July 30, 1963 C. B. HINDALL 3,099,091

CHALK LINE IMPREGNATOR

Filed June 29, 1960

Fig. 1

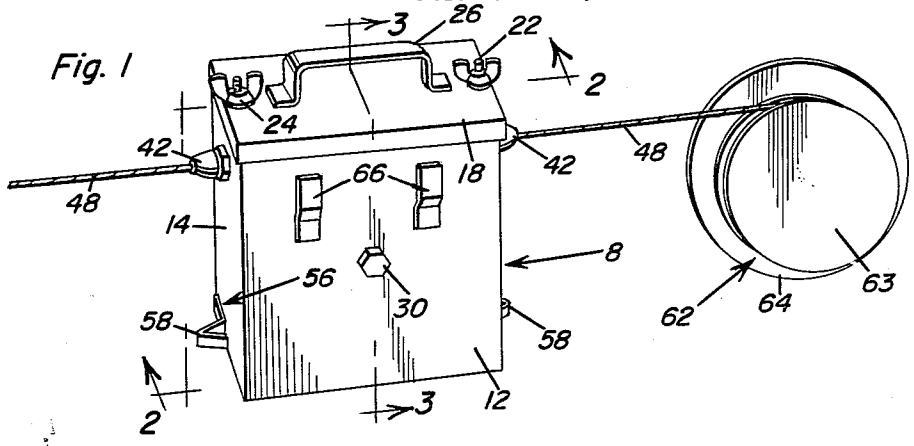


Fig. 2

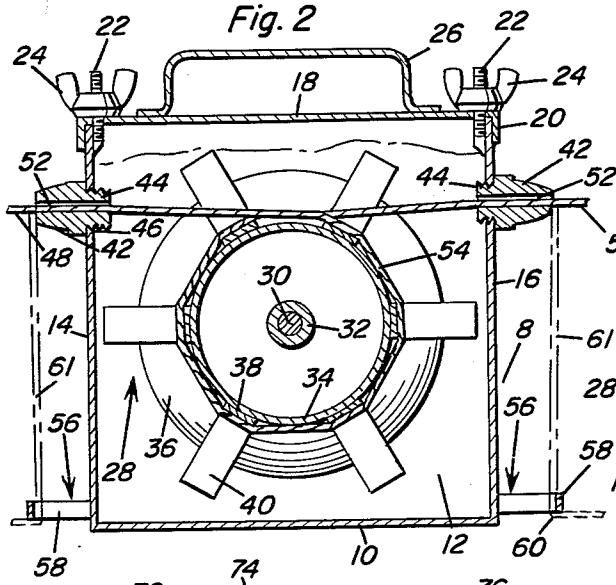


Fig. 3

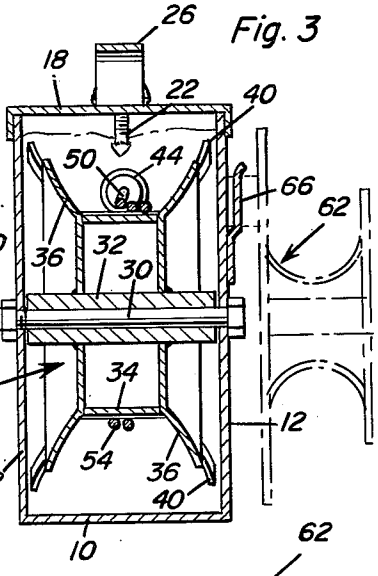


Fig. 4

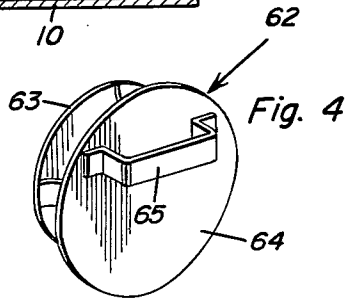
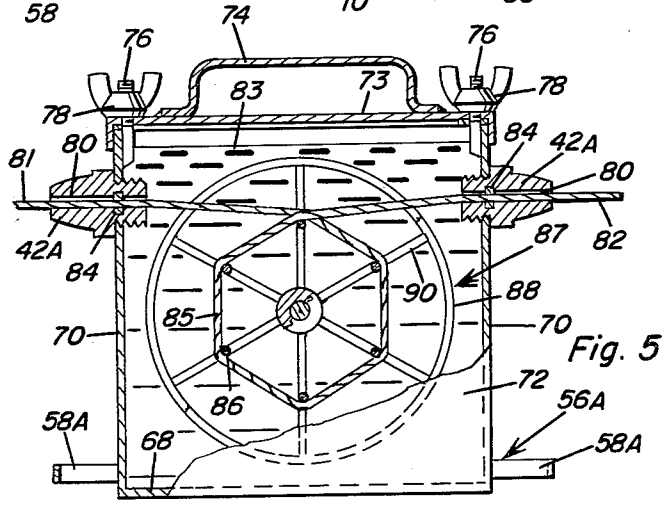


