



US00D877894S

(12) **United States Design Patent** (10) **Patent No.:** **US D877,894 S**
Ho (45) **Date of Patent:** **** Mar. 10, 2020**

(54) **DETACHABLE PLUNGER SYRINGE**
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(72) Inventor: **Stephen S Ho**, Houston, TX (US)
(**) Term: **15 Years**
(21) Appl. No.: **29/681,032**
(22) Filed: **Feb. 21, 2019**
(51) **LOC (12) Cl.** **24-02**
(52) **U.S. Cl.**
USPC **D24/112**
(58) **Field of Classification Search**
USPC D24/112-114, 108, 130, 127, 133, 186;
606/181, 185; 604/264, 523-528, 272,
604/164.01-164.11, 187, 93.01; 600/101,
600/139, 143; 128/200.24, 207.14,
128/207.15
CPC .. A61M 25/065; A61M 5/42; A61M 25/0612;
A61M 25/00; A61M 39/00; A61M 27/00;
A61M 25/0043; A61M 25/0067; A61M
25/0097; A61F 2/958
See application file for complete search history.

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Primary Examiner — David G Muller

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(57) **CLAIM**

The ornamental design for a detachable plunger syringe, as shown and described.

DESCRIPTION

FIG. 1 illustrates a perspective view of a detachable plunger syringe.
FIG. 2 illustrates a partially exploded perspective view of the detachable plunger syringe.
FIG. 3 illustrates an exploded perspective view of the detachable plunger syringe.
FIG. 4 illustrates a front view of the detachable plunger syringe. The rear view is a mirror image.
FIG. 5 illustrates a right side view of the detachable plunger syringe. The left side image is a mirror image.
FIG. 6 illustrates a top view of the detachable plunger syringe.
FIG. 7 illustrates a bottom view of the detachable plunger syringe.
FIG. 8 illustrates a front view of the reservoir barrel of the detachable plunger syringe. The rear view of the reservoir barrel is a mirror image.
FIG. 9 illustrates a right side view of the reservoir barrel of the detachable plunger syringe. The left side view of the reservoir barrel is a mirror image.
FIG. 10 illustrates a bottom (nipple end) view of the reservoir barrel of the detachable plunger syringe.
FIG. 11 illustrates top (plunger entry side) view of the reservoir barrel of the detachable plunger syringe.

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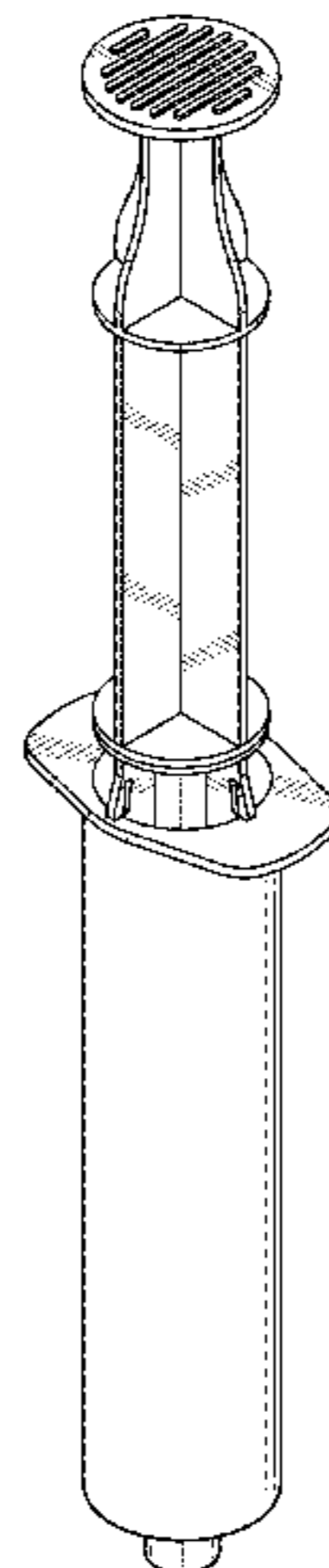


FIG. 12 illustrates a front view of a plunger of the detachable plunger syringe. The rear view is a mirror image of the front view of the plunger of the detachable plunger syringe.

FIG. 13 illustrates a right side view of the plunger of the detachable plunger syringe. The left side view is a mirror image of the front view of the plunger of the detachable plunger syringe.

FIG. 14 illustrates a top view of the plunger of the detachable plunger syringe.

FIG. 15 illustrates a bottom view of the plunger of the detachable plunger syringe.

FIG. 16 illustrates a front view of a fitting of the detachable plunger syringe. The rear view, left side views, and right side views are mirror images of the front view of the fitting of the detachable plunger syringe. FIG. 16 also illustrates four clips used to temporarily immobilize the fitting during cell collection.

FIG. 17 illustrates a bottom view of the fitting of the detachable plunger syringe. FIG. 17 also illustrates the four clips used to temporarily immobilize the fitting during cell collection.

FIG. 18 illustrates a top view of the fitting of the detachable plunger syringe. FIG. 18 also illustrates the four clips used to temporarily immobilize the fitting during cell collection.

FIG. 19 illustrates a front view of a seal of the detachable plunger syringe. The rear view, the left side view, and the right side views are each a mirror image of the front view of the detachable plunger syringe.

FIG. 20 illustrates a bottom view of the seal of the detachable plunger syringe.

FIG. 21 illustrates a top view of the seal of the detachable plunger syringe.

FIG. 22 illustrates a perspective view of a first alternative embodiment of the detachable plunger syringe.

FIG. 23 illustrates a partially exploded perspective view of the first alternative embodiment of the detachable plunger syringe.

FIG. 24 illustrates an exploded perspective view of the first alternative embodiment of the detachable plunger syringe.

FIG. 25 illustrates a front view of the first alternative embodiment of the detachable plunger syringe. The rear view is a mirror image

FIG. 26 illustrates a right side view of the first alternative embodiment of the detachable plunger syringe. The left side image is a mirror image.

The top view and the bottom view of the first alternative embodiment of the detachable plunger syringe are the same as the top and bottom views of the detachable plunger syringe illustrated in FIGS. 6 and 7, respectively.

The front view, rear view, right side view, left side view, top view, and bottom view of the reservoir barrel of the first alternative embodiment of the detachable syringe are the same as the corresponding views of the reservoir of the detachable plunger syringe illustrated in FIGS. 8, 9, 10, and 11.

FIG. 27 illustrates a front view of a fitting of the first alternative embodiment of the detachable plunger syringe. FIG. 27 also illustrates two clips used to temporarily immobilize the fitting during cell collection.

FIG. 28 illustrates a right side view of the fitting of the first alternative embodiment of the detachable plunger syringe. The left side view is a mirror image.

FIG. 29 illustrates a bottom view of the fitting of the first alternative embodiment of the detachable plunger syringe.

FIG. 29 also illustrates the two clips used to temporarily immobilize the fitting during cell collection.

FIG. 30 illustrates a top view of the fitting of the first alternative embodiment of the detachable plunger syringe. FIG. 30 also illustrates the two clips used to temporarily immobilize the fitting during cell collection.

The front view, rear view, right side view, left side view, top view, and bottom view of the seal of the first alternative embodiment of the detachable plunger syringe are the same as the corresponding views illustrated in FIGS. 19, 20 and 21 of the seal of the detachable plunger syringe.

The front view, rear view, right side view, left side view, top view, and bottom view of the plunger of the first alternative embodiment of the detachable plunger syringe are the same as the corresponding views illustrated in FIGS. 12, 13, 14, and 15 of the detachable plunger syringe.

FIG. 31 illustrates a perspective view of a second alternative embodiment of the detachable plunger syringe.

FIG. 32 illustrates a partially exploded perspective view of the second alternative embodiment of the detachable plunger syringe.

FIG. 33 illustrates an exploded perspective view of the second alternative embodiment of the detachable plunger syringe

FIG. 34 illustrates a front view of the second alternative embodiment of the detachable plunger syringe. The rear view is a mirror image

FIG. 35 illustrates a right side view of the second alternative embodiment of the detachable plunger syringe. The left side image is a mirror image.

The top view and the bottom view of the second alternative embodiment of the detachable plunger syringe are the same as the top and bottom views of the detachable plunger syringe illustrated in FIGS. 6 and 7, respectively.

The front view, rear view, right side view, left side view, top view, and bottom view of the reservoir barrel of the second alternative embodiment of the detachable syringe are the same as the corresponding views of the detachable plunger syringe illustrated in FIGS. 8, 9, 10, and 11.

FIG. 36 illustrates a front view of a fitting of the second alternative embodiment of the detachable plunger syringe.

FIG. 36 also illustrates that clips are not present. The rear view, the left side view, and the right side views are each a mirror image of the front view of the fitting of the second alternative embodiment of the detachable plunger syringe.

FIG. 37 illustrates a bottom view of the fitting of the second alternative embodiment of the detachable plunger syringe. FIG. 37 also illustrates that clips are not present; and,

FIG. 38 illustrates a top view of the fitting of the second alternative embodiment of the detachable plunger syringe. FIG. 38 also illustrates that clips are not present.

The front view, rear view, right side view, left side view, top view, and bottom view of the seal of the second alternative embodiment of the detachable plunger syringe are the same as the corresponding views illustrated in FIGS. 19, 20, and 21 of the detachable plunger syringe.

The front view, rear view, right side view, left side view, top view, and bottom view of the plunger of the second alternative embodiment of the detachable plunger syringe are the same as the corresponding views illustrated in FIGS. 12, 13, 14, and 15 of the detachable plunger syringe.

The broken line showing of parts of the drawings is included for the purpose of illustrating use and environment and forms no part of the claimed design.

