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PLASTIC MATERIAL DISPENSER

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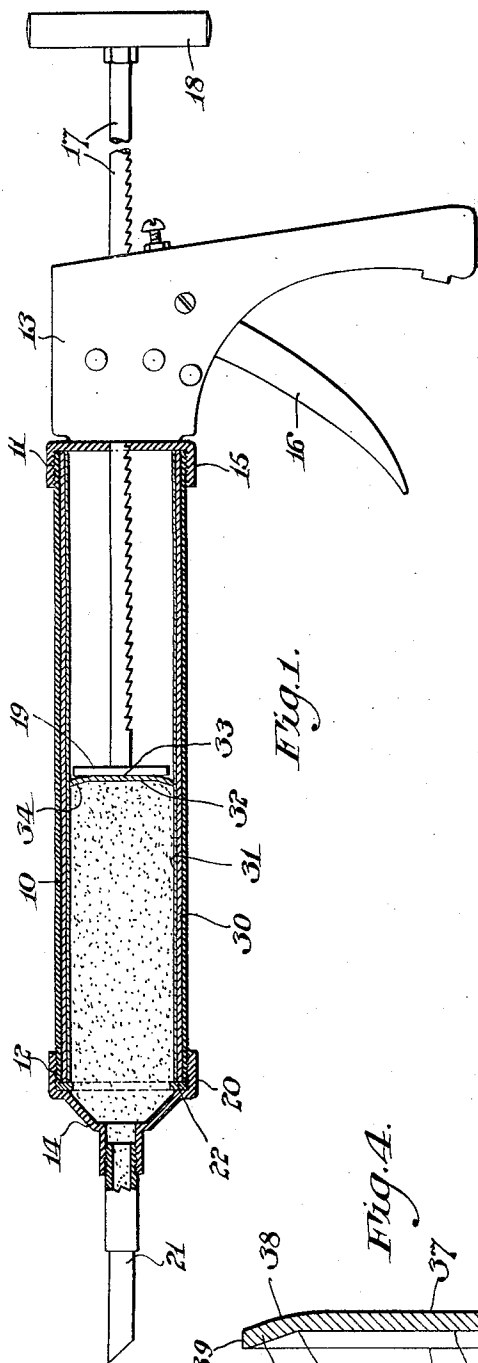


Fig. 1.

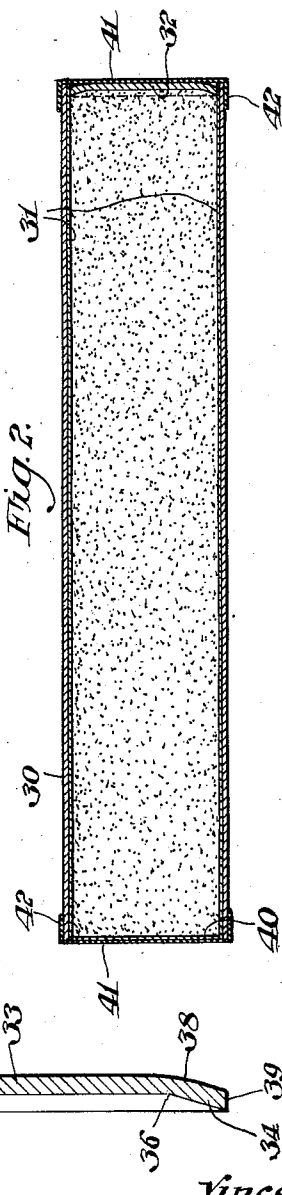


Fig. 2.

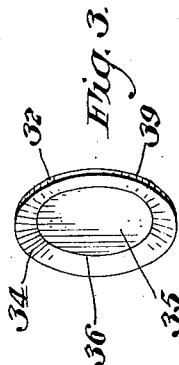


Fig. 3.

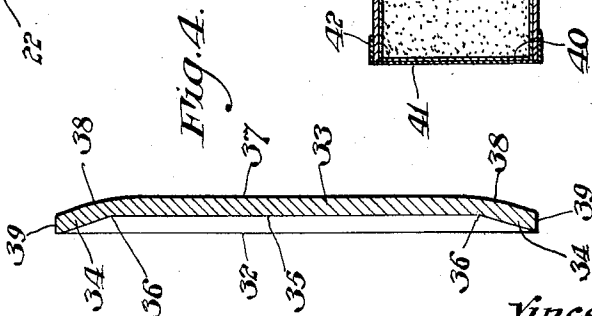


Fig. 4.

