Dec. 19, 1933. F. W. COFFING 1,940,447

LINE MARKER

Filed July 11, 1932

FIG. 1

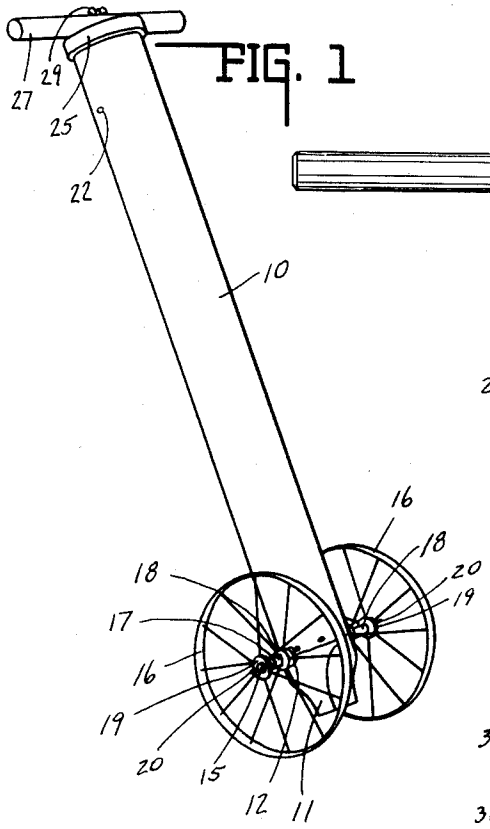


FIG. 2

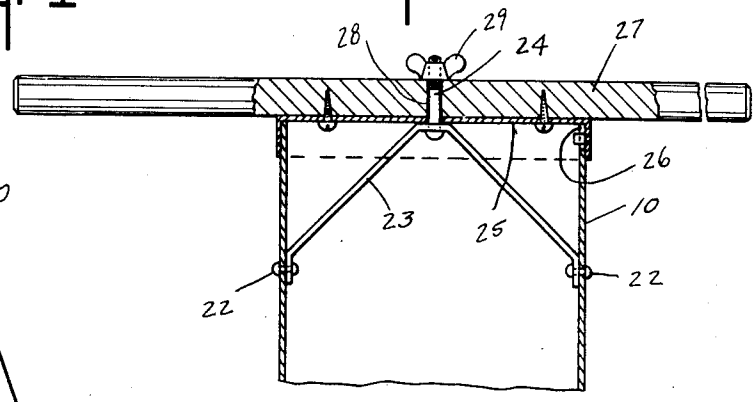


FIG. 3

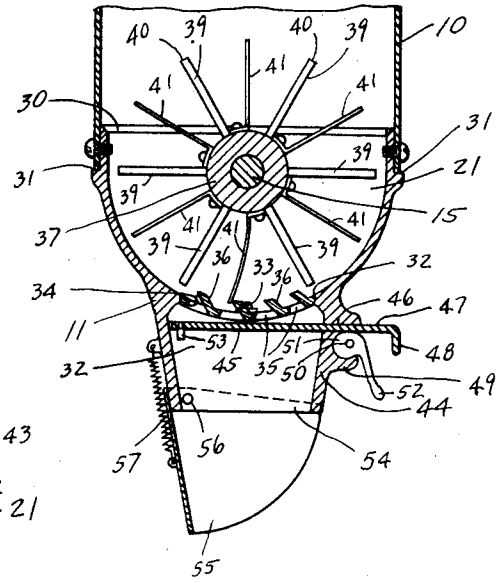
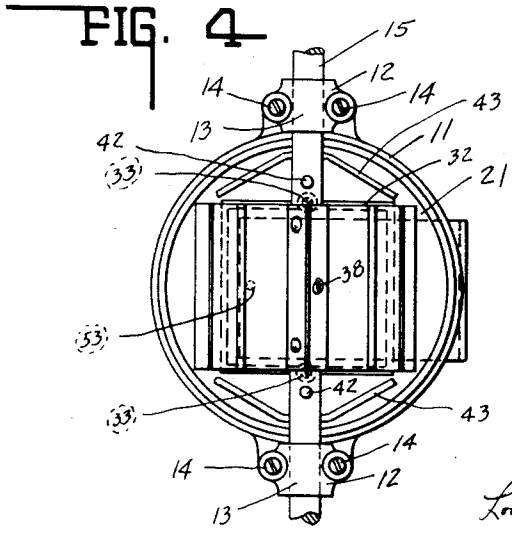


FIG. 4



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LINE MARKER

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10 Claims. (Cl. 275—2)

This invention relates to a line marker.

