MEDICAL SPECULUM

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims priority to U.S. Patent Application Numbers 63/497,172, filed April 19, 2023, entitled "MEDICAL SPECULUM", and 63/581,468, filed September 8, 2023, entitled "MEDICAL SPECULUM", the disclosure of which is incorporated herein by reference in its entirety.

TECHNICAL FIELD

[0002] The subject matter described herein relates generally to a medical speculum.

BACKGROUND

[0003] A medical speculum is a medical tool used to provide visualization into a body cavity. Speculums or specula are traditionally used for viewing the vaginal cavity for gynecology patients. The traditional vaginal speculum consists of two bills with a hinge and a handle. The bills are inserted into the body cavity in a closed position and separated by squeezing two pieces of the handle together, thereby dilating the vagina and providing visualization and accessibility of the vagina, the cervix, and surrounding areas. Once opened, the speculum can be locked in an open position using a screw based mechanism so an operator (e.g., physician, nurse, mid-wife, etc.) does not need to continue squeezing the pieces of the handle during the inspection. The operator can then proceed with inspecting the vagina, conducting a Pap smear or any other medical procedures that may need to be provided.

SUMMARY

[0004] Systems, methods, and articles of manufacture, are provided for a vaginal speculum.

[0005] According to an aspect, a speculum has a reduced number of components. The speculum includes: a first unitary body, a second unitary body, a handle cover, and a latch

body. The first unitary body includes a lower bill and a forward handle portion extending from the lower bill. The forward handle portion and the lower bill are integrally formed. The second unitary body may be rotatably coupled to the first unitary body. The second unitary body includes: an upper bill, an actuator, and a locking lever including a plurality of teeth. The upper bill, the actuator, and the locking lever are integrally formed. The handle cover defines a rearward handle portion coupled to the forward handle portion. The rearward handle portion and the forward handle portion define a handle of the speculum. The rearward handle portion and the forward handle portion enclose an interior volume of the handle. The latch body includes a locking receiver configured to engage the plurality of teeth of the locking lever and a locking member. The actuator and the locking member are configured to be manipulated to change a position of the upper bill relative to the lower bill.

[0006] In an embodiment, the locking lever extends through an opening of the handle cover.

[0007] In an embodiment, the locking lever is curved.

[0008] In an embodiment, the second unitary body further includes a window configured to allow a user to view an interior of a cervix of a patient in use. The locking lever extends from a lower portion of the window.

[0009] In an embodiment, the speculum further includes a lighting module configured to illuminate a region between the upper bill and the lower bill.

[0010] In an embodiment, the upper bill includes a track configured to receive at least a portion of the lighting module. The track is positioned on an interior surface of the upper bill. The interior surface is configured to face the lower bill.

[0011] In an embodiment, the speculum includes at least one secondary bill configured to rotate in a lateral direction.

[0012] In an embodiment, the at least one secondary bill is positioned between the upper bill and the lower bill.

[0013] In an embodiment, the at least one secondary bill includes a keyed bill feature configured to be inserted into a corresponding keyed receiver of the first unitary body when the keyed bill feature and the keyed receiver are aligned.

[0014] In an embodiment, the keyed bill feature extends at an angle longitudinally and laterally towards the keyed receiver.

[0015] In an embodiment, the keyed bill feature is configured to be coupled with the keyed receiver via a snap-fit arrangement.

[0016] In an embodiment, the forward handle portion includes an opening through which the locking member is accessible.

[0017] In an embodiment, the locking receiver includes an opening through which at least a portion of the locking lever passes.

[0018] an embodiment, the locking receiver includes a latch bar defining at least a portion of the opening. The latch bar is configured to engage at least one of the plurality of teeth of the locking lever to set a position of the upper bill relative to the lower bill.

[0019] In an embodiment, the latch body includes a post receiver configured to receive and engage with a post extending from an inner surface of the forward handle portion. Engagement between the post receiver and the post is configured to lock the position of the upper bill relative to the lower bill.

[0020] In some aspects, the post receiver includes a first prong including a first recess and a second prong including a second recess and spaced apart from the first prong. The first recess and the second recess together form at least a portion of an engagement region. The speculum is in a locked position when the post is positioned within the engagement region.

[0021] In an embodiment, the post receiver further includes a post passage extending from the post receiver. The post is configured to slide within the post passage when the speculum is in an unlocked position.

[0022] In an embodiment, the post receiver extends from the lock.

[0023] In an embodiment, the latch body further includes a biasing member receiver positioned on a rearward portion of the latch body. The biasing member receiver is configured to receive at least a portion of a biasing member such that the biasing member is configured to bias the locking member in a locked position.

[0024] Disclosed herein is a method of setting a position of the speculum includes pressing the actuator towards the handle and sliding the locking member away from the lower bill. The sliding causes a post passage of the latch body to slide around a post of the first unitary body to slide.

[0025] In an embodiment, the method includes sliding the locking member towards from the lower bill, locking the position of the upper bill relative to the lower bill.

[0026] Disclosed herein is a method of assembling a speculum includes providing a first unitary body including: a lower bill and a forward handle portion extending from the lower bill. The forward handle portion and the lower bill are integrally formed. The method also includes coupling at least one lateral bill to the first unitary body. The method also

includes coupling a latch body to the first unitary body by at least positioning a lock portion within an opening of the forward handle portion. The latch body further includes: a locking receiver. The method includes coupling a second unitary body to the first unitary body by at least engaging a locking lever of the second unitary body with the locking receiver. The second unitary body includes: an upper bill, an actuator, and the locking lever including a plurality of locking teeth. The upper bill, the actuator, and the locking lever are integrally formed. The method includes coupling a handle cover defining a rearward handle portion to the forward handle portion to define a handle of the speculum and enclose at least a portion of the latch body within an interior volume of the handle.

