

Aug. 15, 1933.

C. H. AYARS

1,922,148

CANNING MACHINE

Filed Oct. 14, 1930

5 Sheets-Sheet 2

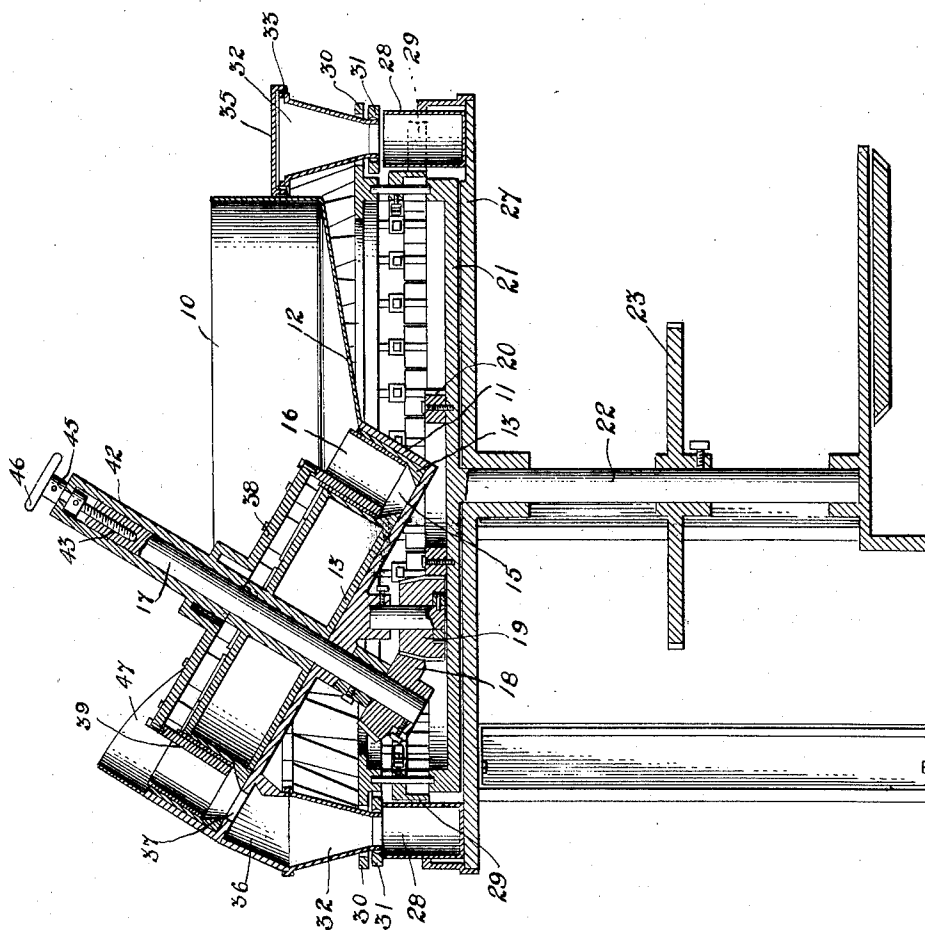


Fig. 2-

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5 Sheets-Sheet 3