1 Claim, 12 Drawing Sheets

FIG. 1

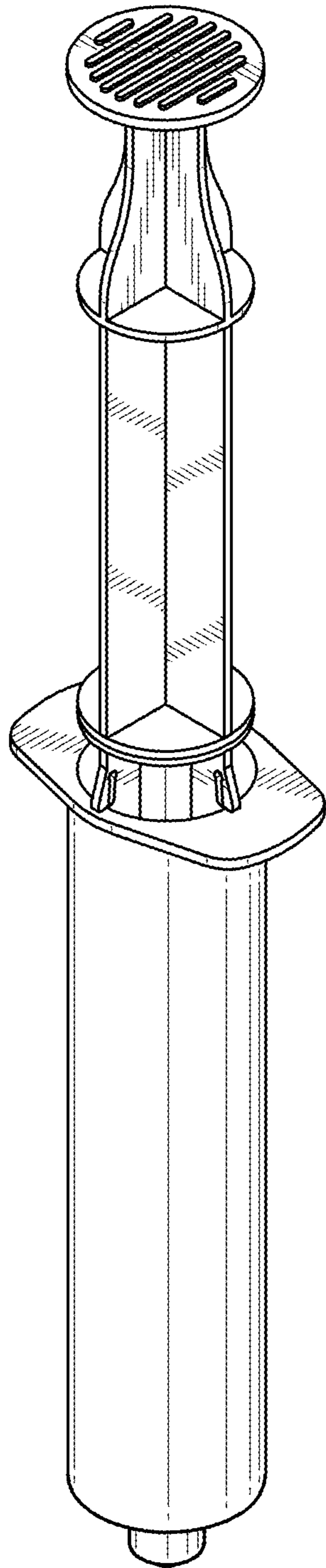
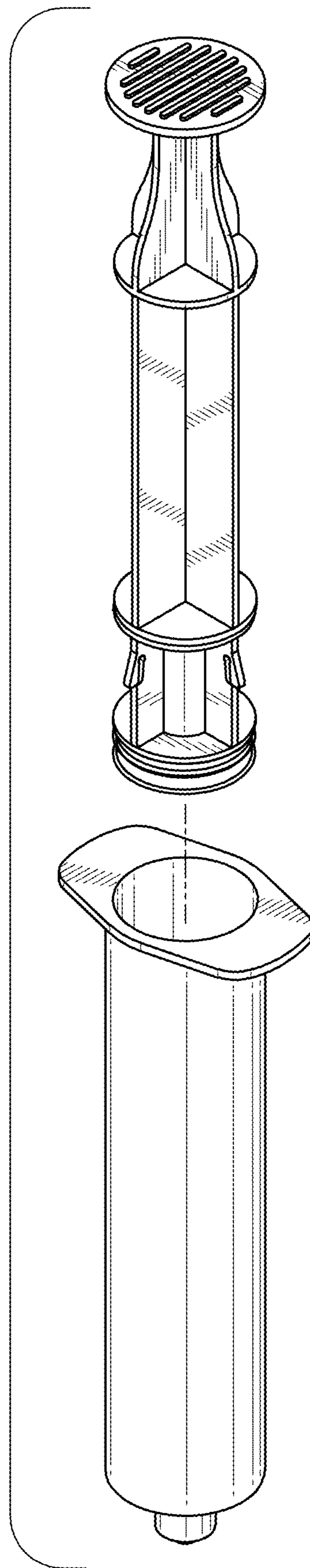


