DIRECTORATE OF DISTANCE EDUCATION
NALSAR UNIVERSITY OF LAW, HYDERABAD

Advanced Diploma in Patents Law (Batch 2021 – 2022)

Take Home – Supplementary Examination (November 4-7, 2022)

Paper II – Exploitation of Patents – Drafting, Specification & Patent Writing (Practical)

TOTAL MARKS: 100

INSTRUCTIONS TO CANDIDATES

a) ***Read the instructions for Take Home Examination carefully and adhere to the same.***
b) ***Please mention your name, ID No., subject name and total number of pages on the Answer Sheet.***
c) ***Clearly indicate the question numbers while answering them.***
d) ***The question paper to be interpreted as given and no additional clarification can be sought.***
e) ***Attempt only one choice – either A or B***
f) ***All the candidates are required to submit only word / Pdf files containing the typed answers.***
g) ***All papers will be uploaded on Turn-it-in for plagiarism check. Any paper with more than 15% similarity will be considered to be plagiarized attracting necessary action by the University.***
h) ***Since this is a take home exam, we expect your answers to be analytical rather than straight answers.***
i) ***Copying from any source including from other students is strictly prohibited. Plagiarism is considered as a serious academic mis-conduct and the University will take action as it deems fit.***

You are required to draft a complete specification containing; a.) Title of the Patent b.) Background of the Invention c.) Summary of the Invention d.) Claims e.) Abstract of the invention. (Do not write a detailed description or draw figures.)

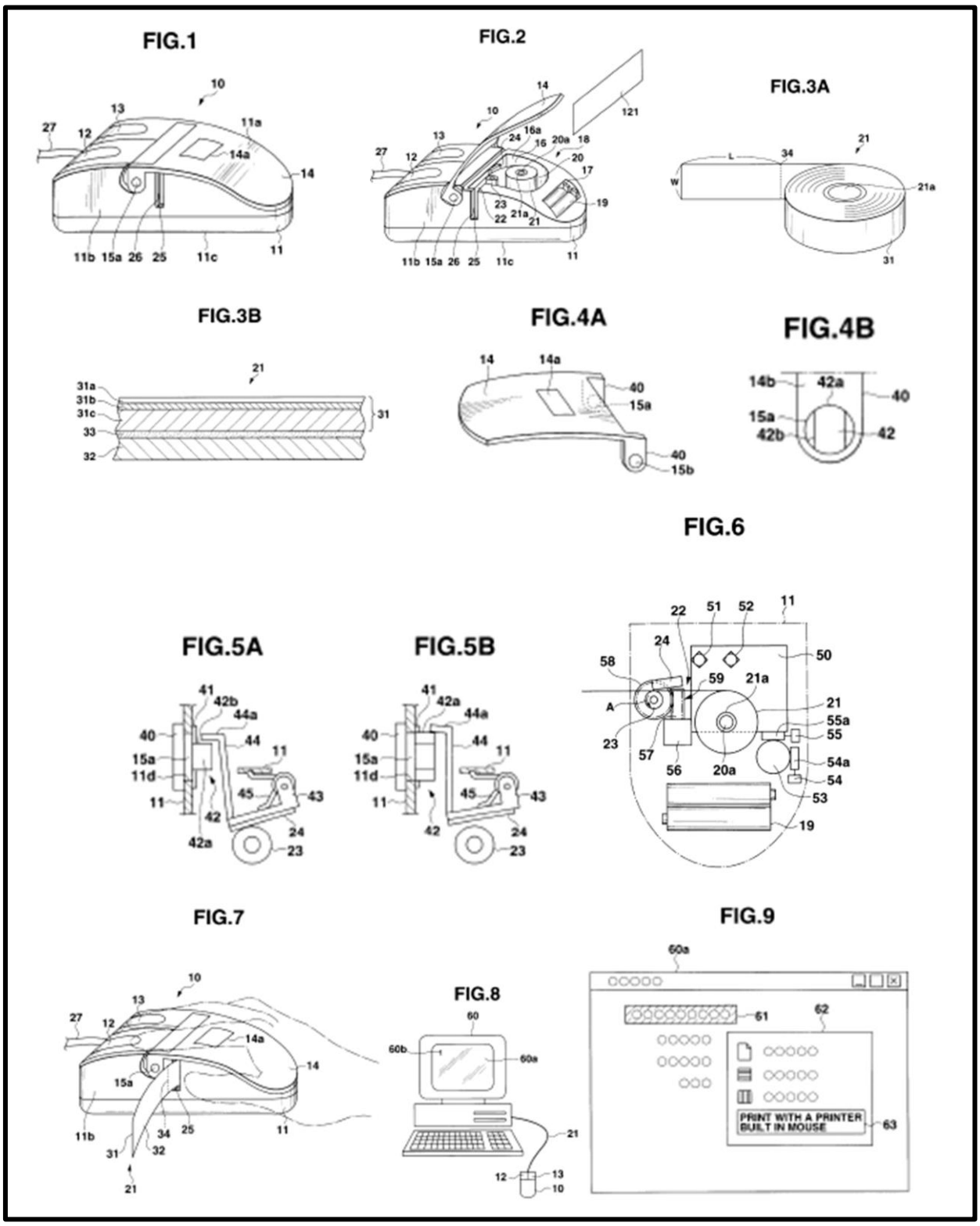
The Claims in the patent draft carries 50 marks and remaining specification carries 50 marks.

