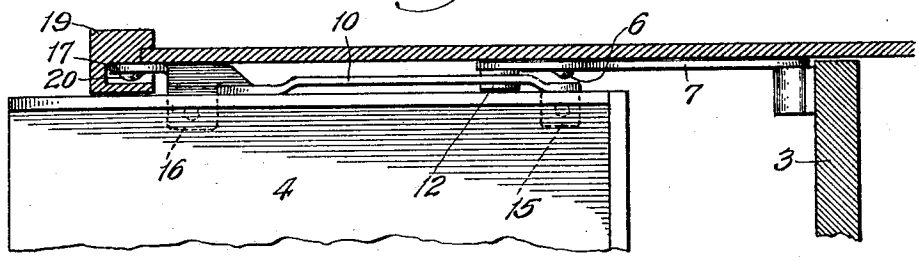
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J. VAALER

DESK MECHANISM

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Fig. 3.



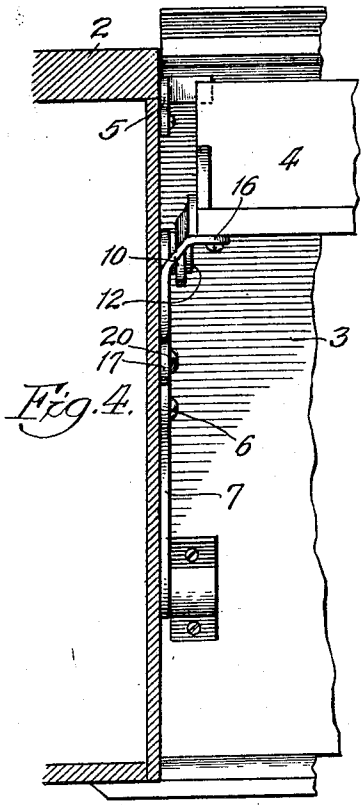


Fig. 4.

Fig. 5.

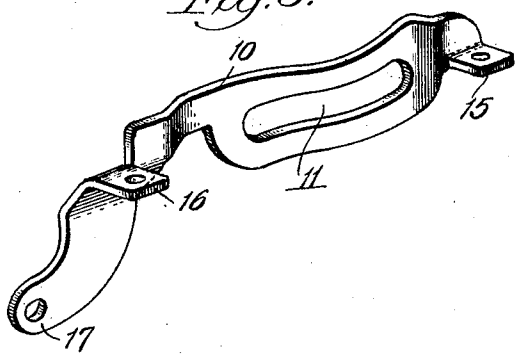


Fig. 6.

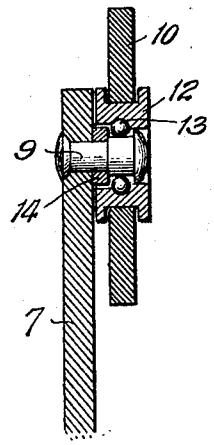
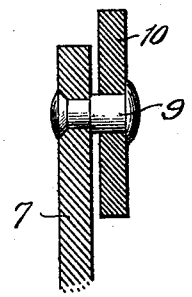


Fig. 7.



