(12)Indian Patent Application

(21) Application Number: 202041013750

(22) Filing Date: 29/03/2020 (43) Publication Date: 01/10/2021

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(51) International Classifications: E04H 12/22 F21V 23/04 F21S 6/00 E21B 41/00 C12M 1/12

(54) Title: A VERTICAL POST WITH AN INTEGRAL ARRANGEMENT FOR PENETRATING A GROUND SURFACE

(57) Abstract: This disclosure relates to a vertical post and a system (100) for deploying the vertical post on a surface. The system (100) may include a driving assembly (102) including a driving member (106). The system (100) may further include a penetrating assembly (104) including a penetrating member (108) which may be configured to be coupled to the driving member (106) of the driving assembly (102). The penetrating member (108) may be conical-shaped and include one or more cutting members (108A) positioned on its outer surface. Upon receiving a trigger, the driving assembly (102) may impart rotatory motion to the penetrating member (108) via the driving member (106) to cause the penetrating member (108) to cut the surface via the one or more cutting members (108A) and penetrate into the surface to deploy the vertical post on the surface.

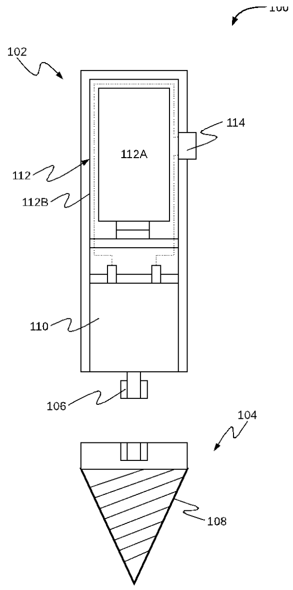

FIG. 1A

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FORM 2

THE PATENTS ACT 1970
(39 OF 1970)
&
The Patent Rules, 2003
Complete Specification
(See Section 10 and Rule 13)

1. TITLE OF THE INVENTION

A Vertical Post And A System For Deploying The Vertical Post On A Surface

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3. PREAMBLE TO THE DESCRIPTION

COMPLETE

The following specification particularly describes the invention and the manner in which it is performed.

DESCRIPTION

Technical Field

[001] This disclosure relates generally to deploying vertical posts, and in particularly to a vertical post and a system for deploying the vertical post on a surface, for example, ground surface.

Background

[002] Mounting or removably fixing a vertical post (i.e., a rod member), such as, but not limited to, short pole, mast, flag-post, cricket stump, etc., in vertical direction to a surface, like the ground/earth requires skilled and precision handling. This is even more pronounced in scenarios where maintaining a specific height of the vertical post above the ground surface is paramount, or where the vertical post is required to be fixed repeatedly in the ground in quick succession, for example, in a cricket game.

[003] As it will be understood, in the cricket game, stumps are vertical posts that support the bails and constitute the wicket. Mounting the stump to the ground is temporary and the height of the stump above the ground and ability to withstand a blow to being disengaged from the ground plays an important part in the game. Conventionally, the stumps are pitched into the ground by manually hammering/hitting vertically on the top end of the stump. At times, the manual hammering/hitting may result in an accident and even an injury to a person handling the stump(s) while fixing. Moreover, manual hammering is time consuming and may result in uneven height of the stumps, particularly when the process is repeated in quick succession.

[004] Therefore, an improved and more efficient solution for deploying vertical posts to the ground is desired.

BRIEF DESCRIPTION OF THE DRAWINGS

[005] The accompanying drawings, which are incorporated in and constitute a part of this disclosure, illustrate exemplary embodiments and, together with the description, serve to explain the disclosed principles.

[006] **FIG. 1A** illustrates a front view of a system for deploying a vertical post on a surface in a disassembled state, in accordance with some embodiments of the present disclosure.

[007] **FIG. 1B** illustrates a front view of the system for deploying a vertical post on a surface in an assembled state, in accordance with some embodiments of the present disclosure.

[008] **FIG. 2A** illustrates a communication system with an electronic switch of the system for deploying a vertical post on a surface, in accordance with some embodiments of the present disclosure.

[009] **FIG. 3** illustrates a front view of a penetrating assembly of the system for deploying a vertical post on a surface, in accordance with some embodiments of the present disclosure.

[010] **FIG. 4** illustrates a front view of an assembly (unassembled) of a vertical post and a penetration assembly, in accordance with an embodiment of the disclosure.

[011] **FIG. 5** illustrates a front view of a vertical post capable of deploying on a surface, in accordance with another embodiment of the disclosure.

[012] **FIG. 6** illustrates a cricket wicket is illustrated, in accordance with an embodiment of the present disclosure.

[013] Exemplary embodiments are described with reference to the accompanying drawings. Wherever convenient, the same reference numbers are used throughout the drawings to refer to the same or like parts. While examples and features of disclosed principles are described herein, modifications, adaptations, and other implementations are possible without departing from the spirit and scope of the disclosed embodiments. It is intended that the following detailed description be considered as exemplary only, with the true scope and spirit being indicated by the following claims.

[014] A vertical post and a system for deploying a vertical post on a surface (like ground surface) to a predefined depth and an upright orientation is disclosed. The system can be fitted to the vertical post, for example, at one end of the vertical post. The system may include a driving assembly and a penetrating assembly configured to be coupled to the driving assembly. The driving assembly may include a driving member, for example, a shaft having a coupler. The driving assembly may be fitted to the vertical post or may be detachable coupled to the vertical post. The penetrating assembly may include a penetrating member. The penetrating member may be coupled to the driving member of the driving assembly. For example, the penetrating member may be conical-shaped, and may include one or more cutting members positioned on the outer surface of the penetrating member. The driving assembly may receive a trigger to cause penetrating member to rotate. The penetrating member may be brought in contact with the surface (ground surface) where the vertical post is to be deployed, and the rotation of the penetrating member may cut the ground surface via the one or more cutting members and penetrate into the surface to deploy the vertical post on the surface.

[015] In order to provide the trigger, the system may further include a communication system. The communication system may include a manually-operated switch which may be configured to generate the trigger through a manual operation of the switch, for example, a user turning the switch ON. This trigger may cause the driving assembly to rotate and impart rotatory motion to the penetrating member via the driving member. Alternately or additionally, the communication system may receive the trigger from a remote source over wireless network. To this end, the system may include a wireless communication module and an electronic switch communicatively coupled to the wireless communication module. The electronic switch may be configured to receive a signal from the remote source via the wireless communication module. Upon receiving the signal, the electronic switch may generate the trigger to cause the driving assembly to impart rotatory motion to the penetrating member via the driving member.

[016] Referring now to FIG. 1A and FIG. 1B, front views of a system 100 for deploying a vertical post on a surface in an unassembled state and an assembled state, respectively, are illustrated, in accordance with some embodiments of the present disclosure. The system 100 may include a driving assembly 102 and a penetrating assembly 104. The driving assembly may be configured to be fitted to the vertical post (not shown in the FIG. 1A). By way of an example, the vertical post may be a cricket stump. As it will be understood, in the game of cricket, stumps are vertical posts that support the bails and form the wicket.