Option A

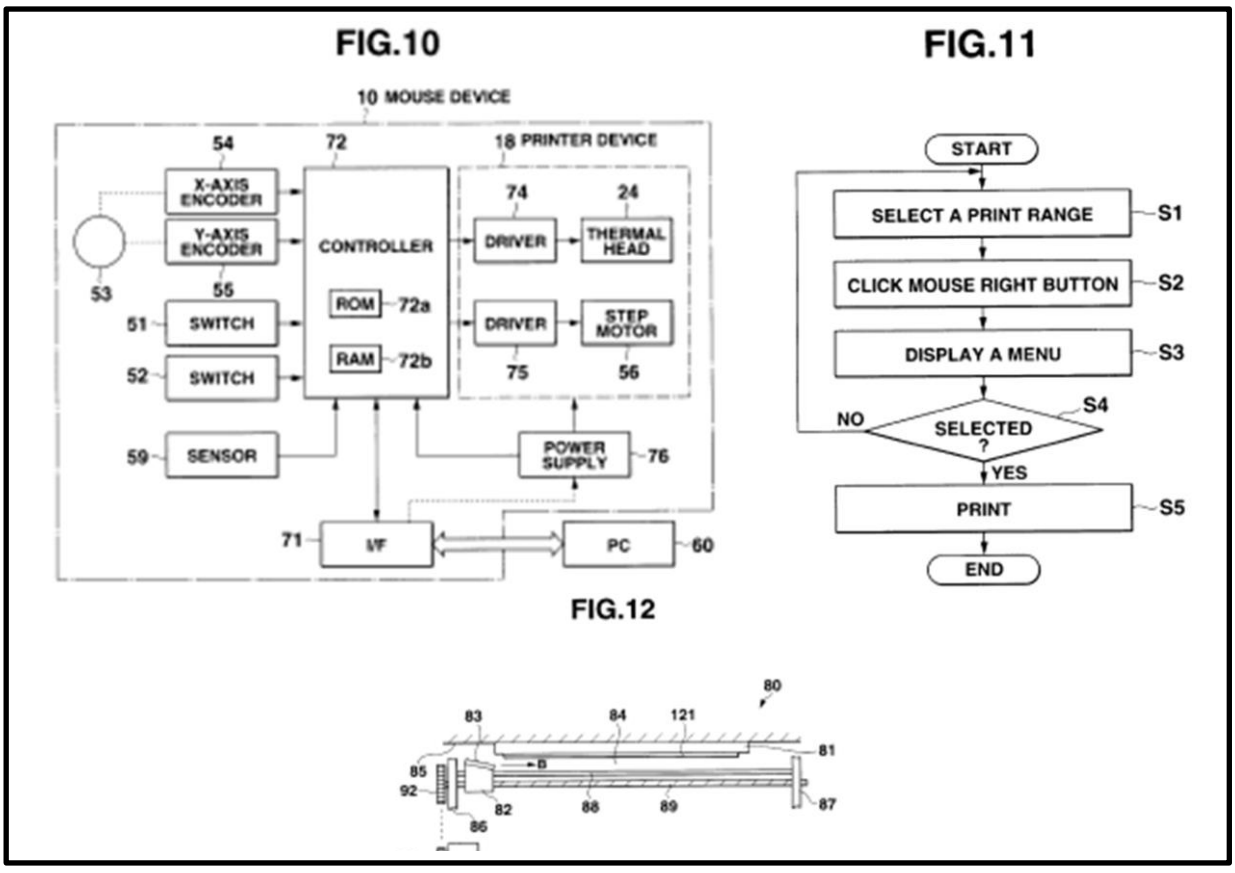
Mr. Murali has developed a mouse devices and more particularly to a mouse device used as a pointing device of a computer and having a built-in printer.

FIG. 1 is a perspective view of a mouse device with a built-in printer according to one embodiment of the present invention with a cover being closed;

FIG. 2 is a perspective view of the mouse device of FIG. 1 with the cover being open;
FIG. 3A is a perspective view of a roll of recording paper tape for use in the mouse device;
FIG. 3B is a cross-sectional view of part of the recording paper tape for use in the mouse device;
FIG. 4A illustrates a composition of the cover provided on the top of the housing of the mouse device;
FIG. 4B partially illustrates an attaching section of the cover;
FIG. 5A illustrates the positional relationship between the attaching section, a thermal head, and a platen roller with the cover being closed;
FIG. 5B illustrates the positional relationship between the attaching section, thermal



head, and platen roller with the cover being open;
FIG. 6 schematically illustrates the positional relationship between the components of the mouse device provided within its housing, as viewed from above, when the top of the housing is removed away;
FIG. 7 illustrates the mouse under the user's manipulation;
FIG. 8 illustrates the mouse being connected to a computerFIG. 9 illustrates a composition of a picture displayed on a display screen of the computer;
FIG. 10 is a block diagram of an electronic circuit of the mouse device;
FIG. 11 is a flowchart of a printing process performed by the computer and the mouse device; and
FIG. 12 illustrates a composition of a printer built in a mouse device as another embodiment of the present invention.
FIG. 1 is a perspective view of a mouse device with a built-in printer according to one embodiment of the present invention with a cover being closed, and FIG. 2 is a perspective view of the mouse device of FIG. 1 with the cover being open.



