

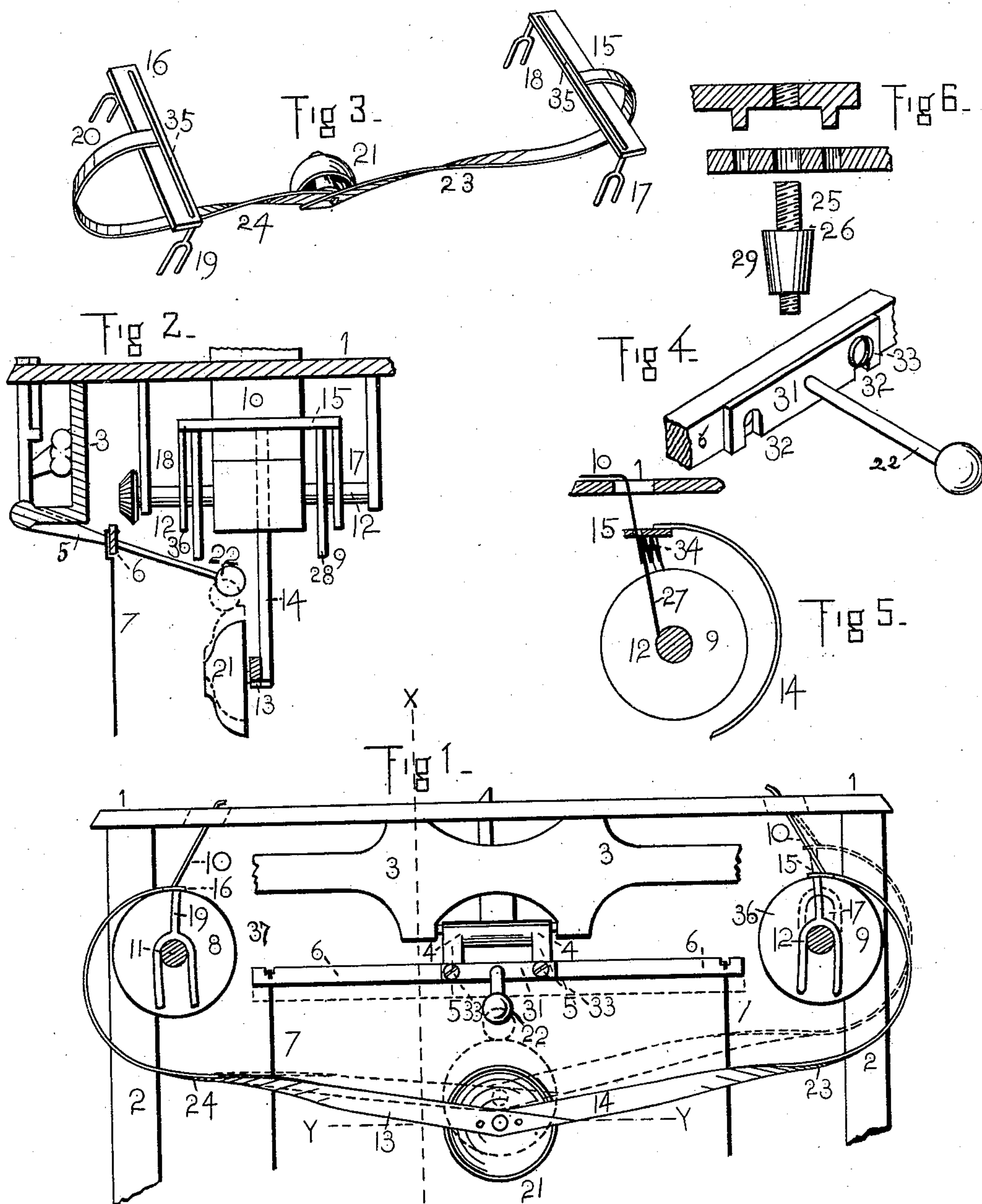
(No Model.)

T. I. DANIEL.

INK RIBBON ANNUNCIATOR FOR TYPE WRITING MACHINES.

No. 332,791.

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INK-RIBBON ANNUNCIATOR FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 332,791, dated December 22, 1885.

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To all whom it may concern:

Be it known that I, THOMAS I. DANIEL, a citizen of the United States, residing at Jackson, in the county of Jackson and State of Michigan, have invented a new and useful Inking-Ribbon Annunciator for Type-Writing Machines, of which the following is a specification.

