J. L. DUNCAN.

CABINET FOR TYPE WRITING MACHINES.

APPLICATION FILED OCT. 7, 1911.

1,122,372.

Patented Dec. 29, 1914.

3 SHEETS—SHEET 1.

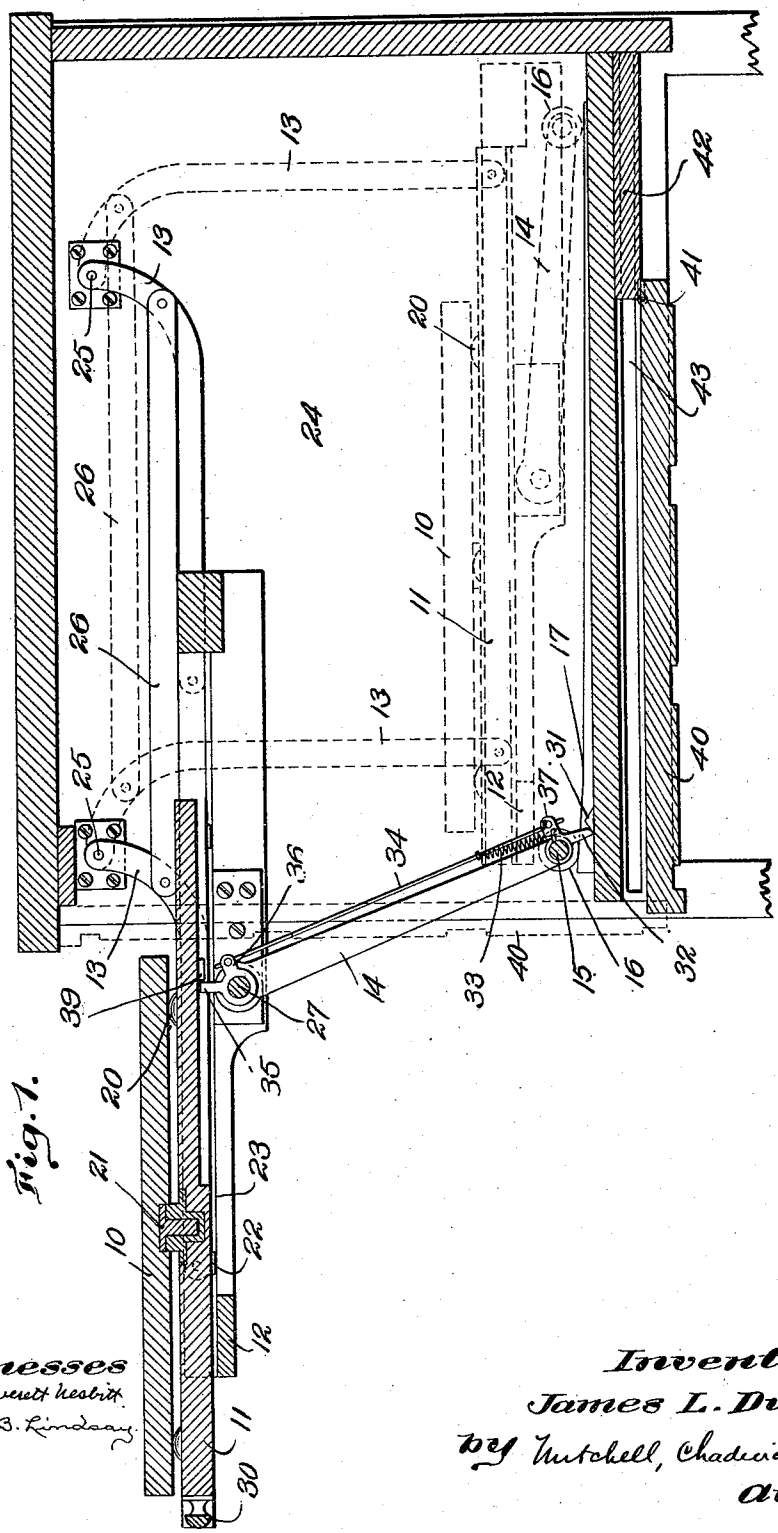

Fig. 1.

