



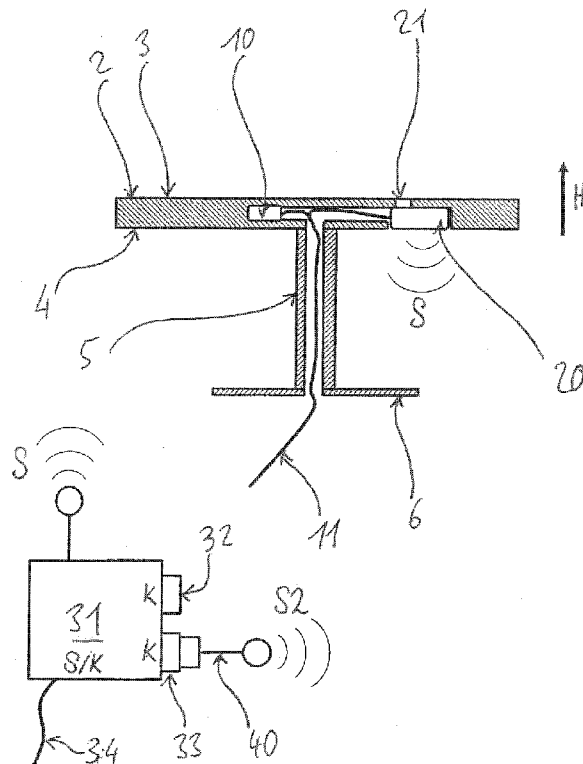
US 20150096473A1

(19) **United States**(12) **Patent Application Publication**
LEUKEL et al.(10) **Pub. No.: US 2015/0096473 A1**(43) **Pub. Date: Apr. 9, 2015**(54) **TABLE DEVICE**(71) Applicant: **C + P Mobelsysteme GmbH & Co.**
KG, Breidenbach (DE)(72) Inventors: **Wieland LEUKEL**, Bad Laasphe (DE);
Tobias WALTER, Dillenburg (DE);
Sven SCHALL, Dillenburg (DE)(21) Appl. No.: **14/508,018**(22) Filed: **Oct. 7, 2014**(30) **Foreign Application Priority Data**

Oct. 7, 2013 (DE) 20 2013 104 532.2

Publication Classification(51) **Int. Cl.**
A47B 21/00 (2006.01)
A47B 13/12 (2006.01)
A47B 13/00 (2006.01)(52) **U.S. Cl.**CPC **A47B 21/00** (2013.01); **A47B 13/00**
(2013.01); **A47B 13/12** (2013.01)(57) **ABSTRACT**

The invention is related to a table device (1) comprising a tabletop (2) with an upper side (3) and an underside (4), and also at least one table leg (5) connected to the tabletop (2). An inductive charging device (10) is arranged between the upper side (3) and the underside (4) of the tabletop (2) in the direction of the height (H). The table device (1) further comprises a control device (20) that is connected in a communicating manner to at least one touch panel (21) on the upper side (3) of the tabletop (2), which is arranged between the upper side (3) and the underside (4) of the tabletop (2) in the direction of the height (H), wherein cableless control signals (S) can be emitted from the control unit to external electrical devices.