FIG. 2



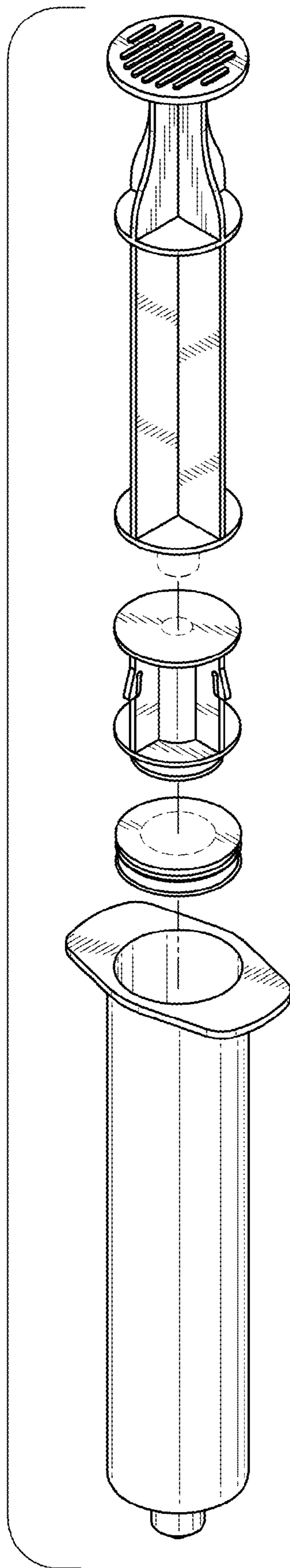


FIG. 3

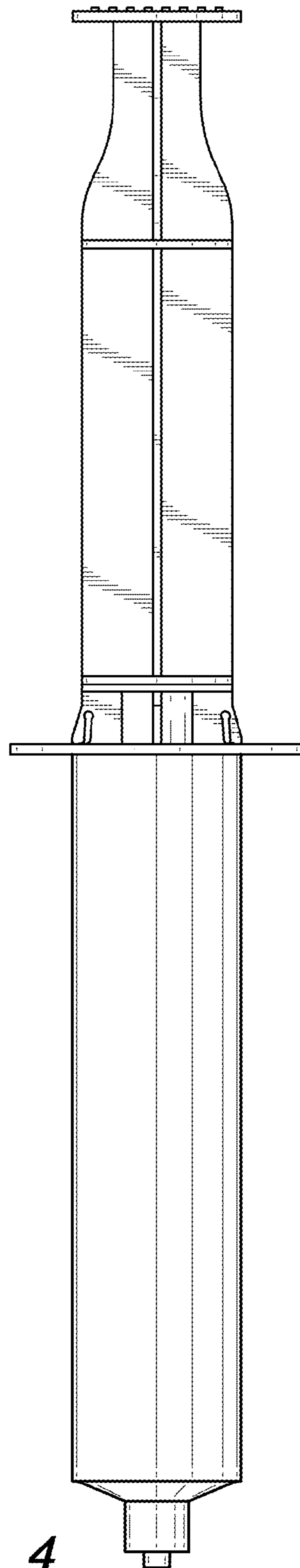


FIG. 4

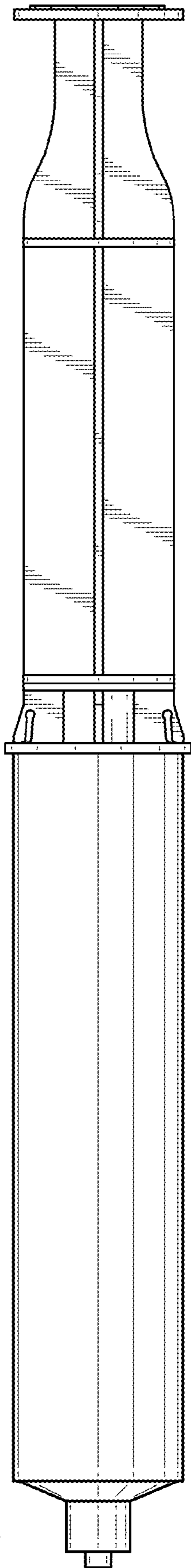


FIG. 5

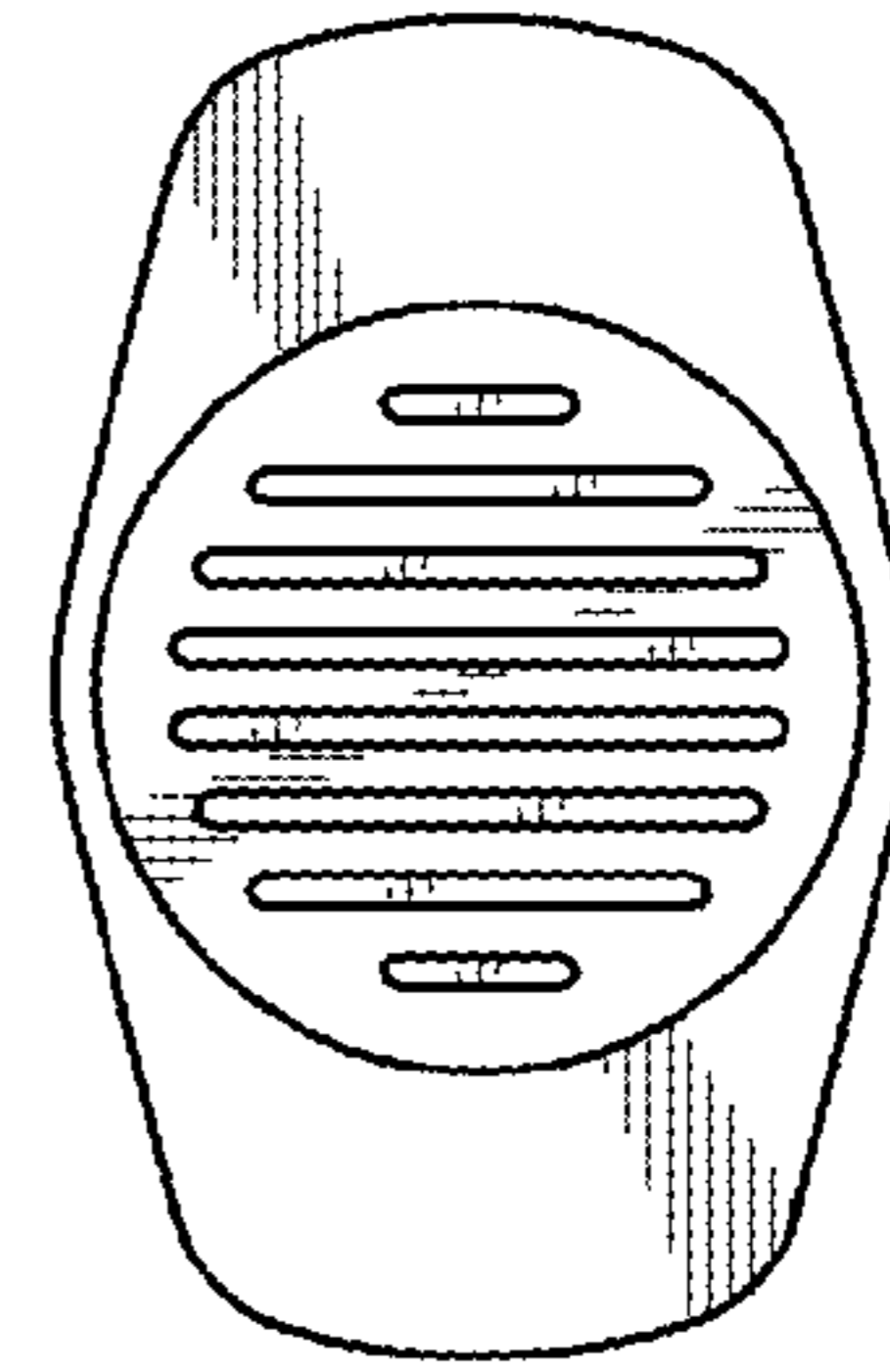


FIG. 6

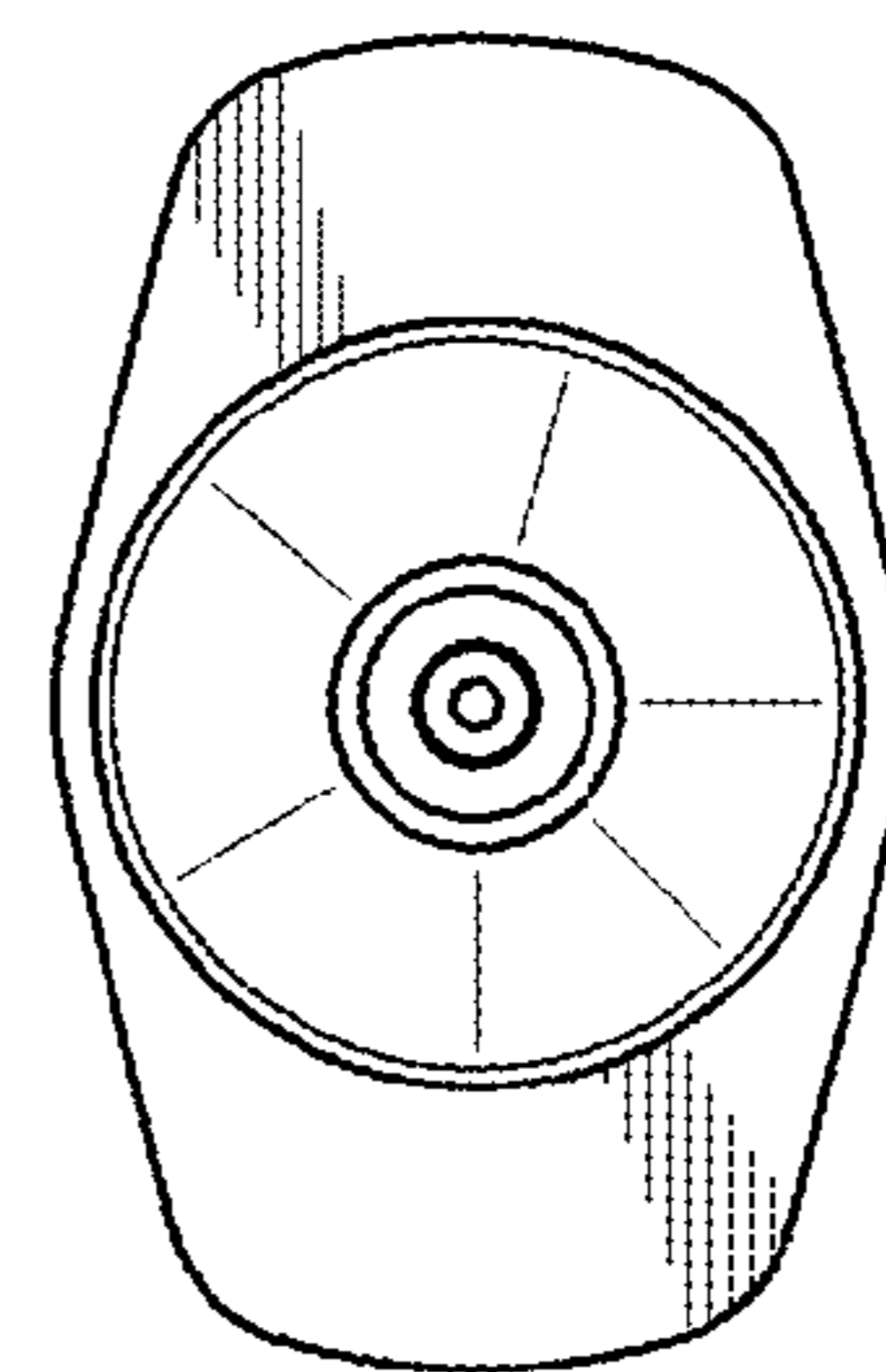


FIG. 7