Fig. 5



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CHALK LINE IMPREGNATOR

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This invention relates to certain new and useful improvements in an expeditiously usable time-saving portable chalk line impregnator designed and effectually adapted for impregnating a chalk line in one continuous operation, and has to do with a device which functions successfully for long span lining requirements where, for example, a snap-type chalk line has been found to be acceptably practical for distances ranging up to 300 feet.

Experience and repeated use of the invention has proved that it is highly reliable and a time saver where a snap line is practically usable, for instance, in such places as roof material alignment, highway center line alignment needs, industrial machinery alignment work and, in fact, many other situations and places.

Other tests have convincingly shown that this unique walk-along-type hand-carried device can and does reduce chalk lining time to approximately one-third of the time required by regular ways and means when chalk lining is a continuous recurring procedure, that is to say, when one crew is delegated to chalk-line surfaces in readiness for other activities.

Briefly, the container is in the form of a rectangular tightly closed box of requisite size and capacity. A length of suitably sized trotline passes into the chalk laden receptacle portion by way of a first inlet thimble-like guide, is wrapped several times around an idling pulley and passes out through an aligned second complemental or outlet thimble-like guide. Excess line, not in use, is wound and thus stored on a readily attachable and detachable storage reel whereby the correct or desired amount of line may be withdrawn for each given job.

The line-turned pulley is preferably equipped with marginal stirring and agitating fingers resulting in effectively charging the fibres with the powdered chalk.

This invention also features a modification using an openwork wire pulley and line guide sleeves or thimbles with gaskets therein. With this adaptation the container is filled with a liquid suspended pigment. Hence, when the line is snapped, coated with this substance, a painted line, impervious to water damage and erosion, is had.

The invention also features line hold-down and snubbing brackets. These brackets have V-shaped hooks and are mounted on the left and right vertical end walls and portions of the line are hooked thereon. It should be noted that the crotch or seat portions of the V-hooks are centered directly below the line guides. This arrangement permits the box, which has been properly rigged, to be set down on the intended surface in the desired aligning position. It follows that when the two operators at the respective ends of the line impose tautened tension on the line the box straightens itself and assumes a perfectly aligned position, as will be hereinafter more fully explained.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIG. 1 is a view in perspective showing a chalk line impregnator constructed in accordance with the principles of the invention and also showing the line storing reel (at the right) detached from the container.

FIG. 2 is a view on a larger scale with parts in section and elevation taken on the plane of section line 2—2 of FIG. 1, looking in the direction of the arrows.

FIG. 3 is a view at right angles taken on the irregular line 3—3 of FIG. 1.

FIG. 4 is a perspective view of the line storing pulley by itself.

FIG. 5 is a view similar to FIG. 2 showing a modified form of the invention.

Reference will be made first to the form of the invention covered in FIGS. 1 to 4, inclusive. To this end the container, which as before stated is portable, comprises a rectangular box of suitable light weight but durable sheet material. It is denoted as an entity by the numeral 8. As best shown in FIGS. 2 and 3 the bottom wall 10 is flat and such that it may be placed and held firmly on a predetermined area of the work surface. The side walls are denoted at 12 and the left end right end walls are denoted at 14 and 16, respectively. The box is open at its top to accommodate a removable lid or cover 18. The cover is preferably provided with a marginal rim or flange 20 which embraces the upper portions of the walls of the box. The end walls are provided with fixed upstanding screw-threaded studs 22 extending through holes provided therefor in the end portions of the cover and serving to accommodate thumb nuts 24. In use the cover or lid is fastened down tight. Mounted atop the central portion of the lid or cover is a fixed handle or hand-grip 26.