As shown in FIGS. 1 and 2, the mouse device 10 has a left button 12 and a right button 13 on a top surface 11a of a housing 11 thereof with a cover 14 being provided turnable around a pair of attaching shafts 15a and 15b so as to be opened and closed. As shown in FIG. 2, a printer receiver 16 open at its upper end 16a and an open cell receiver 17 are provided below the cover 14 within the housing 11. A printer 18 is provided within the printer receiver 16. Cells 19 are received within the cell receiver 17 so as to be a drive source for the printer 18.

Provided within the printer receiver 16 are a recording paper loading section 20, a

paper feeding path 22 through which a part of recording paper tape 21 is fed from its roll loaded in the loading section 20 while taking an upstanding attitude within the housing 11, a platen roller 23 that feeds or carries the recording paper tape 21 along the feeding path 22, and a thermal head 24 that prints on a part of recording paper tape 21 carried by the platen roller 23. Provided at an end of the paper feeding path 22 is a discharge port 25 through which the part of paper tape 21 printed by the thermal head 24 is discharged from the housing 11 to its outside.

The paper loading section 20 has a substantially vertical paper holding shaft 20a at the center of the loading section over which the roll of recording paper tape 21 is fitted rotatably at its hollow cylindrical core 21a (FIG. 3A).

A paper part fed out from the roll of recording paper tape 21 is disposed within the paper feeding path 22 so as to be movable through the path 22 while taking an upstanding attitude. A sensor 59 (FIGS. 6 and 10) is provided near the paper feeding path 22 to read a mark annexed to the part of the recording paper tape 21.

The platen roller 23 is provided near and halfway the paper feeding path 22 so as to be rotatable around its vertical axis. When the platen roller 23 is rotated, the roll of recording paper tape 21 loaded on the loading section 20 feeds out a part thereof through the paper feeding path 22 and after printing, discharges the printed paper part of from the discharge port 25 to the outside of the housing 11.

The thermal head 24 is provided on the opposite side of the paper feeding path 22 to the platen roller 23, and includes an array of heating elements arranged in a substantially vertical line parallel to the axis of the platen roller 23. When the thermal head 24 is at a printing position, the thermal head 24 presses a corresponding part of recording paper tape 21 against the platen roller 23.

Since the thermal head 24 is provided substantially vertical near and halfway the paper feeding path 22, the heating elements thereof are arranged widthwise across the recording paper tape. Print information such as characters to be printed on the recording paper tape 21 comprises an array of a plurality of print data arranged in rows and columns with a plurality of print data in each column corresponding respectively to the plurality of heating elements arranged in a line. The plurality of print data are fed sequentially in units of a column to the thermal head 24 to heat its plurality of heating elements selectively to thereby print the print information that includes characters lengthwise on the recording face 31b of the recording paper tape 21 to be carried by the platen roller.

The discharge port 25 is provided on the outside of the housing 11 at an end of the paper feeding path 22 so as to have a size large enough for the printed paper to pass through the port to the outside of the housing 11 while taking a vertical attitude.

The discharge port 25 is preferably provided at such a position on the outside of the housing 11 that discharge of the recording paper tape 21 is not hindered by the user's fingers that hold the housing 11. Thus, in the illustrated example, as shown in FIGS. 1 and 2, the discharge port 25 is provided, for example, substantially at the center of the left side 11b of the housing 11 when the user is a right hander. The port 25 may be provided at any position on the outside of the housing as long as the port is not closed by the user's fingers, which manipulate the mouse. Thus, the position of the discharge

port is not limited to that of FIGS. 1 and 2. For example, the port may be provided at an appropriate position on the opposite or right side of the housing to the left side 11b or at an appropriate position on the front side of the housing from which a mouse cable 27 extends forwards.

Note that if the mouse device need not be manipulated during printing the discharge port 25 may be provided at any desired position on the housing 11. A cutter 26 is provided at the discharge port 25 to cut away the printed part of the recording paper tape 21 discharged from the housing 11.

In the printer 18, the recording paper tape 21 is fed from its roll loaded in the loading section 20 through the feeding path 22 by rotation of the platen 23, printed by the thermal head 24, and then discharged through the discharge port 25 out of the housing 11. In printing, the cover 14 is closed. The roll of paper tape 21 loaded in the loading section 20 can be confirmed externally through the window 14a formed in the cover 14.

X- and Y-axis encoders 54 and 55 (FIG. 6) are provided within the housing 11 to sense quantities of movement of the mouse 10 in right-left and back-forth directions. A rotatable ball 53 (FIG. 6) is provided on a bottom 11c of the housing 11 to transmit the quantities of movement of the mouse 10 to the encoders.

In the mouse device, signals that move the mouse pointer in vertical and horizontal directions on the display screen of the computer based on the quantities of movement of the mouse device sensed by a movement quantity sensing means including the X- and Y-axis encoders and the ball, and signals representing manipulation of the right and left buttons 13 and 12 are delivered through the mouse cable 27 to the computer.