The chief object of this invention is to construct a line marking device that is manually operable and which is provided with means for insuring the uniform and continuous discharge of the line forming material from a container and without clogging of said material and which is furthermore capable of depositing the line forming material upon the surface to be lined without danger of it being blown from position during the deposition and the container of which may be readily refilled.

The chief feature of the invention consists in the accomplishment of the foregoing object by the various mechanism hereinafter more specifically set forth.

The full nature of the invention will be understood from the accompanying drawing and the following description and claims:

In the drawing, Fig. 1 is a perspective view of the marker in position, ready for deposition of the line forming material.

Fig. 2 is a central sectional view of the top of the container and handle.

Fig. 3 is a central sectional view through the distributing base and is taken in a plane at right angles to that shown in Fig. 2.

Fig. 4 is a top plan view of the base structure, the tubular container being removed.

In the drawing 10 indicates a tubular container which is open at its upper and lower ends The container is secured at its lower end to a dispensing base 11 which provides a pair of bearings 12 in spaced relation and upon opposite sides from the base. Caps 13 secured at 14 secure the shaft 15 to the base structure. Shaft 15 projects beyond the bearings and each projecting end supports a wheel 16. One wheel 16 is rigid with the shaft 15 and the same is obtained by means of a cotter key 17 extending through the wheel hub 18 and the shaft. The other wheel 16 is retained on the shaft or axle 15 by means of the washer 19 and a cotter key 20. The shaft as will be observed from Fig. 4, has a portion exposed within the interior or chamber 21 of the base structure 11.

The upper end of the tube 10 at 22 and upon opposite sides pivotally supports an inverted V-shaped member 23, the upper central portion of which terminates in a threaded stem 24 which projects beyond the open upper end of the tubular container 10.

A cover 25 is herein shown provided with a groove 26 that nests or receives the upper open end of the tube 10. Rigid with the cover 25 is a handle 27, the ends of which extend oppositely from the cover or cap 25 and provide two free handle portions. The cover and handle are apertured as at 28 and a wing nut 29 is arranged to rigidly clamp the cover and handle structure on the tube for securing the same together. When the handles are grasped, the line marker is pushed forwardly and due to the rotation of the axle through the wheel 16 rotated therewith, the shaft rotates within the distributing base 11 and operates an agitating mechanism therein.

The base structure 11 terminates in an opening 30 that registers with the lower end of the tubular container and the seat structure 31 is adapted to secure the base and tube together and if desired, such connection may be of detachable character, although refilling is possible through removal of the cap 25. Opposite the mouth 30 of the base structure is a slot 32 and the same constitutes a discharge outlet. Covering said discharge outlet and suitably secured to the bottom of the base structure as by the screws 33 is a slotted plate or shearing grate 34, the latter including a plurality of parallel apertures 35 and upwardly and sidewardly inclined baffles 36.

Mounted on the shaft 15 in the base structure is a rotor which comprises a hub 37 suitably secured to the shaft as by the set screw 38. Integral with the hub and projecting radially and in spaced relation are a plurality of relatively rigid blades 39 and herein six of these are disclosed. The ends 40 of said blades just wipe the upper ends of the baffles or blades 36. Herein a like number of resilient blades in the form of spring blades 41 is provided and secured at their inner ends to the hub structure and spaced an equidistance from the adjacent rigid blades 39. The length of these blades is slightly greater than the length of the blades 39 so that a wiping contact between the blades 41 and guard blades 36 is obtained.