[017] In some embodiments, the driving assembly 102 may include a driving member 106. For example, the driving member may be a shaft having a coupler projection mounted/formed on its one end. In some embodiments, the driving assembly 102 further include a driving source 110 coupled to the driving member 106. By way of an example, the driving source 110 may be an electric motor. As it will be appreciated, the electric motor may either be direct current (DC) electric motor or an alternating current (AC) electric motor.

[018] The system 100 may further include a power source 112 to power the driving source 110. For example, the power source 112 may include one or more batteries 112A. The power source 112 may further include a battery compartment 112B to house the one or more batteries 112A. Further, in some embodiments, the battery compartment 112B may include an enclosure for battery and a battery cover (not shown in FIG. 1A-1B). By way of an example, each of the one or more batteries 112A may be selected from a Lead-Acid battery, a Lithium-Ion battery, a Lithium-Polymer battery, a rechargeable battery, etc.

[019] The penetrating assembly 104 may include a penetrating member 108. The penetrating member 108 may be configured to be coupled to the driving member 106 of the driving assembly 102. For example, the penetrating member 108 may include a coupler groove (not shown in FIG. 1A-1B). In order to couple the penetrating member 108 to the driving member 106, the coupler projection (of the driving member) may couple with the coupler groove of the penetrating member 108. In an embodiment, the driving member 106 may include a bearing which may connect to a shaft of the driving source 110, where the end of the shaft of the driving source 110 is connected to the penetrating member 108. In another embodiment, the driving member 106 may be a coupler with a key lock that connects the shaft of the driving source 110 with the penetrating member 108. Further, it may be noted that the shaft of the driving source 110 may be connected directly to the penetrating member 108 without the use of any driving member 106, for example, by using a simple key lock.

[020] In some embodiments, the penetrating member 108 may be conical-shaped. Further, in some embodiments, the penetrating member 108 may include one or more cutting members 108A positioned on the outer surface of the penetrating member 108. For example, as later shown in FIG. 3, the penetrating member 108 may include one or more cutting members 108A which may be sharp-edged projections formed on the surface of the penetrating member 108. As the penetrating member 108 rotates and the penetrating member 108 is brought in contact with the ground surface, these projections may cut through the ground surface and further drive the penetrating member 108 in the ground surface, to thereby deploy the vertical post on the ground surface.

[021] The driving assembly 102 may be configured to receive a trigger to cause the penetrating member 108 to cut the surface and deploy the vertical post on the surface. Upon receiving the trigger, the driving assembly 102 may be configured to impart rotatory motion to the penetrating member 108 via the driving member 106 to cause the penetrating member 108 to cut the surface via the one or more cutting members and penetrate into the surface to deploy the vertical post on the surface.

[022] In order to generate the trigger, the system 100 may further include a communication system 114. The communication system 114 is further explained in conjunction with FIG. 2.

[023] In some embodiments, as shown in FIG. 2A, a communication system 200A (corresponding to communication system 114) may include a manually-operated switch 116. In such embodiments, the switch 116 may be positioned on the vertical post. For example, the switch 116 may be mounted somewhere on the vertical post where the switch 116 can be easily accessed by a user. The switch 116 may be configured to generate the trigger through a manual operation of the switch 116. For example, the switch 116 may connect the driving source 110 and the power source 112. As such, the switch 116 may be a two-way switch. In other words, the switch 116 may include an ON/OFF button 116A that the user may use to turn ON or OFF. Therefore, once the user turns ON the button 116A, the switch 116 may generate the trigger and cause the driving assembly 102 to impart rotatory motion to the penetrating member 108 via the driving member 106. Once the penetrating member has penetrated to a desired depth, the button 116A may be turned OFF. Once the button 116A is tuned OFF, the trigger may be terminated, and the driving assembly 102 may stop imparting rotatory motion to the penetrating member 108. By way of an example, the vertical post may include a scale having length measurement graduations that may provide an indication to the user handling the switch 116. The user may turn the button 116A OFF, once the penetrating member 108 has penetrated by a desired length.

[024] In alternate embodiments, as shown in FIG. 2B, a communication system 200B (corresponding to communication system 114) may include a wireless communication module 118. For example, the wireless communication module 118 may be based on any wireless network and the examples may include, but are not limited to the Internet, Wireless Local Area Network (WLAN), Wi-Fi, Long Term Evolution (LTE), Worldwide Interoperability for Microwave Access (WiMAX), General Packet Radio Service (GPRS), and Global System for Mobile Communications (GSM), Bluetooth, etc. The communication system 200B may further include an electronic switch 120 communicatively coupled to the wireless communication module 118. The electronic switch 120 may receive a signal from a remote source 202 via the wireless communication module 118. Upon receiving the signal, the electronic switch 120 may generate the trigger to cause the driving assembly 102 to impart rotatory motion to the penetrating member 108 via the driving member 106. By way of an example, in a cricket game, a remote user (e.g., a referee, or a third umpire, etc.) positioned at a remote location (like pavilion or control room of the stadium) may transmit the signal via the wireless communication module 118. In other words, this remote user may cause to impart rotatory motion to the penetrating member 108 to deploy the vertical post on the pitch of the cricket ground, from a remote location.

[025] In some embodiments, the trigger may cause the driving assembly 102 to perform a rotation of the penetrating member 108 for a predetermined period of time which is sufficient to deploy successfully the vertical post on the ground. For example, the predetermined period of time may be 5 seconds. Alternately, the trigger may cause the driving assembly 102 to perform a rotation for a predefined number of rotations of the penetrating member 108, that are sufficient to successfully deploy the vertical post on the ground. For example, the predetermined period of time may be 20 rotations.

[026] In alternate embodiments, the trigger may cause the driving assembly 102 to perform rotation of the penetrating member 108 to penetrate into the surface to a predetermined depth, i.e., until the penetrating member 108 has been driven into the ground to a depth sufficient to deploy successfully the vertical post on the ground.

[027] It may be noted that the upon receiving the trigger, the driving assembly 102 may impart rotatory motion to the penetrating member 108 (via the driving member 106) in one of clockwise orientation or anti-clockwise orientation. For example, as it will be appreciated by those skilled in the art, by rotating the penetrating member 108 in the clockwise orientation, the penetrating member 108 may be driven into the ground so as to successfully deploy the vertical post on the ground. However, in order to dismount the vertical post from the ground, the penetrating member 108 may be caused to rotate in the opposite direction, i.e., anti-clockwise orientation. Owing to the spherical thread profile of the penetrating member 108, the clockwise orientation of rotation may cause the penetrating member 108 to be driven into the ground, while the anti-clockwise orientation of rotation may cause the penetrating member 108 to be driven out of the ground.

[028] In some embodiments, the system 100 may further include at least one sensor (not shown in FIGS. 1A-1B). The at least one sensor may detect a depth of penetration of the penetrating member 108 into the surface, once the penetrating member 108 has started rotating and penetrating into the ground. Further, in some embodiments, the sensor may override the trigger to cause the driving assembly 102 to stop imparting rotatory motion to the penetrating member 108 (via the driving member 106) to stop the penetrating member 108 from further penetrating into the surface. In other words, once the penetrating member 108 has penetrated to a predetermined depth in the ground, the sensor may cause the penetrating member 108 to stop rotating, thereby stopping further penetration into the ground.