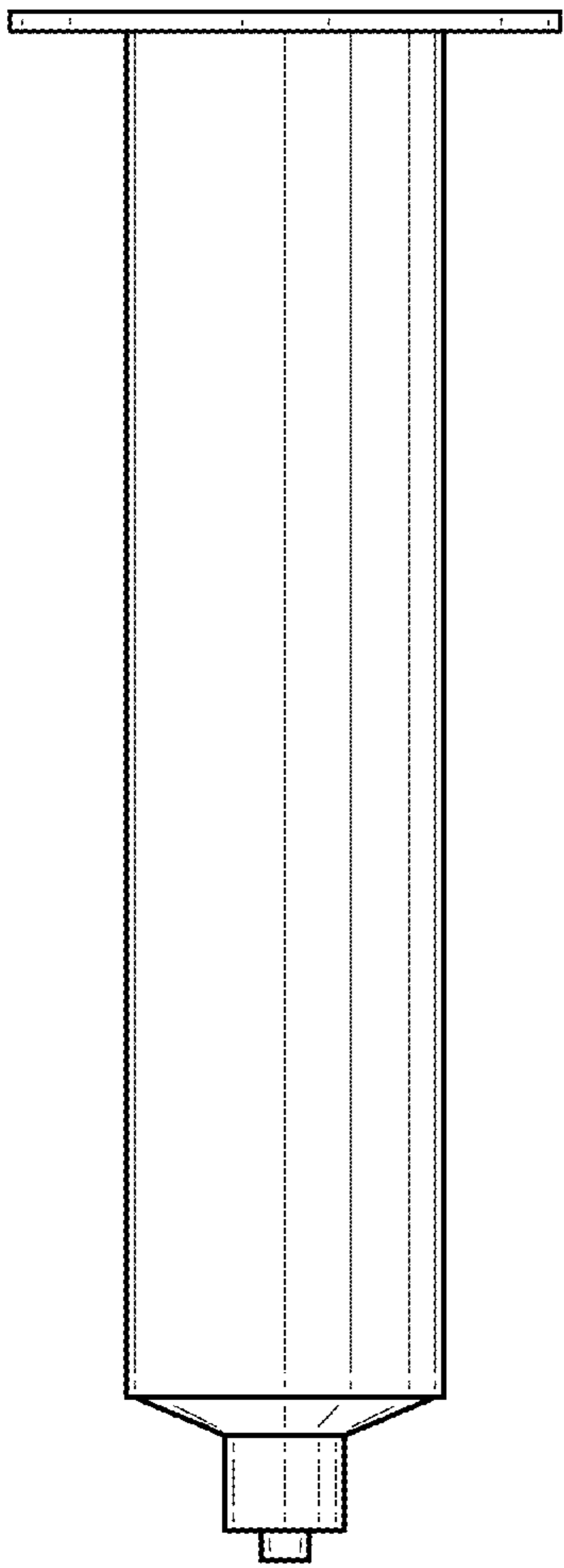


FIG. 8

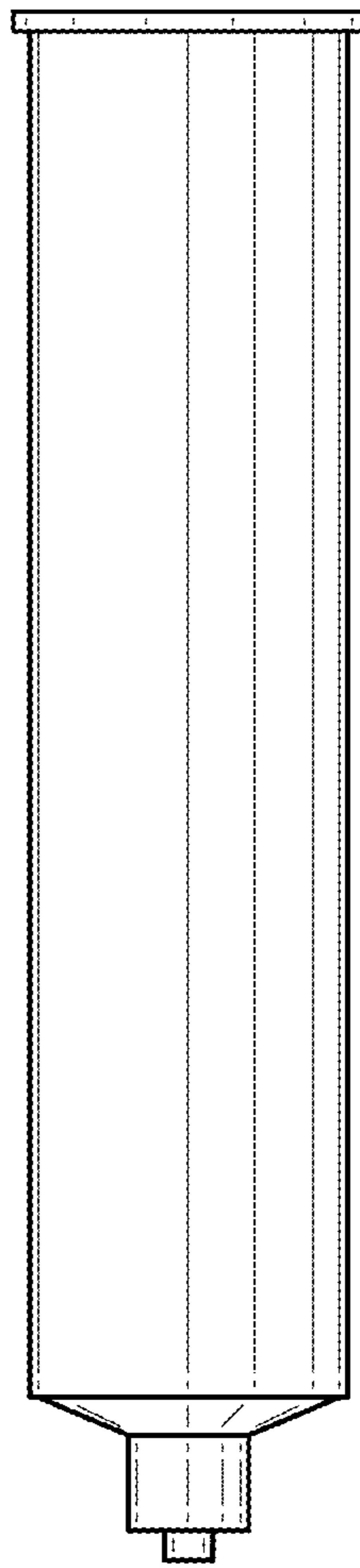


FIG. 9

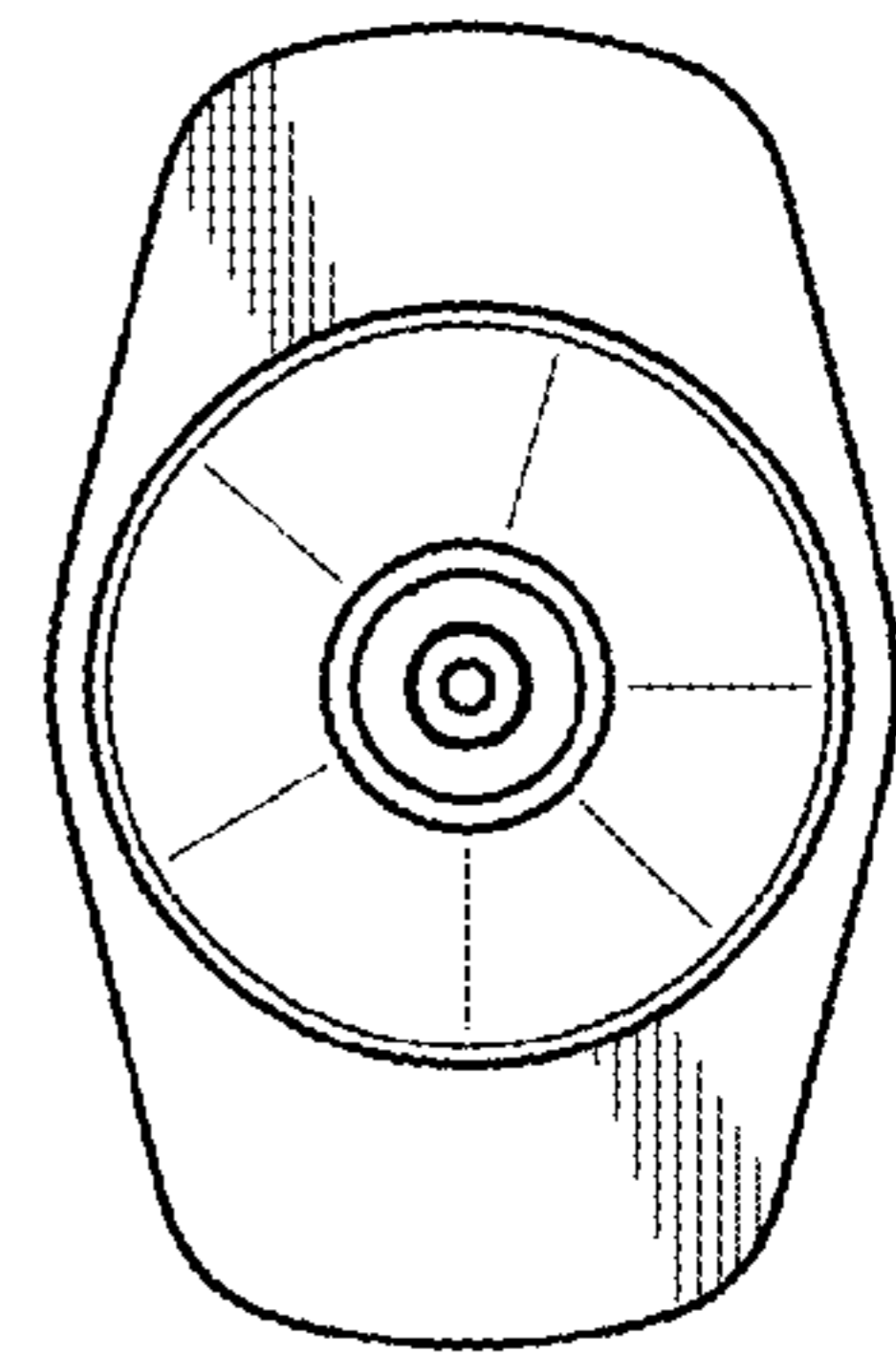


FIG. 10

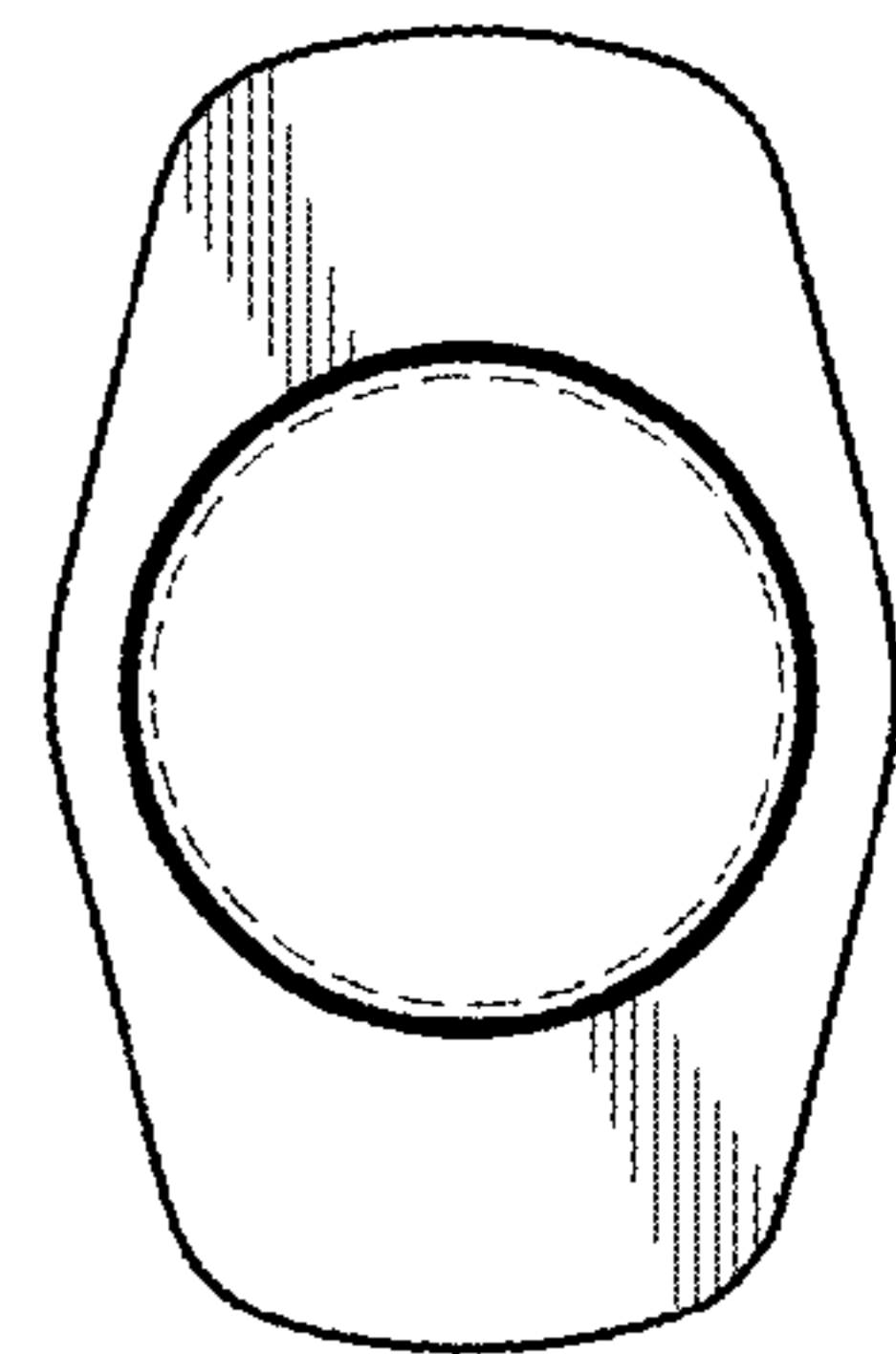


FIG. 11

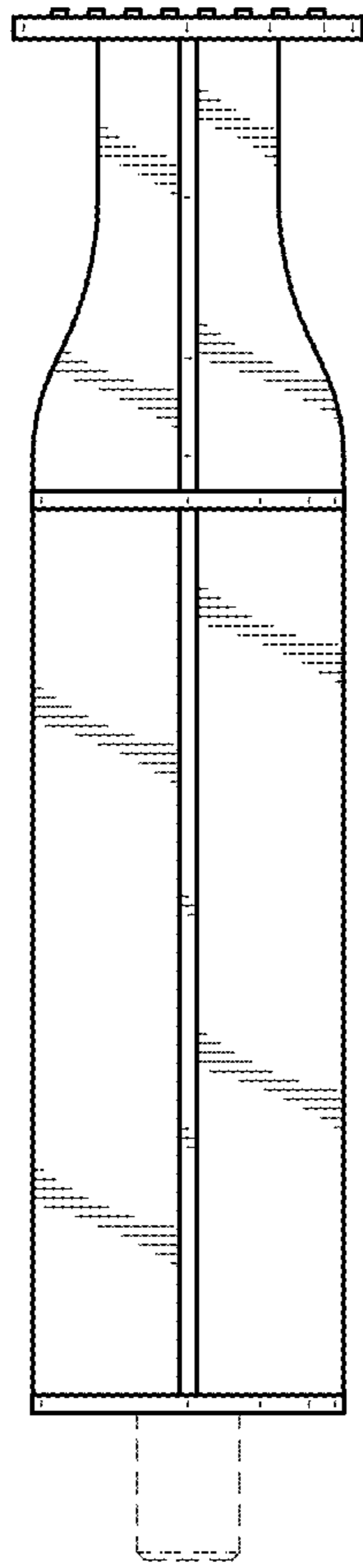


FIG. 12

