

TILTABLE TABLE WITH PINCH PREVENTION CAPABILITY

This invention relates to a tiltable table with pinch prevention capability, more particularly to a tiltable table including a tabletop and a pinch-preventing unit
5 for preventing the tabletop from pinching a person's finger(s).

U.S. Patent No. 5,131,333 discloses a tiltable table that includes a table stand, a frame mounted to the table stand, and a tabletop pivoted to the frame so as to be
10 tiltable relative to the frame. The tiltable table is disadvantageous in that a person's finger(s) may be accidentally pinched between the tabletop and the frame when the tabletop is moved from a tilt position to a horizontal position relative to the frame.

Figs. 1 to 5 illustrate a conventional tiltable table
15 1 with pinch prevention capability. The conventional tiltable table 1 includes a table stand 11, a frame 113 mounted on the table stand 11, a tabletop 12 pivoted to the frame 113 so as to be pivotable relative to the frame
20 113 between a full inclined position (see Fig. 1) and a horizontal position (see Fig. 3), a telescopic extension member 13 pivoted to the table stand 11 and the tabletop 12, and a pinch prevention element 14 pivoted to one side of the frame 113 through a pivot shaft 141. The pinch
25 prevention element 14 is rotatable relative to the frame 113 about an axis of the pivot shaft 141 between first and second angular positions, and has an arcuate end portion

144 and a handgrip portion 143. The arcuate end portion 144 extends upwardly from the pivot shaft 141 beyond a top side of the frame 113 when the pinch prevention element 14 is disposed at the first angular position (see Fig. 2) so that the arcuate end portion 144 can stop the tabletop 12 at a slightly inclined position (see Fig. 2) and abut against the tabletop 12 to maintain a gap 10 between the tabletop 12 and the frame 113 when the tabletop 12 is moved from the full inclined position (see Fig. 1) toward the horizontal position (see Fig. 3), thereby preventing a person's finger from being pinched between the tabletop 12 and the frame 113 during movement of the tabletop 12 from the full inclined position to the horizontal position. The arcuate end portion 144 extends from the pivot shaft 141 in a horizontal direction and does not extend upwardly beyond the frame 113 when the pinch prevention element 14 is disposed at the second angular position and when the tabletop 12 is disposed at the horizontal position (see Fig. 3).

20 The applicant found that although the pinch prevention element 14 can prevent a person's finger from being pinched, rotating the pinch prevention element 14 about the pivot shaft 141 can be relatively inconvenient. As illustrated in Figs. 4 and 5, when a person stands at a lateral side of the tiltable table 1 (see Fig. 4), pulling or applying a pulling force to the handgrip portion 143 of the pinch prevention element 14 in a direction transverse to the

person's hand can be awkward and inappropriate, and when the person stands at a front side of the tiltable table 1 (see Fig. 5), the person is required to lean his or her body and bend his or her knees to a greater extent to reach his or her hand to the pinch prevention element 14 because the handgrip portion 143 of the pinch prevention element 14 extends downwardly a considerable length under the frame 113. In addition, since the tabletop 12 only has one side rested on the arcuate end portion 144, support of the tabletop 12 on the arcuate end portion 144 is unstable.

Therefore, an object of the present invention is to provide a tiltable table that can overcome at least one of the aforesaid drawbacks associated with the prior art.

According to this invention, there is provided a tiltable table with pinch prevention capability. The tiltable table comprises: a table stand; a tabletop supported on and pivoted to the table stand so as to be tiltable relative to the table stand, the tabletop having a bottom surface and left and right sides; and a pinch-preventing unit having a pair of spaced apart engaging holes that are formed in one of the bottom surface of the tabletop and the table stand, a pair of spaced apart engaging studs that are secured to the other of the bottom surface of the tabletop and the table stand, at least one lever seat that is secured to said one of the bottom surface of the tabletop and the table stand, and a releasing lever that is mounted slidably on the lever seat. The releasing