[029] In an alternate embodiment, upon detecting the depth of penetration of the penetrating member 108 into the surface, the sensor may generate an alarm indicating that the penetrating member 108 has penetrated to a predetermined depth in the ground. Based on the alarm, a user may operate the manually-operated switch 116 to override the trigger to stop the driving assembly 102 from imparting rotatory motion to the penetrating member 108 (via the driving member 106).

[030] In another embodiment, upon detecting the depth of penetration of the penetrating member 108 into the surface, the sensor may generate an alarm indicating that the penetrating member 108 has penetrated to a predetermined depth in the ground and transmit the alarm to a remote user via a wireless communication module 118. Based on the alarm, the remote user may send a signal (stopping signal) indicative of stopping the penetrating member 108 from further penetrating into the ground. To this end, the electronic switch 120 may to receive the stopping signal from the remote user via the wireless communication module 118. Upon receiving the signal, the electronic switch 120 may terminate the trigger to stop the driving assembly 102 from imparting rotatory motion to the penetrating member 108.

[031] Referring now to FIG. 3, a front view of the penetrating assembly 104 is illustrated, in accordance with an embodiment. As mentioned earlier, the penetrating assembly 104 may include the penetrating member 108 configured to be coupled to the driving member 106 of the driving assembly 102. In some embodiments, as shown in FIG. 3, the penetrating assembly 104 may further include a bearing 302. It may be noted that the penetrating member 108 may be coupled to the driving member 106 of the driving assembly 102 via the bearing 302. As it will be appreciated by those skilled in the art, the bearing 302 may constrain the rotary motion of the penetrating member 108 to only the desired rotary motion, i.e., the bearing 302 may prevent axial movement of the penetrating member 108 with respect to the driving member 106. It will be further appreciated that the bearing 302 may reduce friction between the penetrating member 108 and the driving assembly 102.

[032] In some embodiments, the penetrating member 108 may be conical-shaped. For example, the maximum diameter (X1) of the penetrating member 108 may be 35 millimeters (mm) at one end, while the penetrating member 108 may converge at a point at the other end. Further, the height of the penetrating member 108 may be 100 mm.

[033] The penetrating member 108 may include one or more cutting members 108A positioned on its outer surface. By way of an example, as shown in FIG. 3, the one or more cutting members 108A of the penetrating member 108 may be in form of spherical thread. In other words, the penetrating member 108 may include a spherical thread running on its surface, such that the spherical thread has a sharp edge capable of cutting the round surface. The helix angle (θ) of the spherical thread may be 60°. As mentioned above, the spherical thread profile of the penetrating member 108 may cause the penetrating member 108 to be driven into the ground while rotating in one orientation (e.g., clockwise orientation), and to be driven out of the ground while rotating in the opposite orientation (e.g., anti-clockwise orientation).

[034] By way of example, the outer diameter of the bearing 302 may be same as the maximum diameter (X1) of the penetrating member 108 (i.e., 35 mm in the embodiment shown in FIG. 3). Further, the height (Y2) of the bearing may be 11 mm. The inner diameter (X2) of the bearing 302 may be 15 mm.

[035] As mentioned earlier, the penetrating member 108 may include a coupler 304 having a coupler groove 304A. In order to couple the penetrating member 108 with the driving member 106, the coupler projection (of the driving member 106) may couple with the coupler groove 304A of the penetrating member 108. By way of an example, the maximum diameter (X2) and minimum diameter (X3) of the coupler groove 304A may be 15 mm and 8 mm, respectively. Accordingly, the maximum and the minimum diameter of the coupler projection (not shown in FIG. 3) may also be 15 mm and 8 mm, respectively. Further, the height/depth (Y3) of the coupler groove 304A may be 8 mm, and accordingly, the length of the of the coupler projection may also be 8 mm.

[036] It may be understood that the system 100 may be fitted to the vertical post during manufacturing of the vertical post. Alternately, the system 100 may be retrofittable to the vertical post, i.e., it can be retro-fitted to the vertical post after manufacturing.

[037] Referring now to FIG. 4, a front view of an assembly 400 (unassembled) of a vertical post 402 and a penetration assembly 104 is illustrated, in accordance with an embodiment of the disclosure. In some embodiments, as shown in FIG. 4, the vertical post 402 may include the driving assembly 102. The driving assembly 102 may be fitted to the vertical post 402 at one end of the vertical post 402. The driving assembly 102 may include a driving member 106. In other words, the driving assembly 102 may be rigidly fitted to the vertical post 402. For example, the vertical post 402 may include a hollow portion which may accommodate the driving assembly 102.

[038] The driving assembly 102 may further include a driving source 110 coupled to the driving member 106. By way of an example, the driving source 110 may be an electric motor. The driving assembly 102 may further include a power source 112 to power the driving source 110. By way of an example, the power source 112 may include one or more batteries 112A.

[039] The driving assembly 102 of the vertical post 402 may be configured to couple with the penetrating assembly 104. In words, the penetrating assembly 104 may be removably coupled to the driving assembly 102 of the vertical post 402. In some embodiments, the penetrating assembly 104 may include the penetrating member 108. The penetrating member 108 may be configured to be coupled to the driving member 106 of the driving assembly 102. Further, as explained in conjunction with FIG. 3, the penetrating member 108 may be conical-shaped, and may include one or more cutting members 108A positioned on the outer surface of the penetrating member 108.

[040] The driving assembly 102 may impart rotatory motion to the penetrating member 108, upon receiving a trigger, to cause the penetrating member 108 to cut the surface via the one or more cutting members 108A and penetrate into the surface to deploy the vertical post 402 on the surface. In some embodiments, the trigger may cause the driving assembly 102 to perform a rotation of the penetrating member 108 for a predetermined period of time. Alternatively, the trigger may cause the driving assembly 102 to perform a rotation of the penetrating member 108 to cut the surface via the one or more cutting members 108A and penetrate into the surface to a predetermined depth.

[041] Further, upon receiving the trigger, the driving assembly 102 may impart rotatory motion to the penetrating member 108 via the driving member 106 in one of clockwise orientation or anti-clockwise orientation. For example, by rotating the penetrating member 108 in the clockwise orientation, the penetrating member 108 may be driven into the ground so as to successfully deploy the vertical post on the ground. In order to remove the vertical post from the ground, the penetrating member may be caused to rotate in the opposite direction, i.e., anti-clockwise orientation.

[042] The vertical post 402 may further include the communication system 200A. In some embodiments, the communication system 200A may include a manually-operated switch 116 positioned on the vertical post. The switch 116 may be configured to generate the trigger through a manual operation of the switch 116. In other words, the switch 116 may include an ON/OFF button 116A that the user may use to turn it ON or OFF. Once the user turns ON the button 116A, the switch 116 may generate the trigger to cause the driving assembly 102 to impart rotatory motion to the penetrating member 108.