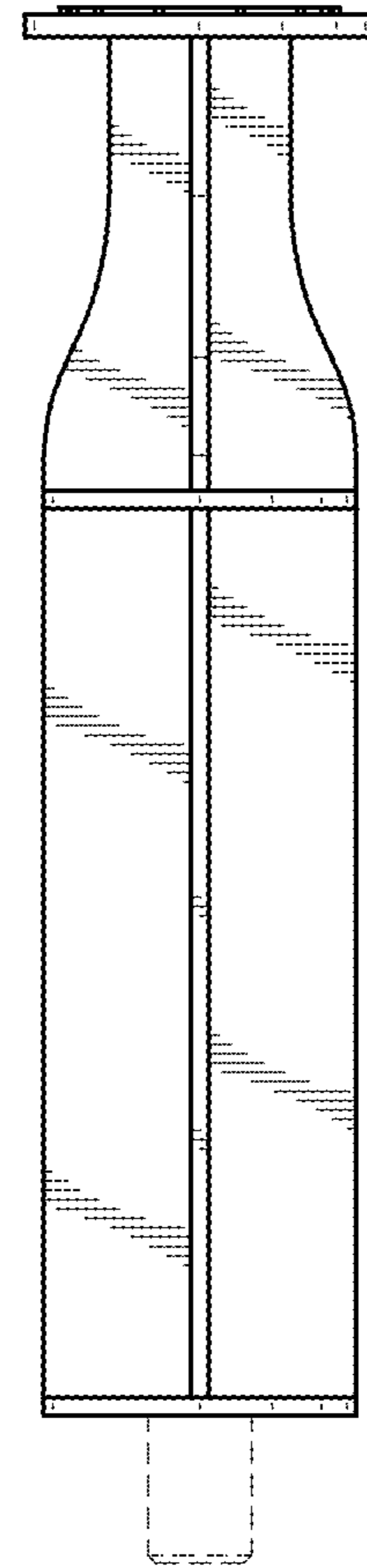


FIG. 13

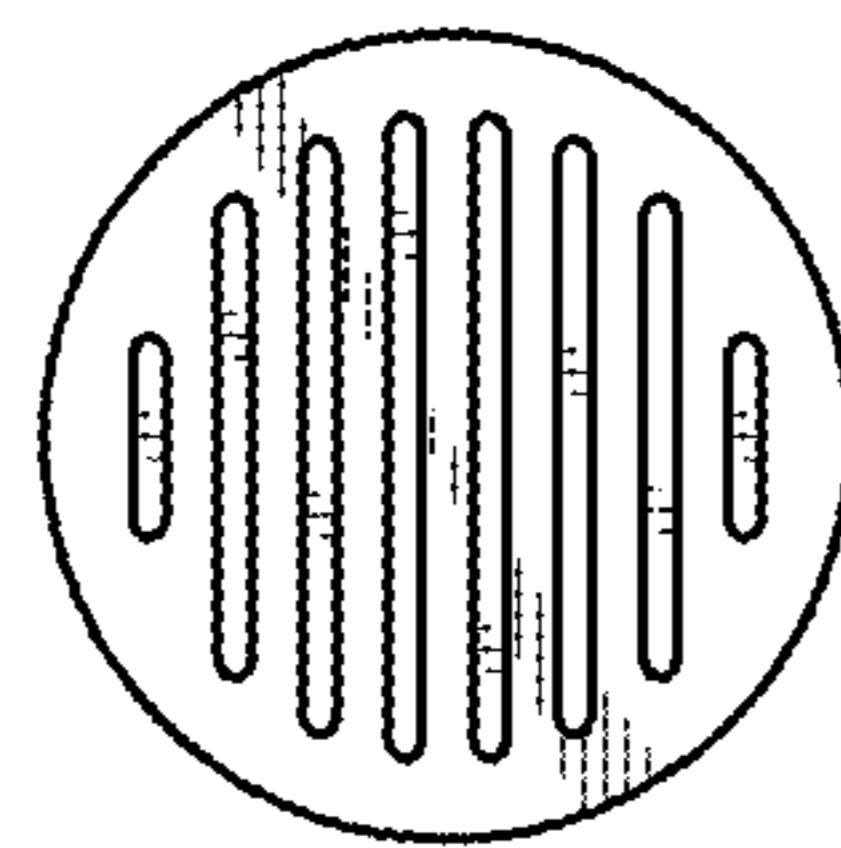


FIG. 14

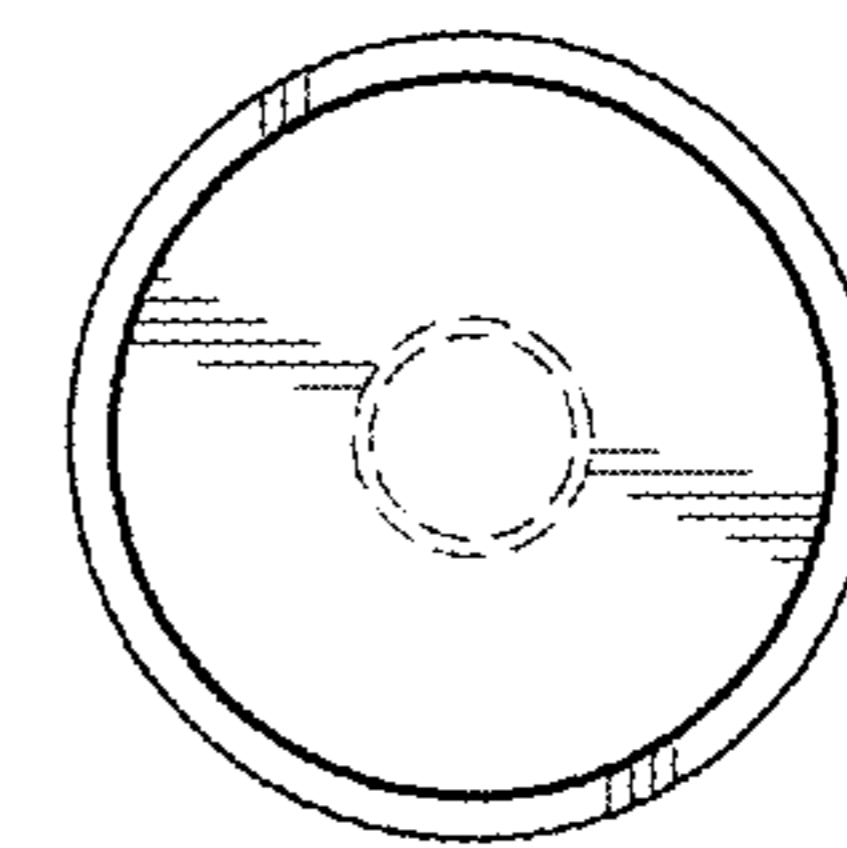


FIG. 15

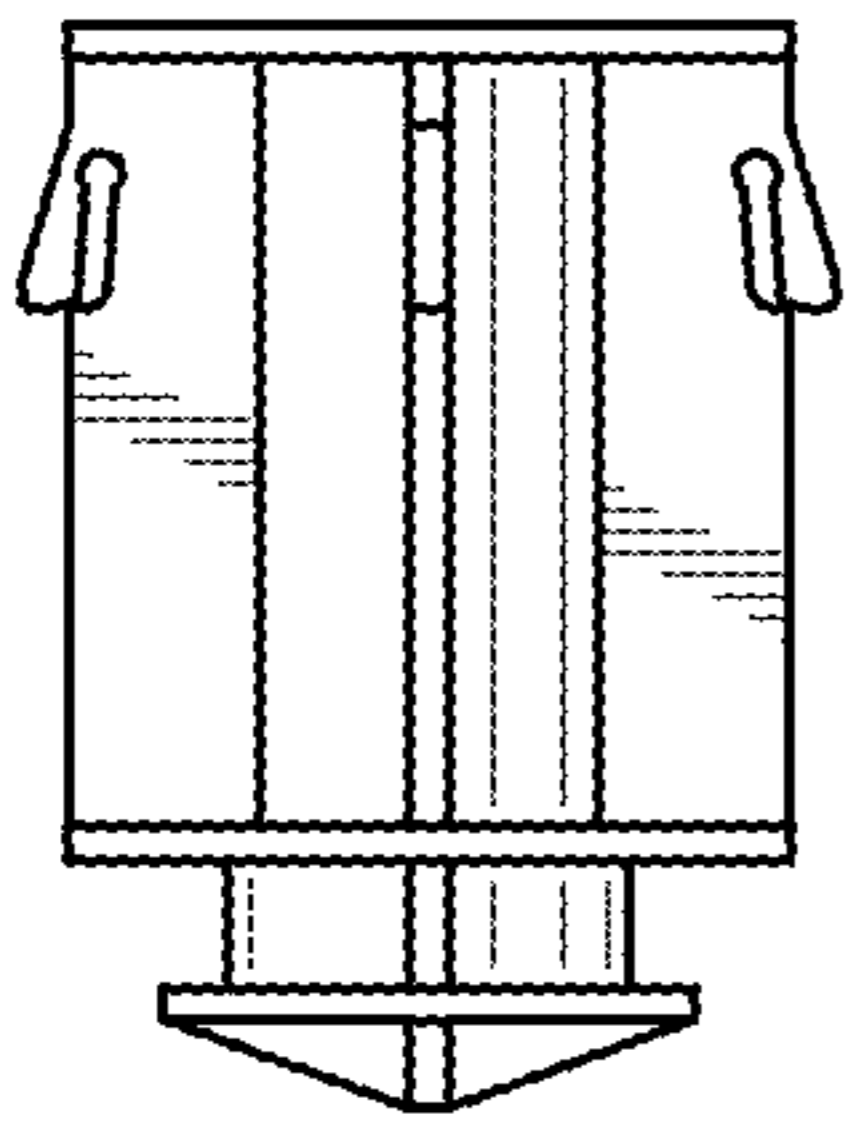


FIG. 16

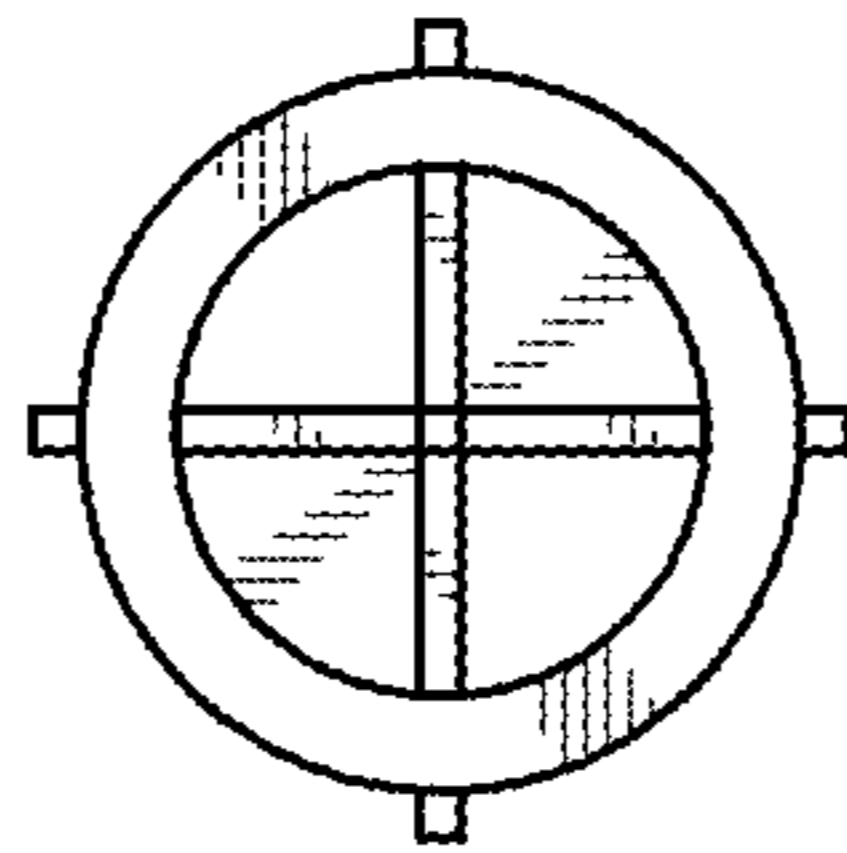


FIG. 17

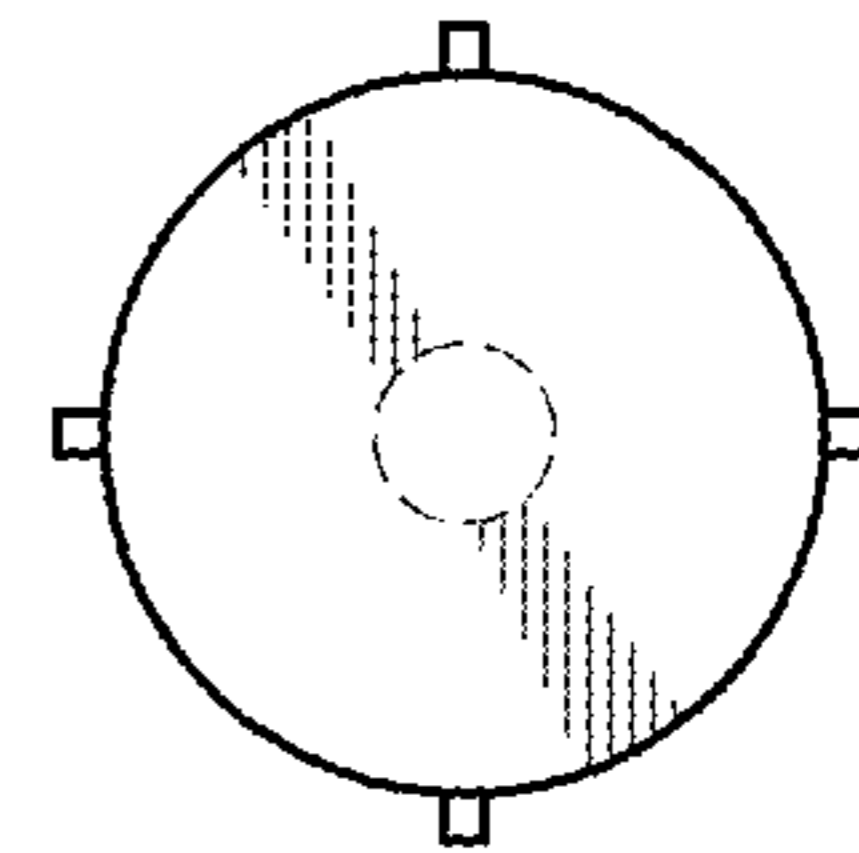


