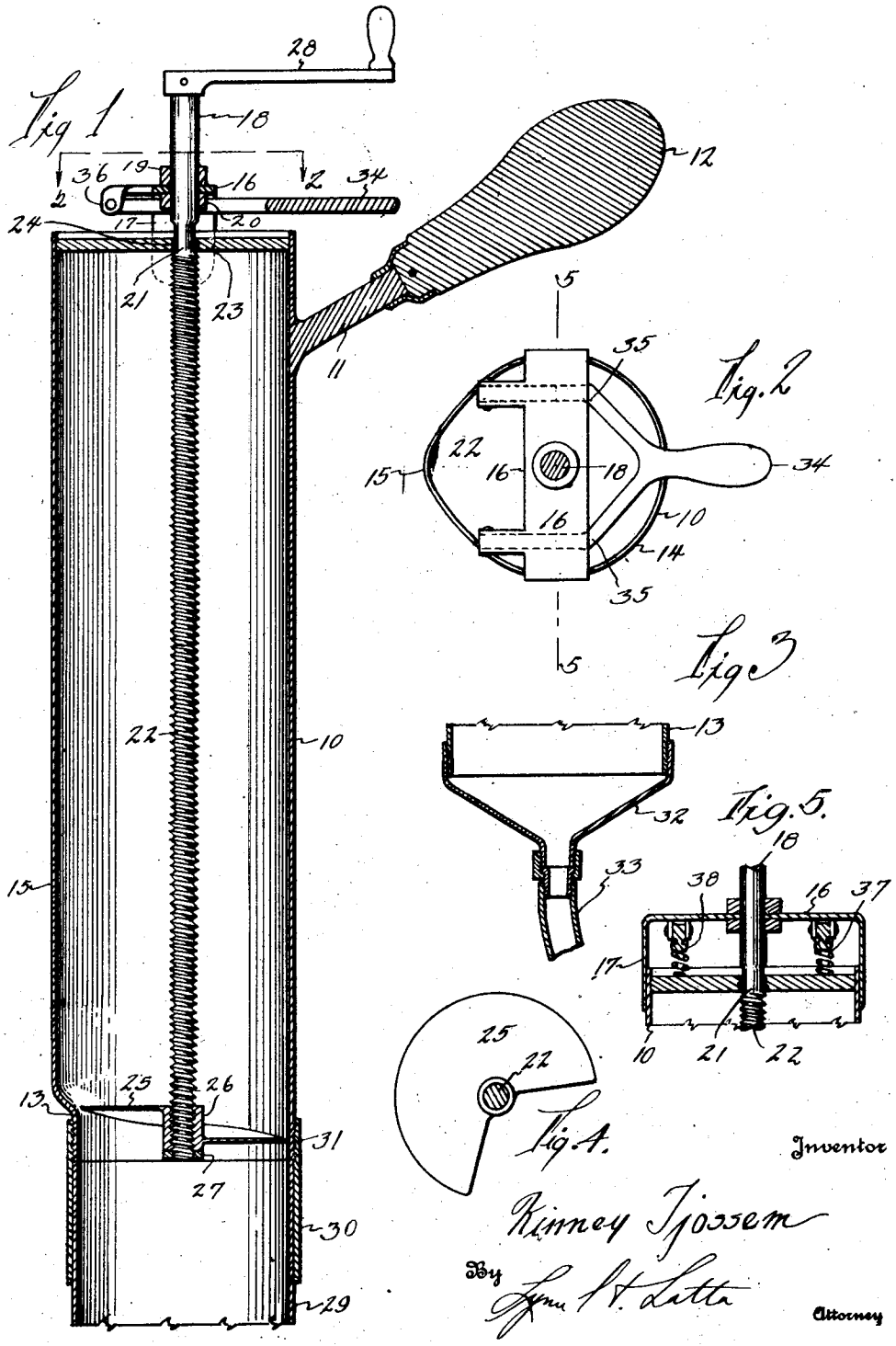
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K. TJOSSEM

LOADING GUN

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LOADING GUN.

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My invention relates to a loading gun to be used for purposes analogous to that of the ordinary grease gun and it is my object to provide such a gun which is particularly adaptable to use a material such as ice cream.

More specifically, it is my object to provide a loading gun having means for cutting a material such as ice cream and propelling it into the gun.

Another object of my invention is to provide such a gun in which the tendency of the cutting member to reduce the bulk of the ice cream by compression upon loading and unloading the gun, is largely overcome by the combination of such a propelling element with a moving piston for tending to draw the ice cream within the gun by suction.

A still further object of the invention is to synchronize the action of the suction device with the cutting and propelling element in such a way that the latter tends to move the material at a greater rate than the former, in order to minimize the tendency for air to enter between the material fed toward the piston by the propelling device and the piston.