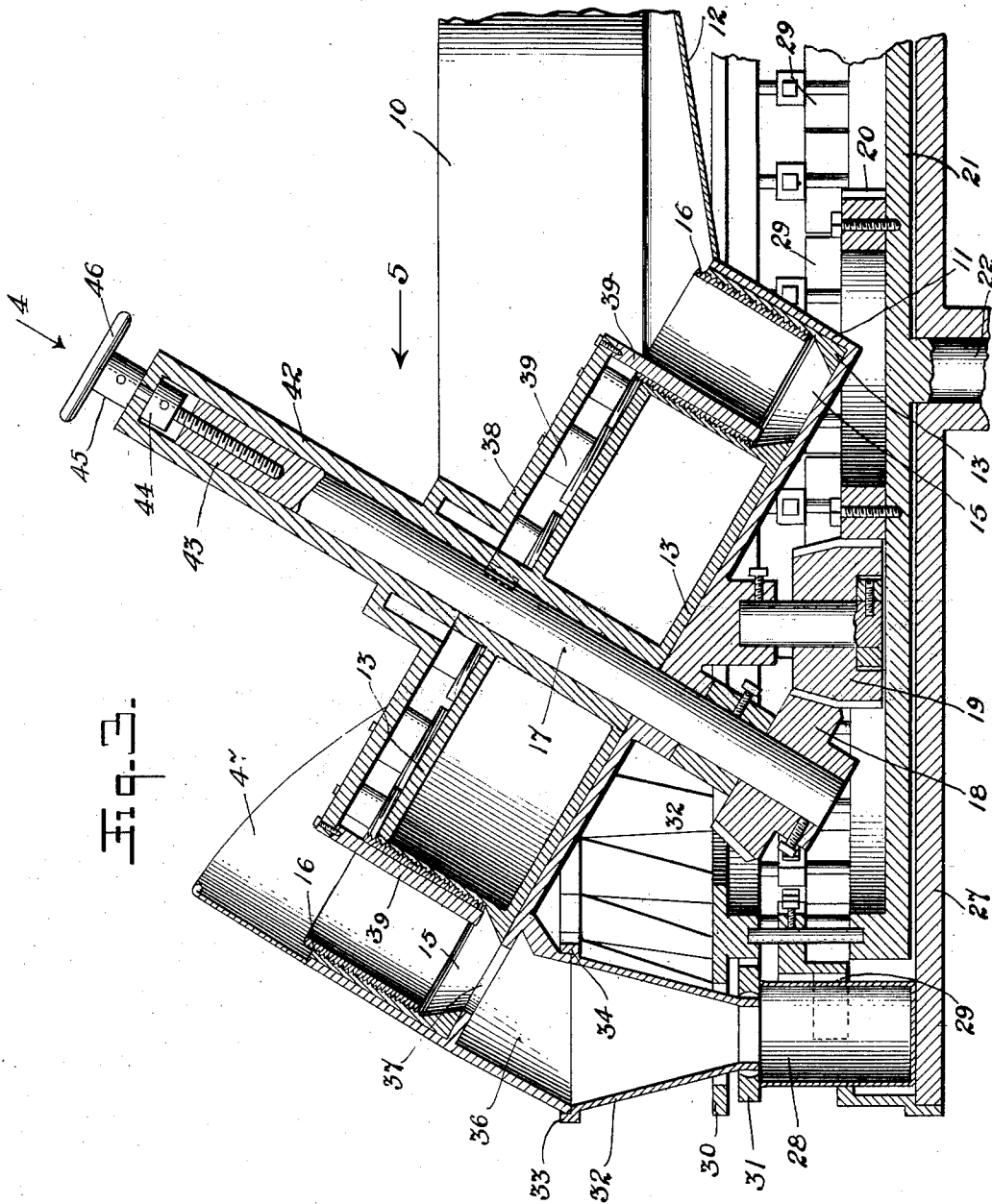


Fig. 3.

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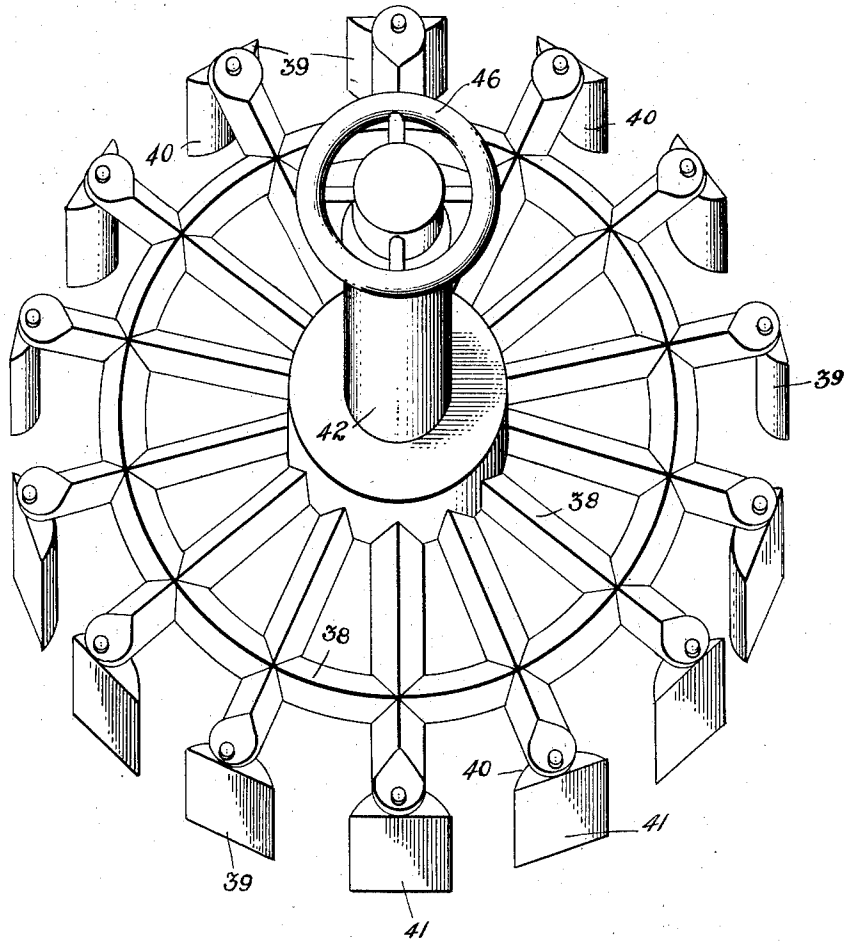
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Fig. 5.



