoted dog 25, transmitting the sound waves directly to the stop D.

The rocker C is provided with a limiting ear 35 which is located on that side of the flexible stop arm D opposite the pivoted dog 25. This ear 35 is spaced from the arm D a distance sufficient under normal operating conditions to avoid being contacted by said arm. Should, however, an accidental heavy thrust be imparted to the arm, any undue flexing thereof will be prevented by its contacting said ear.

A coil spring 36 which has one end connected to the pivoted dog 25 and the other end anchored to the rocker C, functions to yieldingly urge the dog away from the stop screw 33 and against a sound deadening stop 37 mounted on the rocker.

In operation, assuming the parts to be in their normal positions, as viewed in Figure 1, the rocker C is rocked upon depression of a key lever and the pivoted dog 25 is thereby released from the tooth of the escapement wheel. The escapement wheel is then rotated by the carriage spring until said released tooth engages the fixed dog 24, and simultaneously the pivoted dog 25 is swung against the stop 37 by means of the spring 36. The rocker C is then returned to its initial position by the usual return spring, and the pivoted dog is thereby carried into the path of the next tooth of the escapement wheel, the latter being free to turn the pivoted dog 25 to its normal or starting position against the stop screw 33. The impact of the pivoted dog against the stop screw 33 will cause the stop arm D to flex and thereby reduce the noise of impact which would otherwise occur if the arm were rigid.

It is of course to be understood that the details of structure and arrangement of parts may be variously changed and modified without departing from the spirit and scope of my invention.

I claim:

1. In a typewriter or like machine, an escapement mechanism including a rack, a shaft, a pinion loose on the shaft and rotatable by said rack, an escapement wheel fixed to the shaft, a back dog pivoted on the escapement wheel and having a nose successively engageable with the teeth of said pinion during rotation of the latter, a spring carried by the escapement wheel for urging the dog into engagement with the pinion, and a spring arm having one end fixed to said dog and having a portion of its free end disposed between the nose of the dog and the pinion tooth immediately in front of said nose.

2. In a typewriter or like machine, an escapement mechanism including a rack, a pinion rotatable thereby, a pivoted back dog having a nose successively engageable with the teeth of said pinion during rotation of the latter, and a spring arm having one end fixed to said dog and having a portion of its free end disposed between the nose of the dog and the pinion tooth immediately in front of said nose, the nose of the dog being slotted to receive the free end of the spring arm and retain the same against lateral movement.

3. In a typewriter or like machine, an escapement mechanism including a rack, a pinion rotatable thereby, a pivoted back dog having a nose successively engageable with the teeth of said pinion during rotation of the latter, and a spring arm having one end fixed to said dog and having a portion of its free end disposed between the nose of the dog and the pinion tooth immediately in front of said nose, the dog comprising arms arranged at substantially right angles to each other, one of said arms terminating in said nose, the other arm and said nose being provided with alined slots, one end of the spring arm being fixedly mounted in the slot of the other arm and the other end of the spring being located in the slot of the nose.

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