CLAIMS:

1. A retractable screen system, comprising:

a screen;

the screen extending a height between an upper end and a lower end;

the screen extending a length between a first side and a second side;

the screen having a first interlock extending along the first side;

the screen having a second interlock extending along the second side;

a roller tube assembly;

the roller tube assembly including a roller tube;

the roller tube extending between a first end and a second end;

a first axle operably connected to and extending outward from the first end to a first outward end;

a second axle operably connected to and extending outward from the second end to a second outward end;

the roller tube having an exterior surface;

a first end cap;

the first end cap connected adjacent the first end of the roller tube;

the first end cap having an exterior surface;

the exterior surface of the first end cap extending from an inner end to an outer end;

wherein the exterior surface of the first end cap curves from a larger diameter at the inner end of the first end cap to a smaller diameter at the outer end of the first end cap;

a second end cap;

the second end cap connected adjacent the second end of the roller tube;

the second end cap having an exterior surface;

the exterior surface of the second end cap extending from an inner end to an outer end;

wherein the exterior surface of the second end cap curves from a larger diameter at the inner end of the second end cap to a smaller diameter at the outer end of the second end cap;

wherein the upper end of the screen is connected to the roller tube;

wherein the screen is opened by rotating the roller tube in a first direction which causes the screen to wrap around the exterior surface of the roller tube;

wherein the screen is closed by rotating the roller tube in a second direction, opposite the first direction, which causes the screen to unwrap from around the exterior surface of the roller tube;

wherein the first side of the screen is longer than the second side of the screen such that when the screen is closed, the lower end of the screen is oriented at an angle relative to the roller tube;

wherein the roller tube assembly is configured to permit an installer to adjust a first rate that the first side of the screen wraps around the exterior surface of the roller tube when the roller tube is rotated in the first direction to be greater than a second rate that the second side of the screen wraps around the exterior surface of the roller tube when the roller tube is rotated in the first direction so that when the screen is opened, the lower end of the screen is oriented parallel to the roller tube;

wherein a position of the first end cap is adjustable relative to the first end of the roller tube so as to adjust where the first interlock engages the surface of the first end cap and thereby adjusting the first rate that the first side of the screen wraps around the exterior surface of the roller tube;

wherein the position of the second end cap is adjustable relative to the second end of the roller tube so as to adjust where the second interlock engages the surface of the second end cap and thereby adjusting the second rate that the second side of the screen wraps around the exterior surface of the roller tube.

2. The system of claim 1, wherein the larger diameter of the first end cap approximately matches a diameter of the roller tube; or

the first end cap is connected to a collar that is connected to the roller tube; or

the position of the first end cap is adjustable towards and away from the first end of the roller tube; or

the position of the first end cap is adjustable along an axis of rotation of the roller tube; or

the exterior surface of the first end cap and the exterior surface of the second end cap are convex surfaces; or

the first end cap is connected to the first end of the roller tube by one or more first features configured and arranged to connect to one or more second features of the first end of the roller tube; or

the first end cap includes a plurality of flexible arms extending outward from the inner end of the first end cap toward the outer end of the first end cap.

3. The system of claim 1, wherein the first end cap includes a plurality of flexible arms extending outward from the inner end of the first end cap to the outer end of the first end cap; and

wherein the plurality of flexible arms are configured to flex inward toward an axis of rotation of the roller tube.

4. The system of claim 1, wherein the first interlock and the second interlock each have a thickness larger than a thickness of the screen.

5. The system of claim 1, further comprising:

a first track assembly positioned adjacent the first side of the screen;

the first track assembly having a first elongate channel and a first screen receiver configured to receive the first interlock;

a first magnet associated with one of the first elongate channel and the first screen receiver of the first track assembly;

a first magnetic member associated with the other of the first elongate channel and the first screen receiver of the first track assembly; and

wherein a magnetic bond is formed between the first magnet and the first magnetic member of the first track assembly.

