(No Model.) 2 Sheets—Sheet 1.

A. ASHBY.

TYPE WRITING MACHINE.

No. 531,893. Patented Jan. 1, 1895.

Fig. 1.

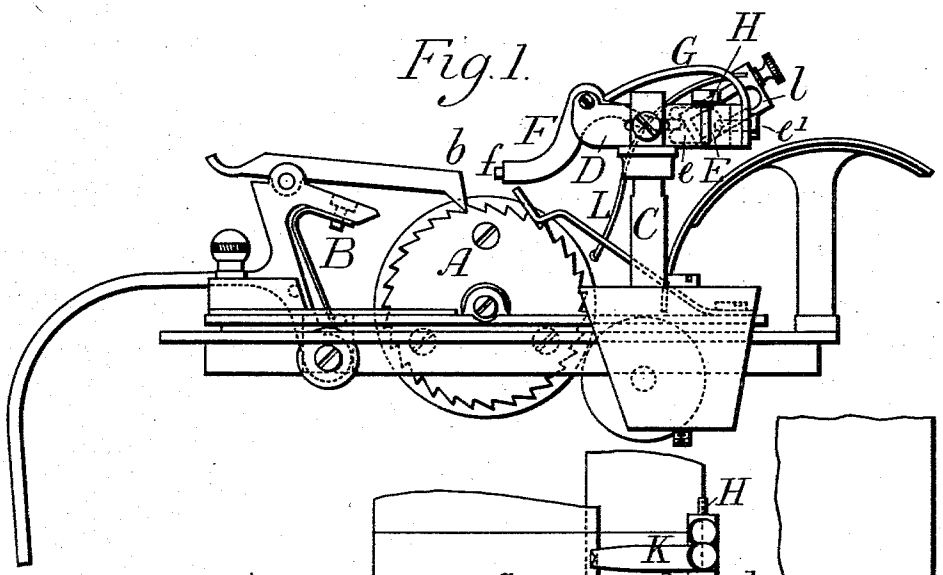


Fig. 2.

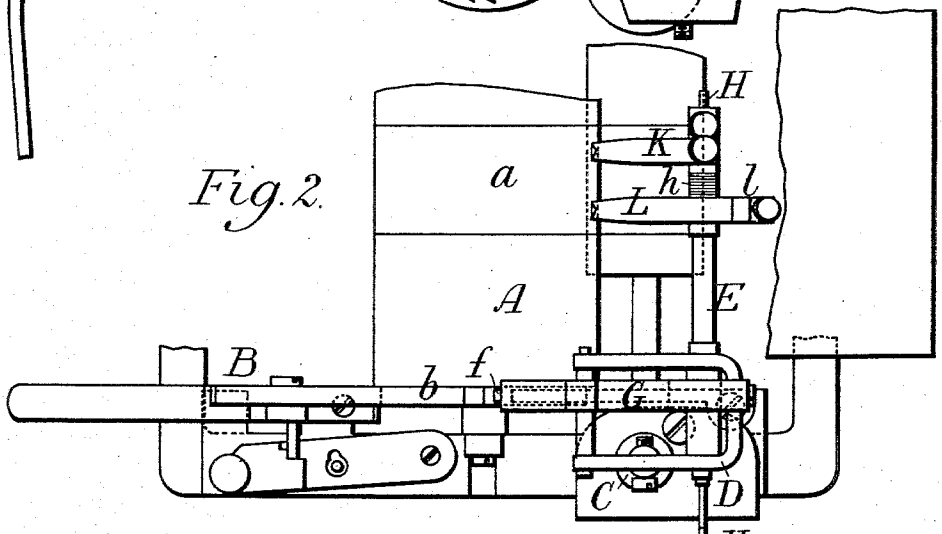
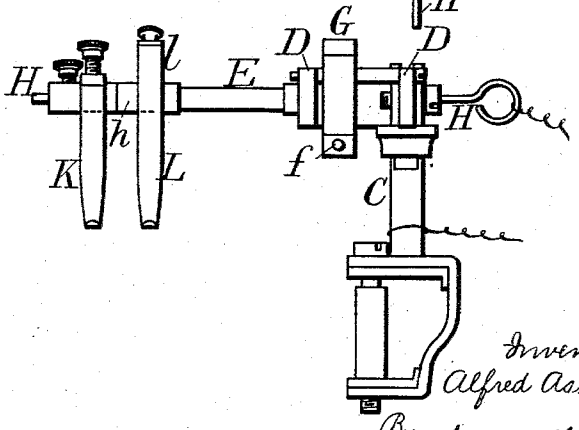