Another object of my invention is to provide an arrangement in which the movement of the piston is accomplished by a shaft which also carries the propelling device and in which the movement of the piston may be stopped at the extremity of said shaft remote from the propelling device, while the rotation of the shaft continues.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which:

Fig. 1 is a longitudinal, sectional view through the gun.

Fig. 2 is a transverse, sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a sectional view through the lower end of the gun with a grease nozzle attached.

Fig. 4 is a plan view of the cutter, the propeller shaft being shown in section.

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 1.

I have used the reference character 10 to indicate generally the cylindrical barrel of my gun, which may be made of any suitable metal. To the upper end of the barrel is secured a handle shank 11, carrying a handle member 12. The lower end of the barrel is circular in cross section as at 13 and the body of the barrel above the circular portion 13 is in cross section circular during a majority of its circumference as at 14 in Fig. 2, and extruded into an oval shape as at 15 at one side.

A bracket 16, yoke shaped, having the depending arm 17, is secured to the upper end of the barrel by means of said arms.

Through a central opening in the bracket is extended a shaft 18 and a pair of collars 19 and 20, respectively, are secured to the shaft 18, one on either side of the bracket 16, to support the shaft relative to said bracket while allowing it to rotate. Where the shaft enters the barrel 10, it is provided with a reduced neck portion 21 and beyond the neck 21, the shaft is threaded as at 22.

A piston 23, having a shape identical with the interior of the body portion of the barrel 10, is received in said portion of the barrel for up and down sliding movement therein. A threaded opening 24, in the piston 23, receives the thread.

The neck 21 is of sufficiently small diameter to be received through the threaded opening 24 without engaging the threads.

To the lower end of the shaft 22 is secured a screw 25 having a boss 26 threaded and received upon the shaft 22. A locknut 27 secures the screw against rotation upon the shaft.

The screw 25 constitutes the cutting and propelling device mentioned in the objects.

The pitch of the screw is considerably greater than that of the threads 22 and the circumference of the blade is less than 270 degrees. Making allowance for the slippage of material past the blade, the action of the blade tends to move the material somewhat faster than the longitudinal movement of the piston 23 in the barrel produced by the rotation of the shaft.

It will now be seen that, the lower end of the gun being forced into a mass of ice cream, and the shaft rotated rapidly by means of the crank handle 28, provided at the upper end thereof, the ice cream will be cut by the screw 25 and forced upwardly, while simultaneously the piston 23 will be moved upwardly by the rotation of the

threads 22 within the opening 24, creating a partial vacuum to lift the ice cream within the barrel and relieve its weight from the screw 25. I find that the piston alone is insufficient to pull the ice cream within the barrel of the gun. This is due partly to the fact that the ice cream is highly porous and air can readily pass through it, and partly due to the fact that the ice cream, after standing in a container packed with ice, as is ordinarily done, becomes set to such an extent that it is practically solid rather than fluid in consistency.

By combining, therefore, the screw with the piston, the ice cream may be loaded into the barrel of the gun, following the piston clear to the top of the barrel, and being very little compressed.

By using only a screw, the ice cream could be loaded in the gun, but due to the porosity of the ice cream, already referred to, it will be compressed and reduced in bulk. It is well known that ice cream can be compressed so as to diminish very substantially in bulk from its original form after leaving the freezer. This loss of bulk has been constantly encountered by retail dealers in ice cream and continually constitutes a problem in the handling of ice cream across the counter.

The present invention aims particularly to provide an instrument for quickly loading a cylindrical carton such as the ordinary cardboard size carton, used in carrying ice cream from the store.

The carton is partially shown in Fig. 1 at 29 and is received within a nozzle formed by a sleeve 30 threaded at 31 upon the barrel 10. The lower edge of the barrel 10 forms a shoulder to act as a stop for the upper end of the carton 29 and the wall 10 is of such thickness as to bring the inner surface, thereof, flush with the inner surface of the carton.

After filling the gun by rotation of the shaft in one direction, the contents may be discharged by reversing the direction of rotation, the piston now serving as the positive means for forcing the ice cream downwardly and the screw in its turn, serving to clear the neck of the gun so as to avoid compression of the ice cream. It will be noted in this connection that the neck portion of the barrel extends only to the upper extremity of the screw, so that the piston may travel to a position immediately adjacent the screw and so that in ejecting the ice cream, the piston need not force it to flow from the body portion of the barrel into the smaller neck portion. That is, the screw will cut away the ice cream, which is being pushed downwardly, at a rate somewhat faster than the downward flow and the solid column of ice cream will never, in its downward travel, be forced against the shoulder formed between the neck and body of the container.

Where the gun is to be used for grease I provide a nozzle 32, threaded onto the end of the barrel in the same manner as the sleeve 30, and having the usual flexible hose member 33 for connection to an automobile fitting.

It will be understood that it is somewhat difficult to perfectly synchronize the action of the screw 25 upon the material with that of the piston 23 and in order to insure packing of the barrel, the operator may, if he desires, continue rotating the screw after the piston 23 has become disengaged from the threaded portion 22 of the shaft. Thus the column of material may be raised upwardly to clear any air space that may have formed between the piston and the material.

