June 6, 1939. S. S. STEPHENSON 2,161,323

LATCH MECHANISM FOR DESK TOPS

Filed Aug. 15, 1938 2 Sheets-Sheet 1

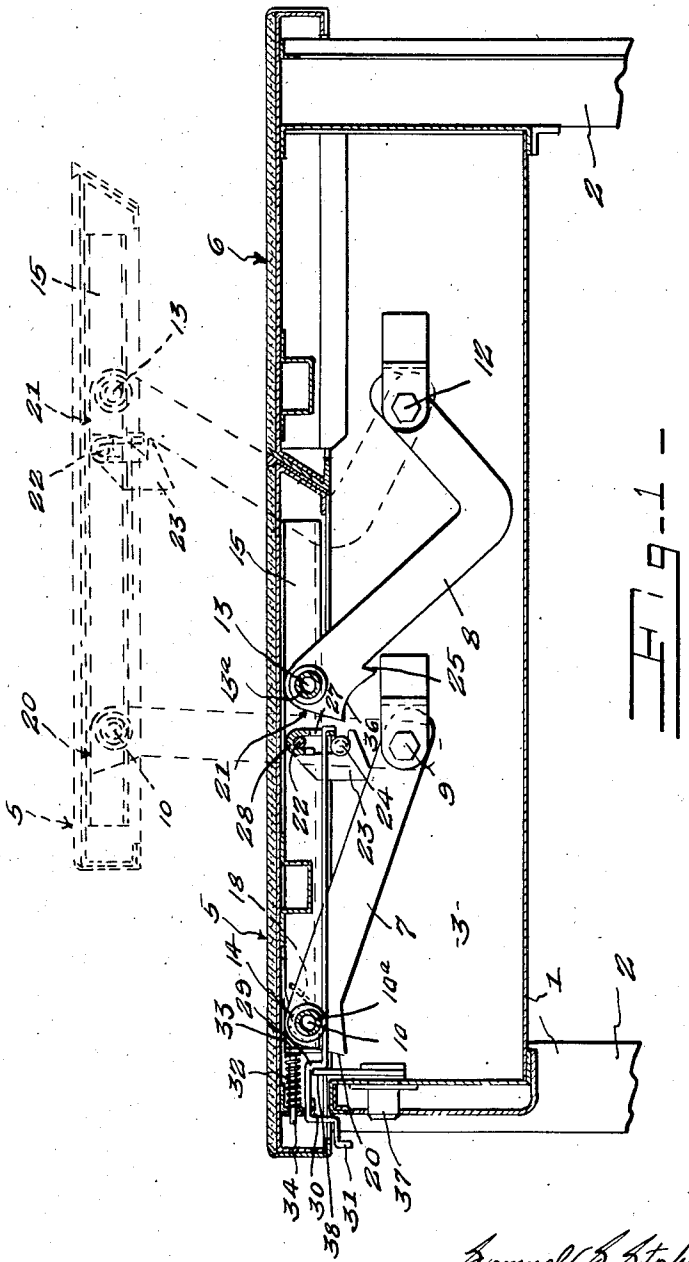


Fig. 1.

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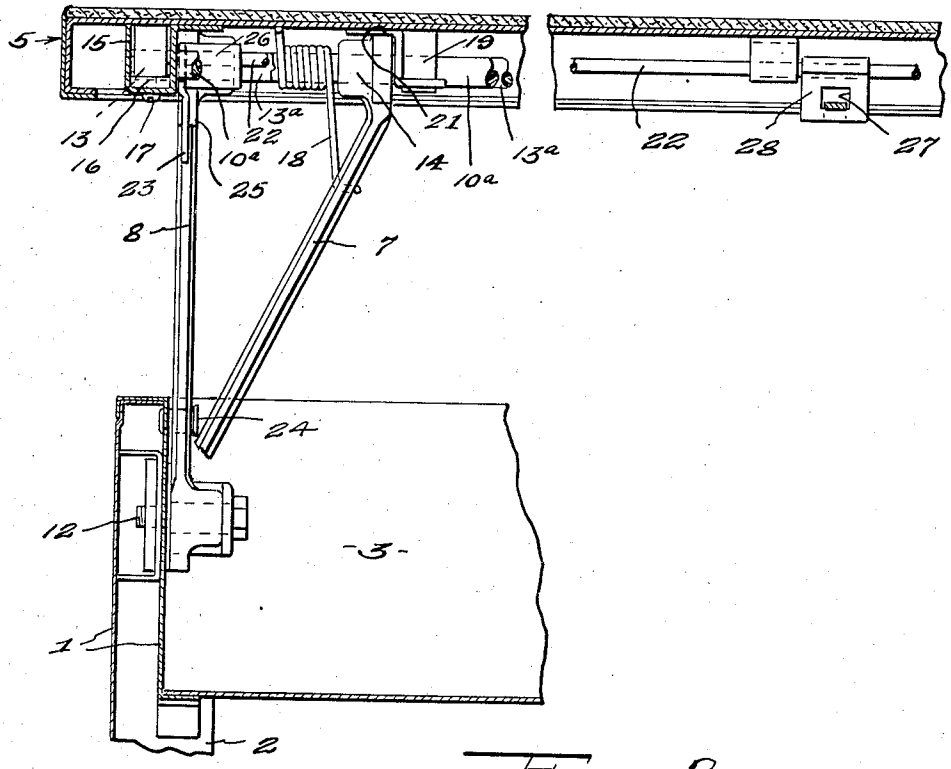