My invention relates to inking-ribbon annunciators for type-writing machines.

The object of my invention is to provide an attachment to type-writing machines which shall indicate to the operator when the inking-ribbon has reached the limit of its travel, and which shall keep the portion of the ribbon which extends under the platen between the spools flat, smooth, and taut. I attain these objects by the means illustrated in the accompanying drawings, in which—

Figure 1 is a vertical projection of a portion of a type-writing machine with my annunciator attached. Fig. 2 is a section on the line X X, Fig. 1. Fig. 3 is a perspective view of the bell-support and bell detached from the machine. Fig. 4 is a perspective view of the hammer and the means of attaching it to the letter-space-ratchet rocking frame. Fig. 5 is a vertical projection of one of the ribbon-spools and part of the bell-support and top plate. The front plate or guard of the spool is removed. Fig. 6 is a section on the line Y Y, Fig. 1, and showing the bell-stem in full. Fig. 7 shows a variation in the construction of my annunciators to adapt it to a type-writer having solid side plates.

Similar figures refer to similar parts throughout the several views.

1 is the top plate of a type-writing machine.

2 2 are the rear uprights or standards upon which the top plate rests.

3 is the hanger which supports the letter-space-ratchet rocking frame.

4 is a rocking bar resting in bearings in the hangers 3.

5 5 are arms extending from the rocking bar 4 a short distance toward the front of the machine.

6 is a horizontal cross-bar fastened to the arms 5 5.

7 7 are wires which connect the ends of the upper cross-bar, 6, with the ends of the lower

cross-bar, which rests against the under side of the key-levers.

8 and 9 are the spools upon which the inking-ribbon is wound. The hangers supporting the inking-ribbons are not shown in Fig. 1.

10 is the inking-ribbon, and 11 and 12 are the shafts of the inking-ribbon spools.

The constituent parts of my inking-ribbon annunciator are the bent metal rods or ribbons 13 and 14, the slotted cross-pieces 15 and 16, the forked rods 17 18 and 19 20, the bell 21, and the hammer 22.

The metal rods or ribbons 13 and 14 are twisted, as shown at 23 and 24, so that the surfaces of the ends which join at the center shall be in a vertical plane. Said rods are adapted to be joined together at the center in a dowel-joint, and held together by the screw-threaded shank 25 and shoulder 26 on the bell-stem 29, Fig. 6, and are bent under and around to the top of the inking-ribbon spools in machines in which the top plate rests upon a frame-work or standards, as shown in Figs. 1, 2, and 5, and directly in and downward in machines in which the top plate rests upon solid side plates, as shown in Fig. 7. The curvature of the bends of the rods should be large enough to allow the bell-supporting frame to be raised and lowered without striking the spools.

The cross-pieces 15 and 16 are fastened rigidly to the bent ends of the rods 13 and 14, and are slotted longitudinally by the slots 35 35, Fig. 3, to allow of the passage of the inking-ribbon. The slots 35 35 are wide enough to allow of the free passage of a single thickness of ribbon, and are a little longer than the distance between the guard-plates of the ribbon-spools, to allow the ribbon to be shifted, so that the type will strike on a new place on the ribbon. The cross-pieces 15 and 16 rest upon the edges of the guard-plates 28 36 37, &c., of the ribbon-spools. From each of the ends of the cross-pieces 15 and 16 extend downward the forked rods 17 18 and 19 20. The forks of said rods are placed over the shafts of the ribbon spools outside of the guard-plates, to prevent any movement (laterally with respect to the machine) of the bell-supporting frame 13 14 15 16, &c., and are bent in the arc of a circle having a radius equal to the distance apart of the rib-

bon-spool shafts, so that one end of the bell-supporting frame may be raised and lowered without the forks binding against the ribbon-spool shafts.

5 The bell-hammer is adapted to be fastened to the cross-piece 6 of the letter-space-ratchet rocking frame. The shaft of the hammer is fastened to the center of a metal strip, 31. Said strip is provided with slots 32 32, which
10 pass over the shank of the screws which hold the cross-piece 6 to the letter-space-ratchet rocking frame, and the heads of the screws, pressing on the surface of the metal strip 31, hold the hammer in place.