WITNESS

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UNITED STATES PATENT OFFICE

1,922,148

CANNING MACHINE

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Application October 14, 1930. Serial No. 488,575

12 Claims. (Cl. 226—102)

This invention relates to canning machines, and has for an object to provide an improved type of mechanism which shall fill cans in greater numbers than has heretofore been accomplished.

As in many other arts, the art of canning various materials constantly calls for greater, and still greater speed in the handling of the cans, and the material to be put into the cans, and the structures at present known while efficient, are not sufficiently speedy for up-to-date requirement. The present invention, is therefore, more particularly directed to providing a canning machine which shall introduce, fill and discharge cans at a greater rate of speed than has heretofore been considered possible.

An object is, therefore, to provide a tank in which the commodity to be canned is supplied, with a rotating dipper provided with compartments adjustably arranged to dip from the said tank the exact amount for filling a can, and for introducing such measured quantity into a can which is presented by the machine for that purpose.

The invention therefore, comprises a tank, or receptacle, within which rotates, or dips, a disk having a plurality of compartments adjacent its perimeter, with means for adjusting the capacity of the compartments, and an underlying rotating mechanism for taking in empty cans, properly positioning them to receive the measured material from the dipper, and discharging the cans for further processing by closing, and the like, and at a high rate of speed.

The invention is directed to other objects and possesses other features of novelty and advantage, some of which, together with the foregoing, will be hereinafter more fully set forth.

In the drawings:—

Figure 1 is a top plan view of the improved canning machine,

Figure 2 is a sectional view taken diametrically through the dipper, as on line 2—2 of Figure 1,

Figure 3 is a view taken on the same plane through the dipper, and as shown on an enlarged scale,

Figure 4 is a top plan view of the dipper, and

Figure 5 is a perspective view of the spider employed for adjustably varying the capacity of the dipper compartments.

Like characters of reference indicate corresponding parts throughout the several views.

In the canning of material, and more particularly food material, and still more particularly

food materials in relatively liquid form, such as soups, or the like, the problem has heretofore been to properly measure the material to introduce into each can in the exact amount required, and to do so at a speed which will be efficient in accordance with present day standards.

The present machine comprises a tank 10, or receptacle, of such capacity as will hold a sufficient supply of the material. Within this tank 10, a shell 11 is provided, such shell being set at an angle to the horizontal, so that the lower edge of this inclined shell dips below the lowest part of the tank 10, as shown at Figure 3. The tendency, of course, of material introduced into the tank 10, which is provided with an inclined bottom 12, is to flow toward the shell 11.

Within the shell 11, and fitting the same with a close working fit, is a disk 13. This disk 13 is, in effect, a solid disk, but for obvious mechanical reasons, may be cored out as shown at 14, such coring being merely an expedient.

About the perimeter of this disk 13, are provided a plurality of sockets having preferably tapered, or converging lower extremities, as shown at 15. Preferably, these sockets will be screw threaded, and will receive sleeves 16 which are complementarily screw threaded so that said sleeves may be adjusted, for capacity, by rotation.

This disk 13, is mounted upon a shaft 17, which extends upwardly through the bottom of the shell 11 from a pinion 18, by which the shaft 17 is driven, necessary collars, supporters, or the like, being provided as shown.

This pinion 18 is driven by a pinion 19, which in turn, receives power from the intergeared pinion 20, carried upon the rotating turret 21. This turret 21 is driven in any approved manner as by the shaft 22, and gear 23. The specific type of gearing is, of course, unimportant to the present invention, and has therefore, been shown in Figure 1 only in dotted lines, and is driven from a pulley 23 to which power is applied. The pulley 23 is on the shaft 24, from which is also driven the worms 25 and 26, the latter being the worm for supplying the cans to the machine, and the former being the worm for withdrawing them from the machine. These mechanisms for supplying the cans, and removing them from the machine, are new and novel, but form the subject matter of copending applications filed on even date herewith for Can delivering device, Serial No. 488,576, and Can washing and feeding mechanism, Serial No. 488,577, and will, therefore, not be particularly described in this application.