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DESK MECHANISM

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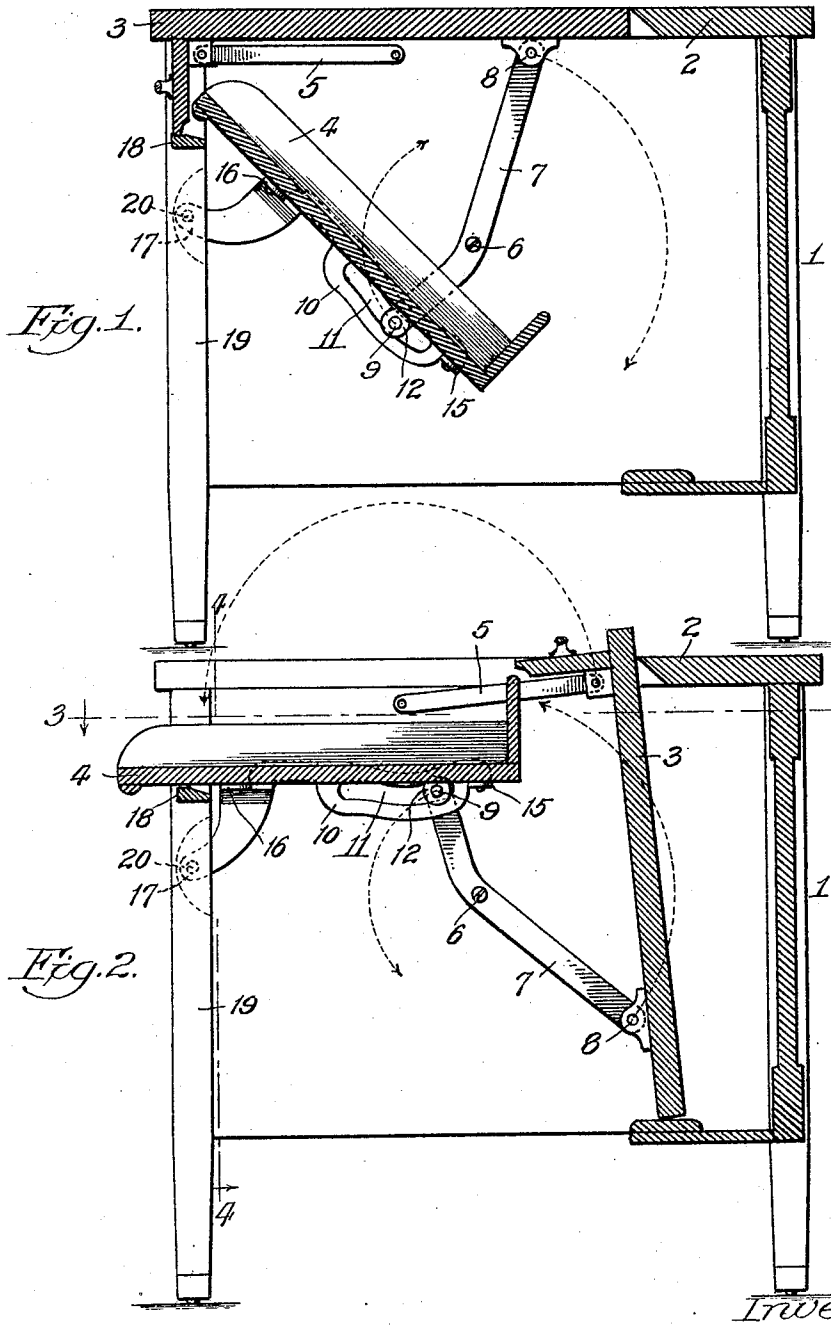


Fig. 1.

Fig. 2.

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UNITED STATES PATENT OFFICE.

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DESK MECHANISM.

Application filed December 28, 1922. Serial No. 609,372.

To all whom it may concern:

Be it known that I, JENS VAALER, a citizen of the United States, residing at Chicago, Illinois, have invented certain new and useful Improvements in Desk Mechanism, of which the following is a specification.

This invention relates to mechanism used primarily in desks known as typewriter desks, which have a pivoted top section or lid and a pivoted table for carrying the typewriter machine, and among the objects of my invention are, to provide a desk having a pivoted table in which the desk will have proper reenforcement, notwithstanding the fact that the table is projected forwardly from the desk when the latter is opened; to produce a desk of the character shown and described having a maximum knee space below the table when the desk is closed; to produce an operating mechanism for a desk of the character indicated such that when the desk is opened the table will not be raised until the lid has moved through approximately one-half of its course; to produce a desk of the character indicated which will permit the lid to be moved out of the path of a typewriter carried by the desk table, before the table starts to rise into operative position; to permit use of a comparatively large typewriter, with the least possible depth of desk openings; to produce a construction of the character indicated such that when the operator starts to open the desk it will not be necessary to lift the desk table and its load until the lid gets into such position that the weight of the lid will assist in lifting the table; to provide a unitary bracket for supporting and assisting in the actuation of a typewriter desk table which will accomplish the operations hereinafter set forth; to provide an easy operating structure of the character set forth; and such further objects, advantages, and capabilities as will later more fully appear.

My invention further resides in the combination, construction and arrangement of parts illustrated in the accompanying drawings, and, while I have shown therein a preferred embodiment, I desire the same to be understood as illustrative only and not as limiting my invention.

In the accompanying drawings Fig. 1 is a vertical section of a typewriter desk in closed position and showing the positions of the parts. Fig. 2 is a similar view showing the same construction in open position. Fig. 3 is a fragmentary horizontal section substantially along the plane indicated by the line 3—3 Fig. 2. Fig. 4 is a fragmentary vertical section substantially along the plane indicated by the line 4—4 Fig. 2. Fig. 5 is a perspective view of the supporting and actuating bracket for the table. Fig. 6 is a transverse section of one form of connection between the actuating lever and the supporting bracket. Fig. 7 is a similar view of another form of connection between these parts.

