CLAIMS

What is claimed is:

1. A gap blocker for a roller conveyor having rollers for conveying an object in a downstream longitudinal direction, the rollers including a pair of adjacent rollers having a longitudinally extending gap therebetween and at least one of the adjacent rollers having an annular groove for receiving a drive member, the gap blocker comprising:

a body configured to be supported in the gap by the adjacent rollers;

an upper blocking portion of the body to extend across the gap, wherein the upper blocking portion includes a recess to be positioned below an upper run of the drive member and raised portions extending along either side of the recess; and

a locating member of the body configured to extend into the annular groove and inhibit lateral movement of the body in the gap.

2. The gap blocker of claim 1 wherein the body includes a resilient portion connecting the upper blocking portion and the locating member, the resilient portion of the body permitting the locating member to resiliently shift relative to the upper blocking portion for positioning the body in the gap.

3. The gap blocker of claim 1 wherein the locating member is below the upper blocking portion with the body supported in the gap by the adjacent rollers.

4. The gap blocker of claim 1 wherein the upper blocking portion includes upstream and downstream upper contact portions for slidingly contacting corresponding ones of the adjacent rollers above a narrowest portion of the gap between the adjacent rollers;

wherein the body includes a lower portion configured to slidingly contact at least one of the adjacent rollers below the narrowest portion of the gap during roller conveyor operation; and

wherein the locating member includes a protrusion vertically intermediate the upper blocking portion and the lower portion that extends into the annular groove of the at least one roller.

5. The gap blocker of claim 1 wherein the locating member includes a protrusion to extend into the annular groove of the at least one roller, the protrusion having a thickness in a lateral direction that is less than a maximum lateral width of the annular groove.

6. The gap blocker of claim 1 wherein the locating member includes a pair of protrusions configured to contact opposite sides of the annular groove.

7. The gap blocker of claim 1 wherein the locating member includes a pair of laterally spaced wall portions configured to contact opposite sides of the annular groove.

8. The gap blocker of claim 1 wherein the locating member includes a pair of surface portions to engage side surface portions of the annular groove and a recess laterally intermediate the surface portions of the locating member.

9. The gap blocker of claim 1 wherein the locating member includes a convex surface portion configured to engage a concave surface portion of the annular groove.

10. The gap blocker of claim 1 wherein the locating member includes a generally arcuate edge configured to extend into the annular groove.

11. The gap blocker of claim 1 wherein the body includes a resilient leg portion extending downwardly; and

wherein the resilient leg portion includes the locating member.

12. The gap blocker of claim 11 wherein the locating member comprises a free end portion of the resilient leg portion.

13. The gap blocker of claim 11 wherein the resilient leg portion includes a slotted through opening defining a periphery of the locating member, the locating member

including a base portion and a free end portion, the free end portion having a protrusion to extend into the annular groove.

14. The gap blocker of claim 1 wherein the upper blocking portion includes upstream and downstream contact portions for slidingly contacting corresponding ones of the adjacent rollers; and

wherein the body includes lower leg portions spaced longitudinally from one another.

15. The gap blocker of claim 1 wherein the locating member includes an upper locating member configured to extend in the groove above a narrowest portion of the gap between the adjacent rollers and a lower locating member configured to extend in the groove below the narrowest portion of the gap with the body supported in the gap by the adjacent rollers.

16. The gap blocker of claim 1 wherein the locating member includes a first locating member configured to extend into the annular groove of one of the adjacent rollers and a second locating member configured to extend into the annular groove of another one of the adjacent rollers.

17. A drive member protector for a roller conveyor having rollers, a gap between a pair of adjacent rollers, and a drive member for rotating the adjacent rollers, the drive member protector comprising:

a body configured for being positioned in the gap;

an upper portion of the body having a recess to be positioned below an upper run of the drive member; and

raised portions of the upper portion extending along either side of the recess to inhibit ingress of an object between the drive member and the upper portion of the body.

18. The drive member protector of claim 17 wherein the upper portion of the body includes a channel comprising the recess, the raised portions, and a bottom surface extending between the raised portions.

19. The drive member protector of claim 17 wherein the raised portions include flat uppermost surfaces.

20. The drive member protector of claim 19 wherein the raised portions have side surface portions on either side of the recess and upper, corner junctures between the side surfaces portions and the flat uppermost surfaces.

21. The drive member protector of claim 17 wherein the recess has a length for extending between the rollers orthogonal to axes of rotation of the rollers and a width perpendicular to the length that is shorter than the length of the recess.

22. The drive member protector of claim 17 wherein the recess has a width in a lateral direction for extending along axes of rotation of the adjacent rollers that is larger than a diameter of the drive member; and

wherein the raised portions each have a raised portion width in the lateral direction that is the same or greater than the diameter of the drive member.

23. The drive member protector of claim 17 wherein the raised portions each have a raised portion width in a lateral direction for extending along axes of rotation of the adjacent rollers; and

wherein the recess has a recess width in the lateral direction that is greater than a sum of the raised portion widths.

24. The drive member protector of claim 17 wherein the body includes a protrusion configured to extend into a drive member-receiving groove of one of the adjacent rollers and maintain the body at a predetermined location along the rollers.

25. The drive member protector of claim 17 wherein the body includes a pair of lower protector members configured to extend along either side of a lower run of the drive member with the body positioned in the gap.

26. The drive member protector of claim 17 wherein the body includes an upstream leg portion configured to extend along one of the rollers and a downstream leg portion spaced from the upstream leg portion configured to extend along the other roller.