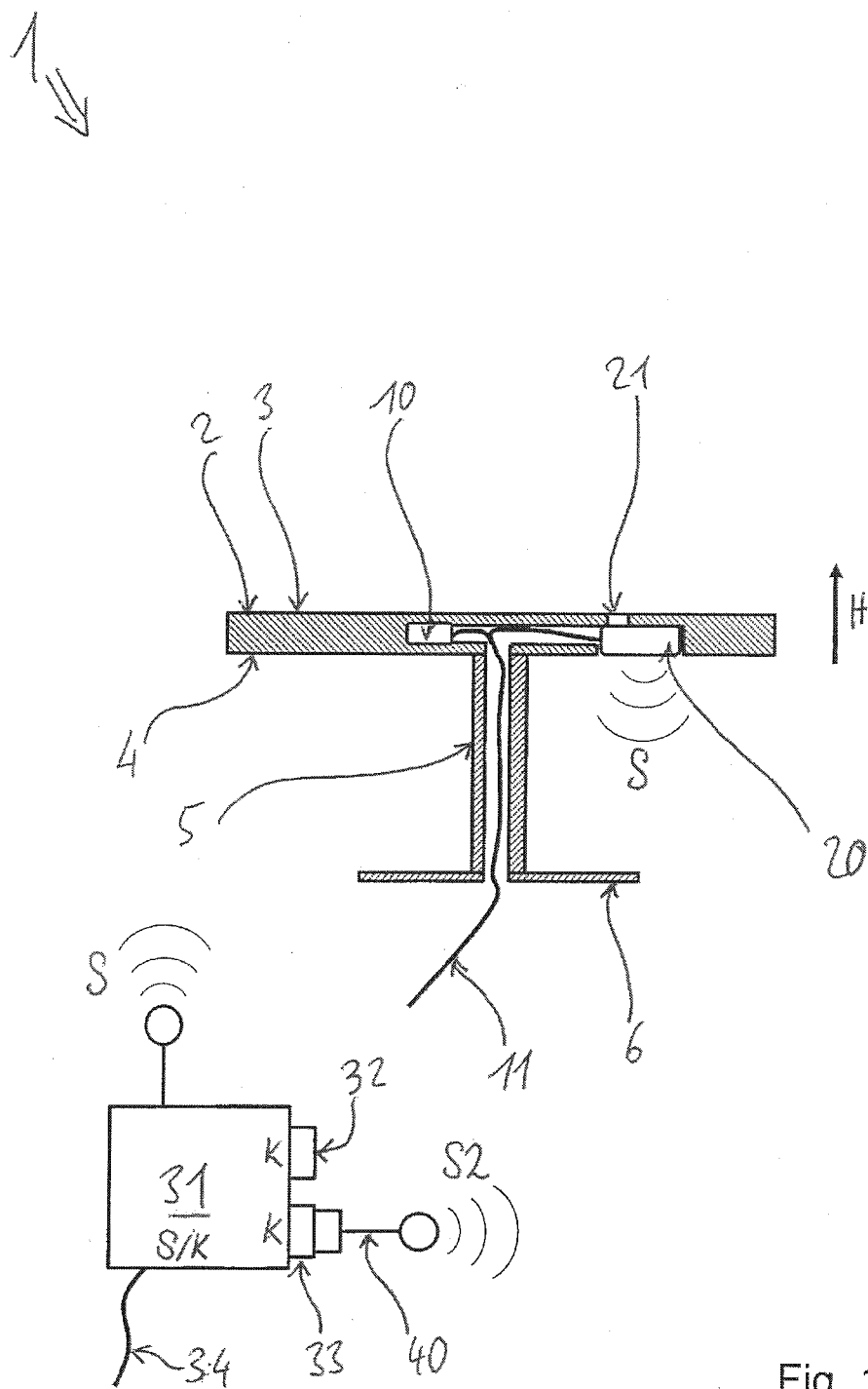


Fig. 1

TABLE DEVICE

[0001] The invention relates to a table device according to the preamble of Claim 1.

[0002] Tables, which are typically made up of a tabletop and at least one table leg, are known from the prior art. Most tables only offer the function of a supporting surface. In addition, it is known for tables to have height adjustments and extensions of the table. For this, sometimes electric drives with a cable-bound or cableless remote control are provided.

[0003] In addition, it is known in particular to fit out conference tables with mounted-on or integrated conference interfaces. These have cable plug-in locations, in particular for example for network, power, audio, video and telephone.

[0004] A disadvantage of the prior art is that the mounted structures or integrated inserts are visually unattractive and restrict the useful surface area of the table. Moreover, for the electrical cable connections, there is the risk posed by liquids such as drinks and cleaning agents. The cleaning of the table in general is made more difficult.