Fig-2-

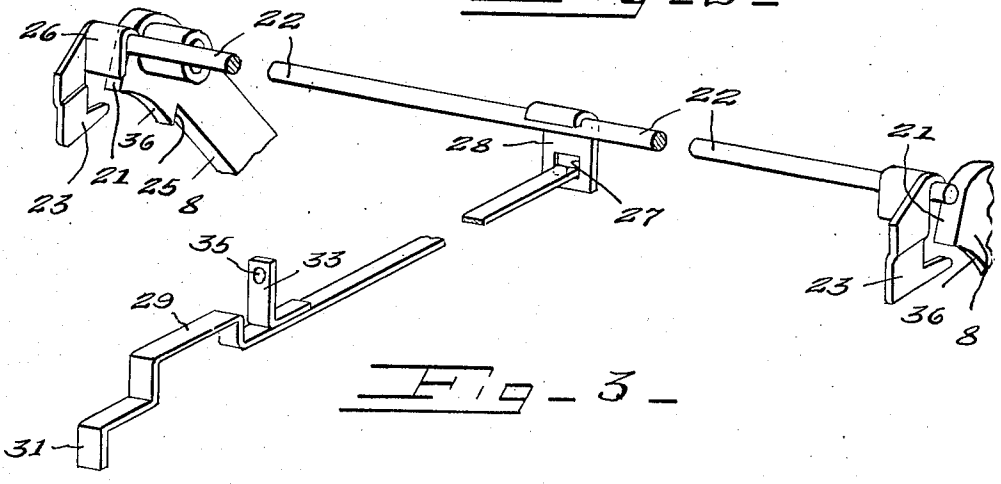


Fig-3-

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LATCH MECHANISM FOR DESK TOPS

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7 Claims. (Cl. 45—91)

This invention relates to desks, wherein the desk top can be raised and lowered and is guided in its movement by links below the desk top, and preferably links having a parallelogram action, and has for its object, a lock or latch arrangement by means of which the desk top is locked in closed position, wherein it closes a receptacle beneath the desk top and in an open or elevated position, which lock or latch means is carried on the under side of the desk top, and when the desk top is in open position, coacts with the parallelogram links, all arranged, so that the lock or latch mechanism consists of a few compactly arranged parts which occupy minimum space, and does not interfere with the space within the receptacle.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

Figure 1 is a vertical fragmentary sectional view through the upper portion of the desk, the position of the desk top, when in open position, being indicated in broken line.

Figure 2 is an enlarged fragmentary elevation looking to the right in Figure 1.

Figure 3 is an enlarged isometric view of the latch mechanism.

1 designates the body of the desk, which may be of any suitable form, size and construction, it being usually of a sheet metal construction including hollow legs 2 and a sheeting, not shown, connecting them. 3 designates a receptacle supported in the upper part of the body and open at its top. 5 is a desk top or movable desk top section and 6 a permanent top section covering the rear portion of the receptacle. The sections 5, 6 are also formed up of sheet metal with suitable top coverings.

7 and 8 designate respectively links for guiding the movable top section 5 into and out of closed position, the links having a parallelogram action, the link 7 being pivoted at one end at 9 within the receptacle and at its other end at 10 to the desk top on the under side thereof. The link 8 is likewise pivoted at one end at 12 within the receptacle and at its other end at 13 to the under side of the desk top. There are links 7 and 8 at each side of the receptacle and the desk top and the outer ends of the links 7 are connected by a rigid rod 10^a, so that they move in unison, and the ends of this rod constitute the pivots 10. Likewise, the links 8 on opposite sides of the receptacle and desk top are pivoted to the desk top by a rigid rod 13^a, the ends of which constitute the pivot 13. The latch means coacts with the links 8 which are the rearmost with respect to the front of the desk.

