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3,180,265

SHOT SHELL WAD AND CONTAINER

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FIG. 1

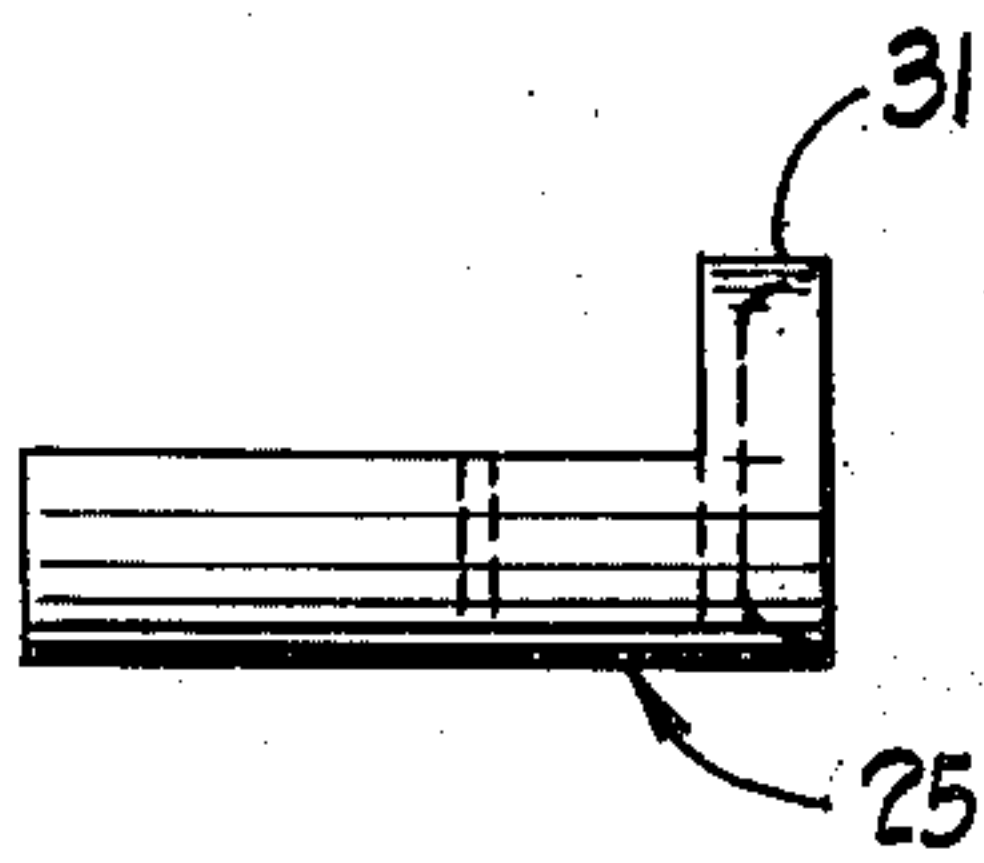
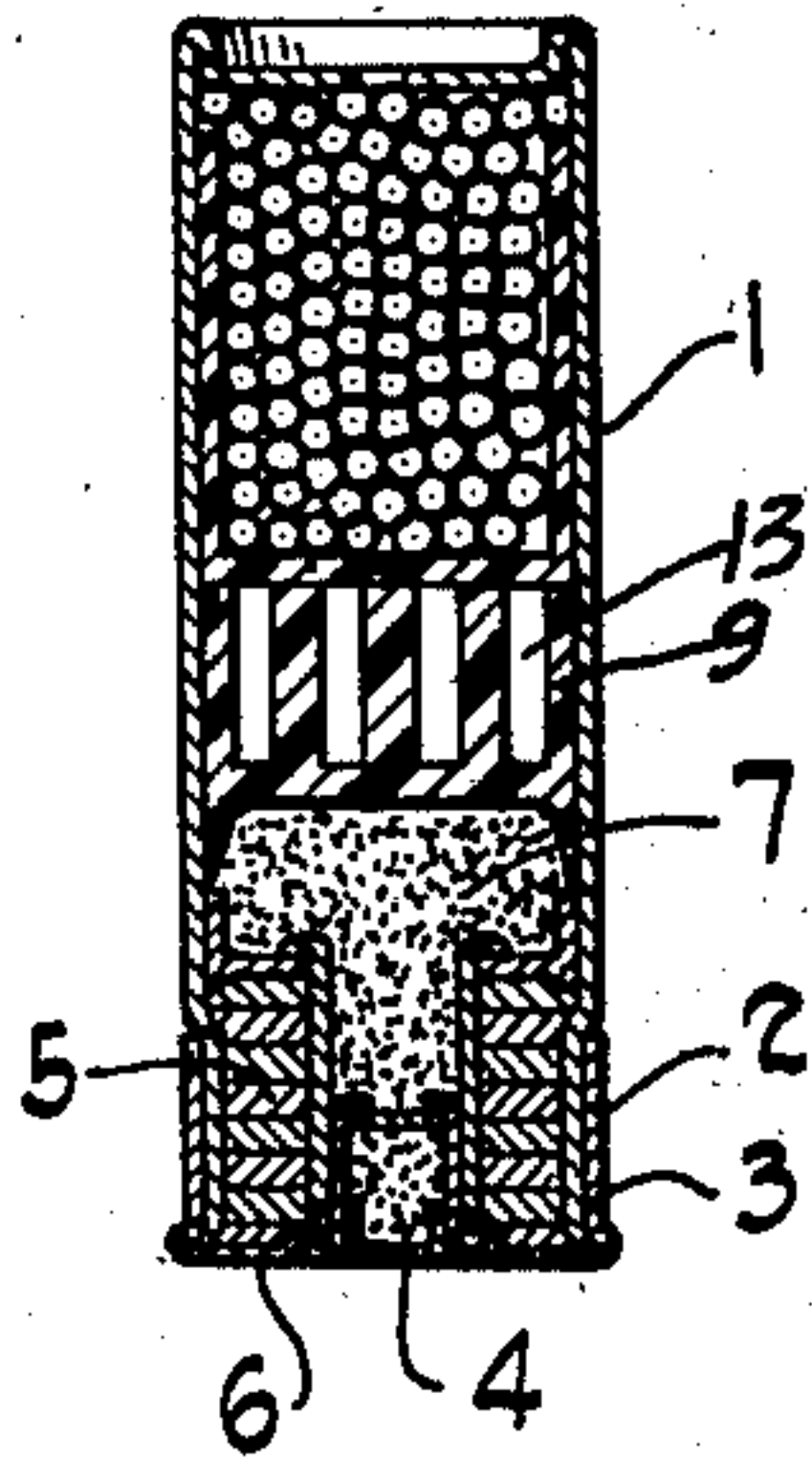