The shaft 15 at each side of the rotor construction includes a diametrical projecting rod 42 and remote from the rotor and adjacent thereto and at ninety degrees to the rod 42 is an inwardly inclined diametrically arranged rod 43, the rod 42 being approximately midway between the adjacent side of the rotor structure and the connection of rod 43 to the shaft 15.

The bottom of the base structure is bowl shaped except at the outlet 32 where it is curved in one dimension and flat in the other dimension, the shearing grate 34 being a curved strip. Preferably the rods 42 and 43, the hub 37 and

the blades 39 and 41 are all of bronze because the material used for line marking is usually powdered lime which corrodes aluminum and gradually eats away iron and steel. If desired, the hub and blades 39 may be made of brass, but to secure resiliency in blades 41, they preferably are made of bronze springs.

It will be apparent that when the device is moved on both wheels or on wheel 16 keyed as at 17 to the shaft that the rotor structure will rotate in the base structure and the material therein will be forced through the openings 35 in the shearing grate and the material will be discharged into the spout 44. The rods and blades serve to cooperate together to prevent clogging or balling of the material and serve to maintain the same in powder formation and also serve to positively discharge a measured amount of said material through the opening 32 unless otherwise controlled.

It will also be observed that if a curved line is to be formed that the device may be moved on the wheel 16 rigid with the shaft and the curved line will be formed.

It will also be noted that when a line has been completed and it is desired to continue the movement of the marker without marking that it may be moved on wheel 16 that is not secured to the shaft. This permits formation of any desired type of line and exact termination thereof.

The spout 44 includes on opposite sides, aligned grooves 45 and a slot 46 in the same plane therewith. A control plate 47 is slidably supported in said grooves and is slidable in the slot 46. It terminates in a downwardly curved and exposed end 48. Adjacent slot 46 and exposed upon the spout 44 is an ear 49 which at 50 pivotally supports an eccentric cam 51 terminating in a handle 52. The latter serves as a clamp for retaining the guard or cut off plate 47 in the adjusted position. This plate when fully retracted has a stop member 53 that prevents complete withdrawal. When thus positioned, full discharge is obtained. When completely retracted into the position shown in Fig. 3, no discharge of material is obtained from the spout 44. Intermediate positioning regulates the amount of material discharged by the spout, the rotor mechanism serving not only as an agitator or stirrer of the material but also as a positive feeding mechanism for forcing the material through the opening 35 and in a non-clogging manner.

Inasmuch as the device is manually propelled and inasmuch as operators are of different heights and that means that the angle of inclination that the tube assumes in use varies, it also means that the distance between the ground or surface to be marked and the end of the spout will vary. To insure complete clearance, the lower end 54 of the spout is terminated an appreciable distance above the level of the surface that supports the wheel. To prevent the wind from scattering the line forming material as it discharges, a hood 55 is provided which is pivotally supported at 56 and consists of a three-sided arrangement. A spring 57 normally retains the hood structure in the position shown. However, upon the hood engaging an obstruction, it will tilt and pass over the obstruction and upon being freed therefrom will immediately resume the position shown in Fig. 3 and at the same time will serve to assist in the distribution or discharge of the line forming material and without a so-called breaking in the line. The side walls of the hood 55 serve to prevent any wind moving across the line of travel from scattering the line material laterally and the intermediate connecting portion which also serves as a stop for the hood structure—see Fig. 3—prevents scattering by reason of the forward travel of the device. A wind back of the device will have little or no effect upon the line material as it is being deposited because the hood structure will trap the material as it attempts to scatter.

While the invention has been described in great detail in the aforesaid specification, it is to be understood that the same is merely descriptive in character and that various modifications thereof will readily suggest themselves to those skilled in the art to which this invention applies and such modifications are all considered to be within the broad scope of the invention, reference being had to the appended claims.

The invention claimed is:—

1. In a manually propelled dispensing device, the combination with supporting wheel means and a dispensing base supported thereby and having mechanism therein operable by said wheel means, of an elongated tubular container having an open lower end communicating with the base, a member in the opposite end of the tubular container and pivotally supported thereby upon an axis parallel to the wheel axis and including an anchoring end projecting from the tubular container, a combination cover and transverse handle construction for closing the upper end of the tube, and exposed securing means detachably associated with the anchoring end.