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PLASTIC MATERIAL DISPENSER

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2 Claims. (Cl. 221-78)

This invention relates to plastic material dispensers, that is to say, to improved means for dispensing and applying plastic materials such as caulking compounds, putty, heavy greases, or the like.

More specifically considered, the invention relates to a cartridge in which the plastic material is initially placed, usually at the factory, said cartridge being adapted to be inserted in a gun of any preferred type, but with which the cartridge is coordinated.

The principal object of the present invention is to provide a cartridge for plastic materials, such as caulking compounds, putty, greases, or the like, which may be filled at the factory, and delivered to the user for use in a gun having means for applying pressure to expel the plastic material through the nozzle or other delivery member of the gun, which cartridge will be relatively inexpensive, which may be readily and conveniently inserted in the gun, and in the use of which waste of the material will be reduced to a minimum.

Heretofore, various types of prefilled cartridges or inserts have been suggested for use in guns for dispensing and applying plastic materials, but none of these have proved entirely satisfactory. Nevertheless, there is recognized need for such devices, and the saving of time of the user through the employment of such prefilled cartridges or inserts is well understood.

The present invention, therefore, contemplates the provision of a novel form of cartridge adapted to be inserted in the barrel of a dispensing gun, which is quite efficient for its intended purpose, yet is so relatively inexpensive that the same may be discarded after a single use.

The nature and characteristic features of the invention will be more readily understood from the following description, taken in connection with the accompanying drawing forming part hereof, in which:

Figure 1 is a view, partly in section and partly in side elevation, of a caulking gun having in place therein a cartridge or insert embodying the main features of the present invention, the same being shown with the parts in their positions after a portion of the contents of the cartridge have been expelled therefrom;

Fig. 2 is a longitudinal section of a filled cartridge or insert as the same is furnished to the user;

Fig. 3 is a perspective of a novel form of piston member employed in the cartridge; and

Fig. 4 is an enlarged diametral section of said piston member.

Referring now more particularly to Fig. 1 of the drawing, there is there shown a caulking gun of a more or less common type, in connection with which the cartridge of the present invention is adapted to be used.

Said gun comprises a cylindrical barrel 10, the respective ends of which are threaded, as at 11 and 12, for the mounting thereon of a handle portion 13 at one end and a nozzle portion 14 at the other end. The stock or handle portion 13 is provided with a cap member 15 which is mounted on the end of the barrel 10 by means of the threads 11 above referred to.

The handle portion 13 may also be provided with the usual grip lever 16 for actuation, through suitable mechanism (not shown), of the piston rod 17. The piston rod 17 has, at its outer end, a handle 18 for the withdrawal of the piston rod to the rearmost position after the contents of the cartridge have been discharged. The inner end of the piston rod 17 is provided with an enlarged head portion 19, which coacts with the piston portion of the cartridge, as will be hereinafter set forth.

The nozzle portion 14 of the gun is also provided with a cap member 20, mounted on the end of the barrel 10 by means of the threads 12 hereinbefore referred to, and said cap member 20 is provided with a discharge nozzle 21 of any preferred type, which may be threaded therein, so as to be replaceable by nozzles of other types and sizes. There is also provided a resilient washer 22 at the end of the barrel 10 within the cap member 20, for a purpose to be presently explained.

The cartridge proper comprises a cylindrical device of such external diameter as to permit it to be inserted within the barrel 10 of the gun. The cylinder 30 of the cartridge is of such length that when it is inserted in the barrel 10 of the gun, and the cap members 15 and 20 at the ends thereof are screwed into place, the ends of the cylinder 30 of the cartridge will be seated at the one end against the cap member 15 and at the other end against the resilient washer 22, and thus any leakage of the material around the forward end of the cylinder 30 of the cartridge will be prevented.

The cylinder 30 of the cartridge is preferably made of a cardboard tube, similar to the well known mailing tubes, but it is lined interiorly with a material 31, such as Cellophane or the like, which is permanently secured to the material of

the tube and which will present a smooth interior surface, and at the same time be impervious and chemically inert to the material contained within the cylinder. At one end of the filled cartridge, there is mounted a piston member 32 made of relatively heavy cardboard having a flat central disc portion 33 against which the head portion 19 of the piston rod 17 abuts when the gun is in use. The rim 34 of the piston member 32 is flared at a slight angle of inclination to the central disc portion 33 and the peripheral edge of the flared portion 34 of the piston member bears against the smooth interior surface provided by the lining material 31 of the tube.