lever is formed with a pair of through-holes. The tabletop
is tiltable relative to the table stand between a horizontal
position and a tilting position. The engaging studs are
respectively disposed adjacent to the left and right sides
5 of the tabletop, and are respectively and substantially
aligned with the engaging holes in a vertical direction
when the tabletop is disposed at the tilting position.
The releasing lever is slidable relative to the lever seat
in a transverse direction transverse to the vertical
10 direction between a first position and a second position.
The through-holes are respectively and substantially
aligned with the engaging studs and the engaging holes
in the vertical direction when the releasing lever is
disposed at the second position and when the tabletop is
15 disposed at the tilting position, thereby permitting
extension of the engaging studs through the through-holes
and into the engaging holes, respectively, and movement
of the tabletop from the tilting position to the horizontal
position. The through-holes are respectively misaligned
20 with the engaging studs and the engaging holes in the
vertical direction and the engaging studs abut against
the releasing lever when the releasing lever is disposed
at the first position and when the tabletop is disposed
at the tilting position, thereby preventing extension of
25 the engaging studs into the engaging holes, respectively.

In drawings which illustrate an embodiment of the
invention,

Fig. 1 is a schematic side view of a conventional tiltable table;

Fig. 2 is an enlarged schematic side view illustrating a state where a pinch prevention element of the conventional
5 tiltable table is disposed at a first angular position;

Fig. 3 is an enlarged schematic side view illustrating another state where the pinch prevention element of the conventional tiltable table is disposed at a second angular position;

10 Fig. 4 is a schematic side view illustrating a state where a person stands at a lateral side of the conventional tiltable table for rotating the pinch prevention element;

Fig. 5 is a schematic side view illustrating another state where the person stands at a front side of the
15 conventional tiltable table for rotating the pinch prevention element;

Fig. 6 is a perspective view of the preferred embodiment of a tiltable table according to the present invention;

Fig. 7 is an exploded perspective view of a
20 pinch-preventing unit of the preferred embodiment;

Fig. 8 is a schematic side view illustrating a state where a tabletop of the preferred embodiment is disposed at a horizontal position;

Fig. 9 is a schematic side view illustrating another
25 state where the tabletop of the preferred embodiment is disposed at a first tilting position;

Fig. 10 is a schematic side view illustrating yet

another state where the tabletop of the preferred embodiment is disposed at a second tilting position;

Fig. 11 is a fragmentary schematic top view illustrating a state where a releasing lever of the pinch-preventing unit of the preferred embodiment is disposed at a first position;

Fig. 12 is a fragmentary sectional view taken along line XII - XII in Fig. 11;

Fig. 13 is a fragmentary schematic top view illustrating another state where the releasing lever of the pinch-preventing unit of the preferred embodiment is disposed at a second position;

Fig. 14 is a fragmentary sectional view taken along line XIV - XIV in Fig. 13;

Fig. 15 is a schematic side view illustrating a state where a person stands at a lateral side of the preferred embodiment for pulling the pinch-preventing unit; and

Fig. 16 is a schematic side view illustrating another state where the person stands at a front side of the preferred embodiment for pulling the pinch-preventing unit.

Figs. 6 to 10 illustrate the preferred embodiment of a tiltable table with pinch prevention capability according to the present invention. The tiltable table includes: a table stand 2 having a pair of legs 21 and a frame 3 supported on the legs 21, the frame 3 having left and right side bars 311; a tabletop 4 supported on

the frame 3 and pivoted to the frame 3 of the table stand 2 at one end thereof so as to be tiltable relative to the table stand 2, the tabletop 4 having a bottom surface 413 and left and right sides 411, 412; a pair of telescopic extension members 5 pivoted to the table stand 2 and the tabletop 4, the telescopic extension members 5 being extendable and retractable between an extended position (see Fig. 10) and a retracted position (see Fig. 8); and a pinch-preventing unit 6 having a pair of spaced apart engaging holes 414 (see Fig. 12) that are formed in the bottom surface 413 of the tabletop 4, a pair of spaced apart engaging studs 61 that are respectively secured to and protruding from the left and right side bars 311 of the frame 3 of the table stand 2, a pair of lever seats 62 that are secured to the bottom surface 413 of the tabletop 4 and that are respectively disposed adjacent to the engaging holes 414, a releasing lever 63 that is mounted slidably on the lever seats 62, and an urging member 64. The releasing lever 63 is formed with a pair of first through-holes 601. The tabletop 4 is tiltable relative to the table stand 2 from a horizontal position (see Fig. 8) to a first tilting position (see Fig. 9) and further from the first tilting position to a second tilting position or a full tilting position (see Fig. 10). The engaging studs 61 are respectively disposed adjacent to the left and right sides 411, 412 of the tabletop 4, and are respectively and substantially aligned with the engaging