FIG. 4

FIG. 2

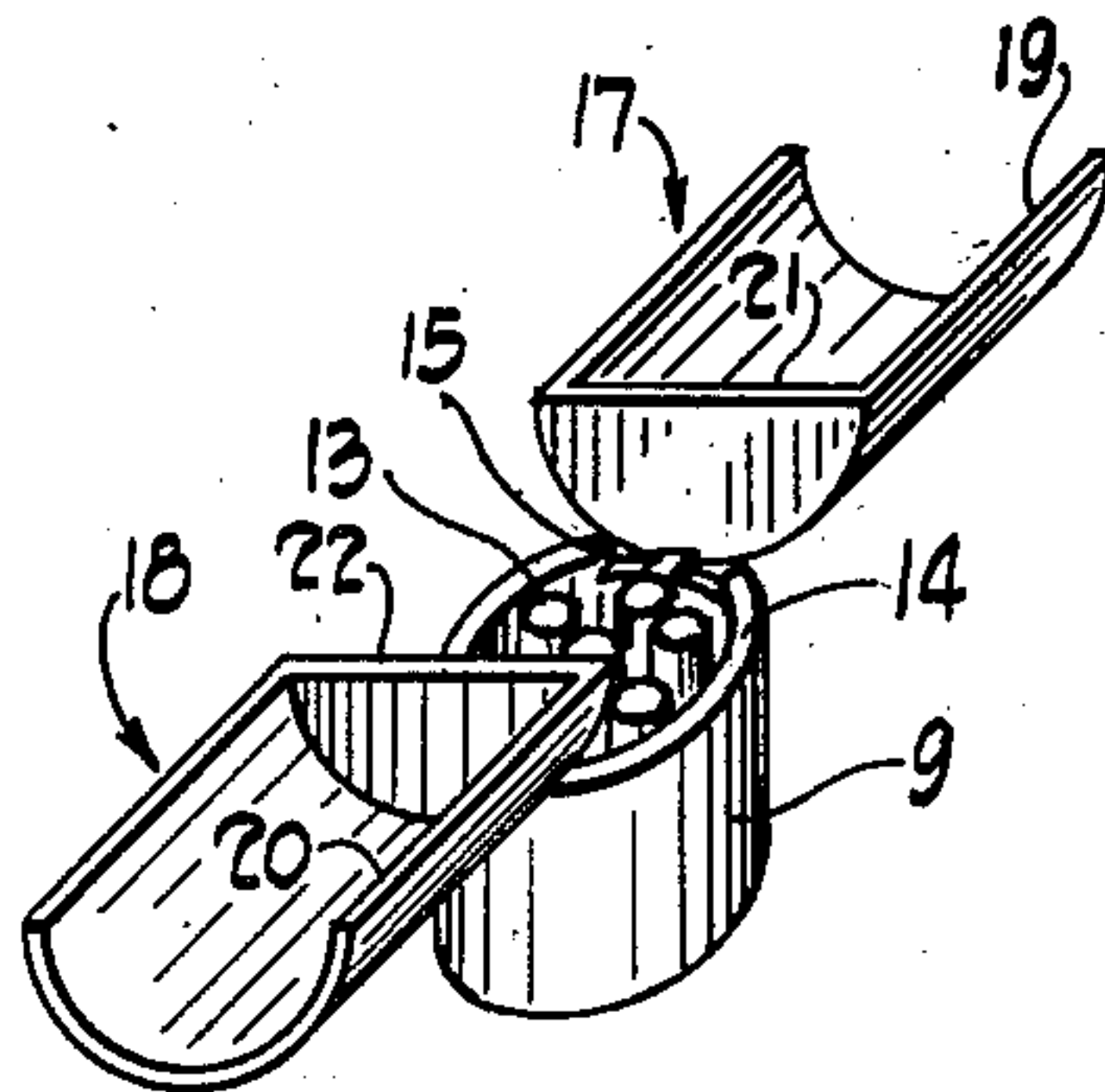