[0027] In an embodiment, the at least one lateral bill is coupled to the first unitary body via a first toolless attachment. The latch body is coupled to the first unitary body via a second toolless attachment. The second unitary body is coupled to the first unitary body via a third toolless attachment. The handle cover is coupled to the forward handle portion via a fourth toolless attachment.

[0028] In an embodiment, the first toolless attachment, the second toolless attachment, the third toolless attachment and/or the fourth toolless attachment includes a snap-fit arrangement.

[0029] In an embodiment, the at least one lateral bill includes a keyed bill feature. The first unitary body includes a keyed receiver. The coupling the at least one lateral bill to the first unitary body includes: aligning the keyed bill feature and the keyed receiver and inserting the keyed bill feature into the keyed receiver.

[0030] In an embodiment, the upper bill includes a track positioned on an interior surface of the upper bill. The method further includes coupling a lighting module to the upper bill by at least positioning at least a portion of the lighting module within the track.

[0031] Disclosed herein is a kit including a medical speculum as described herein is provided. In embodiments, the kit includes a sleeve accessory. In embodiments, the sleeve accessory is configured to be positioned on an insertion portion of the speculum, wherein the insertion portion includes the upper bill and the lower bill. In embodiments, the sleeve accessory is disposable.

[0032] In an embodiment, the sleeve accessory includes a sleeve body defining a lumen that extends from a proximal end to a distal end of the sleeve body, the sleeve body including: a flared portion extending radially outwardly towards the proximal end of the

sleeve body; and an elongated portion extending from the flared portion towards the distal end of the sleeve body.

[0033] In an embodiment, the kit includes an applicator having a flat, oblong shape with a distal end and a proximal end, the proximal end being broader than the distal end; wherein the distal end comprises a first prong and a second prong; and wherein the applicator is configured to slide, by the distal end of the applicator, at least partially into the lumen of the sleeve accessory to facilitate positioning of the sleeve accessory on the insertion portion of the medical speculum.

[0034] In an embodiment, the sleeve accessory includes a cylindrical sleeve body comprising an outer surface and an inner surface, the inner surface defining a hollow sleeve channel, and at least one open end; wherein the cylindrical sleeve body is configured to be inserted into a vaginal cavity of a patient; and wherein the sleeve body is configured to receive the insertion portion of the speculum in the hollow sleeve channel subsequent to being inserted into the vaginal cavity. In embodiments, the kit includes an applicator configured to carry the sleeve body and facilitate insertion of the sleeve body into the vaginal cavity.

[0035] In an embodiment, the sleeve accessory includes a cylindrical sleeve body having a distal end and a proximal end and including an outer surface, an inner surface, the inner surface defining a hollow sleeve channel, and at least one open end. In embodiments, at least a portion of the proximal end of the sleeve body is configured to extend over at least a portion of a proximal end of the insertion portion of the speculum.

[0036] In an embodiment, the sleeve body is configured to receive the upper bill and the lower bill in the hollow sleeve channel configured for visibility and access to a vaginal cavity of a patient by a clinician and wherein the sleeve body is configured to expand from a first state to a second state. In embodiments, when the sleeve body is in the first state the proximal end of the sleeve body comprises a gradual broadening of the sleeve body, the gradual broadening of the sleeve body extending beyond the insertion portion of the medical speculum, the gradual broadening of the sleeve body integrally formed with the sleeve body.

[0037] In an embodiment, the kit includes a plurality of speculums. In embodiments, the kit includes 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 18, 20, 24, or more speculums. In embodiments, the kit includes a plurality of sleeve accessories. In embodiments, the kit includes 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 18, 20, 24, or more sleeve accessories. In

embodiments, the kit includes a plurality of applicators. In embodiments, the kit includes 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 18, 20, 24, or more applicators.

[0038] Disclosed herein are methods of using a speculum as described herein are provided. In an embodiment, the method includes performing a medical procedure on a female, comprising providing a speculum according to any of the embodiments described herein; inserting the speculum into the vagina of a female patient; and performing the medical procedure. In an embodiment, the method includes setting a position of the speculum.

[0039] The details of one or more variations of the subject matter described herein are set forth in the accompanying drawings and the description below. Other features and advantages of the subject matter described herein will be apparent from the description and drawings, and from the claims. While certain features of the currently disclosed subject matter are described for illustrative purposes, it should be readily understood that such features are not intended to be limiting. The claims that follow this disclosure are intended to define the scope of the protected subject matter.

DESCRIPTION OF DRAWINGS

[0040] The accompanying drawings, which are incorporated in and constitute a part of this specification, show certain aspects of the subject matter disclosed herein and, together with the description, help explain some of the principles associated with the disclosed implementations. In the drawings,

[0041] FIG. 1 depicts a rear perspective view of an example medical speculum, consistent with implementations of the current subject matter;

[0042] FIG. 2 depicts a front perspective view of an example medical speculum, consistent with implementations of the current subject matter;

[0043] FIG. 3 depicts a side view of an example medical speculum, consistent with implementations of the current subject matter;

[0044] FIG. 4A depicts a front view of an example medical speculum, consistent with implementations of the current subject matter;

[0045] FIG. 4B depicts a rear view of an example medical speculum, consistent with implementations of the current subject matter;

[0046] FIG. 5 depicts a top view of an example medical speculum, consistent with implementations of the current subject matter;