FIG. 3A is a perspective view of the roll of recording paper tape for use in the mouse device. FIG. 3B is a cross-sectional view of a part of the recording paper tape of FIG. 3A. In FIG. 3A, the roll of recording paper tape 21 to be loaded in the loading section 20 contains the hollow cylindrical core 21a around which the tape is wound, as described above. As shown in FIG. 3B, the recording paper tape includes a recording paper (heat-sensitive) body 31, an adhesive layer 33 adhering to a back of the recording paper body, and a paper layer 32 pasted separably to the adhesive layer 33. After printing, the printed tape part is cut away and its paper layer 32 can be separated from the adhesive layer 33 of the printed tape part so that the printed tape can be used as a label. The recording paper tape body 31 includes a tape base 31a, a heat-sensitive coloring layer 31b coated with a heat-sensitive color former to constitute a printing face, and a protective layer 31c covering the heat-sensitive coloring layer 31b.

The recording paper tape 21 has perforated cutting lines 34 provided at predetermined intervals L over the length of the recording paper tape 21 through the total thickness of the heat-sensitive paper tape body 31 and separable paper layer 32. When the printed part of the recording paper tape is to be cut away, the printed tape part is applied at its perforated cutting line to the cutter 34 and then torn off. The printed part has a width of 10-20 mm and a length L of 50-100 mm to thereby provide a memorandum having a size suitable for handling. A mark (not shown) is beforehand printed for print controlling purposes on the separate paper tape 32 provided on the back of the recording face of the tape 21. The mark is read by the sensor 59 of the

printer to determine a print start position of the thermal head 24 on the recording tape 21 and also used to control a quantity of movement of the recording tape 21 so that when the printing ends the target perforated cutting line 34 on the recording tape 21 moves to the position of the cutter 26 provided at the discharge port of the tape feeding path 22. A plurality of such marks are each provided in a respective one of the strip-like printing areas, each of which is delimited by the adjacent perforated cutting lines 34.

As shown in FIG. 2, when the roll of recording tape 21 is to be loaded within the housing 11, the mouse cover 14 is opened, the roll of tape 21 is fitted at its hollow cylindrical core 21 onto the paper holding shaft 20a provided in the paper loading section 20, and a tape part fed out from the roll of recording paper tape 21 is then extended between the platen roller 23 and the thermal head 24. At this time, the thermal head 24 is spaced from the platen roller 23 by a head moving mechanism of FIGS. 4 and 5.
FIG. 4A illustrates a composition of the cover provided on the top of the housing of the mouse device. FIG. 4B partially illustrates each of a pair of attaching sections of the cover. FIG. 5A illustrates the positional relationship between one attaching section, a thermal head, and a platen roller with the cover being closed. FIG. 5B illustrates the positional relationship between the attaching section, thermal head, and platen roller with the cover being open.

As shown in FIGS. 4A and 4B, the cover 14 has at its edge a pair of spaced attaching sections 40 each having a respective one of pivots 15a and 15b, each of which is received in a respective one of a pair of opposite holes 11d in the housing 11, so that the cover 14 is turnable relative to the housing 11. As shown in FIGS. 5A and 5B, each of the pivots 15a and 15b received in the corresponding housing holes 11d is prevented by an E-like ring 41 from slipping off from the hole 11d. The pivots 15a and 15b each have an engaging portion 42 composed of a pair of opposed arcuate sections 42a and a pair of opposite parallel flat sections 42b (FIG. 4B). The thermal head 24 is supported by an L-like head support 43 turnably supported at one end with an arm 44 extending substantially parallel to a shorter branch of the L-like head support 43 from its other end. The head support 43 is biased by a spring 45 toward the platen roller 23. The arm 44 has at its end a bent end 44a biased so as to abut on the engaging portion 42 of the pivot 15a.

As shown in FIG. 5A, when the cover 14 has been closed, the flat section 42b of the engaging portion 42 is spaced from the bent end of the arm 44, and the thermal head 24 is pressed by the resiliency of the spring 45 against the platen roller 23 or is at a print position. As shown in FIG. 5B, when the cover 14 is opened, the engaging portion 42 of the attaching section 40 rotates, the arcuate section 42A of the engaging portion abuts on the bent end 44a of the arm 40 to thereby move the head support 43 through the arm 44 against the resiliency of the spring 45. Thus, the thermal head 24 attached to the head support 43 is spaced from the platen roller 23 or moved to a non-print position. That is, as the cover is opened and closed, the thermal head 24 moves to the non-print and print positions, respectively.