FIG. 18

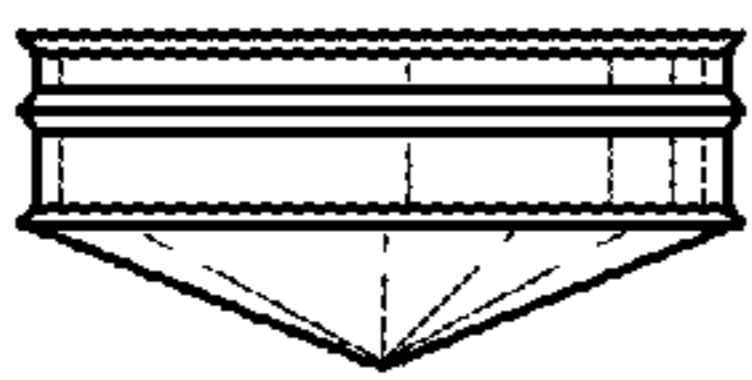


FIG. 19

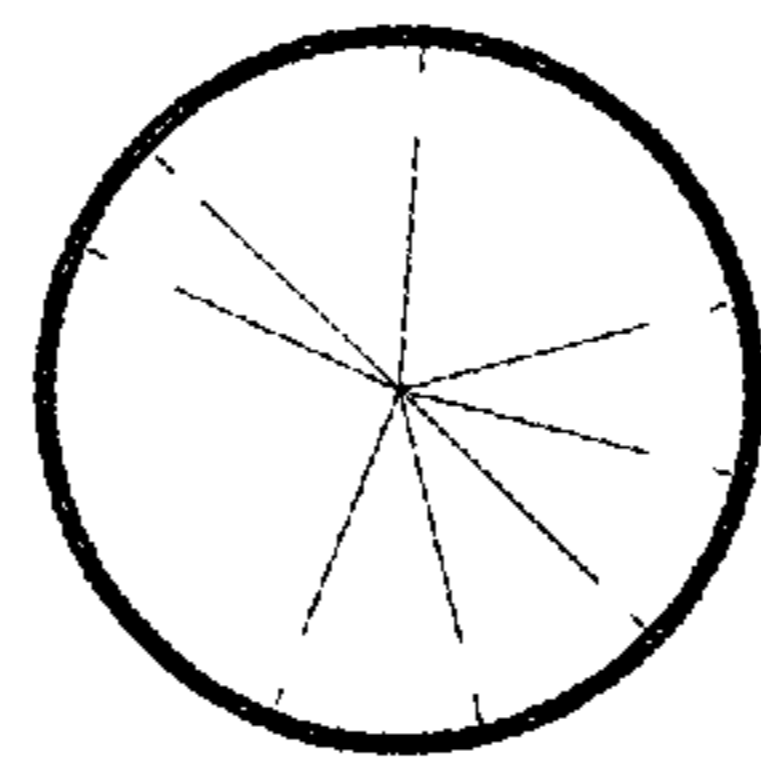


FIG. 20

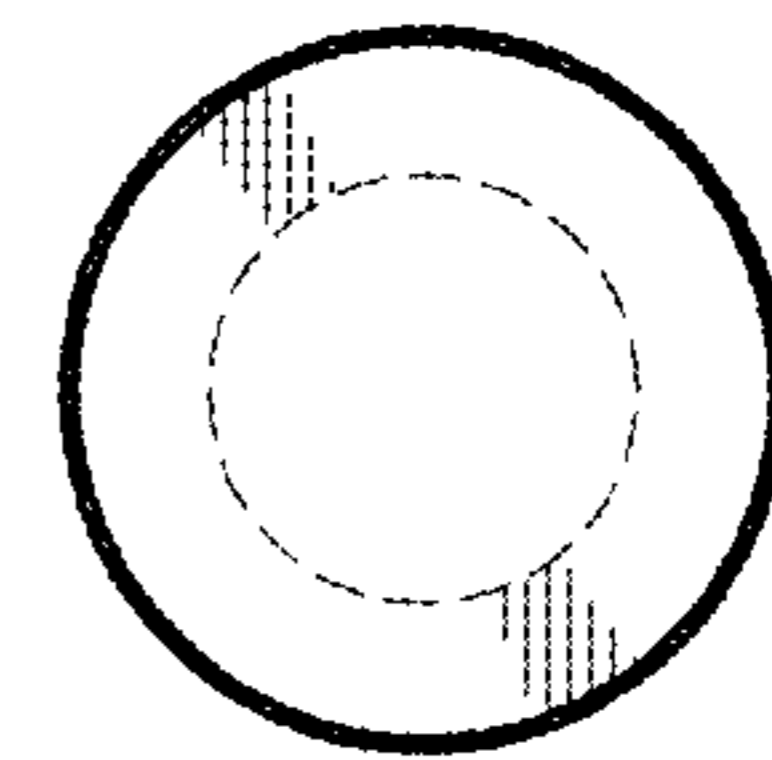


FIG. 21

FIG. 22

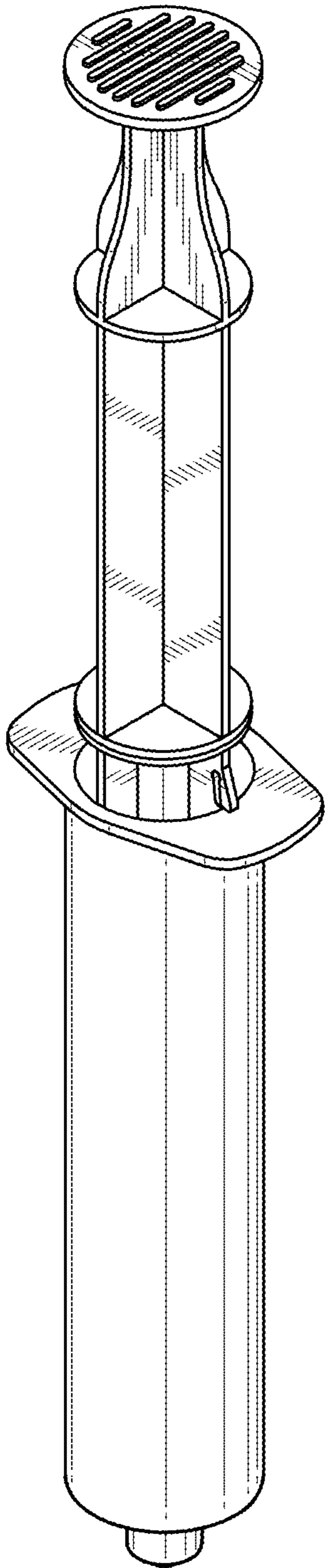
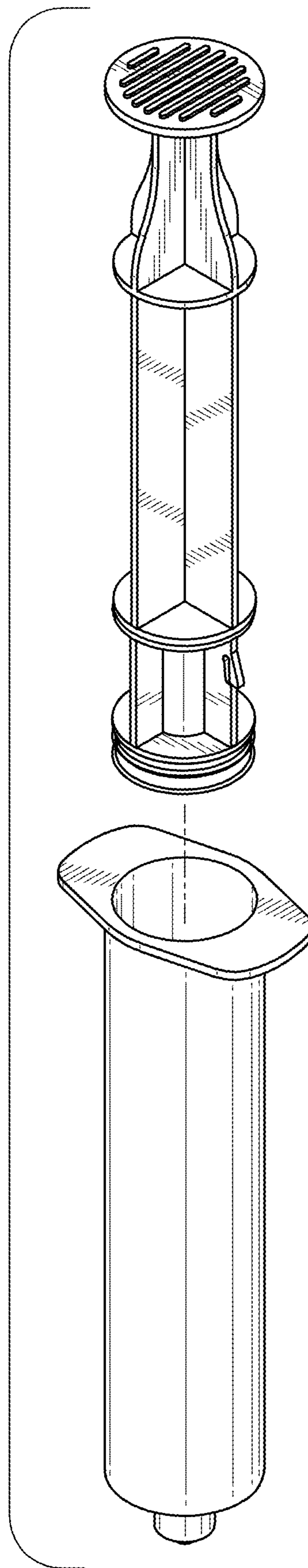