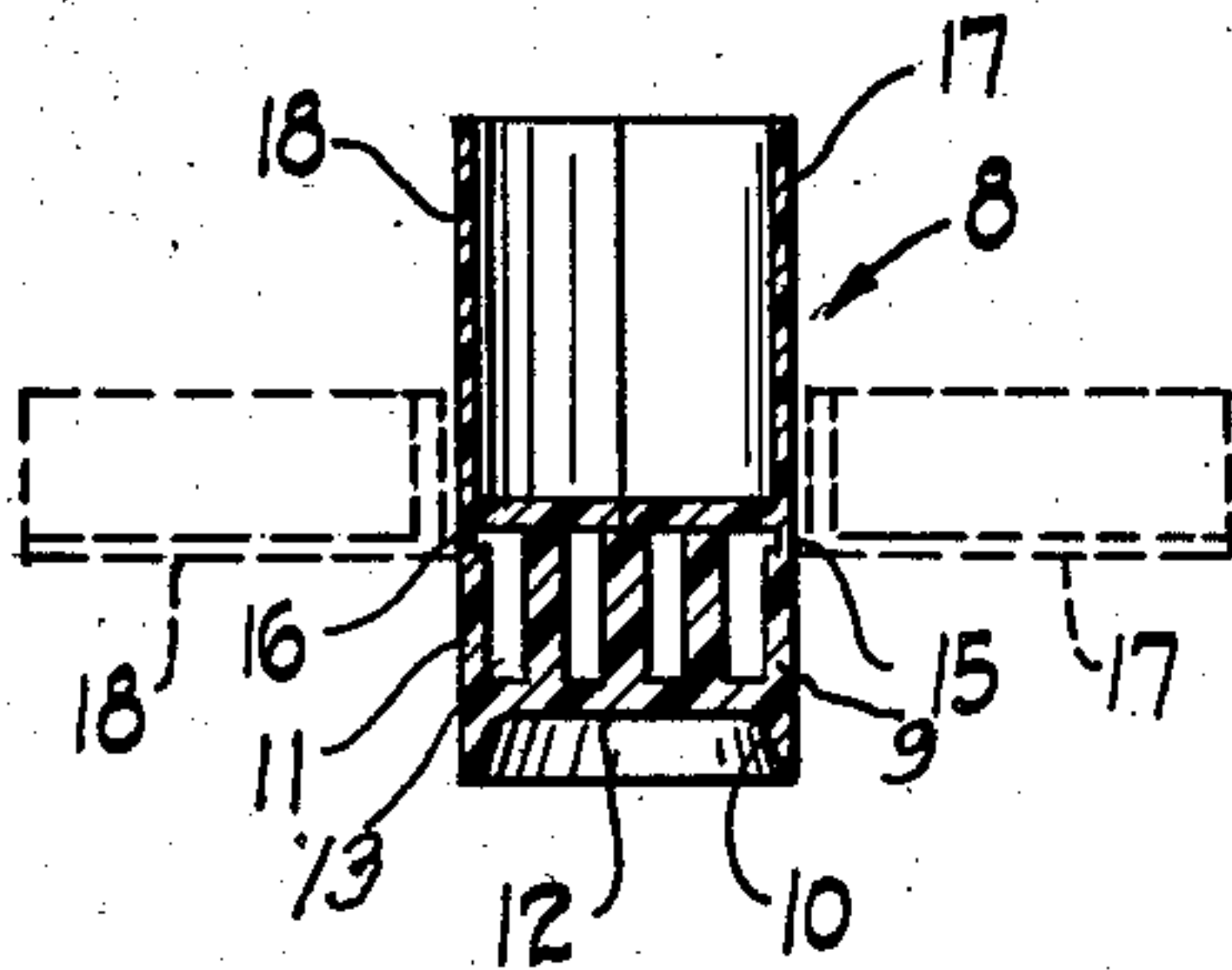