[0005] Another disadvantage is the regularly occurring and laborious transfer of charging cables and the multitude of cables leading over the table from various devices such as notebooks and mobile phones.

[0006] The object of the invention is therefore to provide a table device that eliminates the disadvantages of the prior art, meets high design requirements, allows devices to be set up and removed quickly at conferences, can easily be cleaned and offers a large useful surface area of the table. On account of the longevity of furniture in relation to electrical devices, a high degree of flexibility should also be aimed for.

[0007] Main features of the invention are specified in the characterizing part of Claim 1. Refinements are the subject of Claims 2 to 10.

[0008] In the case of a table device comprising a tabletop with an upper side and an underside, and also at least one table leg connected to the tabletop, an inductive charging device (for external devices) being arranged between the upper side and the underside of the tabletop in the direction of the height, it is provided according to the invention that a control device that is connected in a communicating manner to at least one touch panel on the upper side of the tabletop is arranged between the upper side and the underside of the tabletop in the direction of the height, wherein possible for cableless control signals can be emitted from the control unit to external electrical devices.

[0009] The table device according to the invention accordingly combines a number of functions. For instance, it is possible simply by placing an inductively chargeable device on the tabletop to obtain a supply of power for it. Thus, setting up and removing charging cables and connection cables is at least reduced. In this way, a large part of the table surface area also remains available for use. The positioning of the charging device within the tabletop allows an upper side of the table that is visually attractive and can be cleaned well. At the same time, the design and legroom underneath the underside of the tabletop are independent of the charging device. Depending on the requirement, it is possible to avoid power connections for external devices entirely. In particular, current smartphones with a low battery life can thus be conveniently charged while lying on the table. Smartphones are increasingly equipped with an inductive charge receiver. External insertable charge receivers and charge receivers integrated in the housing exist for this. Increasingly widespread use of such charge receivers in further mobile devices, such as computers,

notebooks, Ultrabooks, smartbooks and tablets can be expected. Even inductively heatable cups or driven fans can be operated on the table.

[0010] In addition, the control unit arranged within the tabletop in connection with the touch panel allows the table device to be used as an operator interface, in order to operate both devices placed on the table and devices arranged away from the table. Thus, for example, a projector can be actuated without a separate remote control being necessary for this. For wireless communication, an existing W-LAN Internet network may be used here with the control unit, or it is possible to resort to other cableless networks such as Wireless Display (WiDi).

[0011] The inductive charging device may take up a varying amount of surface area of the tabletop. A marking on the surface of the tabletop and/or an LED may serve for example for identifying the position of the charging device. If appropriate, it is also possible to provide a number of inductive charging devices, which make it possible for corresponding electrical devices to be charged independently at different positions of the tabletop. In an alternative refinement, the inductive charging device covers a surface area that is large enough to allow a number of electrical devices to be positioned on it and charged simultaneously.

[0012] The control unit and the charging device can preferably be coupled to a power source by way of a shared connection cable. Apart from a shared cable, this also allows a shared power supply unit to be used. The number of individual components is consequently kept small. The cable routing can be solved in a visually elegant way if the connection cable is led through the tabletop and through the table leg. In particular, table devices with a large central standing foot on the table leg can then for example also completely cover a floor power point, so that an invisible power supply is possible.

[0013] In a more specific refinement of the table device, the upper side of the tabletop has a closed surface area, at least in the region of the charging device. Consequently, a table surface that can be used completely and is visually attractive and can also be cleaned well is provided above the charging device.

[0014] Furthermore, a specific variant of the table device provides that the upper side of the tabletop is planar. This allows the entire table to be used as a writing area and an area for placing items.

[0015] According to a specific configuration of the table device, the upper side of the tabletop is impermeable to fluids, at least in the region of the charging device and/or the touch panel. Consequently, the charging device is protected from liquids and does not have to be separately encapsulated. The surface preferably consists of one and the same material.