The turret 21, rotates immediately above a fixed table 27, about and upon which the cans 28 are rotated by means of can engaging devices 29, carried by the turret 21.

Rotating also with the turret 21, and impelled thereby, is an annulus 30, and an underlying annulus 31. Extending through the annuli 30 and 31, are a series of funnels 32 which are preferably interconnected at their upper ends, forming up-
standing flanges 33 and 34. These funnels operate throughout the major part of their orbit be-
neath an annulus 35, which acts as a cover for the funnels to protect the same from dirt, and also assist in preventing slopping of the cans.

The orbit of these funnels passes beneath the higher peripheral point of the disk 13, and at such location, a conduit 36 is provided. As the mechanism is designed to operate at a high speed, this conduit 36, is so proportioned that it will extend through a circumferential arc equal to three of the sockets in the disk. It is obvious, of course, that this exact number is not essential to the invention, and may be increased or decreased as use may dictate. The bottom of the shell 11, immediately above the conduit 36, is provided with an arcuate opening 37 so that as the sockets in the dipper by rotation pass over the conduit 36, they will discharge their contents through the opening 37, and sufficient time is allowed by discharging into a plurality of these funnels to adequately drain the measuring cups, represented by the sleeves 16.

As pointed out, these sleeves 16 are adjustable upon the screw threads to vary the capacity, but as an additional means, for varying the contents of said dippers to a nicety, a spider 38 is provided having a plurality of extensions 39 at the extremities of the arms. These extensions 39 correspond in number to the sleeves 36 of the dipper, and are formed with arcuate sides as shown at 40 (see Fig. 5) to fit with a close working fit against an arc of the sleeve 16, the opposite side, or that side extending within the sleeve being preferably plane, as shown at 41.

This spider 38, is mounted upon the shaft 17, by means of a sleeve 42, and is adjustable vertically upon said shaft by means of a screw 43, inserted axially into the shaft, having collars 44 and 45, engaging the end of the sleeve 42. A hand wheel 46 is furnished for making the adjustment by means of the screw 43.

Merely as a protector, and to prevent slopping, a shield 47 is provided arching over the upper area of the dipper disk.

In operation, the tank 10, is almost filled with material to be canned. For brevity, this material may be referred to as soup. The soup, being relatively a liquid, will naturally flow to the lower part along the inclined bottom 12, and into those sleeves 16, which are dipped into the lowermost part of the shell 11. Cans will be supplied to the machine through and by the feeding mechanism, represented by the worm 26. When power is applied to the pulley 23, and through the gearing shown, or other adequate power transmission, the turret 21 will be rotated, and through the gearing shown, or other adequate power transmission, the disk 13 and spider 38 will be rotated. It is obvious that the rotation of the disk and spider will continuously agitate the contents of the tank. The bottom of the disk 13, as has been explained, fits against the bottom of the shell 11, with a close working fit, so that the soup, already contained within the

sleeve 16, will be carried thereby upwardly along the incline provided by the inclination of the disk until the particular sleeve is over the port 37, whereupon the soup, contained therein, will be discharged through such port, through the conduit 36, and into the underlying funnel 32, and thence into the can 28.

It will be understood, that the feeding mechanism supplies these cans 28 in proper sequence to be received, and carried by the can moving mechanism 29, under this conduit 36.

As the disk 13 rotates, the lowermost cups will dip into the soup within the tank 10 and be filled, rotating therewith to the port 37, to discharge. The cans being filled, will be carried about the table 27, to the discharge mechanism, represented by the worm 25, and will be thereby moved to a position of further processing.

According to present business ethics, and in compliance with the food and drugs act, it is necessary that the cans shall be filled to capacity with great accuracy. While the proper amount may be secured roughly by the adjustment of the sleeve 16, it is obvious that such nicety of adjustment as required would be impractical, and for this purpose, the spider 38, and its accompanying extensions 39, are provided. By the manipulation of the hand wheel 46, this spider, and its accompanying elements may be so moved as to adjust the capacity of the dipper cups to extreme nicety.

Of course, the canning machine, herein illustrated, may be modified in various ways without departing from the invention herein set forth and hereinafter claimed.

The invention is hereby claimed as follows:

1. A canning machine comprising a tank, a rotating dipper having its perimeter dipping at one arc into the tank and the opposite arc of its perimeter elevated over another part thereof, means to move cans in procession beneath the perimeter of the tank and the upper arc of said dipper, a plurality of funnels each positioned to direct material into an underlying can, and a conduit forming communication between the upper arc of said dipper and said funnels, and discharging material from one dipper into a plurality of funnels.