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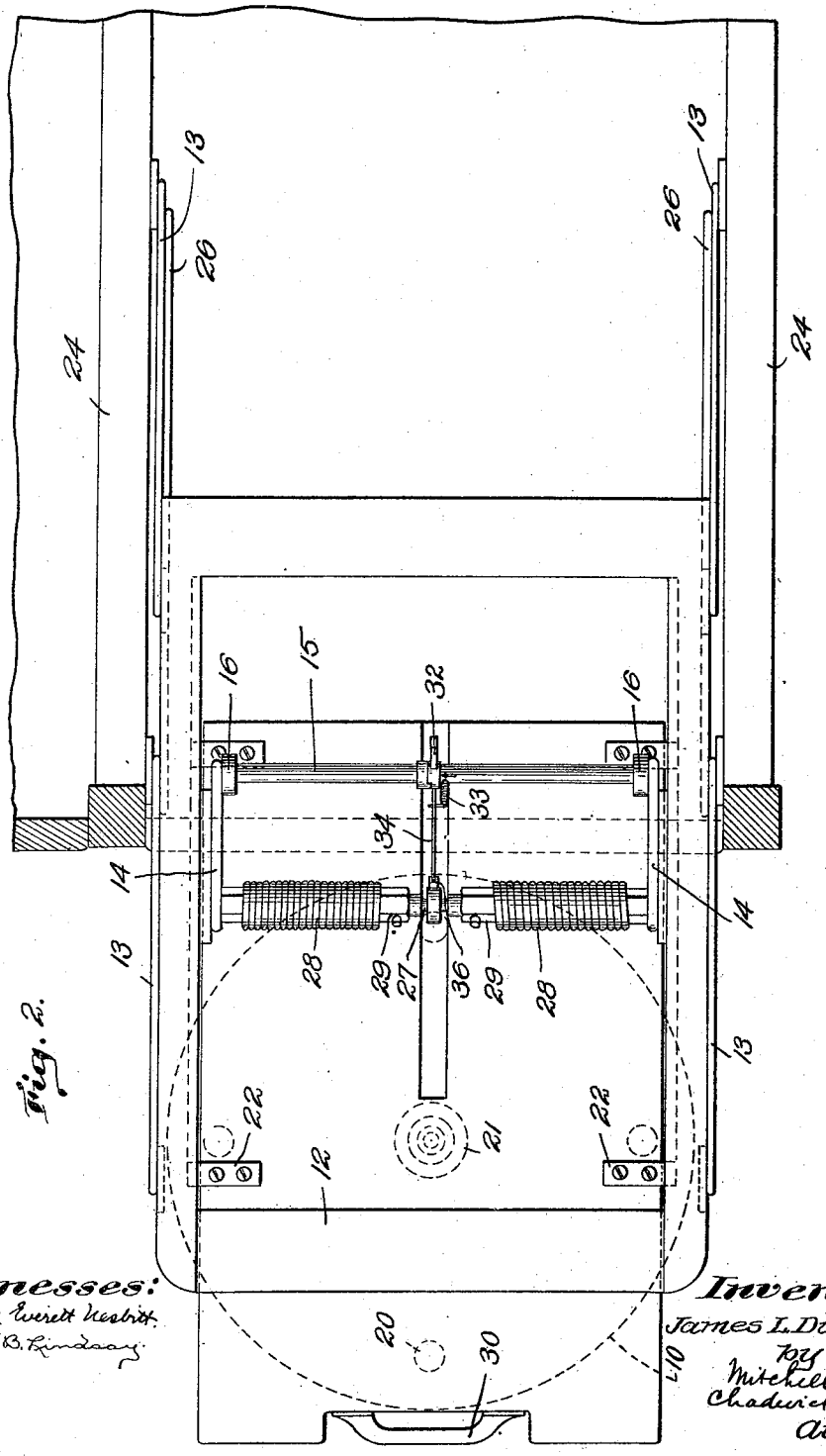

Fig. 2.