It will be noted that after the piston has left the threads, that sufficient opening will be left between the reduced portion 21 and the opening 24 to allow escape of this air.

In order to insure re-engaging of the piston with the shaft, I provide a lever 34 having two arms 35, each pivoted to a pair of arms 36 depending from one side of the bracket 16. A pair of springs 37 are secured to buttons 38 formed upon the arms 35 and extend downwardly to engage the piston 23. The handle of the lever 34 extends toward the handle 12 and, being positioned between the bracket and the upper edge of the barrel, the latter serves as a stop to limit its downward movement while the former prevents its moving to a position where it would interfere with the handle 28.

If the downward movement of the lever were not limited, the action of the springs would be centered against one side of the piston, should the lever be moved below a reasonable distance from its horizontal position. By resiliently pressing the piston against the threaded rod and then rotating the rod, I find that the threads will readily enter the opening 24.

Some changes may be made in the construction and arrangement of the parts of my invention without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims, any modified forms of structure or use of mechanical equivalents, which may be reasonably included within their scope.

I claim as my invention:

1. In a loading gun, a barrel, an axially mounted threaded rod therein, a piston threaded upon said rod and slidably but non-rotatably mounted in said barrel, and a screw secured to the rod between the piston and the mouth of the barrel, said screw having a greater pitch than that of the threads upon the rod, said rod at a point remote from the screw, having a reduced neck to be received by the piston at the upper limit of its move-

ment and to allow the screw to continue rotation after movement of the piston has stopped.

2. In a loading gun, a barrel, an axially mounted threaded rod therein and a piston threaded upon said rod and slidably but non-rotatably mounted in the barrel, said rod having at a point remote from the mouth of the barrel, a reduced neck to be received by the piston at the upper limit of its movement, to allow the rod to continue rotation after movement of the piston has stopped, and a lever fulcrumed at the said remote end of the barrel, carrying a resilient member adapted to engage the piston when the latter is at its upper limit of movement, upon depression of the lever.

3. In a loading gun, a barrel provided at its upper end with a bracket, spaced from the edge thereof, a rod journalled in said bracket and having a threaded portion extending axially through the barrel, a piston threaded upon said rod and slidably but non-rotatably mounted in the barrel, the rod having a reduced neck between the threaded portion and the bracket, to be received by the piston opening to allow the rod to continue rotation after movement of the piston has stopped, a lever pivoted to the bracket between the bracket and barrel, and a resilient element interposed between the lever and piston, adapted to be compressed therebetween upon depression of the lever when the piston is at its upper extremity of movement.

4. In a loading gun, a barrel provided at its upper end with a bracket, spaced from the edge thereof, a rod journalled in said bracket and having a threaded portion extending axially through the barrel, a piston threaded upon said rod and slidably but non-rotatably mounted in the barrel, the rod having a reduced neck between the threaded portion and the bracket, to be received by the piston opening to allow the rod to continue rotation after movement of the piston has stopped, a lever pivoted to the bracket between the bracket and barrel, and a resilient element secured to the lever and extending toward the piston, adapted to be compressed therebetween upon depression of the lever when the piston is at its upper extremity of movement.

5. In a loading gun, a barrel, an axially mounted threaded rod therein and a piston threaded upon said rod and slidably but non-rotatably mounted in the barrel, said rod having at a point remote from the mouth of the barrel, a reduced neck to be received by the piston at the upper limit of its movement, to allow the rod to continue rotation after movement of the piston has stopped, a lever fulcrumed to the said remote end of the barrel, and a resilient element interposed between the lever and piston, adapted to be compressed therebetween upon depression of the lever when the piston is at its upper extremity of movement.

6. In a loading gun, a barrel, an axially mounted, threaded rod therein, a piston threaded upon said rod and slidably but non-rotatably mounted in said barrel and a screw secured to the rod between the piston and the mouth of the barrel, said screw being of substantially the same diameter as the barrel.

7. In a loading gun, a barrel, an axially mounted threaded rod therein, a piston threaded upon said rod and slidably but non-rotatably mounted in said barrel and a screw secured to the rod between the piston and the mouth of the barrel, said screw being of substantially the same diameter as the barrel and having a circumference less than 360°.

8. In a loading gun, a barrel, an axially mounted, threaded rod therein, a piston threaded upon said rod and slidably but non-rotatably mounted in said barrel, a screw secured to the rod between the piston and the mouth of the barrel, said rod having, at a point remote from the mouth of the barrel, a reduced neck to be received by the piston at the upper limit of its movement and a resilient element to engage the piston at said upper limit and to urge it toward the threaded portion of the rod.

Signed this 26th day of September, 1926, at Paullina, in the county of O'Brien and State of Iowa.

KINNEY TJOSSEM.