15 In some machines there is only one screw corresponding to 33, in which case the slot corresponding to 32 is directly below the hammer-shaft.

20 The rods 13 and 14 should be of such a length and so bent as to hold the bell 21 attached at their junction just below the hammer-head when it is in its lowest position.

The method of adjusting the bell-support and bell to a type-writer is as follows: One
25 end of the inking-ribbon is passed through the slot in the top plate of the machine, then through the slot 35 in one of the cross-pieces 15 or 16. The end of the inking-ribbon is then attached to the short piece of flexible
30 ribbon 27, which is usually left attached to the shaft of the ribbon-spool for that purpose. The two ribbons are gathered in folds, as shown at 34 in Fig. 5, at their junction; or, if the inking-ribbon is attached directly to
35 the shaft of the ribbon-spool, it should be gathered in folds similar to those shown in Fig. 5 at 34, about three or four inches from its junction with the ribbon-spool shaft. The forked rods 17 and 18 or 19 and 20 are then
40 placed over the shaft of the spool, and the cross-piece 15 or 16 is rested on the edges of the guard-plates of the spool. The other portion of the bell-support is adjusted in a similar manner to the other ribbon-spool, and the ends
45 of the two rods 13 and 14 are passed between the wires connecting the type with the keys and joined in the center. The bell 21 is then screwed to the rods 13 and 14 at their junction, holding them firmly together, as de-
50 scribed.

The operation of the annunciator is as follows: When any key of the machine is struck, the letter-space-ratchet rocking frame is made to oscillate, and the hammer attached thereto
55 is vibrated by its motion a short distance. (Indicated by the dotted lines in Figs. 1 and 2.) When both of the cross-bars 15 and 16 are resting upon the edges of the guard-plates of the ribbon-spools, the bell 21 is a very little
60 below the extreme limit of vibration of the hammer-head. The action of the machine draws the inking-ribbon along, which passes freely through the slots 35 35 till the place where it is gathered in folds comes to the slot

in the cross-piece 15 or 16 on the side of the
65 machine where the ribbon is being unwound. The folds in the ribbon near where it is fastened to the ribbon-spool being too thick to pass through the slot, as the machine contin-
70 ues to draw the ribbon along the end of the bell-support will be raised, as shown by the dotted lines in Figs. 1 and 2, bringing the bell up to where it will be struck by the hammer. Thus the fact that the ribbon has reached the limit of its travel will be announced to the op-
75 erator.

The friction of the cross-bars 15 and 16 on the edges of the guard-plates of the ribbon-spools will act as a tension and prevent the ribbon-spools from turning backward, and the
80 slots 35 35 will prevent the ribbons from turning up at the edges. Thus the ribbon will be held smooth and taut between the spools under the platen.

Having fully described my invention, what I
85 claim, and wish to secure by Letters Patent, is—

1. In a type-writing machine, the combination of a bell-hammer attached to the letter-space-ratchet rocking frame, and a frame sup-
90 porting a bell and extending transversely across the center of the type-writing machine, and holding the bell just below the field of vibration of the hammer-head, and adapted to be raised at one end by an increased thickness
95 or bunch on the inking-ribbon, to bring the bell in position to be struck by the hammer-head, substantially as shown and described.

2. A device for attaching a bell-hammer to the letter-space-ratchet rocking frame of a
10 type-writer, consisting of the metal strip 31, attached across the end of the hammer-shaft, and provided with the slots 32 32, adapted to fit over the shanks of the screws which attach the cross-bar to the arms of the rocking bar of
105 the letter-space-ratchet rocking frame, substantially as shown and described.

3. A bell-supporting frame consisting of the ribbons or rods of metal 13, and 14, bent around and over the inking-ribbon spools of a type-
110 writer, and twisted so as to bring the ends that are to be fastened together in a vertical plane, and adapted to be fastened together in a dowel-joint held together by a screw-threaded shank, 25, and shoulder 26 on the bell-stem 29, the
115 cross-pieces 15 and 16 having the slots 35 35, and being fastened rigidly to the bent ends of the metal ribbons 13 and 14, and the forked rods 17 18 and 19 20, each pair being bent in the arc of a circle having a radius equal to the
120 distance apart of the shafts of the inking-ribbon spools, substantially as shown and described.

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Witnesses:

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