[043] In alternate embodiments, the communication system 200B may include a wireless communication module 118. This communication system 200B may further include an electronic switch 120 communicatively coupled to the wireless communication module 118. The electronic switch 120 may receive a signal from a remote source 202 via the wireless communication module 118. Upon receiving the signal, the electronic switch 120 may generate the trigger to cause the driving assembly 102 to impart rotatory motion to the penetrating member 108 via the driving member 106.

[044] In some embodiments, the vertical post 402 may further include at least one sensor (not shown in FIG. 4). The sensor may detect a depth of penetration of the penetrating member 108 into the surface. The sensor may the override the trigger to cause the driving assembly 102 to stop imparting rotatory motion to the penetrating member 108 to thereby stop the penetrating member 108 from further penetrating into the surface. This is already explained in conjunction with FIG. 1A-1B.

[045] Referring now to FIG. 5, a front view of a vertical post 502 is illustrated, in accordance with an embodiment of the disclosure. In some embodiments, as shown in FIG. 5, the vertical post 402 may include the driving assembly 102 and the penetrating assembly 104. The driving assembly 102 and the penetrating assembly 104 may be rigidly fitted to the vertical post 502 at one end of the vertical post 502.

[046] The driving assembly 102 may include the driving member 106. The penetrating assembly 104 may include comprising the penetrating member 108. The penetrating member 108 may be coupled to the driving member 106 of the driving assembly 102. Further, the penetrating member 108 may be conical-shaped, and include one or more cutting members 108A positioned on its outer surface. In some embodiments, the hollow portion of the vertical post 502 may accommodate the driving assembly 102 and the penetrating assembly 104 with only the penetrating member 108 protruding out of the hollow portion of the vertical post 502. As it will be understood, the protruding penetrating member 108 may be penetrated into the ground so as to deploy the vertical post 502 on the ground. Upon receiving a trigger, the driving assembly 102 may impart rotatory motion to the penetrating member 108 via the driving member 106 to cause the penetrating member 108 to cut the surface via the one or more cutting members 108A and penetrate into the surface to deploy the vertical post on the surface.

[047] As mentioned above in conjunction with FIG. 1A-1B and FIG. 4, the driving assembly 102 may further include a driving source 110 (for example, an electric motor) coupled to the driving member 106. The driving assembly 102 may further include a power source 112 to power the driving source 110.

[048] The vertical post 502 may further include the communication system 200A and/or the communication system 200B. In some embodiments, the communication system 200A may include a manually-operated switch 116 positioned on the vertical post 502. For example, the switch 116 may be mounted somewhere on the vertical post 502 where the switch 116 can be easily accessed by a user. The switch 116 may be configured to generate the trigger through a manual operation of the switch 116. The communication system 200B may include the wireless communication module 118 and the electronic switch 120 communicatively coupled to the wireless communication module 118. The electronic switch 120 may receive a signal from a remote source 202 via the wireless communication module 118. Upon receiving the signal, the electronic switch 120 may generate the trigger to cause the driving assembly 102 to impart rotatory motion to the penetrating member 108 via the driving member 106.

[049] In some embodiments, the vertical post 502 may further include at least one sensor (not shown in FIG. 5). The sensor may detect a depth of penetration of the penetrating member 108 into the surface. The sensor may the override the trigger to cause the driving assembly 102 to stop imparting rotatory motion to the penetrating member 108 via the driving member 106 to stop the penetrating member 108 from further penetrating into the surface. This is already explained in conjunction with FIG. 1A-1B.

[050] Referring now to FIG. 6, a front view of a cricket wicket 600 is illustrated, in accordance with an embodiment of the present disclosure. As shown in FIG. 6, the cricket wicket

600 includes three stumps 602A, 602B, 602C (collectively referred to as stumps 602). As shown in FIG. 6, each of the stumps 602 may be deployed by penetrating the penetrating assembly 104 (shown in dotted lines) in the ground 604.

[051] In one embodiment, each of the stumps 602 may be fitted with the system 100 (shown in dotted lines). As such, the system 100 may include the driving assembly 102 having a driving member. The driving assembly 102 may be configured to be fitted to each of the stumps 602. The system 100 may further include the penetrating assembly 104 including a penetrating member. The system 100 may be retrofittable to each of the stumps 602.

[052] In another embodiment, each of the stumps 602 may include the driving assembly 102 (i.e., corresponding to the vertical post 402). In such an embodiment, driving assembly 102 may be fitted to each of the stumps 602 at its one end. The driving assembly 102 may be configured to couple with the penetrating assembly 104. In other words, the penetrating assembly 104 is detachable from the driving assembly 102 or the stump.

[053] In yet another embodiment, each of the stumps 602 may include the driving assembly 102 and the penetrating assembly 104 (i.e., corresponding to the vertical post 502). In such an embodiment, the driving assembly 102 and the penetrating assembly 104 may be rigidly fitted to each of the stumps 602 at its one end.

[054] One or more techniques of deploying a vertical post on a surface, such as ground surface, are described in the above disclosure. For example, a system is disclosed that may be fitted to a vertical post so as to automatically deploy the vertical post on the surface. Further, one or more vertical posts are disclosed that are capable of automatically deploying on the surface. The above techniques make use of a driving source, such as an electric motor powered by a power source, such as batteries to automatically cause a penetration member to rotate and penetrate in to ground surface to thereby erect the vertical post on the surface.

[055] The above techniques, therefore, reduce the amount of manual effort and time required for deploying. Further, the techniques provide for automatically penetrating the penetration member up to a predetermined depth, thereby achieving an accurate and uniform height of deployment, especially in scenarios where multiple vertical posts are to be deployed, for example, stumps of the wicket in a cricket game. Furthermore, the techniques allow for operating and controlling the system remotely or automatedly, thereby ensuring precision, reducing reliance on manual intervention, and therefore, minimizing chances of accident or injury to the persons during manual hammering/hitting of the vertical posts.

[056] It is intended that the disclosure and examples be considered as exemplary only, with a true scope and spirit of disclosed embodiments being indicated by the following claims.

We Claim:

1. A system (100) for deploying a vertical post on a surface, the system (100) comprising:

a driving assembly (102) comprising a driving member (106), wherein the driving assembly (102) is configured to be fitted to the vertical post; and

a penetrating assembly (104) comprising a penetrating member (108), the penetrating member (108) being configured to be coupled to the driving member (106) of the driving assembly (102), the penetrating member (108) being conical-shaped, and the penetrating member (108) comprising one or more cutting members (108A) positioned on the outer surface of the penetrating member (108),

wherein, upon receiving a trigger, the driving assembly (102) is configured to impart rotatory motion to the penetrating member (108) via the driving member (106) to cause the penetrating member (108) to cut the surface via the one or more cutting members (108A) and penetrate into the surface to deploy the vertical post on the surface.