An appropriately constructed idling pulley 28 is mounted within the receptacle portion of the box or container. An axle (a simple bolt as shown in FIG. 3) is suitably mounted in the side walls and it is denoted by the numeral 30 and the hub 32 of the reel is mounted for free rotation thereon. The hollow body portion 34 (FIG. 3) of the reel is provided around the outer marginal periphery with outstanding flanges 36. The circumferentially spaced equidistant members are mounted on the body 34. That is to say, the central or bight portions 38 are fixed suitably in place and are provided with laterally projecting end members 40 which constitute storing and agitating fingers for the chalk material contained in the receptacle portion of the body.

The two axially aligned elevated line guides are the same in construction and may be referred to as inlet and outlet guides. More specifically, each guide comprises a sleeve or axially bored thimble 42. The reduced screw-threaded end portion 44 is screwed into a hole 46 provided therefor and the thimble proper projects outwardly beyond the surface of the adjacent end wall. The portions 48 and 50 (FIG. 2) of the chalk line extend slidingly through the bores 52 in the manner shown. That portion of the line denoted at 54 located in the receptacle portion is wrapped several times around the pulley as illustrated. The aforementioned line tensioning and box-positioning and aligning brackets are denoted by the numeral 56. These brackets are fixedly mounted on the end walls just above the plane of the bottom 10. Each bracket embodies an outstanding V-shaped hook 58 providing a seat or crotch for the portion 60 of the depending line portion 61. These V-shaped hooks project a distance beyond the vertical plane of the adjacent end walls which corresponds to the degree of projection of the complemental line guiding thimbles 42. Each hook is properly lined up with and directly beneath its companion or complemental guide as is evident in FIGS. 1 and 2.

The line storing spool or reel is denoted by the numeral 62 and comprises suitable spaced heads 63 and 64. The head 64 is provided eccentrically with a handle 65 which may be attached to and hung on the offset keeper clips 66 on one side wall of the box.

In the modification shown in FIG. 5 the container, a box, is identical and has a bottom wall 68, end walls 70

and side walls 72. The cover 73 is provided with a hand-grip 74 and is held on the upstanding studs 76 by way of thumb nuts 78. The line guides 42A are aligned with each other and are constructed like the aforementioned guides 42 and have passages 80 for the portions 81 and 82 of the line. In this construction the chalking media is a liquid suspended pigment 83 and in order to accommodate this material the passages 80 are provided with liquid-tight gaskets 84. The portion 85 of the line is wrapped around the cross-wires 86 of an openwork wire reel 87. The ring-like heads of this pulley or reel are denoted at 88 and the radial spokes at 90. The holddown brackets correspond to the brackets 56 and are here differentiated by the numeral 56A and each bracket embodies a line tensioning hook 58A. This type of a pulley is an alternate for the pulley 28 already described and may be utilized if production should reach a point when custom fabricated wire wheels or pulleys would be regarded as economically sound.

It is to be reiterated here that the gasket-equipped line guides 42A and the wire pulley or wheel 87 render the modification of FIG. 5 practical for use so that the line may be impregnated with the pigment-type chalking compound 83 thus making it practical for the user to coat and snap the line when it is desired to provide a straight painted line, one which is impervious to water erosion.

With respect to the mode of use it is to be explained that the container or box 8 (FIGS. 1 to 3, inclusive), is charged with an appropriate impregnating powder or other suitable chalking compound to the desired level. The demountable line storage reel 62 is removed from the clips 66 and handled by a first operator who feeds out the necessary line, while a second operator carries the device or box 8 the desired length of the alignment problem and either gives the opposite end of the line to a third operator or secures the line at that location. The third operator holds the line handle (not shown) while the second operator returns along the length of the line causing the line to pass through the line guides 42 and as the pulley 28 turns it stirs up the powder by contact of the fingers 40 therewith in an obvious manner. This action results in the powder being worked in between the fibres of the line.