FIG. 3

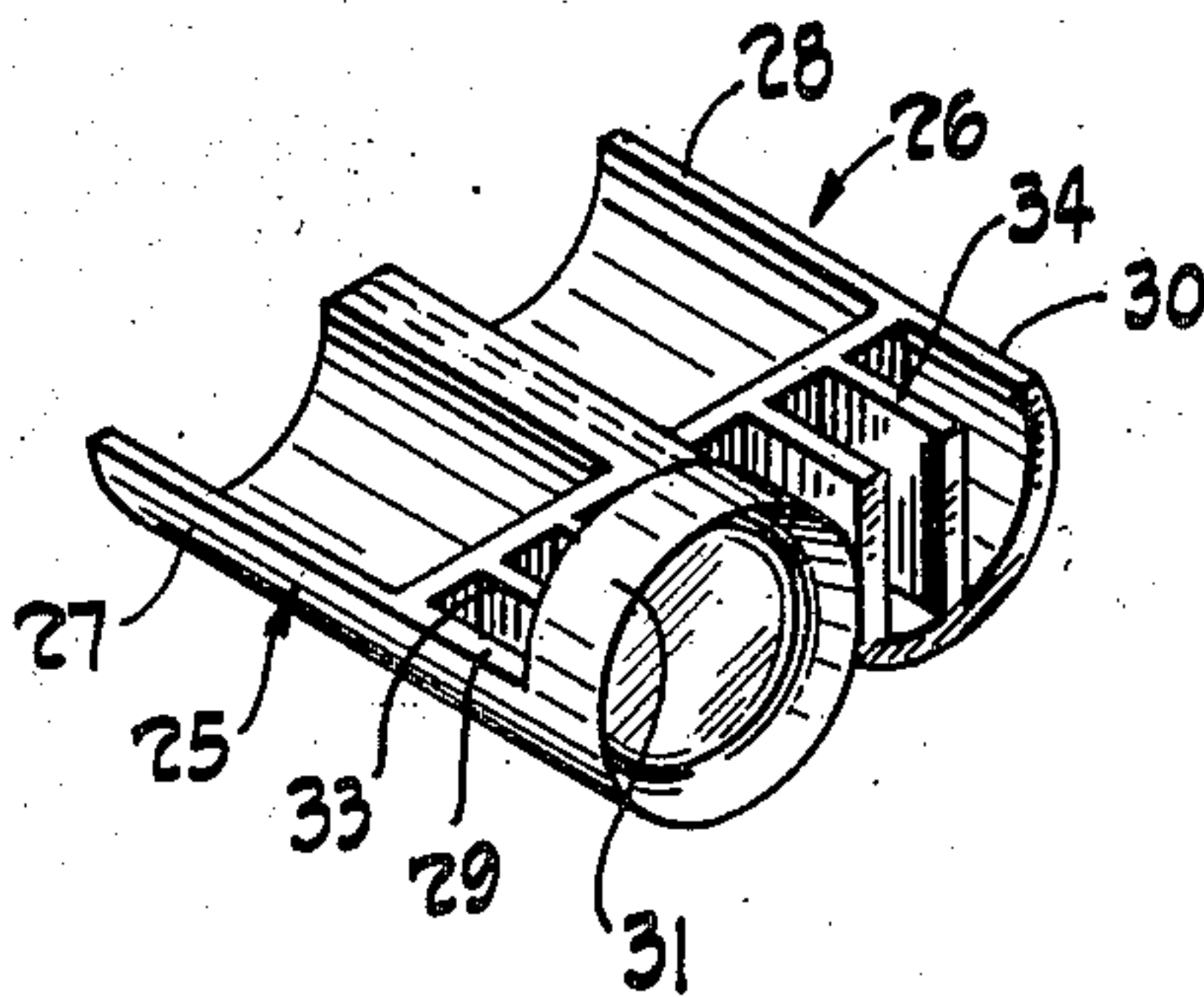


FIG. 5

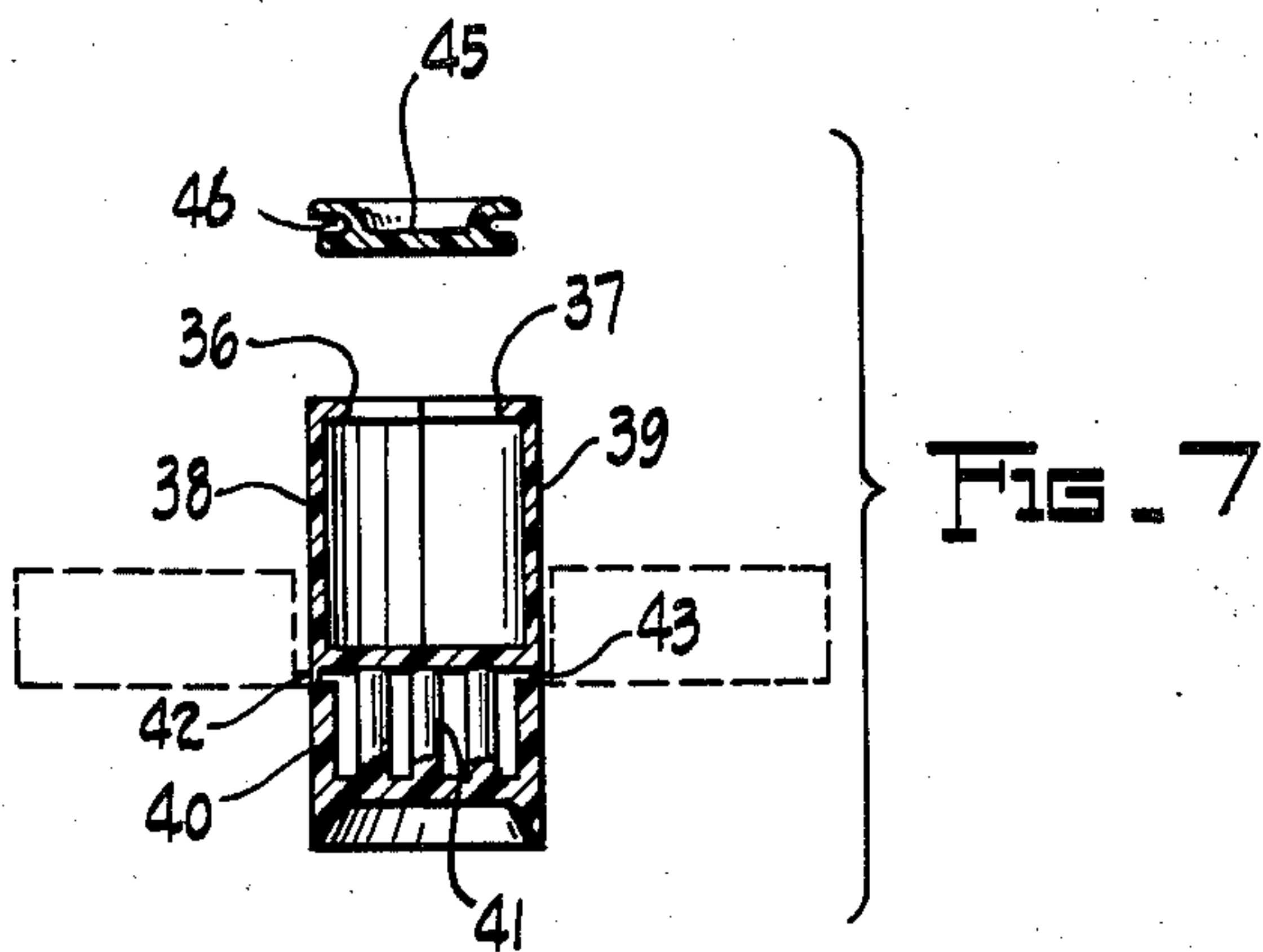


FIG. 7

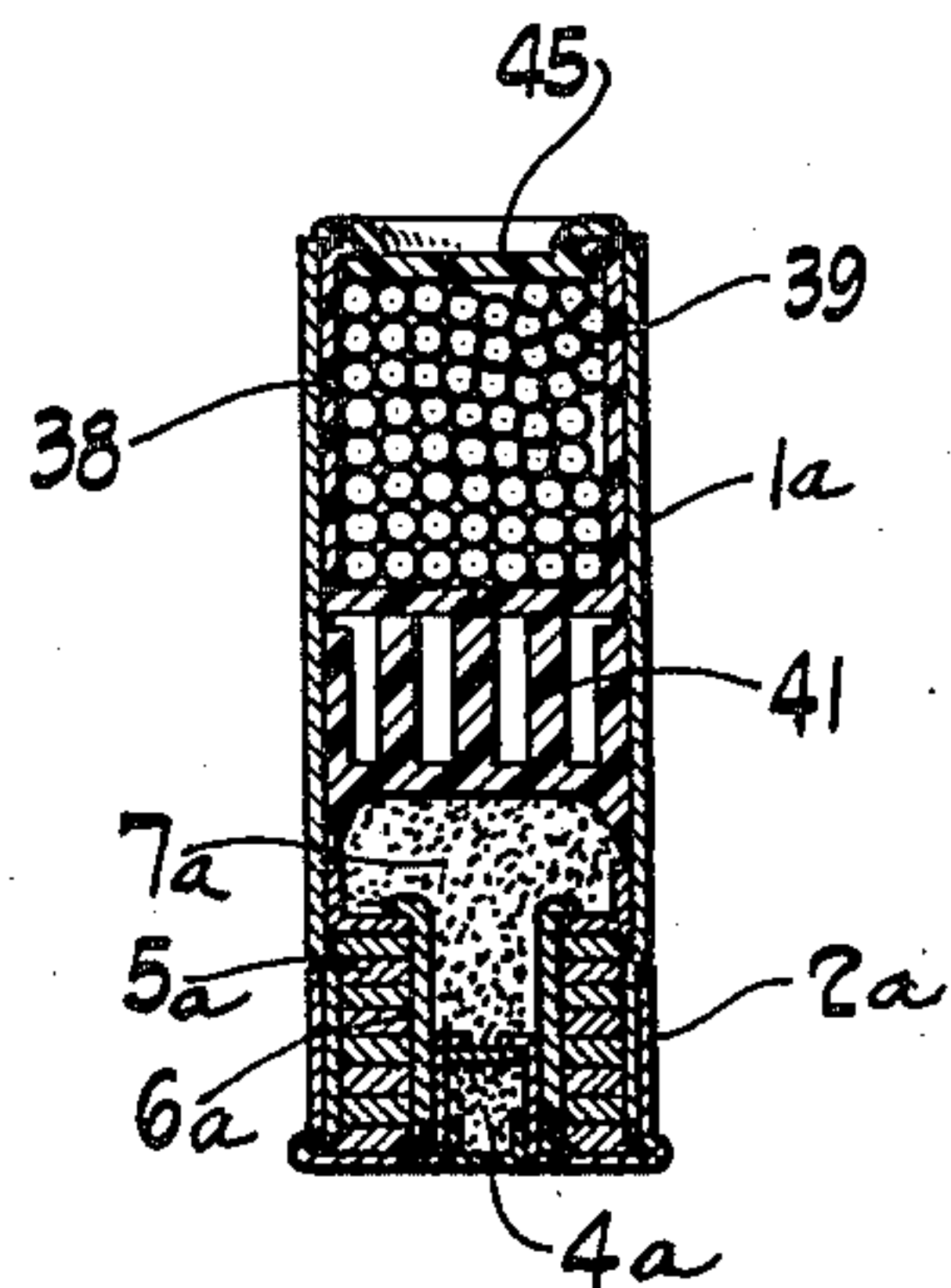


FIG. 6

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## SHOT SHELL WAD AND CONTAINER

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This invention relates to shot shells and particularly to the wadding and loading thereof.

While shot gun shells and the construction thereof are known and have been known for many years, only in recent years have improvements in the wadding or loading thereof been effected.

Formerly a shot shell included the usual brass ferrule at the end with which is connected the paper outer shell and within which is located a load of powder, a card over the powder, and a filler member of some form, above the same there being thereafter placed the shot, with the upper or open end of the shell thereafter being crimped so as to maintain the shot in position for subsequent firing.

Of course a suitable primer is positioned in the brass ferrule member so that the firing pin of the gun will cause the firing of the same.

It will be apparent that all of these various pieces are in effect loose pieces and thus from the standpoint of loading involve either complicated machinery or a substantial amount of hand work if hand loading is resorted to, not to mention the fact that