2. The system (100) as claimed in claim 1 further comprising a communication system (114), wherein the communication system (114) comprises at least one of:

a manually-operated switch (116), wherein the switch (116) is positioned on the vertical post, wherein the switch (116) is configured to generate the trigger through a manual operation of the switch (116), and wherein the trigger is to cause the driving assembly (102) to impart rotatory motion to the penetrating member (108) via the driving member (106); or

a wireless communication module (118), and an electronic switch (120) communicatively coupled to the wireless communication module (118), the electronic switch (120) configured to receive a signal from a remote source via the wireless communication module (118), wherein, upon receiving the signal, the electronic switch (120) is configured to generate the trigger to cause the driving assembly (102) to impart rotatory motion to the penetrating member (108) via the driving member (106).

3. The system (100) as claimed in claim 1, wherein the trigger is to cause the driving assembly (102) to perform at least one of:

rotation of the penetrating member (108) for a predetermined period of time; or rotation of the penetrating member (108) to cause the penetrating member (108) to cut the surface via the one or more cutting members (108A) and penetrate into the surface to a predetermined depth.

4. The system (100) as claimed in claim 1, wherein, upon receiving a trigger, the driving assembly (102) is configured to impart rotatory motion to the penetrating member (108) via the driving member (106) in one of clockwise orientation or anti-clockwise orientation.

5. The system (100) as claimed in claim 1, wherein the driving assembly (102) further comprises:

a driving source (110) coupled to the driving member (106), wherein, upon receiving the trigger, the driving source (110) is configured to impart rotatory motion to the penetrating member (108) via the driving member (106), and wherein the driving source (110) is an electric motor; and

a power source (112) to power the driving source (110) to impart rotatory motion to the penetrating member (108) via the driving member (106), wherein the power source (112) comprises one or more batteries (112A).

6. The system (100) as claimed in claim 1, further comprising at least one sensor configured to:

detect a depth of penetration of the penetrating member (108) into the surface; and

override the trigger to cause the driving assembly (102) to stop imparting rotatory motion to the penetrating member (108) via the driving member (106) to stop the penetrating member (108) from further penetrating into the surface.

7. A vertical post (402) comprising:

a driving assembly (102) configured to be fitted to the vertical post at one end of the vertical post, the driving assembly (102) comprising a driving member (106),

wherein the driving assembly (102) is configured to couple with a penetrating assembly (104), wherein the penetrating assembly (104) comprises a penetrating member (108), the penetrating member (108) being configured to be coupled to the driving member (106) of the driving assembly (102), the penetrating member (108) being conical-shaped, and the penetrating member (108) comprising one or more cutting members (108A) positioned on the outer surface of the penetrating member (108), and

wherein, upon receiving a trigger, the driving assembly (102) is configured to impart rotatory motion to the penetrating member (108) via the driving member (106) to cause the penetrating member (108) to cut the surface via the one or more cutting members (108A) and penetrate into the surface to deploy the vertical post on the surface.

8. The vertical post (402) as claimed in claim 7 further comprising a communication system (114), wherein the communication system (114) comprises one of:

a manually-operated switch (116), wherein the switch (116) is positioned on the vertical post, wherein the switch (116) is configured to generate the trigger through a manual operation of the switch (116), and wherein the trigger is to cause the driving assembly (102) to impart rotatory motion to the penetrating member (108) via the driving member (106), or

a wireless communication module (118), and an electronic switch (120) communicatively coupled to the wireless communication module (118), the electronic switch (120) configured to receive a signal from a remote source via the wireless communication module (118), wherein, upon receiving the signal, the electronic switch (120) is configured to generate the trigger to cause the driving assembly (102) to impart rotatory motion to the penetrating member (108) via the driving member (106).

9. The vertical post (402) as claimed in claim 7, wherein the driving assembly (102) further comprises:

a power source (112) to power the driving source (110) to impart rotatory motion to the penetrating member (108) via the driving member (106), wherein the power source (112) comprises one or more batteries (112A);

a driving source (110) coupled to the driving member (106), wherein, upon receiving the trigger, the driving source (110) is configured to impart rotatory motion to the penetrating member (108) via the driving member (106), and wherein the driving source (110) is an electric motor; and

at least one sensor configured to:

detect a depth of penetration of the penetrating member (108) into the surface; and

override the trigger to cause the driving assembly (102) to stop imparting rotatory motion to the penetrating member (108) via the driving member (106) to stop the penetrating member (108) from further penetrating into the surface.

10. A vertical post (502) comprising:

a driving assembly (102) configured to be fitted to the vertical post at one end of the vertical post, the driving assembly (102) comprising a driving member (106); and

a penetrating assembly (104) comprising a penetrating member (108), the penetrating member (108) being configured to be coupled to the driving member (106) of the driving assembly (102),

the penetrating member (108) being conical-shaped, and the penetrating member (108) comprising one or more cutting members (108A) positioned on the outer surface of the penetrating member (108),

wherein, upon receiving a trigger, the driving assembly (102) is configured to impart rotatory motion to the penetrating member (108) via the driving member (106) to cause the penetrating member (108) to cut the surface via the one or more cutting members (108A) and penetrate into the surface to deploy the vertical post on the surface.

Dated this 29th day of March 2020

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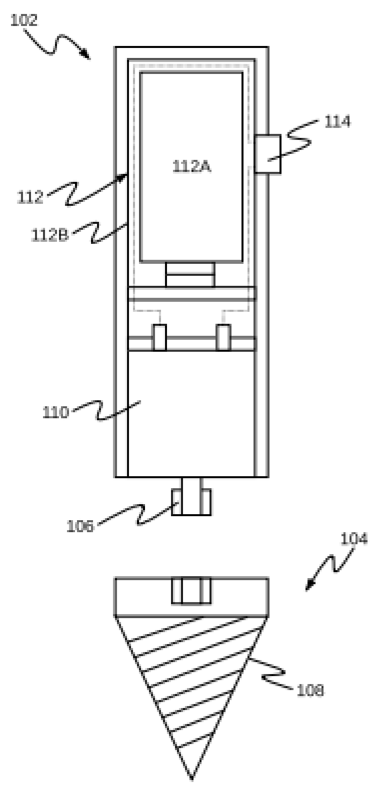
A VERTICAL POST AND A SYSTEM FOR DEPLOYING THE VERTICAL POST ON A SURFACE

ABSTRACT

This disclosure relates to a vertical post and a system (100) for deploying the vertical post on a surface. The system (100) may include a driving assembly (102) including a driving member (106). The system (100) may further include a penetrating assembly (104) including a penetrating member (108) which may be configured to be coupled to the driving member (106) of the driving assembly (102). The penetrating member (108) may be conical-shaped and include one or more cutting members (108A) positioned on its outer surface. Upon receiving a trigger, the driving assembly (102) may impart rotatory motion to the penetrating member (108) via the driving member (106) to cause the penetrating member (108) to cut the surface via the one or more cutting members (108A) and penetrate into the surface to deploy the vertical post on the surface.



