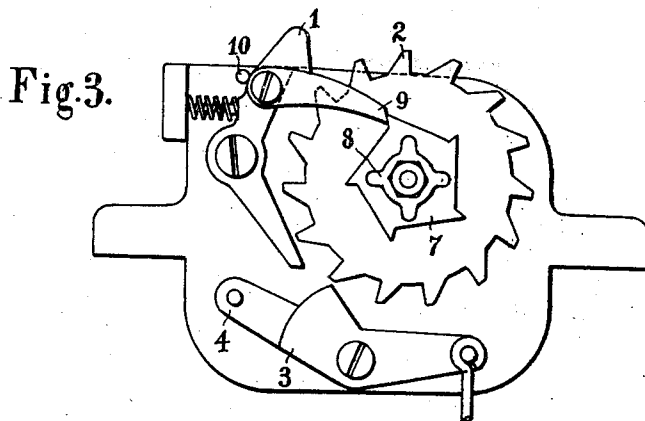
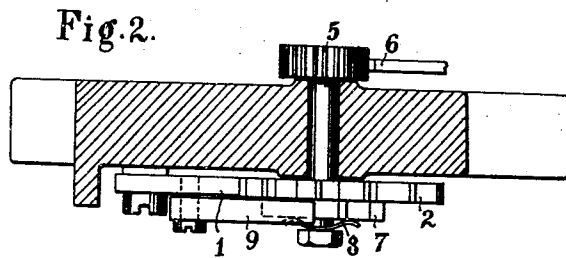
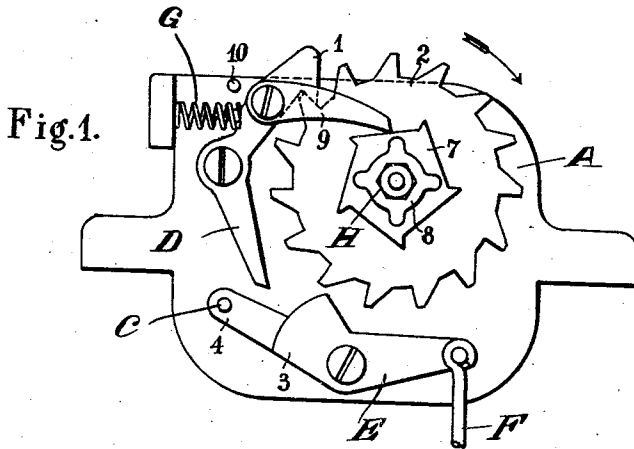


H. F. E. BAESELER.
 NOISELESS PAWL AND RATCHET MECHANISM.
 APPLICATION FILED OCT. 12, 1920.

1,409,814.

Patented Mar. 14, 1922.

2 SHEETS—SHEET 1.



Inventor
 Heinrich F. E. Baeseler

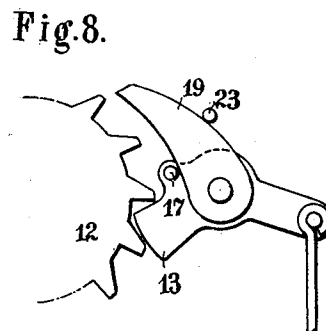
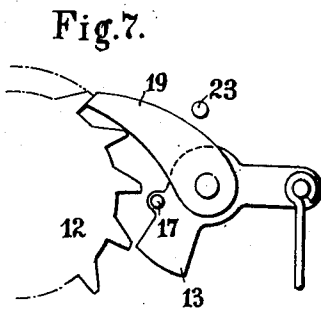
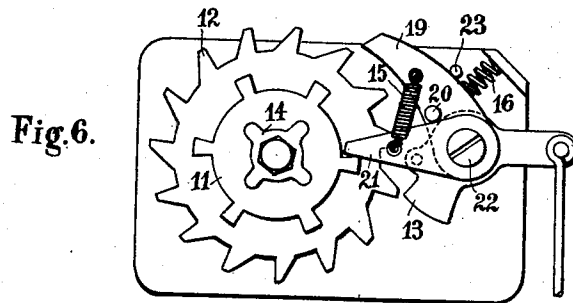
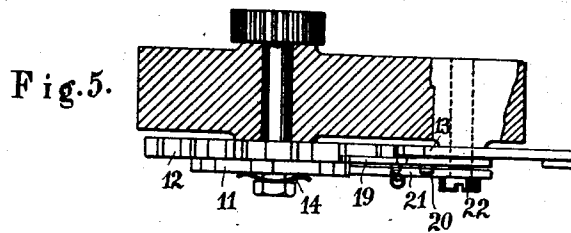
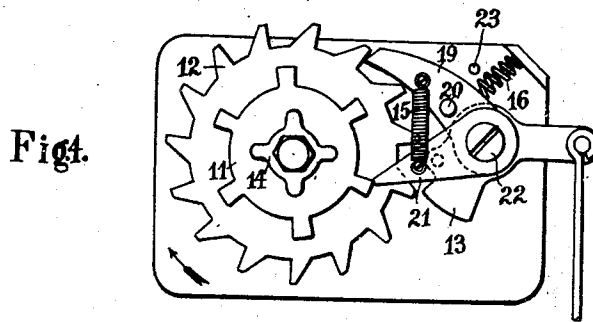
By *James L. Norris*
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2 SHEETS—SHEET 2.