Fig. 3.



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(No Model.) 2 Sheets—Sheet 2.

A. ASHBY.

TYPE WRITING MACHINE.

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Fig. 4.

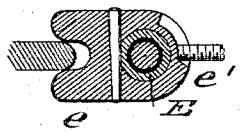


Fig. 5.

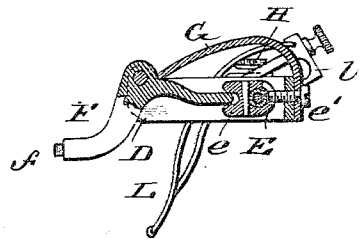
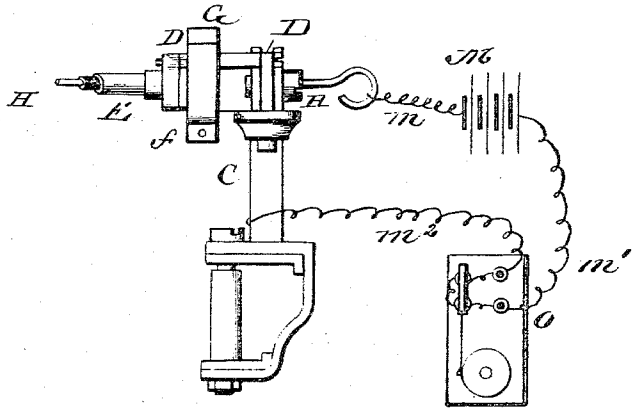


Fig. 6.



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UNITED STATES PATENT OFFICE.

ALFRED ASHBY, OF READING, ENGLAND.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 531,893, dated January 1, 1895.

Application filed April 28, 1894. Serial No. 509,399. (No model.) Patented in England October 12, 1893, No. 19,197.

To all whom it may concern:

Be it known that I, ALFRED ASHBY, a citizen of England, residing at Ashdene, Argyll Road, Reading, Berkshire, England, have invented a new and useful Improvement in Type-Writers, (for which I have obtained Letters Patent in Great Britain, No. 19,197, dated October 12, 1893,) of which the following is a specification.

My invention relates to an appliance to a typewriter which gives the operator notice when the end of the paper sheet on which he is printing is nearly reached, I shall describe the arrangement which I adopt for this purpose, referring to the accompanying drawings.

Figure 1 is an end view, and Fig. 2 is a plan of part of a typewriter with apparatus according to my invention applied thereto. Fig. 3 is a front view of the said apparatus. Fig. 4, is an enlarged detail sectional view of the arm *e*, for rocking the spindle H. Fig. 5, is a similar view illustrating the lever and its spring for actuating said arm, and the contact arm L and its support. Fig. 6, is a detail view of the standard and the two spindles, the battery and alarm, and the manner of connecting the same in circuit.