6. A retractable screen system, comprising:

a screen;

the screen extending a length between a first side and a second side;

the screen extending a height between an upper end and a lower end;

the screen having a first interlock extending along the first side;

wherein the first interlock includes a thicker outer portion and a thinner inner portion;

wherein the inner portion of the first interlock is connected to the first side of the screen;

a roller tube;

a first end cap operably connected adjacent a first end of the roller tube;

wherein a position of the first end cap is adjustable in position along a length between the first end of the roller tube and a first one of a pair of brackets operably connected to the first end so as to adjust whether the screen, the thinner portion of the first interlock, or the

thicker portion of the first interlock engages and rolls up on the surface of the first end cap and thereby adjusting a rate that the first side of the screen wraps around roller tube; and

wherein the first end cap has an exterior surface having a convex curved shape.

7. The system of claim 6, wherein the convex curved shape of the first end cap extends from a larger diameter that approximately matches a diameter of the roller tube to a smaller diameter; or

the first end cap is connected to a collar that is connected to the roller tube; or

the first end cap is connected to the first end of the roller tube by one or more first features configured and arranged to connect to one or more second features of the first end of the roller tube; and wherein the one or more first features of the first end cap include one or more fingers, the one or more second features of the first end of the roller tube include one or more recesses, and the one or more fingers are configured and arranged to mate with the one or more recesses; or

the exterior surface of the first end cap extends from an inner end to an outer end; wherein the first end cap includes a plurality of flexible arms extending outward from the inner end of the exterior surface of the first end cap to the outer end of the exterior surface of the first end cap.

8. The system of claim 6, wherein the exterior surface of the first end cap extends from an inner end to an outer end;

wherein the first end cap includes a plurality of flexible arms extending outward from the inner end of the exterior surface of the first end cap to the outer end of the exterior surface of the first end cap; and

wherein the plurality of flexible arms are configured to flex inward toward an axis of rotation of the roller tube.

9. The system of claim 6, further comprising:

a first length adjustment member associated with the first end cap;

wherein the first length adjustment member is configured and arranged to facilitate adjustment of the position of the first end cap along an axis of rotation of the roller tube.

10. The system of claim 6, wherein the screen includes a second interlock at the second side of

the screen, the first interlock and the second interlock having a thickness larger than a thickness of the screen.

11. The system of claim 6, further comprising:

a first track assembly positioned adjacent the first side of the screen;

the first track assembly having a first elongate channel and a first screen receiver configured to receive the first interlock connected to the first side of the screen;

a first magnet associated with one of the first elongate channel and the first screen receiver of the first track assembly;

a first magnetic member associated with the other of the first elongate channel and the first screen receiver of the first track assembly; and

wherein a magnetic bond is formed between the first magnet and the first magnetic member of the first track assembly.

12. A retractable screen system, comprising:

a roller tube;

the roller tube extending a length from a first end to a second end;

a first axle operably connected to and extending outward from the first end to a first outward end;

the roller tube having an exterior surface;

a screen;

the screen extending a length between a first side and a second side;

the screen extending a height between an upper end and a lower end;

the screen having a first interlock connected to the first side;

the first interlock having a thickness that is greater than a thickness of the screen;

a first end cap operably connected adjacent the first end of the roller tube;

the first end cap having an exterior surface;

a first length adjustment member associated with the first end cap;

wherein the first length adjustment member is configured and arranged to facilitate an adjustment of a position of the first end cap along the first axle relative to the position of the first end of the roller tube and relative to the position of the first outward end of the first axle;

wherein when the roller tube is rotated in a first direction the screen is raised by wrapping the screen around the exterior surface of the roller tube;

wherein when the roller tube is rotated in a second direction, opposite the first direction, the screen is lowered by unwrapping the screen from around the exterior surface of the roller tube;

wherein when the first end cap is adjusted outward, away from the first end of the roller tube and toward the first outward end of the first axle, an effective rate at which the first side of the screen wraps around the exterior surface of the roller tube as the roller tube is rotated in the second direction is increased;

wherein when the first end cap is adjusted inward, toward the first end of the roller tube and away from the first outward end of the first axle, the effective rate at which the first side of the screen wraps around the exterior surface of the roller tube as the roller tube is rotated in the second direction is decreased.

13. The system of claim 12, wherein when the position of the first end cap is adjusted relative to the first end of the roller tube this affects where the first interlock wraps around the first end cap thereby affecting an effective rate at which the first interlock wraps around the first end cap; or

a larger diameter of the first end cap approximately matches a diameter of the exterior surface of the roller tube; or

the first end cap is connected to a collar that is connected to the roller tube; or

the position of the first end cap is adjustable along an axis of rotation; or

the first end cap includes a plurality of flexible arms extending outward from an inner end of the first end cap toward an outer end of the first end cap.