Inventor
 Heinrich F. E. Baeseler

By *James L. Norris*
 Attorney

UNITED STATES PATENT OFFICE.

HEINRICH FRANZ EDMUND BAESLER, OF DRESDEN, GERMANY, ASSIGNOR TO AKT. GES. VORM SEIDEL & NAUMANN, OF DRESDEN, GERMANY, A CORPORATION OF GERMANY.

NOISELESS PAWL AND RATCHET MECHANISM.

1,409,814.

Specification of Letters Patent. Patented Mar. 14, 1922.

Application filed October 12, 1920. Serial No. 416,577.

(GRANTED UNDER THE PROVISIONS OF THE ACT OF MARCH 3, 1921, 41 STAT. L., 1313.)

To all whom it may concern:

Be it known that I, HEINRICH FRANZ EDMUND BAESLER, a citizen of the German Republic, residing at Dresden, Germany, Schumannstr. 24, have invented certain new and useful Improvements in a Noiseless Pawl and Ratchet Mechanism, (for which I have filed applications in Germany July 12, 1918, Austria Mar. 28, 1919, Hungary Mar. 29, 1919, Switzerland June 30, 1919, Patent No. 84,274, France April 16, 1919, Italy May 9, 1919, and Sweden April 2, 1919,) of which the following is a specification.

My present invention relates to noiseless pawl and ratchet mechanism and has for its object to provide a device in which a ratchet is operated in the ordinary manner in one direction by a pawl, means being provided to release said pawl from the ratchet teeth when said ratchet is moved in the opposite direction in order to avoid the clicking noise made by the pawl sliding idly over the ratchet teeth.

In the preferred embodiment of the invention, the ratchet is used as the ordinary escapement wheel of a typewriting machine by means of which the carriage is moved along to space the letters, and it is on the return movement of said carriage to initial position that the release of said pawl from said escapement wheel is brought about permitting a noiseless return of said carriage.

In the drawings:—

Figure 1 is an elevational view of one embodiment of my invention showing the pawl in engagement with the escapement wheel.

Figure 2 is a plan view of Figure 1 taken partly in section.

Figure 3 is a view similar to Figure 1 showing the pawl released from engagement with the escapement wheel.

Figures 4, 5 and 6 are views similar respectively to Figures 1, 2 and 3 but showing a modified form of my invention.

Figures 7 and 8 are details of the pawl and ratchet mechanism shown in Figures 4 and 6.

In the drawings A represents the escapement support of a typewriting machine having journaled therein the shaft B mounted upon one end of which is a gear wheel 5 engaging the rack bar 6 by means of which the carriage is moved along in a left to

right direction for the purpose of spacing the letters printed by said typewriter. On the other end of said shaft B is fixedly mounted the escapement wheel 2 by which the step by step movement of the carriage is accomplished.

Pivotaly mounted on the escapement support A is the pawl 1 engageable with the teeth of the escapement wheel 2. Pivotaly mounted on said support is the escapement dog 3 constructed to engage between adjacent teeth of the escapement wheel 2 just prior to the release of the escapement wheel from engagement with the pawl 1. The escapement dog 3 is provided with an arm 4 carrying a pin C and adapted to engage an arm D projecting from the pawl 1. A stop 10 is supported by the carriage in the path of the pawl 1 to limit the extent of its movement in a release direction.

The escapement dog 3 is provided with an arm E to which is attached the link F for operating the mechanism.

When the link F is pulled by means of a key not shown, the escapement dog moves between adjacent teeth of the escapement wheel and the pin C carried by said dog then strikes the arm D of the pawl 1 throwing it out of engagement with the teeth of the escapement wheel and permitting it to advance the space of one tooth. A spring G constantly impels the pawl into the path of the escapement teeth.