A is the paper roller with its ratchet; B, the ordinary lever with pawl *b* for advancing the paper line by line by turning the roller A step by step. On a convenient part of the framing I fix a standard C which may form part of the typewriter as manufactured, or may, as shown in the drawings, be clamped on the framing of an existing typewriter. On this standard C I fix a yoke D in which I mount a tubular rocking spindle E and also a lever F one end of which engages as a tooth in the notch of an arm *e* projecting from the spindle E. The other end of the lever F has a stud *f* projecting in the path of the pawl *b*. A spring G strains the lever F to take the position shown in Fig. 1, in which position it is held by the engagement of a setting screw *e'* in a slot of *e*, allowing a limited rocking movement of *e*. Through the tubular spindle E passes a smaller spindle H which is insulated from E by being inclosed in a tube of insulating material, and an insulating washer *h*. On the spindle H is fixed adjustably by a setting screw a spring arm K, and on the spindle E is also fixed adjustably another spring arm L both these arms being preferably tipped at their ends with platinum. The arm L is fixed to a slotted piece *l* which can be adjusted and fixed by a setting screw or otherwise higher or lower upon the spindle E. Part *a* of the paper roller A is covered with tinfoil or other conducting material. The insulated spindle H and the standard C are connected to an electric circuit including a battery and a bell or other alarm or signal. Whenever the lever B is moved to advance the paper roller A one step, the pawl *b* striking *f* moves the lever F and this movement causes the spindle E and the inclosed spindle H to turn partly round, so as to bring both the springs K and L against the roller A.

From the spindle H a conductor *m* leads to one pole of a battery M, and from the other pole of said battery a conductor *m'* leads to an alarm O, such for example as an ordinary vibrating bell alarm, a conductor m^2 leading from said alarm to the standard C.

So long as the conducting part *a* is covered by the paper sheet, no effect is produced, but when the paper passes beyond the ends of both K and L, then, when they are brought against the conducting part *a* of the roller, the circuit is closed between said arms and may be traced as follows:—From the battery M, it passes by the conductor *m* to the spindle H, thence through the arm K to the conducting part *a* of the roller A, from said conducting part to the arm L, through said arm and spindle E to the yoke D, through said yoke and standard C to the conductor m^2, thence through the alarm O, and returns to the battery over conductor *m'* and the alarm or signal is given apprising the operator that the edge of the paper sheet has passed the ends of K and L, and therefore that the last line printed by him is at a short distance from the edge of the paper. This distance may be lessened by adjusting L farther down, as the circuit is not closed until the paper passes beyond L as well as beyond K.

Obviously the mounting of the apparatus, the clamp and the standard may be varied in form and position to suit the particular typewriter to which the apparatus is applied.

In an application for patent, filed of even date herewith, Serial No. 509,400, I provide a pressure-roll covered for a certain portion of its length with conducting material the same

as the paper roll, and therefore I do not herein claim the combination of a paper roll and pressure-roll covered for a corresponding portion of their lengths with a covering of conducting material, the conducting material of the pressure-roll being electrically connected with the type-writer frame, a pawl for rotating the paper roll, a spindle supported on but insulated from the machine frame, a contact arm carried by said spindle and adapted to make contact with the conducting material on the paper roll, a lever for rocking the spindle provided with a non-conducting stud arranged in the path of the pawl, and a battery and bell included in a circuit connecting the contact-arm and the machine frame, as such combination is claimed in my application, Serial No. 509,400, above referred to.

Having thus described the nature of this invention and the best means I know of carrying the same into practical effect, I claim—

1. In an electric type-writer alarm, the combination with the paper roll of the type-writer having a portion of its length covered with a conducting material, of two contact arms insulated from each other and adapted to rest upon said roll, a battery, an alarm, and conductors connecting the battery and alarm with said contact arms, substantially as described.

2. In an electrical type-writer alarm, the combination with the paper roll of the type-writer having a portion of its length covered with a conducting material, of two contact arms insulated from each other and adapted to rest upon said roll, means for adjusting one of said arms toward and from said paper roll, and a battery and alarm arranged in circuit with said arms, substantially as described.

3. In an electrical type-writer alarm, the combination with the paper roll of the type-writer having a portion of its length covered with a conducting material, and a pawl for rotating said roll, of two spindles insulated from each other and each carrying a contact arm adapted to rest on said roll, a lever for rocking said spindles, a stud carried by said lever arranged in the path of the roll actuating pawl, and a battery and alarm arranged in circuit with said contact arms, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 16th day of April, A. D. 1894.

ALFRED ASHBY.

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