FIG. 6 schematically illustrates arrangement of the respective components of the mouse device provided within the housing 11, as viewed from above, with the housing top being removed away. In FIG. 6, reference numeral 50 denotes a circuit board on which the parts of the mouse device are attached; and 51 and 52 denote switches that

will be turned on/off by the right and left buttons 13 and 12, respectively. As described above, reference numeral 53 denotes the ball rollable on the bottom 11c of the housing 11. Also, as described above, reference numerals 54 and 55 denote the X- and Y-axis encoders that sense amounts of rotation of the ball 53 in the X- and Y-axis directions through rollers 54a and 55a, respectively.
Referring to FIG. 6, the printer 18 includes within the housing 11 the platen roller 23 and thermal head 24 near and halfway the paper feeding path 22, and a platen roller driving mechanism that includes a step motor 56, a worm 57 driven by the motor, and a worm wheel 58 meshing with the worm. The step motor 56 is driven by power of the cells 19. The output power from the motor 56 is transmitted via the worm 57, and the worm wheel 58 meshing with the worm 57 to the platen roller 23, which has the same shaft as the worm wheel 58. Thus, when the platen roller 23 is rotated in the direction of an arrow A by the motor 56, the recording paper tape 21 is fed out from its roll loaded in the loading section 20 and moved through the paper feeding path 22 while taking a substantially vertical attitude. During feeding of the tape 22, the sensor 59 provided upstream of the thermal head 24 reads a mark formed on the back of the recording face of the tape 21, at which time the thermal head 24 starts to be driven. The sensor 59 includes an optical sensor composed of a light emitting unit and a light detecting unit so that the sensor 59 senses the mark with a reflection of light applied to the back of the recording tape 21. In this case, the mark uses a color different from that of the back of the recording tape 21 and hence the former reflectance is different from that of the back of the recording tape.

FIG. 7 illustrates the mouse 10 under manipulation of the user. As shown in FIG. 7, the user grasps the mouse 10 with his or her fingers and drags the mouse while pressing the left mouse button 12 to thereby move the mouse pointer displayed on the computer display screen and then select a range of characters to be printed from a character string displayed on the display screen of the computer. By performing a predetermined process, for example, including operating the right button 13 of the mouse device 10, print information corresponding to the selected range of character string is delivered from the computer via the mouse cable 27 to the mouse device 10.

The printer 18 of the mouse device 10 is then started up with the print information, the recording tape 21 of the roll loaded on the loading section 20 within the housing 11, as shown in FIG. 6, is delivered by rotation of the platen roller 23 toward the discharge port 25. During this operation data based on the print information is printed on the recording tape 31 by the thermal head 24. In more detail, a mark formed on the back of the recording tape 21 is sensed by the sensor 52, at which time the heating elements of the thermal head 24 are heated and the data based on the print information is printed in an print area delimited by related two adjacent perforated cutting lines 34. After printing, the printed part of the tape 21 is discharged through the discharge port 25 to the outside of the mouse device while taking a substantially vertical attitude. Thus, the printed part of the tape is difficult to droop onto a plane on which the mouse 10 moves. Thus, even when the mouse 10 moves on the plane, the printed part of the tape 21 is not caught by the mouse 10.

Since the discharge port 25 is provided on the housing side 11b where discharge of the printed part of the tape 21 is not hindered with the user's fingers that hold the housing 11. That is, the discharge port 25 is free from being closed by the user's fingers during manipulation of the mouse device and also being jammed with the printed recording tape 21.

As shown in FIG. 3, the recording tape 21 has perforated cutting lines 34 provided at the predetermined intervals L thereon over the length thereof. When the print information is printed in the print area delimited by related two adjacent perforated cutting lines 34, the printing tape 21 is moved so that a perforated cutting line 34 defining the trailing end of the print area comes to the cutter 26. After printing, by applying the printed tape part to the cutter 26 at that perforated cutting line and tearing off the printed tape part, the printed strip 21 is easily obtained and can be used as a memorandum.

Printing of the print information with the inventive mouse device 10 in the computer system will be described. FIG. 8 illustrates the mouse 10 connected to the computer 60. FIG. 9 shows a display screen of the computer 60.
As shown in FIG. 8, the mouse device 10 of this embodiment is of an USB type that is connected to an USB connector of the computer 60 through the mouse cable 27. When the user manipulates the mouse 10, for example, on a desk, the mouse pointer 60b displayed on the computer display screen 60a is moved correspondingly.

As shown in FIG. 9, when the user clicks the left button 12 to drag a range of a part of a character string displayed on the display screen 60a to thereby select it with the mouse pointer 60b, and then clicks the right button 13, a predetermined menu picture 62 appears on the window. When the user selects with the mouse pointer 60b an item 63 "Print with a printer built in the mouse" from choice items of the menu picture 62, print information corresponding to the selected range of the part of the character string is transferred via the mouse cable 27 to the mouse device 10 and printed on the recording tape 21 loaded within the housing 11.
FIG. 10 is a block diagram of an electronic circuit of the mouse device 10, which is connected to the computer (PC) 60 via the mouse cable 27. The computer 60 comprises a general-purpose computer such as a personal computer. The computer 60 receives a signal to move the mouse pointer and a signal representing button manipulation via an interface (I/F) 71, and moves the mouse pointer on the displayed picture, selects an object indicated by the mouse pointer, and then outputs print information in accordance with a request from the mouse 10.

As shown in FIG. 10, the mouse device 10 comprises a controller 72, for example, of a one-chip microprocessor that in turn comprises a ROM 72a and a RAM 72b. The controller 72 controls the respective operations of the pointing device and the printer 18.

The controller 72 is connected to the X- and Y-axis encoders 54 and 55 that sense rotational quantities of the ball 53 in the X- and Y-directions, switches 51 and 52 operated by the manipulation buttons 12 and 13, respectively, provided on the upper surface 11a of the housing 11, and the sensor 59 that senses a mark formed on the back of the recording tape 21. The controller 72 is further connected to a driver 74 of the thermal head 24 of the printer 18 and a driver 75 of the step motor 56 to rotate the platen 23, and also connected to a power supply 76.