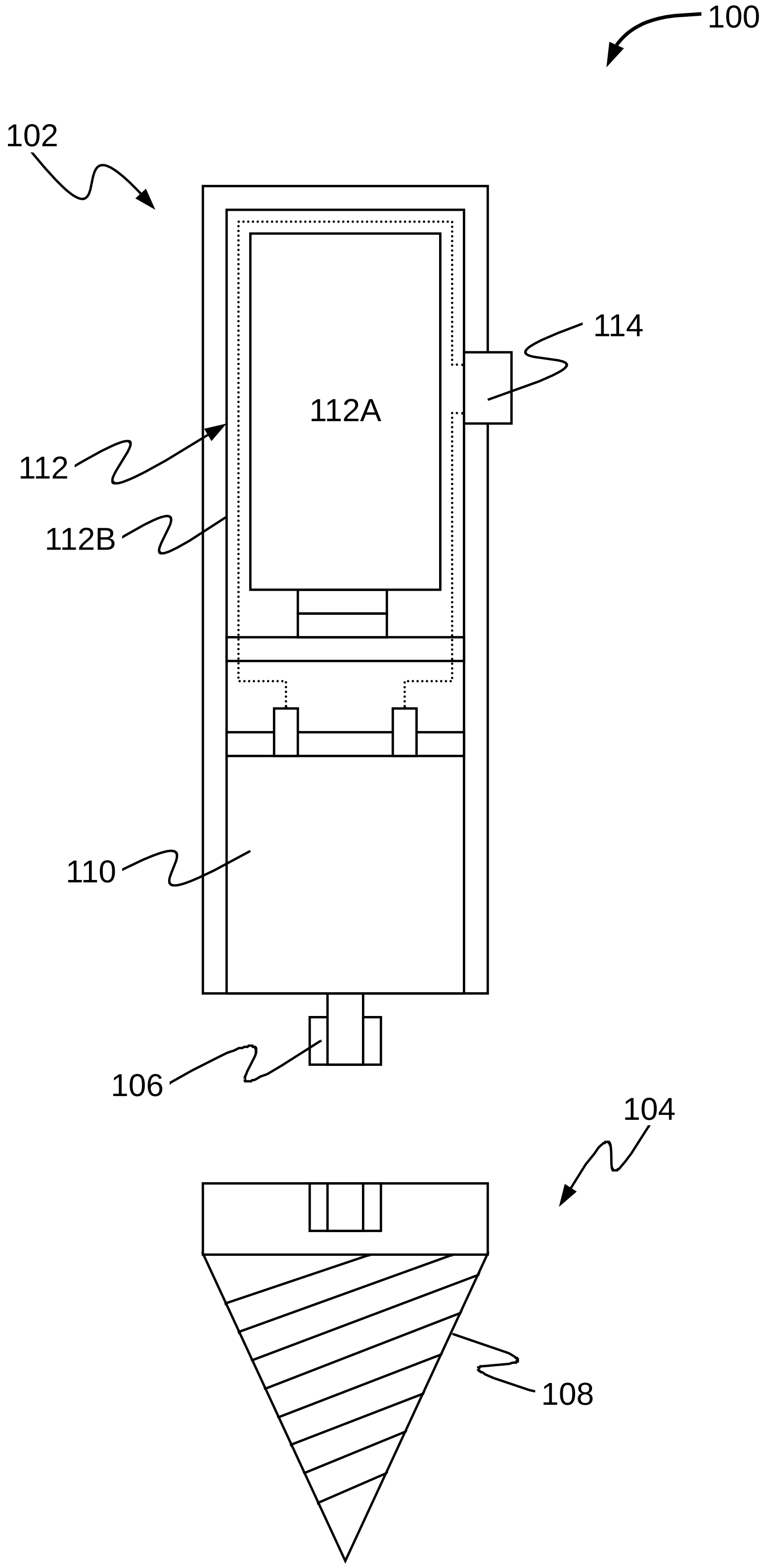


FIG. 1A

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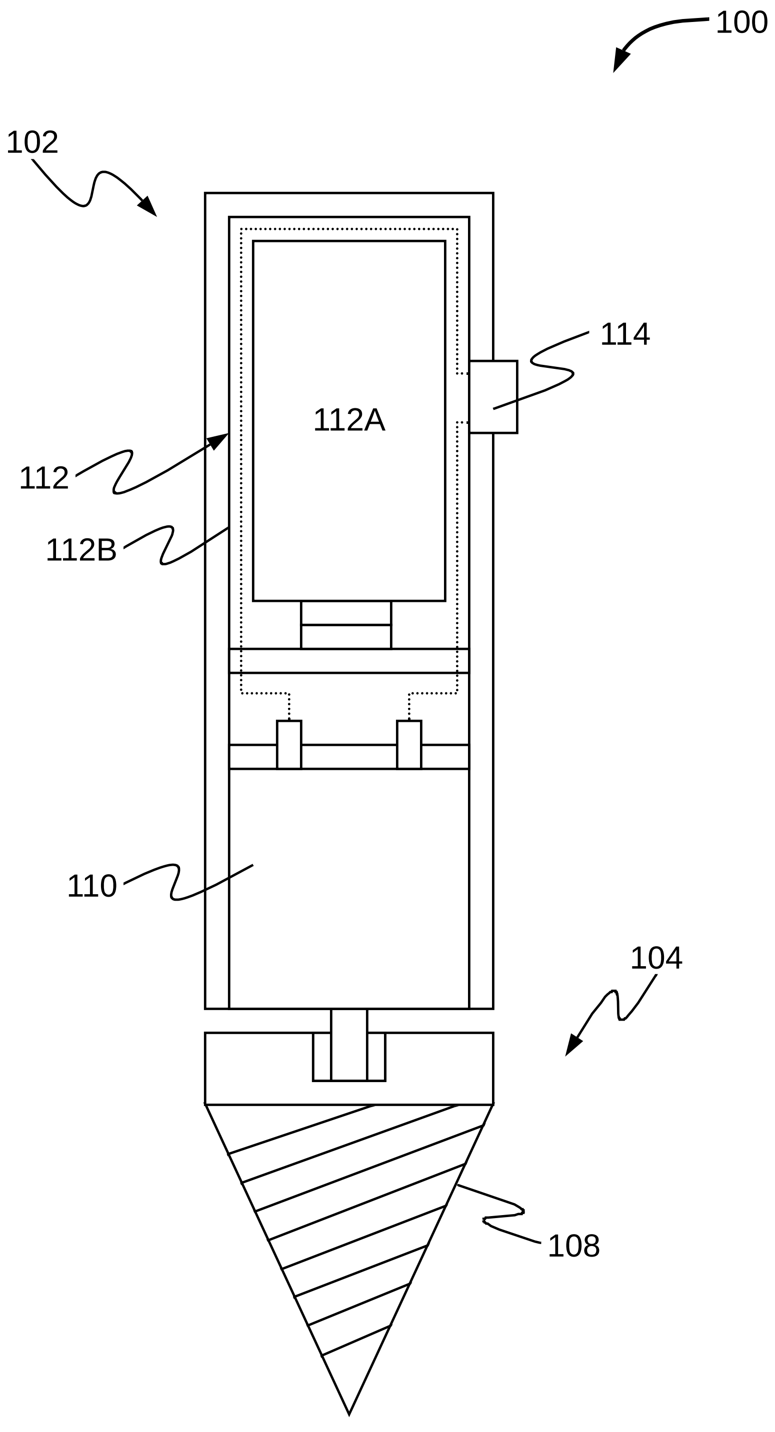