As seen in Figure 2, each link 7 is inclined inwardly slightly and has a hub 14 fixed to the rod 10^a, and the end of the rod constituting the pivot 10 is mounted in a hollow or double walled rib 15 on the under side of the desk top. The rib has a movable lower plate 16 held in position by a screw 17 so that the rib and the removable plate 16 form a split bearing. A torsion spring 18 acts on each of the arms 7 and tends to move the desk top toward closed position. There is also a removable bearing portion or split bearing 19 for the rod 10^a at the inner side of each link 7. The split bearing 19 as well as the split bearing or removable plate 16 permit the rod 10 to be demounted for the purpose of replacing the spring 18 when broken. The links 7, 8 on the opposite side of the receptacle are duplicates of those shown in Figures 1 and 2.

When the desk is swung into open position, surfaces 20 and 21 at the outer ends of the links 7, 8 bear flatwise on the under side of the desk top 5 and brace the desk top in open position.

This invention lies primarily in lock or latch means for holding the desk top in open or elevated position or in closed position. This lock means comprises a rock shaft 22 mounted at its ends in the ribs 15, latches 23 mounted on opposite ends of the rock shaft, keepers, as studs 24, mounted on the side walls of the receptacle, with which the latch coacts, when the top is closed, and keepers 25 at the outer ends of the links 8 near where said links are pivoted at 13 to the desk top, and an operating member for the rock shaft extending outside of the receptacle. The latches cooperate with the keepers 25 when the desk top is open. The rock shaft is located parallel to and near the rod 13^a connecting the links 8.

The latches or the operating members are spring-pressed. The latches 23 may be of any suitable construction and are shown as having hub portions 26 which are preferably welded to the ends of the rock shaft 22. The operating member is shown as a flat rod or strap lying close to the under side of the desk top 5 and extending at its inner end through a slot 27 in a lug or rock arm 28 depending from the intermediate portion of the shaft 22 and secured thereto, usually by welding. The operating member or strap has a

hook or lug which interlocks with the lug or rock arm 28 through the slot 27.

The operating member or strap is also formed near its front end with an upwardly extending offset 29 which bridges the edge of the front wall and the receptacle and which extends through a guide slot formed in a lug 30 depending from the desk top. The operating member also has a suitable finger-piece 31 on the end thereof outside of the receptacle. A spring normally thrusts the operating member into such position as to cause the latches 23 to ratchet into engagement with the keepers or studs 24 or the keepers 25. This spring 32 is here shown as interposed between the lug 30 and an upstanding lug 33 on the operating member or strap. The spring 32 encircles a stud 34 fixed in a suitable hole 35 in the lug 33 and slidable in a perforation in the lug 30.

The links 8 are provided with suitable guide or ratcheting surfaces 36 leading to the keepers 35 for guiding the latches into engagement with the keepers 35, when the desk top is swinging to its open position.

By reason of this latch means, the desk top is positively held in its elevated position against unintentional closing by the same latch means that latches the desk top in its closed position, so that no additional parts are required to provide for latching the desk top in open position. The desk top can be positively locked in its closed position by a key operated lock 37 mounted in the front wall of the receptacle and having a member or arm 38 which moves into and out of the offset 29. When the key operated lock is unlocked, movement of the operating member or strap outwardly by pulling force applied to the fingerpiece 31 moves the latches 23 out of engagement with the studs or keepers 24 permitting the desk top to be moved upwardly into open position, indicated in broken line (Figure 1), the desk top maintaining a substantially horizontal position during this movement owing to the parallelogram action of the links 7, 8. When the desk top approaches its fully open position, the latches 23 being urged by the spring 32 engage the guide or ratcheting surface 36 and finally move into engagement with the keepers 24 on the links 8 when the desk top is in fully open position. Movement of the operating member by pulling force applied to the finger-piece 31, against the action of the spring 32, releases the latches 23 from the keepers 25, so that the desk top can return or be returned to its closed position.

The latch mechanism and its correlation to the receptacle, desk top and the links, is particularly compact in construction and consists of a minimum number of parts.

What I claim is:

1. In a desk, a suitable body having a receptacle open at its top, a desk top arranged to normally form a cover for the receptacle and movable from closed position upwardly, means for guiding the desk top during the opening and closing movement and maintaining it in substantially horizontal position including links, each pivoted at one end to the body and at its other end to the desk top, the links normally occupying a lying-down position and movable into a standing position when the desk is open, and locking means including a latch carried by the desk top and a keeper associated with the receptacle with which the latch coacts when the top is closed, one of the links having a keeper thereon with which the latch coacts when the desk top is open, and an operating member carried by the desk top for tripping the latch.

2. In a desk, a suitable body having a receptacle open at its top, a desk top arranged to normally form a cover for the receptacle and movable from closed position upwardly, means for guiding the desk top during the opening and closing movement and maintaining it in substantially horizontal position including links, each pivoted at one end to the body and at its other end to the desk top, the links normally occupying a lying-down position and movable into a standing position when the desk is open, and locking means including a latch carried by the desk top and a keeper associated with the receptacle with which the latch coacts when the desk top is closed, said latch and keeper being located near the end of one of said links where it is pivoted to the desk top, when the desk top is closed, and said one of the links having a keeper coacting with the latch when the desk top is open.