The power supply 76 includes the cells 19 of FIG. 2 that provides the controller 72 and the printer 18 with required voltages. The power supply 76 is not limited to the cells 19, but may comprise a power supply of the computer 60 to provide the controller 72, printer 18 and other components with required power through the mouse cable 27.

FIG. 11 is a flowchart of a printing process performed by the computer 60 and the mouse device 10. A program involving the printing process is stored in the computer 60.

As shown in FIG. 9, when the operator performs a dragging operation that includes clicking the left button 12 while moving the mouse 10 to select with the mouse pointer 60b a range of a part of a character string displayed on the display screen 60a, and then clicks the right button 13, a predetermined menu picture 62 is displayed on the window (steps S1-S3).

When the item 63 "Print with a printer built in mouse" of the menu picture 62 is selected with the mouse pointer 60b (Yes in step S4), print information including pattern data that represents the character string part of the selected range 61 is transferred through the mouse cable 27 to the mouse device 10. Since the size of a print area of the recording tape 21 is predetermined, the maximum possible number of printing lines in the print area and the maximum possible number of printing characters for each line are predetermined. Correspondingly, print formats including a character size, an inter-character gap, and an inter-line gap in the print area where the print information is printed are set automatically, and print pattern data developed in the print formats is transferred to the mouse device 10. The drivers 74 and 75 of the thermal head 24 and the step motor 54 of the printer 18 are driven under control of the controller 72 to print the print information in accordance with the print format data on a recording tape 21 fed out from its roll loaded within the housing 11 of the mouse device 10 (step S5).

The printing process in step S5 will be described in more detail. When the roll of a recording tape 21 has been loaded within the housing 11, and the mouse device receives printing information from the computer 60, the step motor 56 and hence the platen roller 23 are rotated to feed the recording tape 21 toward the discharge port 25. When a mark formed on the back of the recording tape 21 is sensed by the sensor 59, the heating elements of the thermal head 24 are heated based on the print information to print corresponding data on a print area of the tape delimited by related two adjacent perforated cutting lines. Then, the printing tape is moved by the platen roller 23 to a position where the trailing perforated cutting line 34 on the tape comes to the cutter 26 by controlling the number of steps of driving the step motor 56 since the perforated cutting line 34 and the mark are in predetermined positional relationship.

As described above, since the print information is printed on a part of the recording tape 21 having a size appropriate for a memorandum, data on any part of on a character string displayed on the computer display screen 60a can be printed so that it looks to advantage, and left as a memorandum.

Since the mouse 10 discharges the printed part of the recording tape 21 so as to take a substantially vertical attitude from the discharge port 25 on the housing to its outside, the discharged recording tape is prevented from drooping onto a plane on which the mouse device 10 moves. Thus, the recording tape 21 discharged from the mouse device will not hinder the movement of the mouse device 10 and not be caught or broken by the mouse device 10. Thus, the printed tape part can be left as a memorandum without being damaged.

As shown in FIG. 2, the roll of printing tape 21 is loaded in the receiver 16 open at its upper end 16a below the cover 14 of the housing 11. Thus, only by opening the cover 14, the roll of recording tape 21 can easily be loaded within the housing 11. The thermal head 24 moves automatically to the print and non-print positions in conjunction with the closing and opening, respectively, of the cover 14, by the head moving mechanism described with respect to FIGS. 4A, 4B and 5A, 5B. Thus, when a part of the recording paper tape 21 is placed between the platen roller 23 and the thermal head 24, no troublesome operation is required that includes moving the thermal head 24 by operating manually a lever that would otherwise be required.
Since the cover 14 has the window 14a through which the roll of recording paper tape 21 loaded in the loading section 20 can be seen, the presence of the roll of recording paper tape 21 can be confirmed without opening the cover 14.
While in the embodiment the roll of printing tape is illustrated as being used, a strip-like paper sheet 121 of FIG. 2 may be used for printing. Like the roll of printing tape 21, the sheet 121 includes a heat-sensitive coloring layer on the printing face thereof. The sheet 121 is equal in size to a print area of the recording tape 21 delimited by any two adjacent perforated cutting lines. When print information is printed on such sheet 121, the sheet 121 is curled at one end around the tape holding shaft 20a in the tape loading section 20 and placed at the other end between the platen roller 23 and the thermal head 24 when the cover 14 is open, as shown in FIG. 2. When the cover 14 is closed, the thermal head 24 presses the sheet 121 against the thermal head 24. The subsequent printing operation is as described above. That is, when print information is output from the computer 60 to the printer unit 18, the printer unit 18 is started up, and the platen roller 23 is rotated to feed the sheet 121 toward the discharge port 25, during which the print information is printed on the sheet by the thermal head 24. The printed sheet 121 is then discharged from the discharge port 25 to the outside of the housing 11.

As described above, use of the strip-like sheet 121 requires no cutting operation after printing and provides a print having a size appropriate for the memorandum. When a roll of printing tape is used, successive printing operations can be performed until the roll of printing paper tape is used up without taking the trouble to exchange, when sheets of printing paper are used for printing purposes, a printed sheet of paper with an unprinted one each time the printing is finished.