14. The system of claim 12, wherein the first end cap includes a plurality of flexible arms extending outward from an inner end of the first end cap to an outer end of the first end cap; and

wherein the plurality of flexible arms are configured to flex inward toward an axis of rotation of the roller tube.

15. The system of claim 12, further comprising:

a first track assembly positioned adjacent the first side of the screen;

the first track assembly having a first elongate channel and a first screen receiver configured to

receive the first interlock;

a first magnet associated with one of the first elongate channel and the first screen receiver of the first track assembly;

a first magnetic member associated with the other of the first elongate channel and the first screen receiver of the first track assembly; and

wherein a magnetic bond is formed between the first magnet and the first magnetic member of the first track assembly.

16. A retractable screen system, comprising:

a roller tube;

the roller tube positioned within a housing;

the housing having an elongated shape extending between a first side wall and a second side wall;

the roller tube extending a length from a first end to a second end;

a pair of connection members configured to operably connect the first end of the roller tube with the first side wall of the housing and connect the second end of the roller tube with the second side wall of the housing in a manner that permits the roller tube to rotate about an axis of rotation;

a screen;

the screen extending a length between a first side and a second side;

the screen extending a height between an upper end and a lower end;

the screen having a first interlock adjacent a first side of the screen;

the screen having a second interlock adjacent a second side of the screen;

the upper end of the screen operably connected to the roller tube;

a first end cap;

the first end cap having a curved exterior surface that extends from a larger diameter to a smaller diameter;

the first end cap positioned adjacent the first end of the roller tube;

a second end cap;

the second end cap having a curved exterior surface that extends from a larger diameter to a smaller diameter;

the second end cap positioned adjacent the second end of the roller tube;

wherein when the roller tube is rotated in a first direction the screen wraps around the roller tube;

wherein when the screen wraps around the roller tube the first interlock wraps around adjacent the first end cap;

wherein when the screen wraps around the roller tube the second interlock wraps around adjacent the second end cap;

wherein a position of the first end cap is adjustable relative to the first end of the roller tube and the first side wall of the housing so as to adjust where the first interlock engages the curved exterior surface of the first end cap, thereby adjusting an effective rate at which the first side of the screen wraps around an exterior surface of the roller tube as the roller tube is rotated in the first direction;

wherein the position of the second end cap is adjustable relative to the second end of the roller tube and the second side wall of the housing so as to adjust where the second interlock engages the curved exterior surface of the second end cap, thereby adjusting an effective rate at which the second side of the screen wraps around the exterior surface of the roller tube as the roller tube is rotated in the first direction;

wherein the first interlock includes a thicker outer portion and a thinner inner portion;

wherein the inner portion of the first interlock is connected to the first side of the screen;

wherein the first end cap is movable between a plurality of positions including an inner position, an outer position, and an intermediate position;

wherein when the first end cap is in the inner position, the screen engages and rolls up on the first end cap and neither the inner portion of the first interlock nor the outer portion of the first interlock engage the first end cap as the screen wraps around the roller tube, thereby causing the first end of the screen to wrap around the roller tube at a first rate as the roller tube is rotated;

wherein when the first end cap is in the intermediate position, the inner portion of the first interlock engages and rolls up on the first end cap and the outer portion of the first interlock does not engage the first end cap as the screen wraps around the roller tube, thereby causing the first end of the screen to wrap around the roller tube at a second rate as the roller tube is rotated;

wherein when the first end cap is in the outer position, the outer portion of the first interlock engages and rolls up on the first end cap as the screen wraps around the roller tube,

thereby causing the first end of the screen to wrap around the roller tube at a third rate as the roller tube is rotated;

wherein the first rate is smaller than the second rate and the second rate is smaller than the third rate.

