detaching thin, flexible glass from a carrier substrate, that reduce the potential for damaging the flexible glass or carrier substrate.

SUMMARY

[0006] The following presents a simplified summary of the disclosure in order to provide a basic understanding of some example aspects described in the detailed description.

[0007] In a first aspect of the disclosure, a peeling apparatus for peeling a first substrate from a second substrate comprises a peeling member configured to rotate about a support axis. The peeling member comprises an attachment member including an arcuate surface and configured to releasably mount the first substrate with respect to the arcuate surface. The peeling apparatus further includes a translation mechanism configured to translate the support axis relative to the second substrate in a direction transverse to a major surface of the second substrate to move the peeling member away from the second substrate while the peeling member rotates about the support axis.

[0008] In one example the first aspect, the translation mechanism is configured to lift a weight of the peeling member to move the peeling member away from the second substrate.

[0009] In another example the first aspect, the peeling member is configured to rotate freely about the support axis while the translation mechanism translates the support axis.

[0010] In still another example the first aspect, the arcuate surface comprises a radius of curvature that varies along an outer radial profile of the arcuate surface.

[0011] In yet another example the first aspect, the attachment member comprises one or more vacuum ports.

[0012] In a further example the first aspect, the attachment member comprises a raised surface portion that extends from the arcuate surface, and the raised surface portion comprises a raised surface including a curvature that substantially matches a curvature of the arcuate surface.

[0013] In still a further example the first aspect, the attachment member further includes a sealing member that circumscribes a surface portion of the attachment member.

[0014] In yet a further example the first aspect, the peeling apparatus further comprises a support platform configured to support the second substrate. In one example, the support platform may comprise an attachment portion configured to releasably mount the

second substrate to the support platform. In another example, the peeling apparatus may

comprise a locking device configured to releasably lock a movement of the support platform. In still another example, the support platform may be configured to translate while the peeling member rotates about the support axis.

[0015] The first aspect may be carried out alone or with one or any combination of the examples of the first aspect discussed above.

[0016] In a second aspect of the disclosure, a method for peeling a first substrate from a second substrate comprises the step (I) of releasably mounting the first substrate with respect to an arcuate surface of a peeling member. The method further includes the step (II) of releasably mounting the second substrate relative to a support location. The method further includes the step (III) of translating a support axis of the peeling member relative to the second substrate in a direction transverse to a major surface of the second substrate to move the peeling member away from the second substrate while the peeling member rotates about the support axis, wherein the first substrate peels from the second substrate as the peeling member rotates about the support axis.

[0017] In one example the second aspect, step (III) comprises lifting a weight of the peeling member to move the peeling member away from the second substrate.

[0018] In another example the second aspect, step (I) further comprises the step of positioning the peeling member to produce a moment about the axis during step (III). In one example, the moment of step (III) drives the rotation of the peeling member about the support axis during step (III). In another example, the moment is produced by a weight of the peeling member.

[0019] In still another example the second aspect, step (II) includes releasably mounting the second substrate relative to a support platform comprising the support location, and step (III) further includes translating the support platform as the peeling member rotates about the support axis.

[0020] In yet another example the second aspect, step (II) includes releasably mounting the second substrate relative to a support platform comprising the support location, and step (III) further includes unlocking the support platform to move while the peeling member rotates about the support axis.

[0021] In a further example the second aspect, step (I) includes applying a vacuum.

CLAIMS

1. A peeling apparatus for peeling a first substrate from a second substrate comprising:

a peeling member configured to rotate about a support axis, wherein the peeling member comprises an attachment member including an arcuate surface and configured to releasably mount the first substrate with respect to the arcuate surface; and

a translation mechanism configured to translate the support axis relative to the second substrate in a direction transverse to a major surface of the second substrate to move the peeling member away from the second substrate while the peeling member rotates about the support axis.

2. The peeling apparatus of claim 1, wherein the translation mechanism is configured to lift a weight of the peeling member in the direction transverse to the major surface of the second substrate to move the peeling member away from the second substrate.

3. The peeling apparatus of claim 1 or claim 2, wherein the peeling member is configured to rotate freely about the support axis while the translation mechanism translates the support axis in the direction transverse to the major surface of the second substrate.

4. The peeling apparatus of any one of claims 1-3, wherein the arcuate surface comprises a radius of curvature that varies along an outer radial profile of the arcuate surface.

5. The peeling apparatus of any one of claims 1-4, wherein the attachment member comprises one or more vacuum ports.

6. A method for peeling a first substrate from a second substrate comprising the steps of:

(I) releasably mounting the first substrate with respect to an arcuate surface of a peeling member;

(II) releasably mounting the second substrate relative to a support location; and

(III) translating a support axis of the peeling member relative to the second substrate in the direction transverse to the major surface of the second substrate to move the peeling

member away from the second substrate while the peeling member rotates about the support axis, wherein the first substrate peels from the second substrate as the peeling member rotates about the support axis.

7. The method of claim 6, wherein step (III) comprises lifting a weight of the peeling member in the direction transverse to the major surface of the second substrate to move the peeling member away from the second substrate.

8. The method of claim 6 or claim 7, wherein step (I) further comprises the step of positioning the peeling member to produce a moment about the support axis.

9. The method of claim 8, wherein the moment of step (I) drives the rotation of the peeling member about the support axis during step (III).

10. The method of any one of claims 6-9, wherein step (II) includes releasably mounting the second substrate relative to a support platform comprising the support location, and step (III) further includes translating the support platform as the peeling member rotates about the support axis.