the shot in being expelled from the shell, passes through the barrel of the gun and in so doing tends to lead the said barrel at the same time seriously affecting the pattern resulting from the explosion of the powder since the shot are rubbed during passage through the barrel and thus a great many of them are flattened or worn off at certain spots so that a non-uniform pattern results.

While there have been improvements made in the loading of shells relating to the wadding and other phases thereof, there still remains what may be termed multiple piece wads or loading provisions and further while the use of plastics has likewise been introduced, the ultimate use of said plastics to their real potentialities has not heretofore been contemplated or in fact provided by any known wadding construction.

With the foregoing in mind it is a principal object of this invention to provide a novel wadding and container unit, which is in reality a one piece unit, and may thereby be handled much more expeditiously, the said unit being comprised of parts which may be molded preferably in one piece of plastic so that the advantages of plastic may be attained, and further the wadding and container unit is arranged to support the shot therein during its passage through the barrel of the gun so that it does not rub against the barrel in any manner at all.

Another object of this invention is to provide a shot shell wadding and container unit which is comprised of a single integral unit, arranged to properly confine the powder within the shell, providing a suitable gas seal in the shell and through its passage through the barrel of the gun and thereafter drop or suitably release the shot therefrom so that a uniform pattern results and the wadding and container unit does not interfere with the movement thereof nor distract the person doing the shooting.

Another object of the invention is to provide a novel wadding and container unit in which the unit includes a suitable spacer to provide the necessary gas seal and confine the powder within the shell, and the container unit is provided in two parts in one form of the invention so that when the unit leaves the gun barrel portions of the unit immediately are opened to release the shot therefrom and drop sufficiently quickly to the ground to prevent any interference with the proper shot pattern, and

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the shot will make thereafter a uniform pattern irrespective of the number of times the gun is fired since the barrel is not leaded in such a manner to affect the movement of the shot therethrough, nor is the barrel worn by the leading and passage of shot in such a manner that it ultimately seriously affects its accuracy.