[0016] A preferred way of fitting out the table device provides that the charging device conforms to a standard for cableless charging. This standard may for example be the Qi standard of the Wireless Power Consortium, or some other proprietary standard s for wireless energy transmission by means of electromagnetic induction over short distances, such as for example Alliance for Wireless Power (A4WP®) or Power Matters Alliance (PMA®). It is in this way ensured that the table device is compatible with a large number of current and future devices. This also guarantees a long lifetime of the table without any functional loss.

[0017] Furthermore, the table device has in a further optional configuration a control unit between the upper side

and the underside of the tabletop in the direction of the height. This control unit is connected in a communicating manner to at least one touch panel on the upper side of the tabletop and emits cableless control signals to external electrical devices (with a processor), in particular mobile phones, computers, notebooks, Ultrabooks, smartbooks and tablets.

[0018] According to a further refinement of the table device, the control unit is cablelessly connected in a communicating manner to an external receiver unit, the receiver unit having cable interfaces, preferably HDMI interfaces, converting cableless control signals into cable-bound signals, and directing these cable-bound signals at least to one of the cable interfaces. Consequently, even devices without W-LAN capability can be activated with the table device. Nevertheless, no cables have to be laid to the table for this, which typically can only be carried out in a visually pleasant way by means of a floor duct. Instead, the cabling of the devices to the receiver unit can take place near the wall, for example in a cabinet.

[0019] Specific configurations of the table device provide that the receiver unit is connected in a communicating manner by way of a cable interface to at least one of the following devices: monitor, projector/beamer, TV receiver, digital signage system, video-conference system, audio output device, or transmission unit. The coupling of the receiver unit to a beamer or the like allows image and sound signals to be transmitted cablelessly from coupled devices, such as for example smartphones, tablet PCs, notebooks, etc. Altogether, the table device can be adapted individually to a large number of different applications. In particular, the coupling of the receiver unit to a (cableless) transmission unit makes it possible in an easy way to incorporate cableless transmission standards that are not supported by the control unit into the communication. Modifications to the tabletop or the table leg are not necessary. The implementation takes place by integration of new technical components in the area of the externally arranged receiver unit.

[0020] At least one indicating element, which is formed in particular as an LED, is preferably integrated in the tabletop. It is in this way possible for example for a charging operation to be indicated independently of the device. It is also possible by way of the indicating element to indicate a selection of the signal source. The presence of a power supply can also be displayed for example by way of an indicating element. In particular, a number of indicating elements, in particular a number of LEDs, may in this case be provided, in order to be able to show a plurality of information simultaneously.

[0021] A particularly elegant design of the table device is accomplished when the distance between the upper side and the underside of the tabletop is a maximum of 5 cm, preferably a maximum of 4 cm. In this case, the tabletop preferably consists of glass, mineral material (for example) Corian®/HiMacs®), High-Pressure Laminate (HPL), a plywood board or a melamine-faced chipboard (MFC).

[0022] Further features, details and advantages of the invention emerge from the wording of the claims and from the following description of an exemplary embodiment on the basis of the drawing, in which:

[0023] FIG. 1 shows a table device.

[0024] In FIG. 1, a schematically represented table device 1 can be seen. This table device has a tabletop 2 with an upper side 3 and an underside 4. The upper side 3 is made such that it is planar, has a closed surface area and is impermeable to fluids.

[0025] Connected to the tabletop 2 is a table leg 5. The table leg 5 is in particular connected to the underside 4 of the tabletop 2 and arranged centrally. Furthermore, the table leg 5 has at a distance from the tabletop 2 a standing area, in particular a table foot 6, which takes the form of a panel.

[0026] An inductive charging device 10 is arranged between the upper side 3 and the underside 4 of the tabletop 2 in the direction of the height H (i.e. in the vertical direction). This charging device can be coupled to a power source by way of a connection cable 11. The connection cable 11 is led downwards through the tabletop 2, the table leg 5 and the table foot 11. Furthermore, a control unit 20 is arranged between the upper side 3 and the underside 4 of the tabletop 2 in the direction of the height H. A communicating connection exists between the control unit 20 and a touch panel 21 on the upper side 3 of the tabletop 2. Commands entered by way of this connection are emitted as cableless control signals S to external electrical devices (with a processor), in particular mobile phones, computers, notebooks, Ultrabooks and smartbooks.