Referring more in detail to the annexed drawings, numeral 1 designates the desk body in general, 2 the fixed portion of the lid of this desk, 3 the pivoted lid, and 4 the pivoted table. A link 5 is pivoted to the body portion of the desk at one end, and at the opposite end to the forward portion of the pivoted lid 3, and serves to determine the course that the forward portion of the lid will take when being opened. Pivoted at 6 is a lever 7 which has one end pivoted in a bracket 8 secured to the under side of the lid 3. The opposite end of the lever 7 has a rivet 9 or equivalent construction mounted therein and arranged for slidable connection with a supporting and guiding bracket 10. As shown in Fig. 7 this member 9 may be connected directly with the bracket 10, sliding freely in the slot 11 thereof. This slot, as shown in Fig. 2, has an ogee form or its operative equivalent, and is provided for a short distance adjacent its rear end with a portion curved in the opposite direction from the main portion and having a radius of curvature equal to the distance between pivots 6 and 9, so as to increase the rigidity with which the table is held in elevated position, and to permit the table to reach its operative position and then stop, not having a reverse direction of motion during the final part of the motion of the parts. Fig. 6 shows a similar construction, but, in this structure, a roller 12 is mounted in the slot 11 and moves freely therein. This roller 12 has in its interior a ball race carrying balls 13 which contact with the outer surface of the member 9 to form a ball bearing connection between the lever 7 and the bracket 10. The interior of the roller 12 has a slot provided

for the insertion of the balls 13 and a washer 14 rests against a shoulder of the member 9 to hold the balls in place and form a rigid mounting for member 9. Other equivalent constructions will be obvious to one skilled in the art.

Referring now more particularly to Fig. 5, it is seen that the bracket 10 has a pair of arms 15 and 16 provided adjacent its opposite ends, and has its forward end curved downwardly and forwardly, so that the extremity 17 may extend into a socket in a leg of the desk, as shown more clearly in Figs. 1 and 2. This permits the arm 16 and the portion of the bracket from which this arm arises to be at all times rearwardly of the cross bar 18 connecting the desk leg 19 with the corresponding leg on the opposite side of the open space within the desk. The bracket 10 is pivoted, as shown at 20, to the leg of the desk and it will be obvious that with this arrangement of parts the person and clothing of the operator can at no time come in contact with the pivot 20, which is housed within the leg. This arrangement also makes the mechanism more rigid and helps to prevent lateral movement. The curvature of the forward end of bracket 10 makes it possible to have the rail or cross bar 18 connecting the opposite sides of the desk, thus holding them from being brought toward each other by lateral pressure sufficiently to make the desk hard to operate, and also preventing them from being separated by outward lateral pulls, thus rendering operation of the desk more difficult than it should be. This also relieves the strain on the portions of the desk connecting the two sides thereof.

It will be noted that with the form of bracket here shown the bracket serves to support the table and also cooperates in the actuation thereof. Since this is a unitary structure, it renders the entire construction more rigid and less liable to disarrangement because of the loosening of parts from operation of the mechanism. A more important feature, however, of this construction, is the arrangement of the slot 11 which permits the lid 3 to be moved a considerable distance before the table 4 begins to move. In actual operation it is found that the link 5 swings through an arc of from 70 to 80 degrees, and the forward edge of the lid travels therewith, thus getting entirely out of the path of movement of a machine mounted upon the table 4, before said table begins to move. This is due to the fact that the main portion of the slot 11 is formed with a radius equal to the distance between the pivots 6 and 9. When the lever 7 has moved a sufficient distance so that member 9 or the roller 12 mounted thereon strikes the portion of the slot 11 where it extends away from the circular path, the table begins to rise, but at this point the lid 3 is in such a position that its weight presses downwardly on the lever 7 and assists in raising the table to its operative position. It will be apparent from this that the operator does not have to lift the weight of the machine in addition to the weight of the lid, since the machine does not begin to rise at the same time as the lid, and when the machine does begin to rise the lid is in a position to assist the operator through the action of lever 7 and cam slot 11. Attention is called to the fact that when the lid 3 is in entirely opened position it fits very closely adjacent the forward edge of the part 2 of the top, thus rendering it impossible for articles to fall down between the two parts 2 and 3 thereof. By the arrangement here shown, the table 4 is raised and lowered through a minimum of space, thus reducing the amount of work which has to be done, and also increasing to a maximum the amount of knee space for the operator, when the desk is closed and used as a table. Attention is called to the fact that any weight placed upon any part of the table 4 and tending to push the same downwardly pushes substantially directly in the line from pivot 9 towards pivot 6, thus eliminating the necessity of any extra lock to hold the table from tipping. This precludes the possibility of the desk becoming inadvertently closed by an operator pressing downwardly upon the machine, or upon the table 4, thus being injured by the desk top, as so often happens. Furthermore, the shape of the slot 11 permits the table 4 to come down easily without any jolt or slam. It moves rapidly through a part of its course and then, as it approaches its lower limit it moves more slowly. Also, since the table stops before the lid 3 is closed, there is no tendency on the part of the former to cause the latter to jolt or slam.