3. In a desk, a suitable body having a receptacle open at its top, a desk top arranged to normally form a cover for the receptacle and movable from closed position upwardly, means for guiding the desk top during the opening and closing movement and maintaining it in substantially horizontal position including links, each pivoted at one end to the body and at its other end to the desk top, the links normally occupying a lying-down position and movable into a standing position when the desk is open, and locking means including a latch carried by the desk top and a keeper associated with the receptacle with which the latch coacts when the desk top is closed, said latch and keeper being located near the end of one of said links where it is pivoted to the desk top, when the desk top is closed, and said one of the links having a keeper coacting with the latch when the desk top is open, and also a guide for guiding the latch into engagement with the keeper of said link.

4. In a desk, a suitable body having a receptacle open at its top, a desk top arranged to normally form a cover for the receptacle and movable from closed position upwardly, means for guiding the desk top during the opening and closing movement and maintaining it in substantially horizontal position when open including two pairs of links, each pivoted at opposite ends to the body and to the desk top, the links having a parallelogram action and normally occupying a lying-down position and movable into a standing position when the desk is open, a rock shaft carried by the top on the under side thereof and extending parallel and adjacent to the pivotal axis between one pair of links and the desk top, locking means including latches mounted on opposite sides of said rock shaft to rock therewith, keepers on the receptacle with which the latches normally coact, a keeper on the end of each of the links of said one of the pairs where the same are pivoted to the desk top, the latches coacting respectively with the latter keepers when the desk top is open, and an operating member on the under side of the top and extending out of the receptacle, the operating member being connected to the rock shaft to rock the same.

5. In a desk, a suitable body having a receptacle open at its top, a desk top arranged to normally form a cover for the receptacle and movable from closed position upwardly, means for guiding the desk top during the opening and closing movement and maintaining it in substantially

horizontal position when open, including links pivoted at opposite ends to the body and to the desk top, the links having a parallelogram action and normally occupying a lying-down position and movable into a standing position when the desk is open, a rod rigidly connecting one of the links at one side of the desk top with a similar link at the opposite side of the desk top, a rock shaft carried by the desk top on the under side thereof and extending parallel to the pivotal axis between the link and the desk top, locking means including said rock shaft and latches on said rock shaft to rock therewith, keepers on the receptacle with which the latches normally coact, keepers on the end of each of the adjacent links where the same are pivoted to the desk top, the latches coacting respectively with the latter keepers when the desk top is open, and an operating member on the under side of the top and extending out of the receptacle, the operating member being connected to the rock shaft to rock the same.

6. In a desk, a suitable body having a receptacle open at its top, a desk top arranged to normally form a cover for the receptacle and movable from closed position upwardly, means for guiding the desk top during the opening and closing movement and maintaining it in substantially horizontal position when open, including links pivoted at opposite ends to the body and to the desk top, the links having a parallelogram action and normally occupying a lying-down position and movable into a standing position when the desk is open, a rod rigidly connecting one of the links at one side of the desk top with a similar link at the opposite side of the desk top, a rock shaft carried by the desk top on the under side thereof and extending parallel to the pivotal axis between the link and the desk top, locking means including said rock shaft and latches on said rock shaft to rock therewith, keepers on the receptacle with which the latches normally coact, keepers on the end of each of the adjacent links where the same are pivoted to the desk top, the latches coacting respectively with the latter keepers when the desk top is open, and an operating member on the under side of the top and extending out of the receptacle, the operating member being connected to the rock shaft to rock the same, the links provided with the keepers being also formed with ratcheting surfaces for guiding the latch into coaction with the keepers of said links.

7. In a desk, a suitable body having a receptacle open at its top, a desk top arranged to normally form a cover for the receptacle and movable from closed position upwardly, means for guiding the desk top during the opening and closing movement and maintaining it in substantially horizontal position when open, including links pivoted at opposite ends to the body and to the desk top, the links having a parallelogram action and normally occupying a lying-down position and movable into a standing position when the desk is open, a rod rigidly connecting one of the links at one side of the desk top with a similar link at the opposite side of the desk top, a rock shaft carried by the desk top on the under side thereof and extending parallel to the pivotal axis between the link and the desk top, locking means including said rock shaft and latches on said rock shaft to rock therewith, keepers on the receptacle with which the latches normally coact, keepers on the end of each of the adjacent links where the same are pivoted to the desk top, the latches coacting respectively with the latter keepers when the desk top is open, and an operating member on the under side of the top and extending out of the receptacle, the operating member being connected to the rock shaft to rock the same, the operating member having an offset extending over the edge of a wall of the receptacle, and a key-operated lock mounted in said wall of the receptacle having a member operable into and out of said offset.

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