FIG. 23



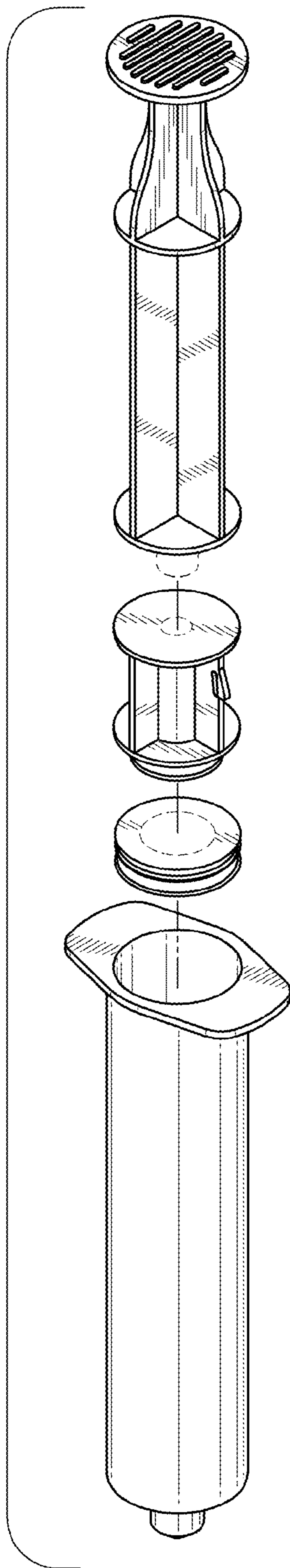


FIG. 24

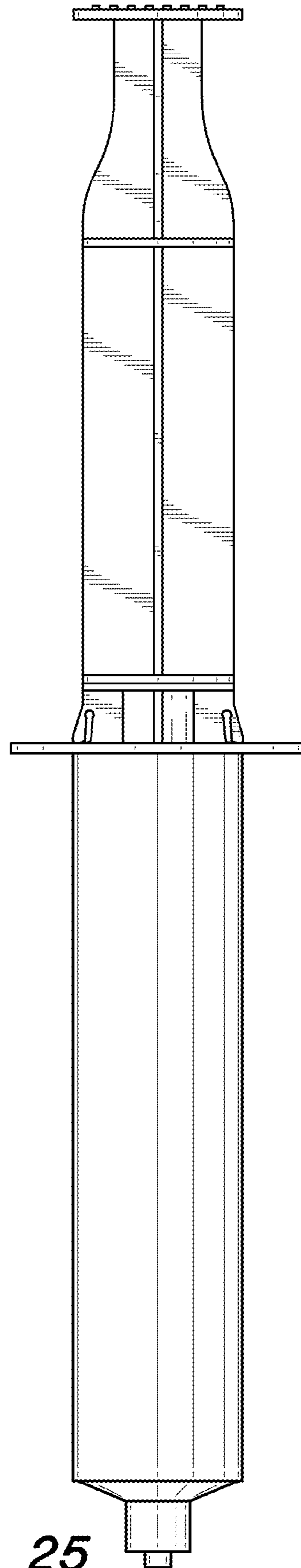


FIG. 25

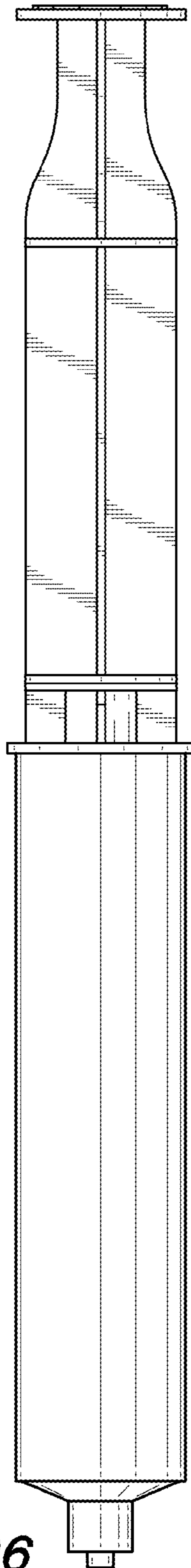


FIG. 26

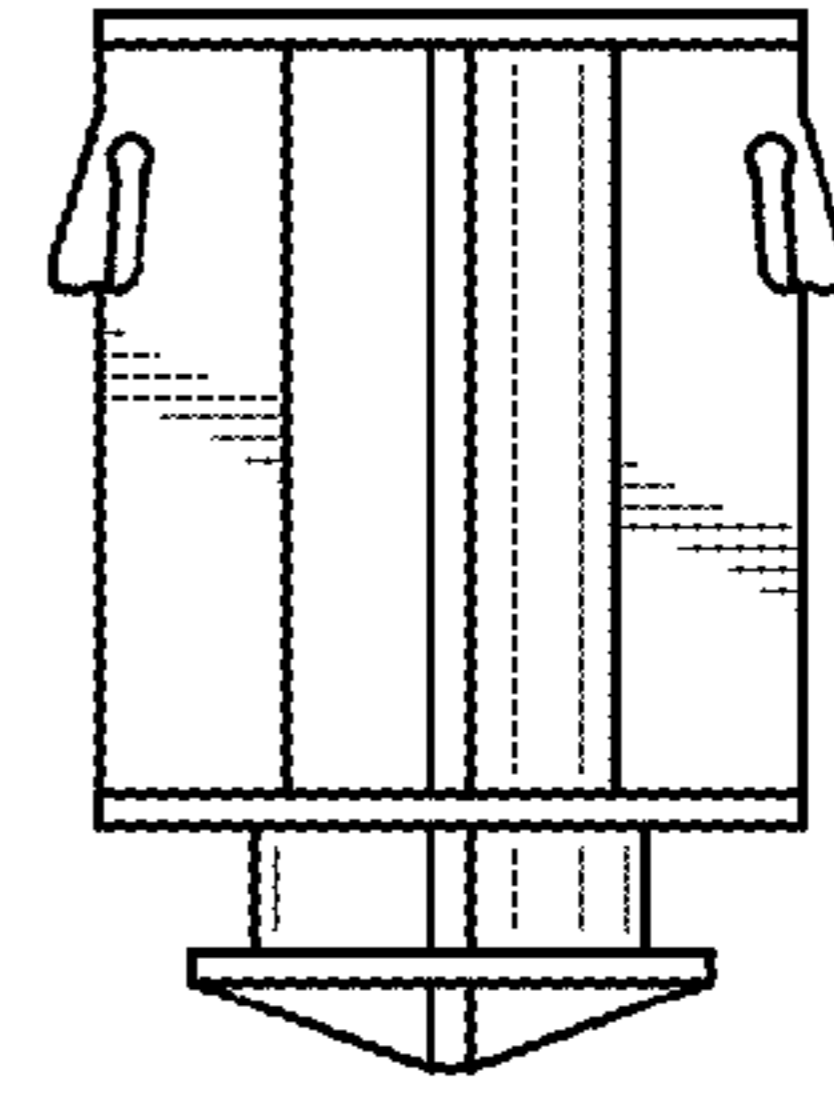


FIG. 27

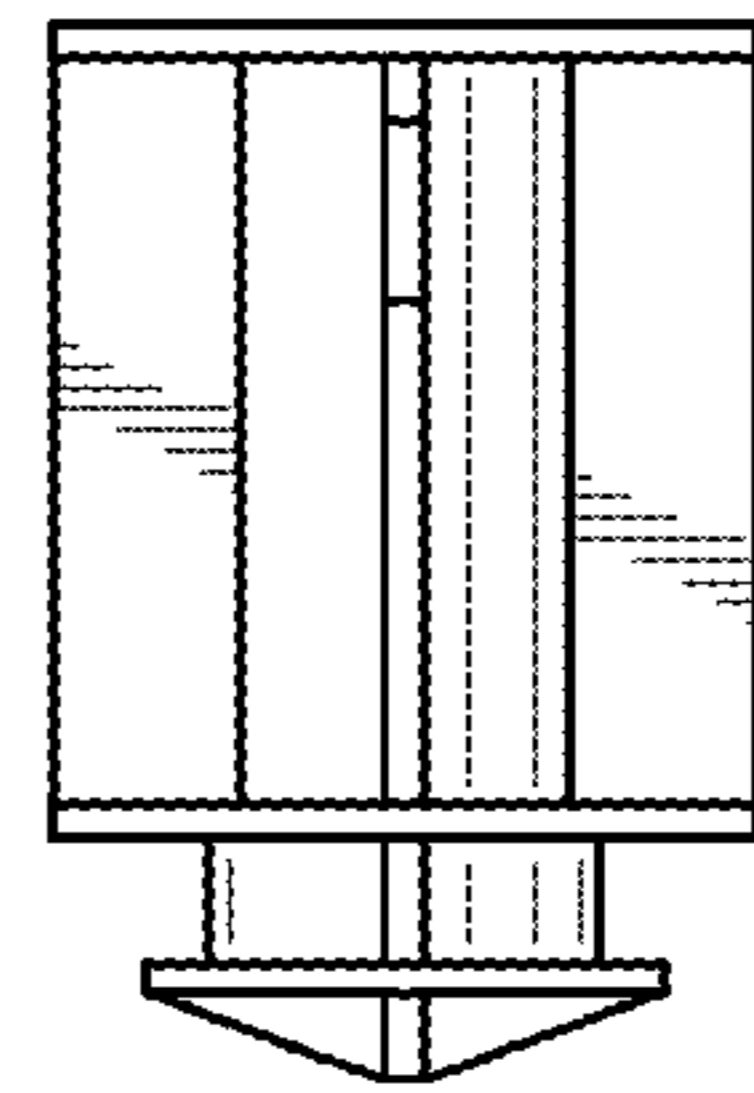


FIG. 28

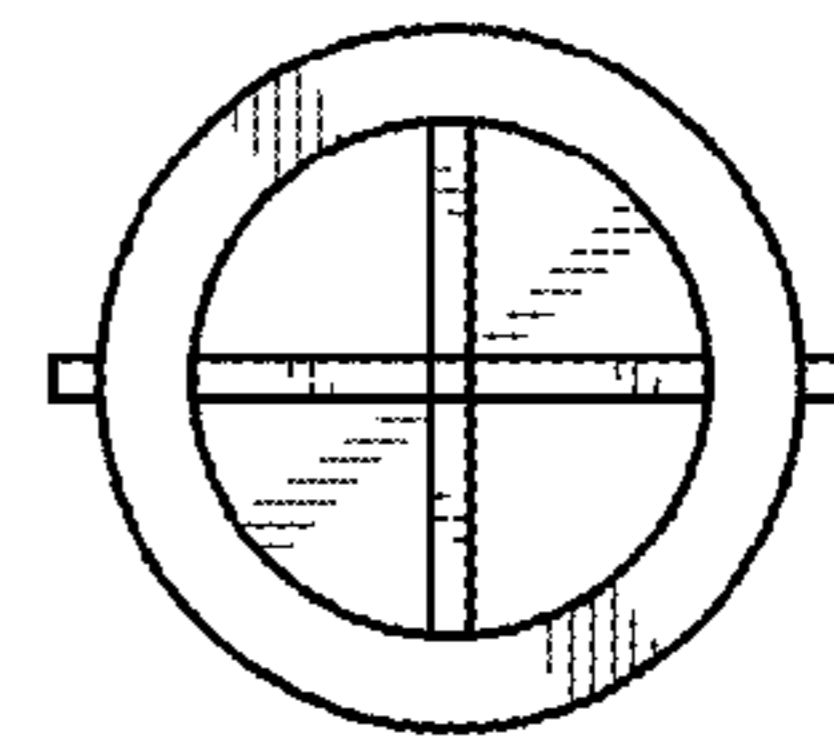


FIG. 29

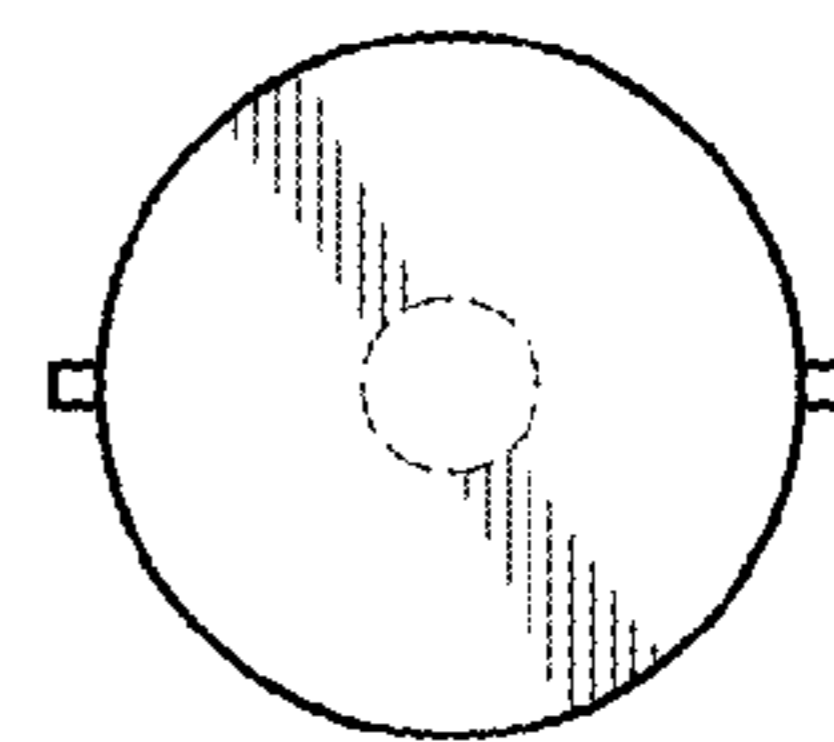


FIG. 30

FIG. 31

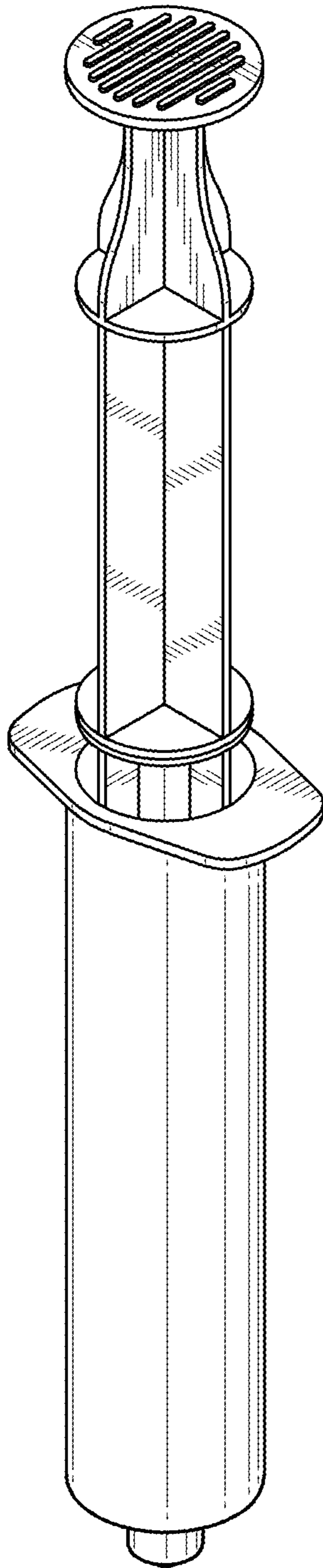
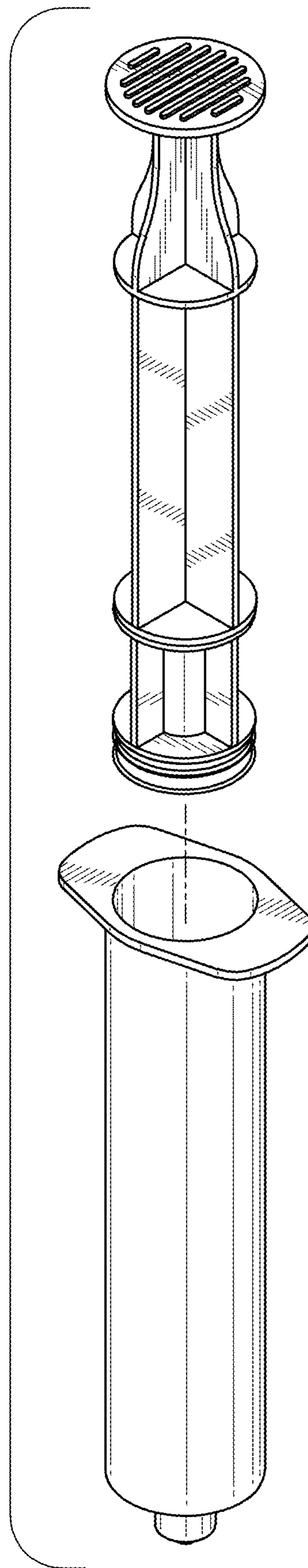