17. The system of claim 16, further comprising:

a first magnetic track assembly;

the first magnetic track assembly positioned adjacent the first end of the roller tube;

wherein the first interlock of the screen is received within an opening in the first magnetic track assembly; or

the larger diameter of the first end cap approximately matches a diameter of the roller tube; or

the first end cap is connected to a collar that connects to the roller tube; or

the position of the first end cap is adjustable towards and away from the first end of the roller tube; or

the position of the first end cap is adjustable along the axis of rotation of the roller tube; or

the position of the first end cap is adjustable along a length of an axle that extends outward from the first end of the roller tube; or

the first end cap includes a plurality of flexible arms that extend outward from an inner end to an outer end; or

when the first end cap is adjusted outward, away from the first end of the roller tube, an effective rate at which the first interlock wraps around the first end cap is increased; or

when the first end cap is adjusted inward, toward the first end of the roller tube, an effective rate at which the first interlock wraps around the first end cap is decreased.

18. A retractable screen system, comprising:

a roller tube;

the roller tube extending a length from a first end to a second end;

a screen;

the screen extending a length between a first side and a second side;

the screen extending a height between an upper end and a lower end;

the upper end of the screen operably connected to the roller tube;

a first end cap;

the first end cap having a curved exterior surface;

the first end cap positioned adjacent the first end of the roller tube;

a second end cap;

the second end cap having a curved exterior surface;

the second end cap positioned adjacent the second end of the roller tube;

wherein when the roller tube is rotated the screen wraps around the roller tube, the first side of the screen wraps around adjacent the first end cap and the second side of the screen wraps around adjacent the second end cap;

wherein the first end cap is adjustable in position between the first end of the roller tube and a first bracket so as to adjust where the first side of the screen engages the curved exterior surface of the first end cap, thereby adjusting an effective rate at which the first side of the screen wraps around an exterior surface of the roller tube as the roller tube is rotated in a first direction;

wherein the second end cap is adjustable in position between the second end of the roller tube and a second bracket so as to adjust where the second side of the screen engages the curved exterior surface of the second end cap, thereby adjusting an effective rate at which the second side of the screen wraps around the exterior surface of the roller tube as the roller tube is rotated in the first direction.

19. A motorized screen system, comprising:

a roller tube;

the roller tube having an elongated generally cylindrical shape;

the roller tube extending a length between a first end and a second end;

a first axle positioned adjacent the first end of the roller tube;

a second axle positioned adjacent the second end of the roller tube;

a first end cap assembly;

the first end cap assembly positioned adjacent the first end of the roller tube;

the first end cap assembly positioned over the first axle;

wherein the first end cap assembly is adjustably positionable relative to the first end of the roller tube along a length of the first axle;

wherein the first end cap assembly includes a cylindrical portion positioned toward the first end of the roller tube and wherein the first end cap assembly includes a first curved portion positioned away from the first end of the roller tube;

wherein the first curved portion curves from a larger diameter at an inner end of the first curved portion to a smaller diameter at an outer end of the first curved portion;

a second end cap assembly;

the second end cap assembly positioned adjacent the second end of the roller tube;

the second end cap assembly positioned over the second axle;

wherein the second end cap assembly is adjustably positionable relative to the second end of the roller tube along a length of the second axle;

wherein the second end cap assembly includes a cylindrical portion positioned toward the second end of the roller tube and wherein the second end cap assembly includes a second curved portion positioned away from the second end of the roller tube;

wherein the second curved portion curves from a larger diameter at an inner end of the second curved portion to a smaller diameter at an outer end of the second curved portion;

wherein the first end cap assembly is adjusted by sliding the first end cap assembly along the first axle and securing the first end cap assembly to the first axle;

wherein the second end cap assembly is adjusted by sliding the second end cap assembly along the second axle and securing the second end cap assembly to the second axle;

wherein the first end cap assembly is configured to permit an installer to adjust a first rate that a first side of a screen wraps around an exterior surface of the roller tube when the roller tube is rotated in a first direction;

wherein the second end cap assembly is configured to permit an installer to adjust a second rate that a second side of the screen wraps around the exterior surface of the roller tube when the roller tube is rotated in the first direction;

wherein the first end cap assembly and second end cap assembly are configurable to set the first rate independent of the second rate;

wherein the cylindrical portion of the first end cap assembly and the cylindrical portion of the second end cap assembly are non-adjustable in diameter.

20. The system of claim 19, wherein the fixed diameter of the cylindrical portion is equal to a diameter of the roller tube.