While I have primarily referred herein to a single bracket 10, links 5 and levers 7, it is to be understood that there may and preferably should be, two of each of these members, the respective sets being at opposite sides of the table.

It is of course understood that the specific description of structure set forth above may be departed from without departing from the spirit of my invention, as set forth in this specification and the appended claims.

Having now described my invention, I claim—

1. A desk of the character described comprising a desk body provided with front legs having recesses leading in from the rear faces thereof, a table pivotally connected at one end to said body by means extending into said recesses whereby the operator is protected from contact with the pivotal con-

nection, said table being movable to a position within the confines of said body, and means whereby said table may be projected to a forward position.

2. A desk of the character described comprising a body, a lid pivoted thereto, a table, brackets secured to the table, each bracket having a portion pivoted to the body and another portion provided with a slot, and pivotally supported levers each pivotally connected at one end to the lid and provided with projections adjacent their other ends engaging the slots in said brackets, said slots being reversely curved, whereby the table remains motionless during a portion of the course of travel of the lid and has a rapid motion imparted thereto during another part of the course of travel of the lid.

3. A desk comprising a body, levers pivotally connected thereto, a movable lid connected with said levers, whereby the latter are actuated by movement of the lid, table-supporting brackets pivotally connected with said body and having slots of ogee form therein, said levers having means operatively engaging said slots, whereby the table remains motionless during a portion of the course of travel of the lid, and a rapid motion is imparted to the table during another portion of the course of travel of said lid.

4. A desk comprising a body, levers pivotally supported thereby, a movable lid connected with said levers, whereby the latter are actuated by movement of the lid, table-supporting brackets pivotally connected with said body and having slots therein, said levers having means engaging said slots, each slot having a portion curved on a radius struck from the pivotal connection of the contiguous lever with said body, whereby the table will remain quiescent during movement of the levers in one direction, said slots having short reversely curved portions at the rear ends thereof to impart movement to the table under continued movement of the levers.

5. A supporting and operating bracket for a typewriter desk having a body provided adjacent its ends with laterally offset table-supporting arms, said body having a longitudinally extended actuator engaging slot, one end of the bracket being extended longitudinally beyond the contiguous offset arm and being curved in a plane approximately parallel with the main portion of the body, said slot having an ogee form, whereby an actuating member may move therein for a predetermined distance without imparting movement to the bracket and upon continued movement therein will cause accelerated movement of the bracket in one direction.

6. A desk comprising a body, levers pivoted thereto, a movable lid connected with said levers, whereby they are actuated by movement of the lid, table-supporting brackets pivotally connected with said body and having curved slots therein, said levers having means operatively engaging said slots, said slots being reversely curved at their rear ends, whereby closing movements of the table will be cushioned.

7. A desk comprising a body, levers fulcrumed thereon, a movable lid connected with said levers, whereby the latter are actuated by movement of the lid, table-supporting brackets pivotally connected with said body and having slots of ogee form therein, said levers having guiding means operatively engaging said slots, whereby the table remains motionless during a portion of the course of travel of the lid and moves rapidly during another portion of the course of travel of said lid, an extremity of each of said slots being substantially perpendicular to that part of the lever connecting the lever fulcrum with the guiding means.

8. A desk comprising a body, a movable lid, levers connected with the body and with the lid and actuated by movement of the lid, a platform pivotally connected to the body, brackets secured to said platform and having curved guide-ways therein, each of said guide-ways having a reverse curve at its rear end, guiding means on said levers operating in said guide ways, for maintaining the table at its upper limit of movement when said guiding means are engaged by the reverse curve of the guide-ways.

9. A desk comprising a body, a movable lid, levers connected with the body and with the lid and actuated by movement of the lid, a platform, brackets secured to the platform and pivotally connected to the body and having curved guide-ways therein, each of said guide-ways having a reverse curve at its rear end, rollers upon the levers extending through the guide-ways and operating therein to move the brackets when moving the lid, said rollers cooperating with the levers and brackets for maintaining the table in elevated position when the lid is swung open.

In witness whereof, I hereunto subscribe my name to this specification.

JENS VAALER.