The printer unit 18 built in the mouse device 10 is not limited to that which prints on the recording paper by moving the same, as in the present embodiment. For example, the printer unit 18 may be a one that includes a printing head that will be moved for printing. This will be illustrated in a second embodiment of FIG. 12. In FIG. 12, a printer unit 80 is provided within the housing 11 of the mouse device 10 and covered by an openable cover (not shown). FIG. 12 is a plan view of the printer 80, as viewed from above, with its top being removed away. The printer unit 80 includes a flat plate-like platen 81, and a thermal head 83 mounted on a carriage 82 movable longitudinally along the platen 81.

The platen 81 supports a sheet of recording paper 121 on a frame 85 in the recording paper loading section 84 within the housing 11. The recording paper takes the form of a rectangular strip and held to the platen 81 by holding members (not shown). The carriage 82 is supported slidably on a guide shaft 88 whose ends are each attached to a respective one of a pair of spaced frames 86, 87 disposed on the housing 11, and

also engaged movably with a male-screwed drive shaft 89 extending therethrough. A chain of gears 91 and 92 is provided between the drive shaft 89 and a carriage motor 90. When the carriage motor 90 is driven, its driving torque is transmitted through the gears 91 and 92 to the drive shaft 89.

In this arrangement of the printer unit 80, the home position of the thermal head 83 is spaced somewhat from the platen 81. In this state, a sheet of recording paper 121 is loaded in the loading section 84. When print information is output from the computer 60, the carriage motor 90 is rotated forwardly, and hence the drive shaft 89 is rotated also forwardly through the gears 91 and 92. Thus, the carriage 82 moves along the guide shaft 88 in the printing direction (of an arrow B), and the thermal head 83 mounted on the carriage 82 prints the print information for one line on the recording sheet 121 loaded in the loading section 84.
After printing, the thermal head 83 stops at an opposite position of the platen 81 to the home position thereof. In this state, the recorded sheet is taken out from the loading section 84. When a new recording sheet 121 is set for printing again, the carriage motor 90 is rotated reversely and the drive shaft 89 is also driven reversely through the gears 91 and 92. Thus, the thermal head 83 returns to its home position from which a printing operation similar to that mentioned above will be performed.

Even in this arrangement where print information is printed by the printer unit 80 built in the mouse device 10, any extracted part of a character string displayed on the computer display screen 60a can be printed on a recording sheet having a relatively small size so as to look to advantage as a memorandum for reading purposes, as in the printer unit 18 of the previous embodiment.

Option B

Mr David has developed a banana protective device for storing and transporting a banana carefully. The banana protective device includes a container having a first cover member and a second cover member being hingedly attached to the first cover member and being adapted to store a banana therein; and also includes pad members being securely disposed upon the first and second cover members for protecting and cushioning the banana; and further includes fastening members being attached to the first and second cover members for fastenably closing the first and second cover members together.

The general purpose of the present invention, which will be described subsequently in greater detail, is to provide a new banana protective device which has many of the advantages of the banana guard mentioned heretofore and many novel features that result in a new banana protective device which is not anticipated, rendered obvious, suggested, or even implied by any of the prior art banana guard, either alone or in any combination thereof.

To attain this, the present invention generally comprises a container having a first cover member and a second cover member being hingedly attached to the first cover member and being adapted to store a banana therein; and also includes pad members being securely disposed upon the first and second cover members for protecting and cushioning the banana; and further includes fastening members being

attached to the first and second cover members for fastenably closing the first and second cover members together.

There has thus been outlined, rather broadly, the more important features of the invention in order that the detailed description thereof that follows may be better understood, and in order that the present contribution to the art may be better appreciated. There are additional features of the invention that will be described hereinafter and which will form the subject matter of the claims appended hereto. In this respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments and of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.

As such, those skilled in the art will appreciate that the conception, upon which this disclosure is based, may readily be utilized as a basis for the designing of other structures, methods and systems for carrying out the several purposes of the present invention. It is important, therefore, that the claims be regarded as including such equivalent constructions insofar: as they do not depart from the spirit and scope of the present invention.