FIG. 32



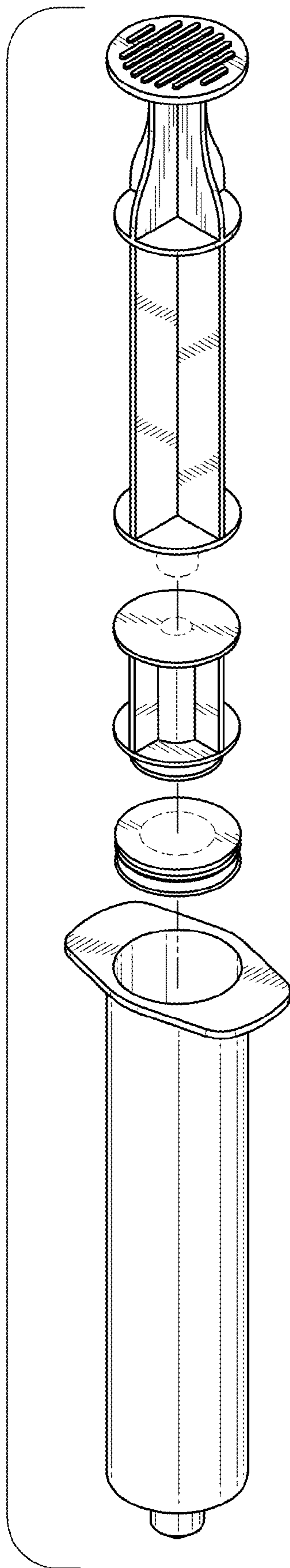


FIG. 33

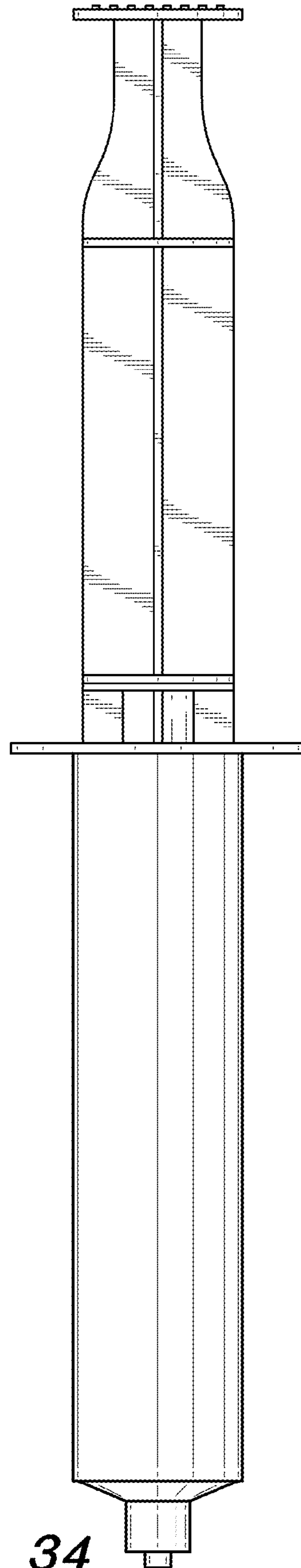


FIG. 34

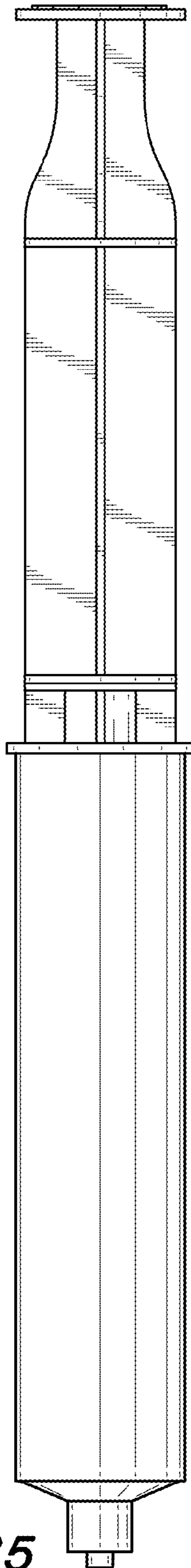


FIG. 35

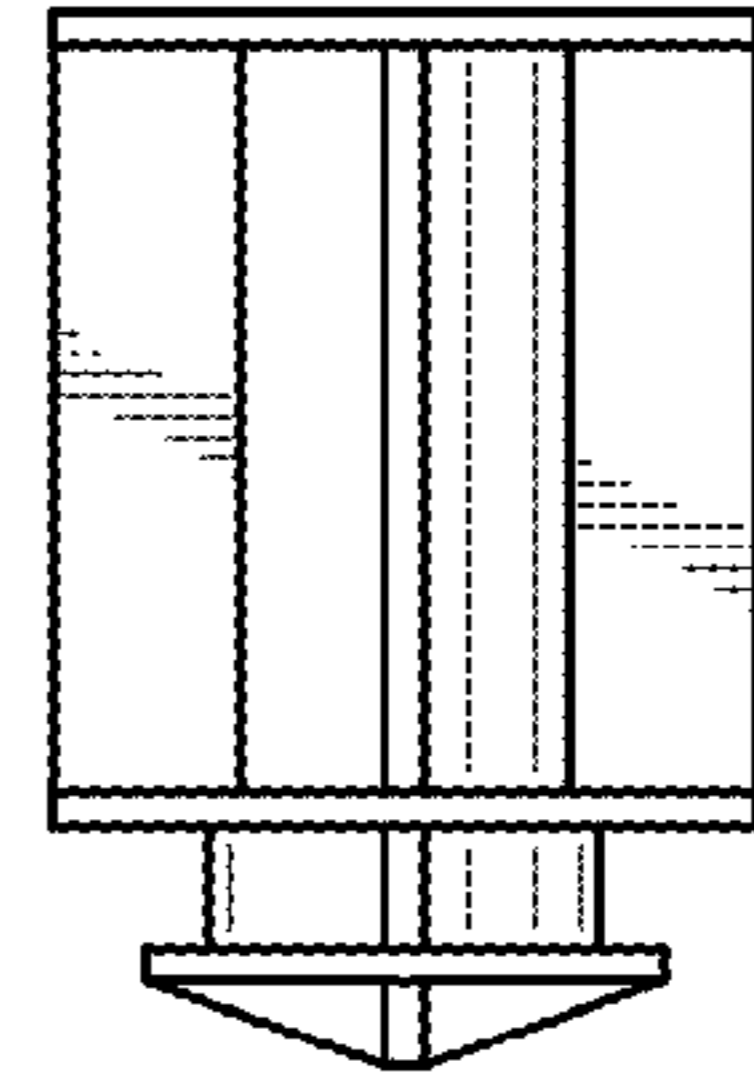


FIG. 36

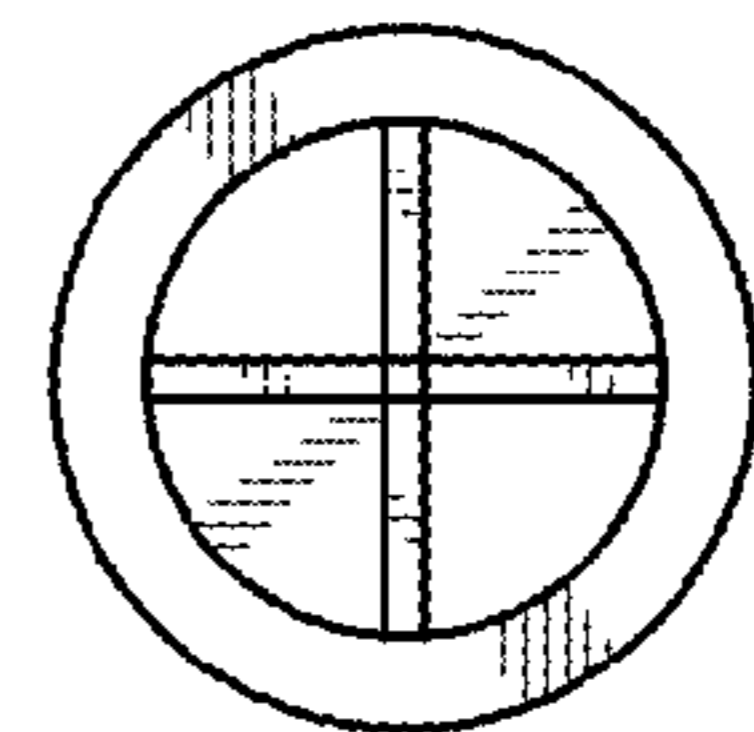


FIG. 37

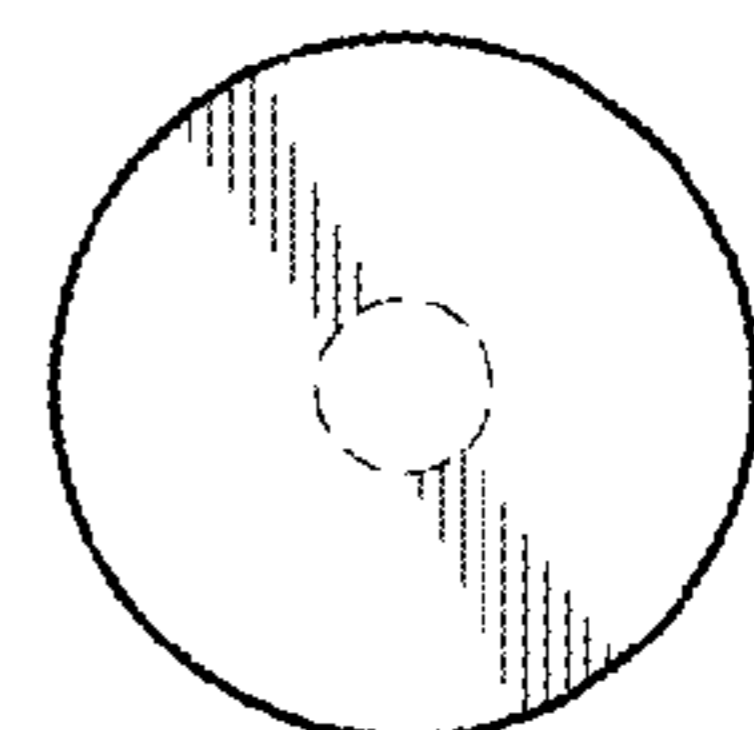


FIG. 38