FIG. 1B

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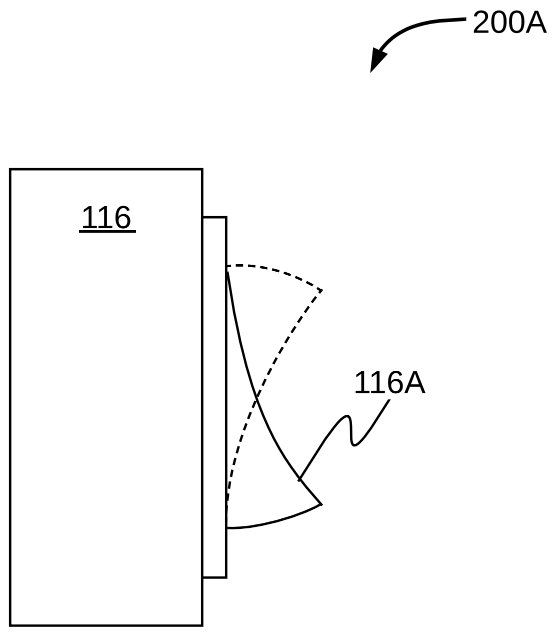

FIG. 2A

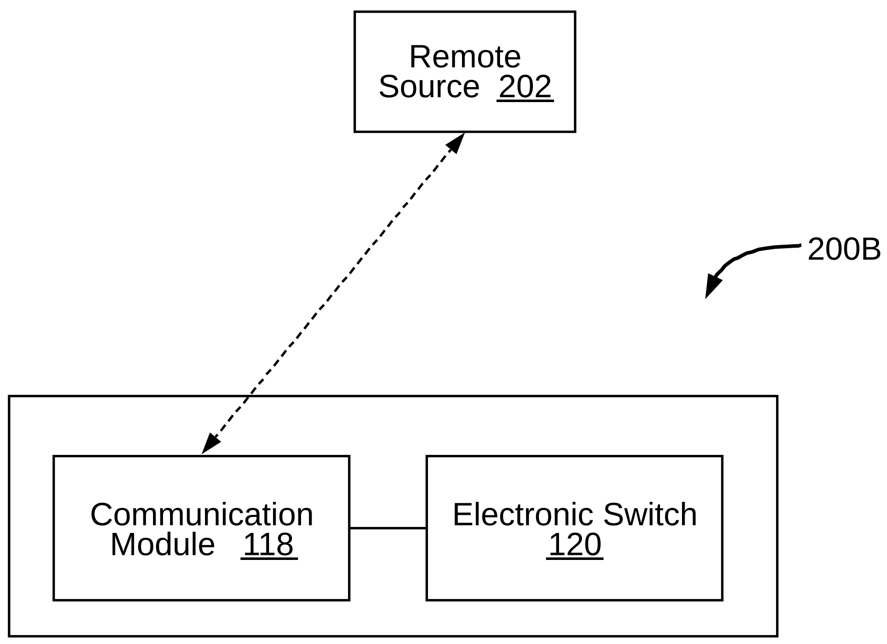

FIG. 2B

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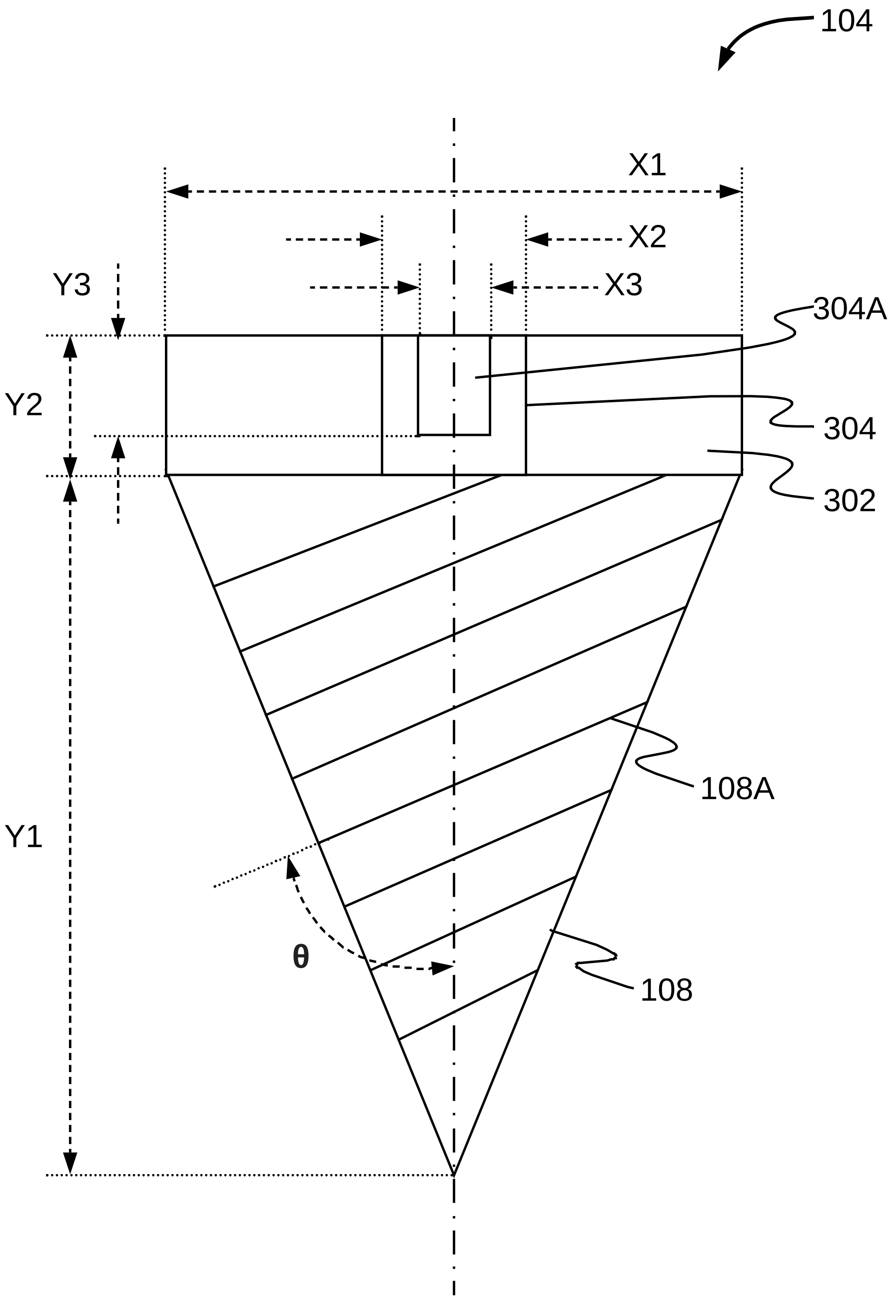