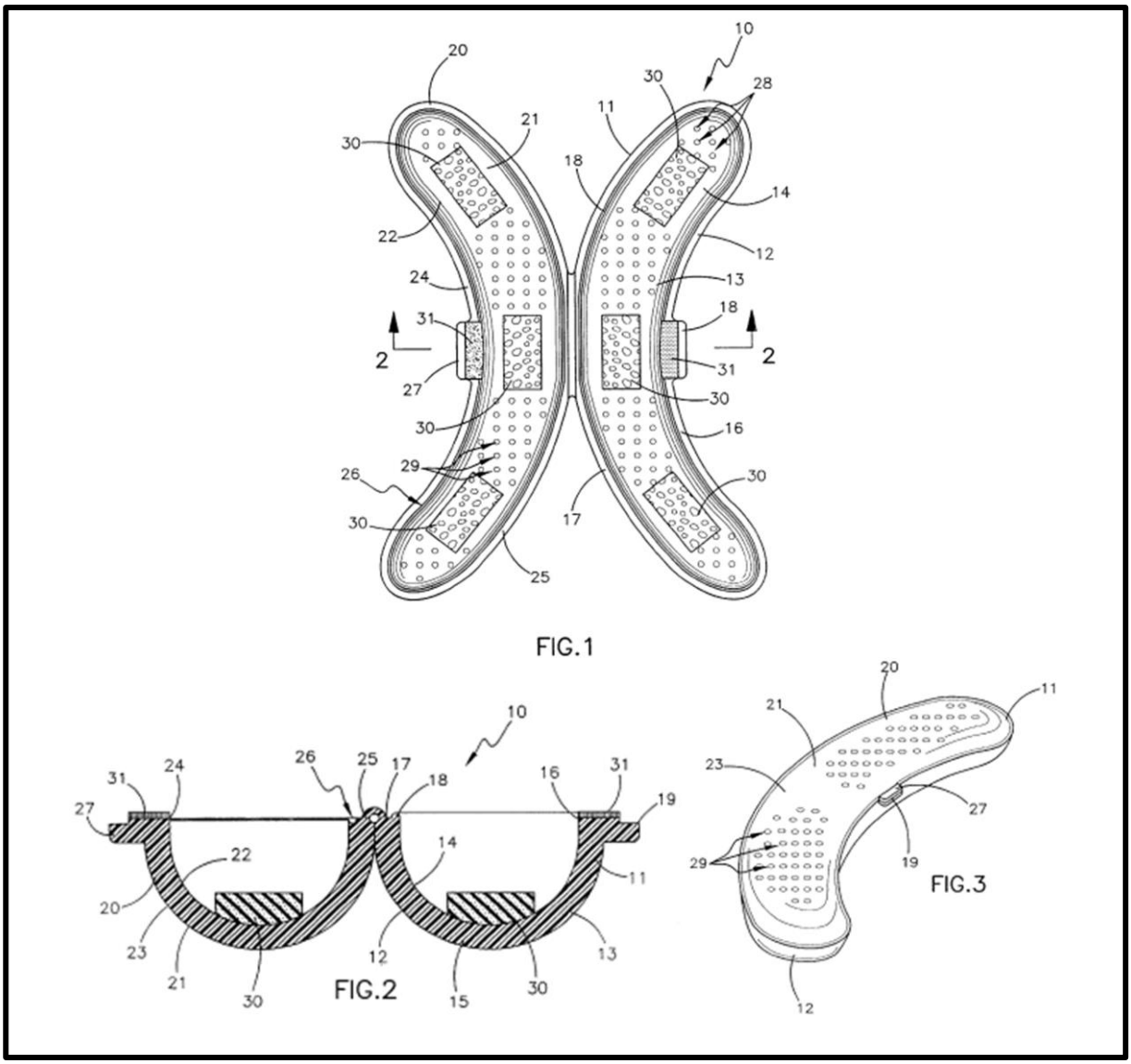


FIG.1

FIG.2

FIG.3

FIG. 1 is a top plan view of a new banana protective device according to the present invention.
FIG. 2 is a lateral cross-sectional view of the present invention.
FIG. 3 is a perspective view of the present invention.

As best illustrated in FIGS. 1 through 3, the banana protective device 10 generally comprises a container 11 having a first cover member 12 and a second cover member 10 being hingedly and conventionally attached to the first cover member 12 and being adapted to store a banana therein. Each of the first and second cover members 12, 20 has an elongate wall 13, 21 which has a lateral U-shaped cross-section and which is longitudinally curved and banana-shaped. Each of the elongate walls 13, 21 further has an inner side 14, 22 and an outer side 15, 23. Each of the elongate walls 13,21 also has an inner curved longitudinal edge 16, 24 and an outer curved longitudinal edge 17, 25. The elongate walls 13, 21 are hingedly attached along the outer curved longitudinal edges 17, 25. Each of the first and second cover members 12, 20 further has a fastener support member 19, 27 being conventionally attached to a respective inner longitudinal edge 19, 27 and extending outwardly therefrom. Each of the fastener support members 19, 27 is generally a plate-like ledge. Each of the elongate walls 13, 21 has a plurality of perforations 28, 29 being spaced about and being disposed therethrough. The first cover member 12 also includes an elongate rib 18 being conventionally disposed upon the outer curved longitudinal edge 17, 25 thereof, and the second cover member includes an elongate groove 26 being disposed in the outer curved longitudinal edge 17, 25 thereof and being adapted to receive the elongate rib 18. Each of the first and second cover members 12, 20 has a length of approximately 10 inches and a width of approximately 1½ to 2 inches.

Pad members 30 are securely and conventionally disposed upon the first and second cover members 12, 20 for protecting and cushioning the banana. The pad members 30 are made of foam material and are spaced apart and are securely attached to the inner sides 14, 22 of the elongate walls 13, 21 to cushion and support the banana in the container 12. Fastening members 31 are conventionally attached to the first and second cover members 12, 20 for fastenably closing the first and second cover members 12, 20 together with the fastening members 31 being strips of hook and loop fasteners being securely attached upon the ledges 19, 27 of the first and second cover members 12, 20 and being attachable to one another to close the first and second cover members 12, 20 upon one another and about the banana.

In use, the user opens the container 10 and places a banana inside thereof and closes the container 10 to allow the user to carry the banana in a safe manner so that it remains fresh and is protected from becoming bruised.