2. A canning machine comprising a tank, a disk inclined at an angle to the horizontal with its lower edge dipping into said tank and its upper edge elevated over the perimeter thereof, measuring cups in said disk, means wholly within the lines of the tank closing the bottom of said measuring cups throughout the major part of rotation of said disk, said closing means being provided adjacent the upper extent of said disk with a port spanning a plurality of measuring cups, and means to move cans in procession beneath said port.

3. A canning machine comprising a tank having a circular shell communicating therewith and inclined at an angle to the horizontal of said tank with the upper edge of its lower arc depressed below the lowest point of said tank, a dipper disk rotating in said shell and having a plurality of measuring cups therein, the bottom of said cups being closed by the bottom of said shell, said shell being provided adjacent its upper arc with a port corresponding in extent to a plurality of measuring cups, and means to move cans in procession to present a corresponding number of cans simultaneously beneath said port.

4. A canning machine comprising a tank having an inclined bottom, a circular shell formed

in said tank at an inclination to the horizontal of said tank and having the upper edge of its lowest arc below the lowest level of said tank, a disk mounted to rotate in said shell with a close working fit, said disk being provided about its perimeter with a plurality of spaced measuring cups employing the bottom of said shell as a closure for said cups, said bottom being provided adjacent its upper arc with a port of an arcuate dimension equal to a plurality of said measuring cups, and means to position cans in procession beneath said port in number corresponding to the number of cups unclosed by said port.

5. A canning machine comprising a tank, a circular dipper disk rotating independently of and within said tank at an inclination to the horizontal with the lower arc only dipping within said tank, said disk being provided about its perimeter with a plurality of measuring cups, a spider located above said disk and provided with plano-convex extensions inserted each into one of said measuring cups at the side adjacent to the axis of the spider and means to adjust the spider axially of the disk to vary the amount of said extensions included within said measuring cups.

6. A canning machine comprising a fixed tank, a dipper disk mounted to rotate upon an inclination to the tank with its lower arc dipping into said tank and provided about its perimeter with a plurality of internally screw threaded sockets, and sleeves inserted into said sockets and adjustable by the movement of said threaded interconnection to vary the capacity of the cups formed thereby.

7. A canning machine comprising a fixed tank, a circular dipper disk journaled within and at an inclination to the tank and having the upper edge of its lower arc below the bottom of said tank and its diametrically opposite arc elevated thereabove, said disk being provided about its perimeter with spaced sockets, sleeves in said sockets having means for adjustment relative to said sockets to vary the capacity of measuring cups formed thereby, and auxiliary capacity adjusting devices inserted into said sleeves.

8. A canning machine comprising a fixed tank, a dipper disk journaled within and to rotate with its lower arc below the bottom of said tank and its diametrically opposite arc elevated thereabove, said disk being provided with a plurality of internally threaded sockets adjacent its perimeter, sleeves having threaded connection with said

sockets and adjustable relative thereto to vary the capacity of measuring cups formed thereby, a spider having arms extending toward each of said measuring cups, an extension formed upon each of said arms dipping into said cups wholly at one side of each, and means to adjust the spider.

9. A canning machine comprising a tank, a shell having a bottom and upstanding sides, said shell being set at an inclination within the tank with the top of the upstanding side of its lower arc coinciding substantially with the bottom of the tank and its opposite arc elevated thereabove, a disk rotating with close working fit within said shell, a plurality of sockets formed in said disk tapered at their lower ends, said tapered part bearing upon said shell and employing said shell as a closure, said shell being provided with a port adjacent its upper arc, means dipping into one side only of each of said sockets to vary the capacity thereof, and manual means for adjusting all of said capacity varying parts simultaneously.

10. A canning machine comprising a rotating member, means for carrying cans in a circular orbit upon said rotating member, a tank fixed within the orbit of said cans, a dipper disk mounted to rotate at an inclination with its lower extent within said tank, and its upper extent above the orbit of the cans, and means to discharge material from said dipper disk simultaneously into a plurality of underlying cans.

11. A canning machine comprising a fixed tank, means to move cans in orbital procession about said tank, an agitator dipping into said tank and having a plurality of means to measure and transfer can filling quantities of material from the tank to a position over the underpassed can procession, and means to conduct said measured quantities from each of said measuring means to a plurality of the temporarily underlying cans.

12. A canning machine comprising a fixed tank, means to move cans in orbital procession about said tank, an agitator dipping into said tank and having a plurality of means to measure and transfer can filling quantities of material from the tank to a position over the underpassed can procession, means to vary the measure of said quantities, and means to conduct said measured quantities from each of said measuring means to a plurality of the temporarily underlying cans.

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