holes 414 in a vertical direction (Y) when the tabletop 4 is disposed at the first tilting position (see Fig. 14). The releasing lever 63 is slidable relative to the lever seats 62 in a transverse direction (X) transverse to the vertical direction (Y) between a first position (see Figs. 11 and 12) and a second position (see Figs. 13 and 14). The urging member 64 abuts against the releasing lever 63 for restoring the releasing lever 63 from the second position to the first position. The first through-holes 601 are respectively and substantially aligned with the engaging studs 61 and the engaging holes 414 in the vertical direction (Y) when the releasing lever 63 is disposed at the second position and when the tabletop 4 is disposed at the first tilting position, thereby permitting extension of the engaging studs 61 through the first through-holes 601 and into the engaging holes 414, respectively, and movement of the tabletop 4 from the first tilting position to the horizontal position. The first through-holes 601 are respectively misaligned with the engaging studs 61 and the engaging holes 414 in the vertical direction (Y) and the engaging studs 61 abut against the releasing lever 63 when the releasing lever 63 is disposed at the first position and when the tabletop 4 is disposed at the first tilting position, thereby preventing extension of the engaging studs 61 into the engaging holes 414, respectively, and permitting formation of a gap between the tabletop 4 and the frame 3 for preventing a

person's hand from being pinched between the tabletop 4 and the frame 3.

In this embodiment, each of the lever seats 62 has an upper part 62a that is secured to the bottom surface 413 of the tabletop 4, and a lower part 62b that extends
5 downwardly from the upper part 62a. The upper part 62a is formed with a second through-hole 622. The engaging studs 61 are respectively aligned with and extend respectively through the second through-holes 622 in the
10 upper parts 62a of the lever seats 62 when the releasing lever 63 is disposed at the second position and when the tabletop 4 is disposed at the first tilting position. The lower part 62b is formed with a lever-guiding slot 621 disposed below and in spatial communication with the second
15 through-hole 622. The releasing lever 63 extends slidably in the transverse direction (X) into and through the lever-guiding slots 621 in the lower parts 62b of the lever seats 62. The engaging studs 61 respectively extend into the lever-guiding slots 621 in the lower parts 62b to abut
20 against the releasing lever 63 when the releasing lever 63 is disposed at the first position and when the tabletop 4 is disposed at the first tilting position.

Referring to Fig. 7, the releasing lever 63 has a first section 631 and a second section 632 connected to one end
25 of the first section 631 through a screw fastener. The first through-holes 601 are formed in the first section 631, and are respectively defined by hole-defining walls

634. The first section 631 has a pair of tongues 635 protruding respectively from the hole-defining walls 634 and respectively into the first through-holes 601. The urging member 64 is sleeved around one of the tongues 635.

5 A mounting seat 637 is secured to the bottom surface 413 of the tabletop 4 (see Fig. 6). The second section 632 is mounted movably on the bottom surface 413 of the tabletop 4 through the mounting seat 637, is formed with a groove 602 for extension of a pair of protrusions 6371 of the

10 mounting seat 637 therein, and has a handgrip portion 638 extending in the transverse direction (X) and disposed adjacent to the right side 412 (see Fig. 6) of the table top 4 for pulling operation of the releasing lever 63.