27. A roller conveyor system comprising:

an upstream roller having an upstream groove and a downstream roller having a downstream groove, the upstream and downstream rollers rotatable to convey an object in a downstream longitudinal direction;

a gap between the upstream and downstream rollers;

a drive member engaged in the upstream and downstream grooves of the upstream and downstream rollers and having an upper run that travels in the downstream longitudinal direction and a lower run that travels in an upstream longitudinal direction;

a gap blocker supported by the upstream and downstream rollers in the gap, wherein the gap blocker includes an upper blocking portion extending longitudinally across the gap, the upper blocking portion having a recess below the upper run of the drive member and raised portions extending along either side of the recess; and

engaging portions of the gap blocker and at least one of the upstream and downstream grooves that resist lateral movement of the gap blocker along the upstream and downstream rollers.

28. The roller conveyor system of claim 27 wherein the engaging portions include surfaces of the gap blocker and the at least one of the upstream and downstream grooves that overlap in a lateral direction.

29. The roller conveyor system of claim 27 wherein the engaging portions of the gap blocker and the at least one of the upstream and downstream grooves includes engaging portions of the gap blocker and both of the upstream and downstream grooves.

30. The roller conveyor system of claim 27 wherein the engaging portions include a protrusion of the gap blocker extending into the at least one of the upstream and downstream grooves.

31. A roller conveyor system comprising:

an upstream roller having an upstream groove and a downstream roller having a downstream groove, the upstream and downstream rollers rotatable to convey an object in a downstream longitudinal direction;

a gap between the upstream and downstream rollers;

a drive member engaged in the upstream and downstream grooves of the upstream and downstream rollers and having an upper run that travels in the downstream longitudinal direction and a lower run that travels in an upstream longitudinal direction, wherein the drive member is a drive band and the upper run of the drive band travels from the upstream groove of the upstream roller to the downstream groove of the downstream roller;

a gap blocker supported by the upstream and downstream rollers in the gap, wherein the gap blocker includes a channel below the upper run; and

engaging portions of the gap blocker and at least one of the upstream and downstream grooves that resist lateral movement of the gap blocker along the upstream and downstream rollers.

32. A roller conveyor system comprising:

an upstream roller having an upstream groove and a downstream roller having a downstream groove, the upstream and downstream rollers rotatable to convey an object in a downstream longitudinal direction;

a gap between the upstream and downstream rollers;

a drive member engaged in the upstream and downstream grooves of the upstream and downstream rollers and having an upper run that travels in the downstream longitudinal direction and a lower run that travels in an upstream longitudinal direction;

a gap blocker supported by the upstream and downstream rollers in the gap, wherein the gap blocker includes a channel below the upper run of the drive member; and

engaging portions of the gap blocker and at least one of the upstream and downstream grooves that resist lateral movement of the gap blocker along the upstream and downstream rollers, wherein the engaging portions of the gap blocker and the at least one of the upstream and downstream grooves maintain the gap blocker in a predetermined

lateral location along the rollers so that the channel remains below the upper run of the drive member.

33. A roller conveyor system comprising:

an upstream roller having an upstream groove and a downstream roller having a downstream groove, the upstream and downstream rollers rotatable to convey an object in a downstream longitudinal direction;

a gap between the upstream and downstream rollers;

a drive member engaged in the upstream and downstream grooves of the upstream and downstream rollers and having an upper run that travels in the downstream longitudinal direction and a lower run that travels in an upstream longitudinal direction;

a gap blocker supported by the upstream and downstream rollers in the gap, wherein the gap blocker comprises:

raised portions extending along either side of the upper run of the drive member having upper surfaces;

a clearance surface below the upper run of the drive member;

corner junctures between upper surfaces of the raised portions and the clearance surface; and

the raised portions are sized to keep a size of a space between the corner junctures and the upper run of the drive member to a minimum to keep objects from fitting into the space, and

engaging portions of the gap blocker and at least one of the upstream and downstream grooves that resist lateral movement of the gap blocker along the upstream and downstream rollers.

34. A roller conveyor system comprising:

an upstream roller having an upstream groove and a downstream roller having a downstream groove, the upstream and downstream rollers rotatable to convey an object in a downstream longitudinal direction, wherein the upstream groove includes a pair of upstream grooves, the downstream groove includes a pair of downstream grooves;

a gap between the upstream and downstream rollers;

a drive member engaged in the upstream and downstream grooves of the upstream and downstream rollers and having an upper run that travels in the downstream longitudinal direction and a lower run that travels in an upstream longitudinal direction, and the drive member includes a pair of drive members each having an upper run;

a gap blocker supported by the upstream and downstream rollers in the gap, wherein the gap blocker includes a channel below the upper runs of the drive members and raised portions extending along opposite sides of the channel; and

engaging portions of the gap blocker and at least one of the upstream and downstream grooves that resist lateral movement of the gap blocker along the upstream and downstream rollers.

35. The roller conveyor system of claim 27 wherein the drive member comprises an o-ring of resilient material.

36. The roller conveyor system of claim 27 wherein the drive member comprises a drive band.

37. The roller conveyor system of claim 27 wherein the upstream and downstream rollers are rotatable around respective axes that remain stationary while the upstream and downstream rollers rotate to convey an object.

38. The roller conveyor system of claim 27 wherein the upstream and downstream rollers are rotatably mounted to a stationary conveyor frame such that the upstream and downstream rollers are rotatable to convey an object while the conveyor frame remains stationary.