Rotatably mounted upon the shaft B is the auxiliary ratchet 7 pressed into frictional engagement with the escapement wheel 2 by means of a spring washer 8 best shown in Figure 2.

The frictional hold of said auxiliary ratchet with the escapement wheel 2 is sufficient to carry said auxiliary ratchet with said escapement wheel as the latter moves in the direction of the arrow and also when the escapement wheel moves in a reverse direction to carry said auxiliary ratchet back into engagement with the auxiliary pawl 9 which is pivotaly mounted on the pawl 1. The auxiliary ratchet 7 then pushes said pawl 9 backward carrying with it the pawl 1 until the latter strikes the stop 10, thus releasing said pawl 1 from engagement with said escapement wheel.

When the pawl 1 has come in contact with

the stop 10, the friction of the auxiliary ratchet against the escapement wheel is overcome and further movement of the escapement wheel in a reverse direction will be relative to the auxiliary ratchet wheel, the latter being held stationary against the end of the pawl 9.

Thus the pawl 1 will be held out of contact with the teeth of the escapement wheel during the entire reverse movement of the carriage.

In the form of execution illustrated in Figures 4 to 8 the dog 13 which temporarily locks the escapement wheel 12 and the auxiliary pawl 21 are arranged upon the same shaft 22 upon which the pawl 19 is mounted. The auxiliary pawl 21 engages the ratchet wheel 11 which is pressed by the spring disk 14 against the escapement wheel 12. A spring 15 is interposed between the pawl 19 and the auxiliary pawl 21, the pawl 19 being acted upon by a spring 16. A stop 17 is provided on the dog 13 said stop being adapted to engage the pawl 19. Figures 7 and 8 show the arrangement of the operating mechanism the auxiliary pawl being omitted, Figure 7 showing the inoperative position and Figure 8 the operative position of the parts. By oscillating the dog 13 into a tooth gap of the escapement wheel, the pawl 19 is temporarily released so that the escapement wheel can be advanced in a manner similar to that described under the modification shown in Figure 1.

In the construction shown in Figures 4 to 8 the auxiliary pawl 21 permits an unimpeded advancing rotation of the escapement wheel in the direction of the arrow shown in Figure 4. While during the return rotation as shown in Figure 6 the ratchet wheel 11 acts to turn the pawl in such a manner that the latter carries with it the pawl 19 by means of the stop 20 so far that said pawl 19 strikes against the stop 23 and accordingly remains released during the entire continuance of the return movement.

Having thus particularly described the nature of my invention what I claim as new and desire to secure by Letters Patent of the United States is:—

1. In a noiseless pawl and ratchet mechanism, in combination an escapement wheel, a main pawl adapted to temporarily release the escapement wheel and thereby permit an advancing movement of said wheel, an auxiliary pawl connected to the main pawl and a ratchet wheel constructed to be carried

along frictionally by said escapement wheel in one direction and to act when moving in the other direction upon said auxiliary pawl the latter serving when acted upon to lift the main pawl out of engagement with the escapement wheel.

2. In a noiseless pawl and ratchet mechanism, a shaft, an escapement wheel fixed to said shaft, a ratchet wheel rotatably mounted on said shaft, means for holding said ratchet while normally in frictional engagement with said escapement wheel to rotate therewith, a pivoted main pawl engaging said escapement wheel, an auxiliary pawl engageable with said main pawl and said ratchet wheel, means for releasing said pawl to permit movement of said escapement wheel in one direction, said escapement wheel when moving in the other direction carrying said ratchet wheel into contact with said auxiliary pawl to push the main pawl to released position, and a stop engaging said main pawl and acting through said auxiliary pawl to inhibit the rotation of said ratchet wheel, further reverse rotation of said escapement wheel being possible through slippage between the frictional contacting surface of said escapement wheel and ratchet.

3. A noiseless pawl and ratchet mechanism comprising a shaft, an escapement wheel fixed to said shaft, a ratchet wheel rotatably mounted on said shaft and adjacent said escapement wheel, means for holding said ratchet wheel in frictional engagement with said escapement wheel, a main pawl engageable with said escapement wheel for controlling the movement thereof in one direction, an auxiliary pawl associated with said main pawl and engageable by said ratchet wheel to release said auxiliary pawl on reverse movement of said escapement wheel, a stop to limit the movement of said main pawl and ratchet wheel, further movement of the escapement being permitted through slippage between said escapement wheel and ratchet wheel and means for regulating the tension of frictional contact between said ratchet wheel and escapement.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HEINRICH FRANZ EDMUND BAESELER.

Witnesses:

HEINRICH GEINLER,
WILHELM BLEIHEN.