2. In apparatus of the character described, the combination with a dispensing base, having a discharge outlet, and wheel means for supporting said base, of a bladed and apertured guard adjacent the outlet, an agitating device in the base operable by the wheel means and including a rotor having a plurality of relatively rigid and spaced material agitating blades each arranged to just clear the guard blades, and intermediate resilient blades interposed between the rotor blades and movable therewith and arranged to engage the guard blades for the operation set forth.

3. In apparatus of the character described, the combination with a dispensing base having a discharge outlet, and wheel means for supporting said base, of a bladed and apertured guard adjacent the outlet, an agitating device in the base operable by the wheel means and including a rotor having a plurality of relatively rigid and spaced material agitating blades each arranged to just clear the guard blades, and outwardly projecting rods at each side of the rotor blades and movable therewith for material agitation in the base.

4. In apparatus of the character described, the combination with a dispensing base having a discharge outlet, and wheel means for supporting said base, of a bladed and apertured guard adjacent the outlet, an agitating device in the base operable by the wheel means and including a rotor having a plurality of relatively rigid and spaced material agitating blades each arranged to just clear the guard blades, intermediate resilient blades interposed between the rotor blades and movable therewith and arranged to engage the guard blades for the

operation set forth, and outwardly projecting rods at each side of the rotor blades and movable therewith for material agitation in the base.

5. In apparatus of the character described, the combination with a dispensing base having a discharge outlet and wheel means for supporting said wheel, of an agitator device in the base operable by the wheel means and comprising a plurality of relatively rigid and spaced material agitating blades and outwardly projecting rods at each side of the rotor blades and extending diametrically and in angularly spaced relation relative to the axis of rotation and arranged in offset relation, the rods more remote from the blade sides being directed inwardly toward the blade sides.

6. In apparatus of the character described, the combination with a dispensing base having a depending discharge spout, and wheel means for supporting said base, a hood pivotally supported adjacent the open lower end of the spout, and yielding means normally constraining said hood into predetermined position and permitting movement of said hood relative to the spout upon obstruction engagement.

7. In apparatus of the character described, the combination with a dispensing base having a depending discharge spout, and wheel means for supporting said base, a hood pivotally supported adjacent the open lower end of the spout, yielding means normally constraining said hood into predetermined position and permitting movement of said hood relative to the spout upon obstruction engagement, and a control plate adjustably mounted in said spout for controlling the amount of discharge therefrom.

8. In apparatus of the character described, the combination with a dispensing base having a discharge outlet, a spout depending therefrom and communicating with the outlet, and wheel means supporting said base, of a control plate slidable in the spout adjacent the outlet for controlling the effective size thereof and terminating in a base exposed portion, a tiltably mounted eccentric cam having a manually engageable portion for tilting the cam into and out of locking relation with said plate for plate locking, and a tiltable hood supported in depending relation to the discharge end of said spout.

9. In apparatus of the character described, the combination with a dispensing base having a discharge outlet, a spout depending therefrom and communicating with the outlet, and wheel means supporting said base, of a control plate slidable in the spout adjacent the outlet for controlling the effective size thereof and terminating in a base exposed portion, a tiltably mounted eccentric cam having a manually engageable portion for tilting the cam into and out of locking relation with said plate for plate locking, a hood pivotally supported adjacent the open lower end of the spout, and yielding means normally constraining said hood into predetermined position and permitting movement of said hood relative to the spout upon obstruction engagement.

10. In a line marker or the like the combination with a dispensing base having a discharge outlet and wheel means supporting said base, of a guard structure adjacent the outlet including a plurality of spaced elongated openings and a plurality of upwardly and inwardly directed guard baffles substantially coextensive with the openings and formed from the portion removed to form the openings, and an agitating device in the base operable by the wheel means and including a rotor having a plurality of spaced blades, each arranged to just clear the guard baffles, the axis of rotor rotation being substantially parallel to the elongation of the openings and the baffles being directed opposite to the normal direction of rotor rotation whereby clearing of openings is assured.

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