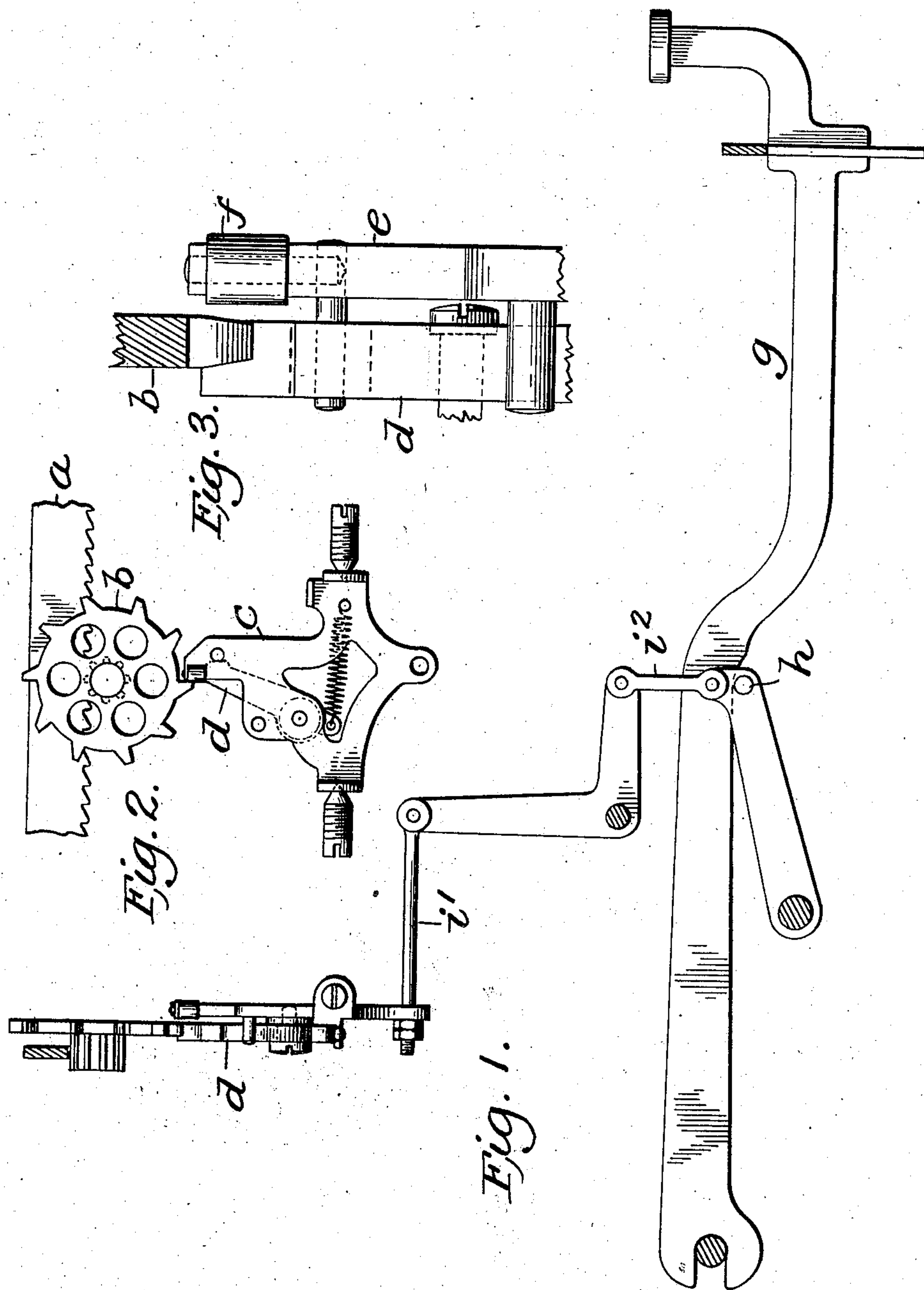


No. 827,976.

PATENTED AUG. 7, 1906.

E. B. HESS.
WRITING MACHINE.
APPLICATION FILED AUG. 31, 1905.



WITNESSES:
James F. Duhamel
L. F. Browning.

INVENTOR:
Edward B. Hess
By his Attorney
Edward C. Davidson

UNITED STATES PATENT OFFICE.

EDWARD B. HESS, OF NEW YORK, N. Y., ASSIGNOR TO ROYAL TYPE-WRITER COMPANY, OF HOBOKEN NEW JERSEY, A CORPORATION OF NEW JERSEY.

WRITING-MACHINE.

No. 827,976.

Specification of Letters Patent.

Patented Aug. 7, 1906.

Application filed August 31, 1905. Serial No. 276,486.

To all whom it may concern:

Be it known that I, EDWARD B. HESS, a citizen of the United States, residing in the borough of Brooklyn, city of New York, State of New York, have invented certain new and useful Improvements in Writing-Machines, of which the following is a specification.

This invention relates to escapement devices of a type-writing machine. Its object is to improve the feed of the carriage with respect to speed, to reduce the load imposed upon the finger-pieces in actuating the escapement, and reduce wear of the parts.

It consists, broadly stated, in employing as one of the escapement-surfaces in contact, during the release operation of the devices, a roller against the periphery of which the other surface bears.