[0027] In addition, the control unit 20 is cablelessly connected in a communicating manner to an external receiver unit 31. The receiver unit 31 has two cable interfaces 32, 33, preferably HDMI interfaces. The cableless control signals S are converted by the receiver unit 31 into cable-bound signals K and subsequently emitted by way of the cable interfaces 32, 33. For this, the receiver unit 31 can be connected to a power source by way of a second connection cable 34. It is evident that the receiver unit 31 is connected to a transmission unit 40 by way of the second cable interface 33. The transmission unit 40 converts the cable-bound signals K back into cableless signals S2. These cableless signals S2 have a coding that differs from the first cableless signals S or a different transmission standard.

[0028] The invention is not restricted to the exemplary embodiments described above, but can be modified in a wide variety of ways.

[0029] All of the features and advantages that are disclosed by the claims, the description and the drawing, including structural design details, spatial arrangements and method steps, may be essential to the invention both on their own and in the widest variety of combinations.

List of designations

1	Table device
2	Tabletop
3	Upper side
4	Underside
5	Table leg
6	Table foot
10	Charging device
11	Connection cable
20	Control unit
21	Touch panel
31	External receiver unit
32	First cable interface
33	Second cable interface
34	Second connection cable
40	Transmission unit
H	Direction of height
K	Cable-bound signals
S	First control signals
S2	Second (converted) control signals

1. Table device (1) comprising a tabletop (2) with an upper side (3) and an underside (4), and also at least one table leg (5) connected to the tabletop (2), an inductive charging device (10) being arranged between the upper side (3) and the underside (4) of the tabletop (2) in the direction of the height (H), characterized in that a control device (20) that is connected in a communicating manner to at least one touch panel (21) on the upper side (3) of the tabletop (2) is arranged between the upper side (3) and the underside (4) of the tabletop (2) in the direction of the height (H), wherein cableless control signals (S) can be emitted from the control unit to external electrical devices.

2. Table device according to claim 1, characterized in that the charging device (10) and the control unit (20) can be coupled to a power source by way of a shared connection cable (11), the connection cable being led in particular within the tabletop and through the table leg.

3. Table device (1) according to claim 1, characterized in that the upper side (3) of the tabletop (2) has a closed surface area, at least in the region of the charging device (10).

4. Table device (1) according to claim 1, characterized in that the upper side (3) of the tabletop (2) is planar.

5. Table device (1) according to claim 1, characterized in that the upper side (3) of the tabletop (2) is impermeable to fluids, at least in the region of the charging device (10).

6. Table device (1) according to claim 1, characterized in that the charging device (10) conforms to a standard for cableless charging.

7. Table device (1) according to claim 1, characterized in that the control unit (20) is cablelessly connected in a com-

municating manner to an external receiver unit (31), the receiver unit (31) having cable interfaces (32, 33), converting cableless control signals (S) into cable-bound signals (K), and directing these cable-bound signals at least to one of the cable interfaces (32, 33).

8. Table device (1) according to claim 7, characterized in that the receiver unit (31) is connected in a communicating manner by way of a cable interface (32, 33) to at least one of the following devices:

- monitor;
- beamer/projector;
- TV receiver;
- digital signage system;
- video-conference system;
- audio output device; or
- transmission unit (40).

9. Table device according to claim 1, characterized in that at least one indicating element, which is formed in particular as an LED, is integrated in the tabletop.

10. Table device (1) according to claim 1, characterized in that the distance between the upper side (3) and the underside (4) of the tabletop (2) is a maximum of 5 cm, preferably a maximum of 4 cm.

11. Table device (1) according to claim 1, characterized in that the tabletop (2) is produced from glass, mineral material, High-Pressure Laminate (HPL), a plywood board or a melamine-faced chipboard.

* * * * *