If confronted with an extremely long aligning problem, the second operator will return to approximately the center of the line, hook both sides of the line under the line holddown hooks 58 and will then set the box or container 8 in approximately the desired aligning position. At this time, the first operator and the third operator impose tension on the line thus perfectly aligning the box into position. Next, the second operator places one hand on top and holds the hand-grip 26 while he then reaches out and lifts the line approximately four inches from the work surface and at a point approximately 18 inches beyond the line locating hook 58, say at the right hand end 16. By releasing the line suddenly the snapping action when the line strikes the work surface results in the chalk or powder being deposited on the work surface in a line straight as the tension of the line permits. Having completed this operation on one side of the box, the second operator changes hands and goes through the same procedure on the left hand side of the box. Depending on the specific conditions met, test models have been found to satisfactorily chalk as high as eight lines before it becomes necessary for the second operator to again impregnate the line in the manner previously described. Instances arise where the device can be operated by two men and sometimes by a single man.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A continuous snap-type chalk line impregnator comprising a portable box open at its top and having a flat bottom adapted to rest firmly on a surface which is to be lined with a snapline, side walls and left and right end walls, a cover for said open top removably mounted, said cover having an external fixed hand-grip, a line wrapping pulley mounted for free rotation in the receptacle portion of said box, inlet and outlet threading and guiding thimbles fixed on upper portions of the respective end walls and centralized in positions between the respective side walls, said thimbles being of a predetermined length and having end portions projecting a prescribed distance beyond the exterior surfaces of said end wall, line snubbing and tautening brackets fixed on lower central portions of the respective end walls and situated directly beneath their respectively cooperating guiding thimbles, said brackets being V-shaped in plan and the vertices of the brackets terminating in a plane corresponding to the plane in which the aforementioned thimbles terminate whereby the thimbles and brackets project a corresponding distance beyond the end walls.

2. The structure defined in claim 1 and wherein one side wall of the box is provided with fixedly attached hanger clips, and a readily applicable and removable line storing reel having a handle on a side thereof and said handle being detachably connectible with the hanger clips.

3. For use in impregnating a snap-type chalk line with chalk; a portable box providing a container for the chalk which is used in chalking the line, said box having a flat bottom wall, end walls, front and back walls, being open at the top and provided with a cover, said cover having a handgrip exteriorly located and positioned so that by catching hold of the grip and forcing downwardly on the box the flat bottom wall thereof may be forced into firm contact with a portion of the surface which is adapted to be lined with chalk, a pulley mounted for rotation in the receptacle portion of said container, said pulley having a hub portion encircled by rim flanges and marginal outstanding circumferentially spaced chalk agitating fingers cooperable with said flanges, inlet and outlet guides mounted in axial alignment with each other on the respective end walls, a chalk line having a portion wound several times around the pulley and end portions threaded and slidable through said guides, said guides being mounted on and projecting beyond the respective left and right end walls of said container, and line snubbing and tautening brackets fixed on lower portions of said end walls directly beneath their respective guides, portions of the line being detachably connectible with and tautly drawn about the brackets whereby other individual operators holding remote opposite ends of the line and drawing the overall line tightly not only tensions the line but positions the container, guides, and coacting portions of the line in the exact aligned position needed for accurate use by the user who is handling it, a line storing reel, and means removably mounting said reel on an exterior wall of said container.

4. The structure defined in claim 3 and wherein each bracket is provided with and includes a V-shaped hook, said guides being in a plane above the axis of rotation of said pulley, and said brackets being in a plane below the axis of rotation of said pulley but in a plane above the plane of the bottom wall, and said hooks being situated directly below their respective line guides.

5. A snap line holding and chalking device comprising a container adapted to contain the line chalking media and having a carrying and handling handgrip fixed on a central portion of a top wall of said container and located and adapted for use by a carrier and user, said container comprising a box having a flat bottom of an area which is adapted to be placed firmly on a portion of the work surface and held in a given position against said surface with the aid of said handgrip, line guides mount-

ed one on the left and one on the right of vertical end walls of said box, said guides being aligned with each other, a chalk line having portions threaded slidingly through their respective guides, and applicator means confined and operable in the receptacle portion of the container, that portion of the line passing through the receptacle portion being operably associated and cooperable with said applicator means, said guides comprising a pair of coplanar axially aligned anti-chafing thimbles, said thimbles being mounted in upper portions of the aforementioned walls of the container and projecting beyond said ends, and line hold-down and tensioning means fixedly mounted on said walls just above the plane of the container bottom and located directly beneath their respectively cooperating line guides.

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