Another object of the invention is to provide a shot shell wadding and container which is susceptible of carrying the shot therewithin as a unit and eliminating the necessity to crimp the paper or cardboard shell casing itself, thus making it possible to reload a shell casing of the usual form a good many more times since the crimping operation is not required and thus the end of the shell is not adversely affected by the same, in fact the life of the shell may be very substantially extended since the same may be initially crimped and subsequently cut off shorter so that the said life is extended by reason of the fact that a great many more usages of the shell may be resorted to.

Other and further objects of the invention will be understood from a consideration of the specification appended hereto and disclosed in the drawing wherein:

FIGURE 1 is a longitudinal sectional view of a shell, loaded, in the generally conventional manner availing of the wad and container unit with the shell being crimped.

FIGURE 2 is a longitudinal sectional view of the wadding and container unit in its shot receiving position, with the same being indicated by dotted lines as the position resorted to in molding or forming the wadding and container unit of plastic.

FIGURE 3 is a perspective view showing the wadding and container unit in its molded position and prior to insertion in a shell casing.

FIGURE 4 is a side view illustrating a modified form of wadding and container unit.

FIGURE 5 is a perspective view of the wadding and container unit of FIGURE 4 in its molded position.

FIGURE 6 is a longitudinal sectional view of a shell loaded with a wadding and container unit of slightly different form in which a cap or closure is availed of and the crimping operation obviated.

FIGURE 7 is a combination view showing the wadding and container unit of the FIGURE 6 disclosure in its position prior to having the cap or closure inserted therein, and the dotted lines indicating the formed position of the parts.

Referring now to FIGURE 1 initially, the shell casing is shown as including a cardboard or paper body generally laminated of several layers and indicated at 1, engaged at its lower end with a suitable brass ferrule 2, which by suitable forming, engages at 3 with the casing 1 in such a manner as to retain the same connected thereto, the ferrule 2 being provided with a primer or cap 4 inserted in the usual manner and frictionally held in place so that it may be fired subsequently.

A filler material 5 is shown surrounding a primer hole liner 6, the powder being indicated at 7 in its fully loaded condition.

The wadding and container unit hereof is illustrated generally in FIGURE 2 and denoted 8, comprising a base section 9 which is cylindrical and at its lower end cup shaped as indicated at 10, the cylindrical form of the section including an outer wall 11 and a bottom 12.

Integrally formed with the bottom are a series of support members 13, in this instance shown as comprising what may be termed posts which for the ease of molding are round and extend upwardly to a level with the upper edge 14 of the base section 9.

Suitably hingedly connected to the base section by the hinge portions 15 and 16 is a container section formed of semi-cylindrical members 17 and 18 which include the semi-cylindrical walls 19 and 20 respectively being provided at their lower ends with bottom forming por-

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tions 21 and 22 respectively, these being semi-circular as will be readily understood, the members 17 and 18 being arranged to fold into the position shown in FIGURE 2 so that the bottom forming portions 21 and 22 rest on and are supported by the support members or means 13.

There is thus provided what is in effect an upwardly extending open top container, in which the shot are intended to be supported as is illustrated in FIGURE 1, the container portion being maintained in its closed position obviously by the confinement within the cartridge casing 1.

It should be pointed out that the wadding and container unit herein being described, is molded of a suitable plastic material, and molded in the position shown in FIGURE 3, so that a mold of relatively uncomplicated form may be used and yet the ultimate product is rather complicated and adequately arranged to support the shot there within for the purposes hereof.

With the foregoing in mind, and the shell loaded as shown in FIGURE 1, it should possibly be noted that in most cases with a usual shot gun shell some 400 shot are carried therewithin, and the upper end of the cardboard casing 1 is crimped over so as to retain the shot during ultimate handling thereof and prior to actual firing of the shell in the gun.

With the construction herein described in detail, when the primer 4 is fired, the entire shot shell wadding and container unit is expelled from the shell, passing through the gun barrel, and ultimately outwardly therefrom. It has been found during the course of actual firing of this particular wadding and container unit that the container portions 17 and 18 which are actually of course segments, tend to fly off to opposite sides very quickly usually within 10 to 15 yards and the base section proceeds about 20 yards. It has been found that there is no distracting effect from this type of action, since the parts are relatively small and become separated at the hinge connections as will be noted.

It is emphasized that the shot are maintained in their container location until the segments separate or open and thus none of the shot rubs the barrel as is ordinarily the case with common loading techniques. In fact under most circumstances nearly 200 shot rubbed the barrel of a gun in ordinary loading techniques as opposed to none of the shot with the container and wadding unit hereof.

Referring now to FIGURES 4 and 5, a somewhat different form of container and wadding unit is disclosed, comprising a segment 25 connected hingedly to a further segment 26, these segments including container portions 27 and 28 respectively, with the segment 25 having a base segment portion 29, the base segment portion of the segment 26 being denoted 30.