In operation, a person can stand at a lateral side

15 of the tiltable table (see Fig. 15) or at a front side of the tiltable table (see Fig. 16), insert his or her fingers into the handgrip portion 638, and pull the handgrip portion 638 in the transverse direction (X) simply by clenching his or her fingers from a non-clenched state

20 to a clenched state. In addition, unlike the handgrip portion 143 of the conventional tiltable table that extends downwardly a considerable length for facilitating rotation of the pinch prevention element 14, the handgrip portion 638 of the tiltable table of this invention can be easily

25 reached and operated. Moreover, since the engaging studs 61 are disposed substantially across the left and right sides 411, 412 of the tabletop 4, the tabletop 4 can be

more stably supported on the engaging studs 61. Hence,
the aforesaid drawbacks associated with the prior art can
be eliminated.

5 It should be noted herein that, according to another
alternative embodiment of this invention, the engaging
holes 414 may be formed in the table stand 2, while the
engaging studs 61 are secured to the bottom surface 413
of the tabletop 4, and the lever seats 62 are secured to
the table stand 2.

10 While the present invention has been described in
connection with what is considered the most practical and
preferred embodiment, it is understood that this invention
is not limited to the disclosed embodiment but is intended
to cover various arrangements included within the spirit
15 and scope of the broadest interpretation and equivalent
arrangements.

What is claimed is:

1. A tiltable table with pinch prevention capability, comprising:

a table stand;

5 a tabletop supported on and pivoted to said table stand so as to be tiltable relative to said table stand, said tabletop having a bottom surface and left and right sides; and

10 a pinch-preventing unit having a pair of spaced apart engaging holes that are formed in one of said bottom surface of said tabletop and said table stand, a pair of spaced apart engaging studs that are secured to the other of said bottom surface of said tabletop and said table stand, at least one lever seat that is
15 secured to said one of said bottom surface of said tabletop and said table stand, and a releasing lever that is mounted slidably on said lever seat, said releasing lever being formed with a pair of first through-holes;

20 wherein said tabletop is tiltable relative to said table stand between a horizontal position and a first tilting position, said engaging studs being respectively disposed adjacent to said left and right sides of said tabletop and being respectively and
25 substantially aligned with said engaging holes in a vertical direction when said tabletop is disposed at the first tilting position;

wherein said releasing lever is slidable relative to said lever seat in a transverse direction transverse to the vertical direction between a first position and a second position;

5 wherein said first through-holes are respectively and substantially aligned with said engaging studs and said engaging holes in the vertical direction when said releasing lever is disposed at the second position and
10 when said tabletop is disposed at the first tilting position, thereby permitting extension of said engaging studs through said first through-holes and into said engaging holes, respectively, and movement of said tabletop from the first tilting position to the horizontal position; and

15 wherein said first through-holes are respectively misaligned with said engaging studs and said engaging holes in the vertical direction and said engaging studs abut against said releasing lever when said releasing lever is disposed at the first position and when said
20 tabletop is disposed at the first tilting position, thereby preventing extension of said engaging studs into said engaging holes, respectively.

2. The tiltable table of claim 1, wherein said engaging holes are formed in said bottom surface of said tabletop, said lever seat being secured to said bottom surface
25 of said tabletop, said engaging studs being secured to said table stand.

3. The tiltable table of claim 2, wherein said pinch-preventing unit further has an urging member abutting against said releasing lever for restoring said releasing lever from the second position to the first position.
4. The tiltable table of claim 3, wherein said pinch-preventing unit has a pair of said lever seats disposed respectively adjacent to said engaging holes, each of said lever seats having an upper part that is secured to said bottom surface of said tabletop, and a lower part that extends downwardly from said upper part, said upper part being formed with a second through-hole, said engaging studs being respectively aligned with and extending through said second through-holes in said upper parts of said lever seats when said releasing lever is disposed at the second position and when said tabletop is disposed at the first tilting position, said lower part being formed with a lever-guiding slot, said releasing lever extending slidably into and through said lever-guiding slots in said lower parts of said lever seats.
5. The tiltable table of claim 4, wherein said engaging studs respectively extend into said second through-holes to abut against said releasing lever when said releasing lever is disposed at the first position and when said tabletop is disposed at the first tilting position.