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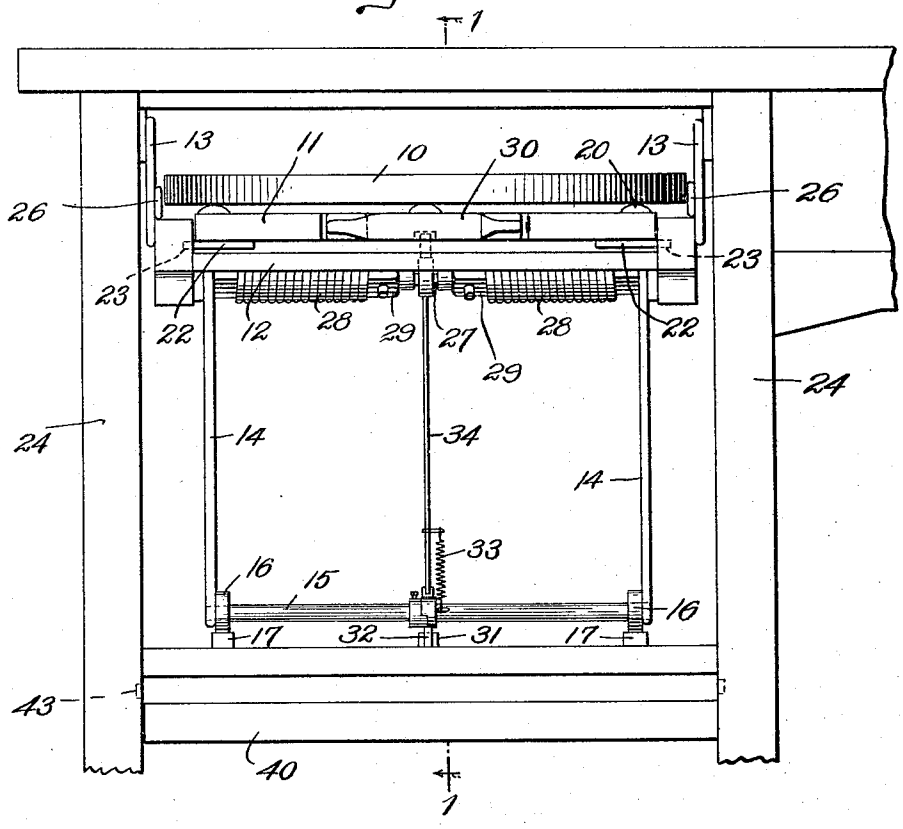
3 SHEETS—SHEET 3.

Fig. 3.



Witnesses:
Harold Everett Keslick.
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UNITED STATES PATENT OFFICE.

JAMES L. DUNCAN, OF SOMERVILLE, MASSACHUSETTS, ASSIGNOR TO DOTEN-DUNTON DESK COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

CABINET FOR TYPE-WRITING MACHINES.

1,122,372. Specification of Letters Patent. Patented Dec. 29, 1914.

Application filed October 7, 1911. Serial No. 653,317.

To all whom it may concern:

Be it known that I, JAMES L. DUNCAN, a citizen of the United States, residing at Somerville, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Cabinets for Type-Writing Machines, of which the following is a specification.

This invention relates to improvements in cabinets for typewriting machines and the like.

It relates more particularly to that type of cabinet which may be comprised in one of the pedestals of a desk, so that the space between the pedestals is free and adapted to the comfort of the operator, and the top of the desk continuous and not subject to disturbance, or to temporary removal, when the operator desires to use the typewriting machine. In such a cabinet the operative position of the machine is at the proper level in front of one of the end pedestals of the desk, beside the chair of the operator. When not in use the machine occupies a position within said pedestal and under the top of the desk.

It is among the objects of the invention to provide a cabinet and machine-carrying means in which the effort required of the operator is slight and simple in getting out the machine or putting it away, and in which the table supporting the machine in its operative position is rigidly and firmly locked and supported and not liable to depression when weight is imposed upon it.

It is also the purpose of the invention to accomplish these objects and to obtain the other advantages characteristic of the construction herein shown and described, by means which are simple in construction and not liable to get out of order in operation.