It will be understood that the base segment portions 29 and 30 are different, the segment portion 29 being equipped with a bottom forming member 31 comprising a circular part, which acts as a bottom forming portion for the segment 30 if desired.

It will be apparent that this circular member could be formed in halves so that the same identical form of segments could be provided if desired, with the support members in this instance being transversely extending webs 33 for the segment 25 and 34 for the segment 26, these forms of supports being dictated by the necessity or preference of the mold designer to make them easy to form as may be the case and at the same time provide enough support for the container section to effectively carry out the purpose of the wadding and container unit contemplated hereby.

It will be apparent that this wadding and container unit of FIGURES 4 and 5 could be readily substituted for that of FIGURES 1, 2 and 3 with similar results being attained to retain the shot within the container portion and facilitate loading by the necessity to handle only one piece or one unit in effect.

FIGURES 6 and 7 disclose a further application of

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the contemplation hereof, in which the wadding and container unit of FIGURES 2 and 3 is shown as being provided with a lip formed by lip sections 36 and 37 on the respective segments 38 and 39, these corresponding of course to the segments 17 and 18 previously referred to. The balance of the construction is the same including a base section 40 with suitable support members 41 there-within, the segments 38 and 39 being hingedly connected at 42 and 43 for positioning in juxtaposition as shown in FIGURE 7 when positioned within the cartridge casing 1.

In this instance however, rather than necessitating the crimping of the shell in the usual manner, a suitable closure means in the form of a cap 45 of any preferred configuration but at least including a peripheral groove 46 therewithin adapted to engage with the lip formed by the lip portions 36 and 37 previously mentioned.

It will be apparent therefore that when the wadding and container unit of FIGURE 7 is disposed within a cartridge casing such as 1, that subsequent positioning of the shot within the container section may be followed by emplacement of the closure means or cap 45 so that the peripheral groove 46 engages the lip portions 36 and 37 to thereby retain the shot within the container section without necessitating any further manipulation as by crimping or the like.

FIGURE 6 discloses this arrangement of the various elements heretofore referred to in detail and thus of course facilitates the use of a shorter shell casing 1a or of a shell casing in which the open end has been worn as by continuous crimping thereof and has thereafter been cut off so as to make the shell casing usable for subsequent reloading.

In view of the foregoing it will be apparent that a novel and important improvement in shot shell wadding and container construction has been provided which facilitates loading of the shells by hand if desirable and makes possible the extending of the life of the gun barrel as by preventing the leading normally taking place therewithin, as well as improving the shot pattern ultimately effected by firing of the shell.

The respective parts of the shot shell combination shown in FIGURE 6, corresponding to those of FIGURE 1 are denoted by corresponding numbers subtended with the letter "a."

I claim:

1. In a combination wad and shot container construction, the combination comprising: a wad portion and a shot container portion, said shot container portion including cup defining wall parts movable between a cup defining position and an extended position, frangible hinge means interconnecting said wad portion and said wall parts, said hinge means normally urging said wall portions toward said extended position.

2. The combination defined by claim 1 in which said wad portion includes a substantially tubular body, an integral closure member for said body defining a bottom wall therefor and at least one vertically oriented support element affixed to said bottom wall and extending upwardly within said tubular body to a point adjacent the position of said cup defining wall parts when said cup defining wall parts are in the cup defining position.

3. The combination defined by claim 2 wherein said bottom wall of said tubular wad body is recessed within said body and said recess defines a downwardly extending annular skirt portion at the lower extremity of said wad portion.

4. The combination defined by claim 2 in which said support means comprise a plurality of vertically oriented column-like members whose axes are substantially parallel.

5. The combination defined by claim 2 in which said support means comprise at least one web-like member interconnecting the said tubular body of said wad por-

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tion and one of said cup defining wall parts of said shot container portion.

6. In a combination wad and shot container construction for shotgun shells, the combination comprising: a wad portion and a shot container portion, said shot container portion including a plurality of individual side wall portions and a plurality of individual bottom forming portions, each of said side wall portions being interconnected to one said bottom forming portion to define a plurality of semi-cylindrical members, each of said hemi-cylindrical members being movable between cup defining and extended positions, hinge means interconnecting each of said semi-cylindrical members with another portion of said container construction and normally

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urging said semi-cylindrical members toward said extended position.

#### References Cited by the Examiner

##### UNITED STATES PATENTS

|           |      |                    |        |
|-----------|------|--------------------|--------|
| 3,074,344 | 1/63 | Devaux             | 102—42 |
| 3,099,958 | 8/63 | Daubenspeck et al. | 102—42 |
| 3,121,391 | 2/64 | Young              | 102—42 |

##### FOREIGN PATENTS

|           |      |         |
|-----------|------|---------|
| 1,255,572 | 1/61 | France. |
| 1,255,993 | 2/61 | France. |
| 511,012   | 1/55 | Italy.  |

15 SAMUEL FEINBERG, *Primary Examiner.*