FIG. 3

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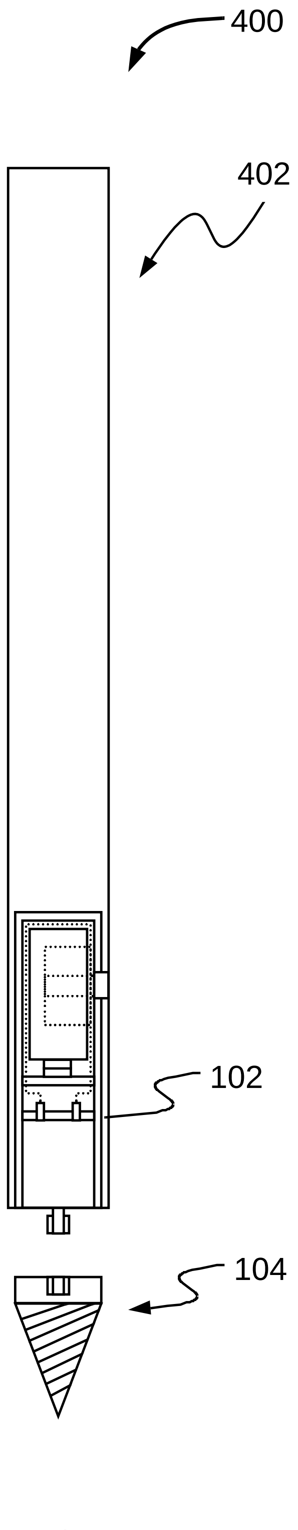

FIG. 4

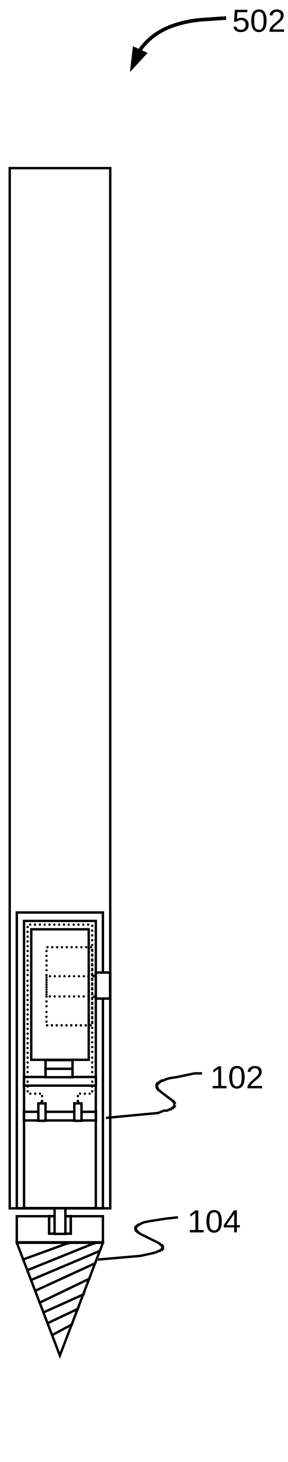

FIG. 5

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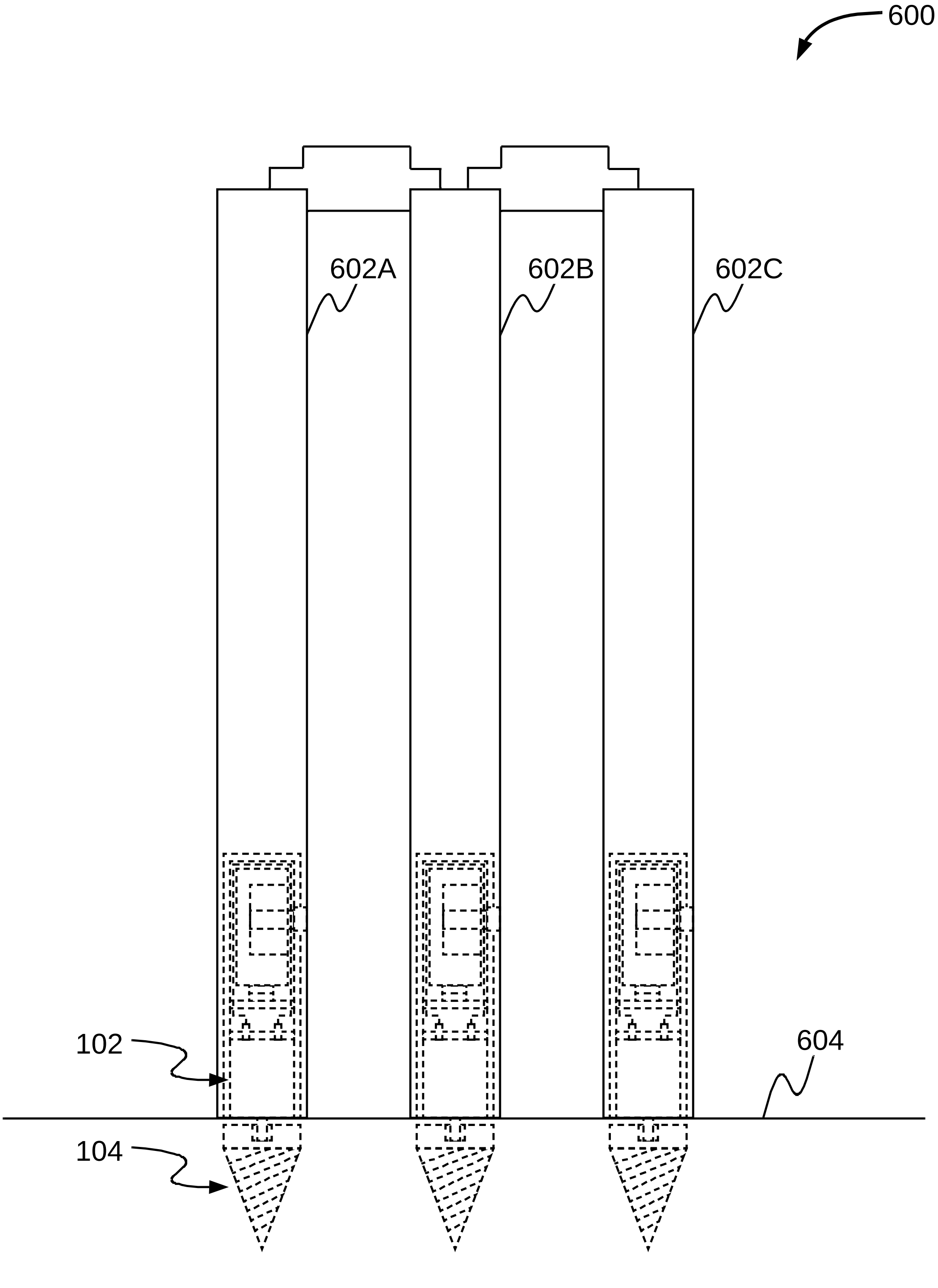

FIG. 6

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