It is the desire of the inventor to protect by this patent such features as are novel in the disclosed construction.

One embodiment of the invention is illustrated in the accompanying drawings, in which,

Figure 1 is a side elevation of the cabinet, being the same as an end elevation of the desk containing the cabinet, in section on the line 1—1 of Fig. 3, from front to back of the desk or cabinet, showing the cabinet open, one position of parts when it is closed being shown in dotted lines; Fig. 2 is a plan, viewed from below, of the parts above the rails 17 (seen in Fig. 1); and Fig. 3 is a front elevation.

In the drawings, 10 indicates a turn-table on which the typewriting machine or other apparatus may rest, this turn-table being supported on a sliding platform 11 mounted in the horizontal frame 12 and supported by four swinging links 13, and a swinging under-support or fulcrum which acts as a strut comprising side bars 14 joined by the bottom cross bar 15, this under-support having rollers 16 which may travel on rails 17. The turn-table rests on four metal domes 20 and turns about a pivot 21, both pads and pivot being set in the platform 11. The platform 11 rests on side tongues 22 which project into grooves 23 in the sides of the frame 12. The frame 12 is connected to one of the links 13 near each corner, there being two of these links on each side of it. These links are hung on the side walls 24 of the cabinet on pivotal supports 25 and are capable of swinging about these pivots between the positions shown in full lines and in dotted lines in Fig. 1. In so doing they act with a parallel motion, being connected by a horizontal link 26 as clearly seen in Fig. 1 of the drawings. Consequently the frame 12 is horizontal in both the positions illustrated in that figure and while moving between them. Link 26 overhangs the side of the frame 12, as best seen in Fig. 3, so that the frame 12, when raised to the position illustrated in Fig. 1, is at its up-most limit of travel, impinging against the underside of links 26, which link in this respect is the equivalent of lugs that might be carried on the link 13 to serve the same function.

On the underside of the frame 12 is a rod 27 parallel with the front of the cabinet and carrying two spiral springs 28, each fastened thereto at one end by nuts 29 and cotter pins as illustrated in Fig. 3, or by other suitable means. The other end of each spring is attached to one of the bars 14. These bars are pivoted on the axis of the rod 27 and are capable of turning thereon between the two extreme positions seen in Fig. 1. The springs 28 tend to swing the bars 14 into the position shown in full lines in Fig. 1. When the frame 12 is depressed toward the dotted line position the rollers

16 travel backward on the rails 17, incidentally winding the springs 28 tighter. The tension of these springs may be such as to balance approximately the weight of the frame 12 and the parts carried thereon, including the sliding platform 11, the turntable 10 and the typewriting machine or other apparatus mounted upon the turntable. The tension of the spring may be adjusted by means of the nuts 29 and their cotter pins. The parts, being in the dotted line position of Fig. 1, may be raised to the full line position by pulling the handle 30 gently forward, which is to the left in that figure. This causes the guiding links 13 to swing outward and upward with a parallel motion, the springs 28 balancing the pull of gravity by acting through bars 14. As this movement progresses, or when it has been finished, the pull of the operator on the handle 30 also draws the sliding platform 11 to the left from the position it occupies in the dotted lines to the position represented in full lines, thus extending to the left the movement which the swinging links 13 alone could give to the platform 11. As the frame 12 rises, the under-support, whose rollers 16 rest on the rails 17, gains some space in which it can swing about its axis 27, which it accordingly does, the rollers 16 traveling forward. When the bottom rod 15 thus reaches the position illustrated in full lines in Fig. 1, it becomes locked by the means which will now be described.