One form, in which experience has demonstrated the practicability and high efficiency of this invention, is that illustrated in the accompanying drawings, which show the invention applied to a rocking escapement frame or lever of an ordinary type, having the usual loose dog and rigid part or dog coöperating with an escape-wheel. The invention is, however, equally applicable to other arrangements.

Figure 1 is a side elevation showing a key-lever and associated means for operating the escapement-lever; Fig. 2, a front elevation of the escapement devices; and Fig. 3, an enlarged side elevation, partly broken away, of the escapement devices.

a is the carriage-rack, and *b* the escape-wheel connected with the rack by the usual pinion. *c* is a pivotally-mounted escapement lever or frame, carrying an ordinary loose or pivoted spring-actuated dog *d* and having a rigid part or dog *e*. Mounted in the end of the rigid dog is a roller *f*, which affords the surface of the rigid dog against which the teeth of the escape-wheel abut to hold the carriage. *g* is a key-lever, *h* the universal bar, and *i*² a link that operatively connects the universal bar with one arm of a bell-crank lever whose other arm is connected with the escapement-lever by a link *i'*. The general behavior of these parts, with the exception of the roller *f*, is ordinary and well understood. The axis of the roller is at

right angles, or substantially so, to the axis of the escape-wheel and parallel, or substantially so, with the plane of the escape-wheel, and is so placed that a line passing through it lies in the plane occupied by the teeth of the wheel when engaged by the roller. In the special construction shown the axis of the roller is approximately radial to the wheel.

When the escapement mechanism is actuated on depression of a key-lever, the loose dog passes out of engagement with the escape-wheel tooth that it has been holding and the roller of the other dog passes into engagement with the same tooth. Ordinarily the rigid dog of an escapement-lever has its operating-face set a small fraction of an inch behind the operating-face of the loose spring-dog, or, in other words, a slight drop or lead is given to the rigid dog. Of course the roller herein shown may in that respect conform to whatever is the desired practice. A tooth of the escape-wheel when held by the roller may and does bear upon its highest point, considered with reference to the tooth, and the strain of the tooth upon it is a radial one. As illustrated, feed of the carriage occurs as the finger piece or key rises. The invention is equally applicable where the escapement mechanism is arranged to effect the feed during depression of the finger-piece. In such case the load on the finger-piece is reduced. As the roller commences to pass away from the tooth with which it is in engagement it is turned by the pressure of the tooth in the direction in which the tooth is carried by the strain of the carriage-spring. The roller holds the tooth firmly, but commences to turn, and so permits movement of the wheel immediately after the disengaging movement is commenced. This arrangement, while giving positive control of the carriage, permits the escapement devices to act quickly, affording an increase in the speed of the carriage. Since the respective surfaces of the roller and tooth move together, there is a very marked decrease in wear of the engaging surfaces, particularly that of the roller, and no cutting or scoring thereof by the edge of the teeth, such as occurs with the well-known bevel-dog. Moreover, no lubrication of the surfaces is necessary with this escape-

ment and experience has also shown that lubrication of the bearing of the roller is not required.

I claim as my invention—

- 5 1. Wheel escapement mechanism for a writing-machine, comprising a dog whose working surface is a roller upon the periphery of which the teeth of the wheel engage.
2. Wheel escapement mechanism for a
10 writing-machine, comprising a dog having a roller turning about an axis radial, or substantially so, to the escape-wheel, and upon the periphery of which the working surfaces of the teeth of the wheel bear.
- 15 3. An escapement mechanism for a type-writing machine, comprising a part to be controlled and a dog having a roller adapted to engage said part and to be revolved during its movement out of engagement therewith
20 and in the direction that said part moves.
4. An escapement mechanism for a type-writing machine, comprising an escape-wheel, a movable frame, a loose dog and a
25 dog with a roller carried by the frame, the axis about which the roller turns being transverse to the axis of the wheel and the teeth of the latter working against the periphery of the roller.
- 30 5. An escapement mechanism for a type-writing machine, comprising an escape-wheel and a dog having a roller whose axis is parallel, or substantially so, with the plane in which the escape-wheel turns and upon the periphery of which the teeth of the wheel

bear and which is adapted to be moved with
reference to the wheel so that a line passing
through the roller-axis is, at one time out of,
and at another time in the plane in which
the wheel turns. 35

6. An escapement mechanism for a type-
writing machine, comprising an escape-
wheel and a dog, having a roller whose axis is
parallel, or substantially so, with the plane in
which the escape-wheel turns and upon the
periphery of which the teeth of the wheel
bear. 40 45

7. An escapement mechanism for a type-
writing machine, comprising a frame rocking
about a horizontal axis, an escape-wheel
turning about an axis at right angles to that
of the frame and a dog having a roller, form-
ing its working surface, turning about an
axis at right angles, or substantially so, to the
other two axes, and upon the periphery of
which the working surfaces of the teeth of
the escape-wheel bear. 50 55

8. An escapement mechanism for writing-
machines comprising a driven movable part
and a detent part, one of which has a roller
upon the periphery of which the working
surface of the other bears. 60

In testimony whereof I have hereunto sub-
scribed my name.

EDWARD B. HESS.

Witnesses:

EDWARD C. DAVIDSON,
L. F. BROWNING.