Claims

Claim 1. A pole system, comprising a Multi-segment Telescopic Mast Pole (MTMP) (01), an extension arm assembly (02) rotatably connected to an upper portion of the MTMP (01), and an angle adjustment means (03) for adjusting rotational angle (α) of the extension arm assembly (02) relative to the axis of the MTMP (01); wherein,
the extension arm assembly (02) comprises:

a mounting bracket (021) installed at the upper portion of the MTMP (01), and

a swing arm (022) rotatably connected to the mounting bracket (021);

the angle adjustment means (03) comprises:

a third cable (032) configured to attach to the swing arm (022) at one end, while the other end of the third cable (032) is configured to sequentially wind from the mounting bracket (021), extend down along the axis of the MTMP (01), and then onto a first winch (031) located at a lower portion of the MTMP (01); and,

a connecting rod (023) rotatably connected to the mounting bracket (021) at one end, and slidably connected to the swing arm (022) at the other end; and,

when the third cable (032) is tightened through the first winch (031), the third cable (032) is operable to drive the swing arm (022) to rotate in a first direction, causing the rotational angle (α) to increase; and,
when the third cable (032) is released, the swing arm (022) is operable to rotate under gravity effect in a second direction, causing the rotation angle (α) to decrease.

Claim 2. The pole system according to Claim 1, wherein the connecting rod (023) and the swing arm (022) are slidably connected through a sliding track (0231), configured to comprise:
a first track end (0231a) operable to limit the rotational angle (α) to a first angle (α1); and, a second track end (0231b) operable to limit the rotational angle (α) to a second angle (α2).

Claim 3. The pole system according to Claim 2, wherein the first angle (α1) is configured to be 90°; and/or, the second angle (α2) is configured to be 20°~30°.

Claim 4. The pole system according to any one of Claims 1 – 3, wherein the mounting bracket (021) is detachably installed at the upper portion of the MTMP (01).

Claim 5. The pole system according to Claim 4, wherein the upper portion of the MTMP (01) is the top of the MTMP (01).

Claim 6. The pole system according to any one of Claims 1, wherein the mounting bracket (021) comprises:
a first pole component (0211) configured to be installed at the upper portion of the MTMP (01); and,
a second pole component (0212) connected to an upper end of the first pole component (0211) and extended further away from the axis of the MTMP(01) to form a third angle (α3) with the first pole component (0211).

Claim 7. The pole system according to Claim 6, wherein the swing arm (022) comprises:
a third pole component (0221) and a fourth pole component (0222);
the third pole component (0221) is configured to rotatably connect to a lower end of the first pole component (0211) at one end, and to fixedly connect to the fourth pole component (0222) at the other end;
wherein the third pole component (0221) and the fourth pole component (0222) form a fourth angle (α4).

Claim 8. The pole system according to Claim 7, wherein the swing arm (022) further comprises a fifth pole component (0223) configured to fixedly connect to both the third pole component (0221) and the fourth pole component (0222), creating a supporting triangle structure (0225) encompassing the fourth angle (α4).

Claim 9. The pole system according to Claim 7, wherein both the third angle and the fourth angle are right angle.

Claim 10. The pole system according to Claim 1, comprising a plurality of third cable guides (033) installed along the second pole component (0212) and the axial direction of MTMP (01), and configured to guide the third cable (032) to wind from the mounting bracket (021) onto the first winch (031).

Claim 11. The pole system according to Claim 1, wherein the MTMP (01) comprises: a base pole (011), a fixed pole (013), and at least one telescopic pole section (012) that is slidably nested between the base pole (011) and the fixed pole (013) for adjustable extension and retraction of the MTMP (01).

Claim 12. The pole system according to Claim 11, further comprising:

the base pole (011) comprises a first lifting component set, comprising a first cable (0142), a first cable guide (0144), a first locking point (0143) and a first securing point (0147); and,

the at least one telescopic pole section (012b) comprises a second lifting component set, comprising a second cable (0142b), a second cable guide (0144b), a second locking point (0143b), a cable track (0145b) and a second securing point (0147b);

wherein the first cable (0142) is configured to fixedly connect to the first locking point (0143) of the base pole (011) at one end, while the other end of the first cable (0142) is configured to sequentially wind around the cable track (0145b) of at least one telescopic pole section (012b) positioned directly above the base pole (011), the first cable guide (0144) of the base pole (011), and then onto a second winch (0141) of the base pole (011); and,

wherein the second cable (0142b) is configured to fixedly connect to the second locking point (0143b) of the at least one telescopic pole section (012b) at one end, while the other end of the second cable (0142b) is configured to sequentially wind around the cable track (0145a) of a corresponding adjacent upper telescopic pole section (012a), the second cable guide (0144b) of the at least one telescopic pole section (012), and then onto the first securing point (0147) of the base pole (011) or the second securing point (0147b) of a corresponding adjacent lower telescopic pole section (012c).

Claim 13. The pole system according to Claim 12, wherein the lifting component set (014) further comprises a plurality of sliding guide pads (0148) set within gaps between adjacent telescopic pole sections (012) to facilitate smooth relative motion between the adjacent telescopic pole sections (012).

Claim 14. The pole system according to Claim 13, wherein the plurality of sliding guide pads (0148) is configured to be placed on the inner wall of the base pole (011), either directly at the top of the base pole (011) or at locations adjacent to the top of the base pole (011).

Claim 15. The pole system according to Claim 13, wherein the plurality of sliding guide pads (0148) is configured to be placed at the outer wall of the telescopic pole section (012), either directly at the bottom of the telescopic pole section (012) or at locations adjacent to the bottom of the telescopic pole section (012).

Claim 16. The pole system according to Claim 13, wherein the plurality of sliding guide pads (0148) is configured to be placed at the inner wall of the telescopic pole section (012), either directly at the top of the telescopic pole section (012) or at locations adjacent to the top of the telescopic pole section (012).

Claim 17. The pole system according to any one of Claims 13 – 16, wherein the plurality of sliding guide pads (0148) is made of abrasion-resistant high-carbon steel.

Claim 18. The pole system according to any one of Claims 11 – 17, wherein the base pole (011), a fixed pole (013), and/or the telescopic pole section (012) are each coated with a thermal conductive material.

Claim 19. The pole system according to any one of Claims 11 – 18, wherein a device (04) is hung onto the swing arm (022).

Claim 20.The pole system according to Claim 19, wherein the device is a surveillance apparatus or a lighting apparatus.