For the most efficient results, and as shown more particularly in Figs. 3 and 4 of the drawing, the leading face of the piston member 32 has its central portion flat as at 35, and the rim portion 34 extends therefrom at an obtuse angle, preferably from a definitely defined circular line 36, while the follower face of the piston member 32 likewise has a flat central portion 37 for engagement by the head portion 19 of the piston rod 17, from which flat portion the surface of the rim portion 34 extends in a curved conformation as at 38.

However, the important consideration is that the peripheral edge 39 of the piston member 32, which bears against the smooth internal lining 31 of the tube, is of substantially the same thickness as that of the disc proper. When the piston member is flexed by the applied pressure, the entire peripheral edge 39 is brought into close intimate contact with the interior surface provided by the lining material 31, and leakage past the piston member 32 is thus obviated.

The other end of the cartridge is provided with a thin disc 40 of paper or the like. Each end of the tube is provided with a cap member 41 made of thin metal having flanges 42 extending over the outside of the tube 30 at the ends thereof.

It will be seen that the piston member 32 at one end of the cartridge will prevent the material contained therein from contacting with the cap member 41 at that end, and the paper disc 40 at the other end of the cartridge will prevent the material from contacting with the cap member 41 at that end.

When it is desired to insert the cartridge within the gun for the purpose of affording a further supply of material to the user, the piston rod 17 is retracted to the rearmost position and the nozzle cap 20 removed by unscrewing the same from the end of the barrel 10 of the gun. The shell of the empty cartridge which has previously been used in the gun, is then removed therefrom. The filled cartridge is then taken and the caps 42 removed from the ends thereof, and also the paper disc 40 at the end remote from the piston member 32 is also removed.

The cartridge is then inserted in the gun with the piston end toward the head of the piston rod. The nozzle cap 20 is then replaced on the end of the barrel 10 of the gun and screwed up until one end of the cartridge shell is pressed against the internal shoulder provided by the cap member 15, and the other end is pressed against the

washer 22 provided in the cap member 20 at the forward end of the gun barrel.

The device is now ready for use, and the gun may then be manipulated according to the particular mechanism thereof, causing the head 19 at the end of the piston rod 17 to be advanced forwardly in the barrel, pushing the piston member 32 of the cartridge forward to expel the contents of the cartridge through the nozzle of the gun.

It should be noted that the piston member of the cartridge is not of the usual form of cup members which have hereinbefore been suggested for such purposes, as it has been found that the peculiar shape of the piston member, as herein shown and described, will work much more efficiently with a minimum of leakage past the same, particularly when the same is used within a tube lined with smooth surfaced material such as Cellophane or the like.

I claim:

1. A cartridge for use in guns for dispensing plastic material comprising a tube with an internal lining of smooth sheet material, a free piston member comprising a cardboard disc having a forwardly disposed face for compression against the plastic material and a rearwardly disposed face against which pressure is adapted to be applied for actuation of said piston member, said disc having a flat central portion and a rim portion extending forwardly therefrom at an obtuse angle and at nearly a right angle with respect to the internal surface of the lining of the tube, said rim portion having its outer terminal edge portion between said faces in circumferential contact with said interior lining, said terminal edge portion being of a width substantially equal to the thickness of the central portion of the disc and said terminal edge portion bearing against the internal surface of the tube throughout its entire width.

2. A cartridge for use in guns for dispensing plastic material comprising a cardboard tube with an internal lining of smooth synthetic cellulosic sheet material secured thereto, a piston member comprising a cardboard disc having a forwardly disposed face for compression against the plastic material and a rearwardly disposed face adapted for contact for actuation of said piston member, said disc having a flat central portion and a rim portion extending forwardly from the central portion at an obtuse angle and at nearly a right angle with respect to the internal surface of the lining of the tube, said rim portion having its outer terminal edge portion between the said faces of a width substantially the same as the thickness of the central portion of the disc, said terminal edge portion being interiorly circumferentially disposed in contact with and extending along and bearing throughout its entire width against the smooth internal surface provided by the lining material of the tube, said disc being initially mounted at one end of the tube, and removable cap members externally mounted on the ends of the tube.

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