A block 31 is fixed on the bottom of the interior of the cabinet in line to be engaged by a projecting dog 32 pivoted on the rod 15, which dog is normally thrown to the left by a spring 33, to which it is connected by rod 34. Pivoted on rod 27 is a dog 35 provided with a lug 36 to which rod 34 is attached, this rod being also attached to a lug 37 on the dog 32. A lug 39 carried on the bottom of the sliding platform 11 is fixed thereon in such a position that, as the platform 11 is pulled to the left in Fig. 1, this lug 39 comes into engagement with the dog 35. Referring to the full line position in Fig. 1, if the platform 11 were pulled farther to the left of the position illustrated, a trifling distance, the dog 35 would be moved accordingly, thus lifting rod 34 against the action of spring 33 and thus lifting lug 37 and causing dog 32 to swing upward to the right to clear the block 31. When this movement has been executed the rod 15 and rollers 16 are free to move backward on the rails 17; but until it is executed the engagement of dog 32 with block 31 prevents such backward movement, and consequently holds the bars 14 rigidly in the position illustrated in Fig. 1. If now a considerable weight be placed on the platform 12, as by a person pressing downward upon it, or even sitting thereon, the frame 12 will not descend, because it is strongly supported from below by the bars 14; nor will its rear rise, turning about the tops of those bars as a fulcrum, because such rear is already impinging against the under sides of links 26 and therefore can rise no farther. It will be noted that these links 26 are attached to the links 13 almost directly under the pivots 25. This stress is transmitted directly to the supporting points 25. It is thus seen that the frame 12 and parts carried thereon are rigidly supported in position, the stresses being distributed through the bars 14 to the bottom of the cabinet and through the short ends of links 13 to the top and sides of the cabinet.

The stress transmitted downward through the bars 14 is sustained mainly on the rails 17, its vertical component being considerably greater than its horizontal component; but whatever horizontal component exists is met by the block 31. The face of this block 31 engaged by the dog 32 is beveled or shaped so that it is close to parallelism with the path which the end of the dog 32 travels in swinging about rod 14, when it has cleared the peak of the block 31. By this device it is possible to place the block as far to the left as corresponds with the extreme upward position of frame 12, the dog 32 constituting a latch which, in slipping over the peak of block 31 relaxes none of the advance which it would release if the block had an ordinary vertical face. The horizontal component of the stress transmitted downward through the bars 14 is one which tends to push the lower end of those bars to the right, Fig. 1; and from this it results that the engagement of the dog 32 with the block 31 tends to turn the dog to the left. This therefore is the normal position into which the spring 33 tends to push it, and is at the same time a position where the parts can easily be made strong in constructing and mounting the dog. As this stress does not travel through the rod 34, that may be made light; while the dog 32 may be made as heavy and strong as necessary.

The forward travel of the platform 11 is limited by the location of the lug 39 thereon. Obviously this may be placed farther to the right in Fig. 1, in which case the platform could be drawn farther out to reach its operative position, and yet would be firmly supported as before described. As the possible length of this movement is considerable, a long extension from the front of the desk may thus be designed if needed; while by arranging the rod 27 still farther to the left even greater extension may be made without sacrificing the firmness of support.

In order to incase the platform and machine thereon in the cabinet the operator grasps the handle 30 and, with a slight ini-

tial outward pull presses downward, whereupon the entire apparatus moves down to the dotted line position. The initial pull moves the dog 35, which, acting through rod 34, swings dog 32 to the right and upward and thus leaves the rod 15 and roller 16 free to recede into the cabinet, which last action is effected by the subsequent downward pressure, which becomes converted into an inward pressure as the links 13 swing farther downward. The cabinet is then closed by drawing out the door 40 which meanwhile has lain horizontally under the cabinet, and swinging it up into the dotted line position of Fig. 1. This door is hinged at 41 to a block 42 which slides in a groove 43 under the cabinet. The hinges 41 may preferably be spring hinges of any suitable or well known type. When the door and the block 42 occupy the position illustrated in Fig. 1 they are out of sight and out of the way, but as soon as the door has been drawn far enough out so that the hinge can act, the door may be swung upward. To open the cabinet the door is to be swung downward from its dotted line position until it is horizontal and then pushed to the right. By a simple motion, the handle 30 is then grasped and pulled upward and outward, whereupon the machine and its supporting parts rise and are drawn out on the slides 22, as illustrated, until stopped by engagement of lug 39 with dog 35. If pulled too far the spring 33 will draw it back to its proper locked position as soon as the operator's hold is released.

The fact that the pull of the handle 30 must be forward and outward in order to release the latch makes an accidental unlocking practically impossible, and at the same time enables the apparatus to be used if desired with the platform at an intermediate position, not pulled entirely out. By connecting the rod 34 to the dog 35 on the other side of rod 27 180° from where it is shown connected in Fig. 1, the latch would be released by a movement of dog 35 corresponding to an inward movement of the sliding platform. In such case a single inward and downward pressure on the handle 30 would effect the closing.

The initial movement of the typewriting machine and the platform is mainly in a downward direction owing to the fact that it is guided by the said links 13 which start to swing downward from a nearly horizontal position. This early makes the necessary headroom for its insertion in the cabinet, so that the sliding movement of the platform can proceed simultaneously with the latter part of the swinging movement.

On the outward movement, at its termination, there can be no backward movement of the strut bars 14 after the point of dog 32 has passed the crest of the block 31. The slope of the face of the block 31 and the shape of the point of the dog 32 which engages it are, as seen in Fig. 1, such that after the dog has passed the crown of the block it engages the face at whatever point its motion ceases. If then the operator by another effort raises the frame a trifle higher, the whole of the additional distance thus gained will be held by the dog. The consequence is that if by carelessness the frame 12 be not made rigid and free from any vertical play at the first raising, it becomes so by one or two further upward jerks. This feature of the invention, by which back-lash is eliminated, is probably due to the fact that after passing the crest of 31 the dog is continuously in contact with the face of the block, and that any downward pressure through the bars 14 is compelled, by reason of the rollers and rails, to exert its force in direction parallel to the rails and therefore at so great an angle to the face of the block that the point of the dog does not slip upon it. The face of the block therefore, although approximately parallel to the swing of the dog, should in fact be in the nature of a chord or line running within the circle that would be described by that point if it were free to swing about its axis 15 the instant it has passed the crest of block 31, this line being so formed that it is always thereafter within reach of the point of the dog, however farther the dog be drawn to the left on its rails 17.

It will be obvious that many variations may be made from the precise arrangement of parts illustrated without departing from the scope of the invention.

I claim:

1. The combination, with a cabinet, of a frame adapted to be housed therein; linkage pivoted to the frame and the cabinet, holding the frame continuously horizontal and guiding it between a low, housed position and a high, projecting position; a spring tending to lift the frame; a barrier within the cabinet engaging and terminating upward movement of the inward part of the frame; a strut pivoted on the middle portion of the frame and trailing on the bottom of the cabinet; and a latch forming a rigid engagement of the strut with the bottom of the cabinet simultaneously with said engagement of the top barrier; whereby the frame automatically becomes a cantaliver on reaching its said high projecting position.

2. The combination, with a cabinet, of a frame adapted to be housed low therein; means for it to swing thence upward and outward; a strut, hinged to and depending from the frame, trailing on the cabinet bottom; a latch for engagement between the strut and the cabinet bottom at the extremity of travel; and a spring arranged at

the hinge of the strut tending to rotate it from parallelism toward perpendicularity to the frame; whereby the frame is supported yieldingly during, and rigidly at the upper extremity of, its said swinging.

3. The combination, with a cabinet, of a frame adapted to be housed therein; means whereon it may swing thence upward and outward; a strut, having one end hinged to the frame and the other end trailing on the cabinet bottom; a latch adapted to lock the cabinet bottom and strut together at the extremity of the frame's said swing; a movable piece projecting outward from the upper end of the strut; and connection therefrom down the strut to the cabinet bottom to release said latch.

4. The combination, with a cabinet, of a frame hung therein; means whereon it may swing upward and forward therefrom; a strut having its upper end pivoted to and supporting the frame, and having its lower end movable forward and backward in the cabinet; a dog at its bottom trailing with the bottom of the strut; and a block on the bottom of the cabinet the forward face of which is adapted to be engaged by the dog to oppose recession of the bottom of the strut, said face being formed to follow the path of the dog on its forward movement after the dog has passed the crest of the block, so that the dog thereafter is continuously in contact with said face.

Signed by me at Boston, Mass., this third day of October, 1911.

JAMES L. DUNCAN.

Witnesses:
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