Feb. 23, 1960 W. D. HILLIS 2,925,759

ROLLER FOR ROAD SURFACES AND THE LIKE

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FIG. 1

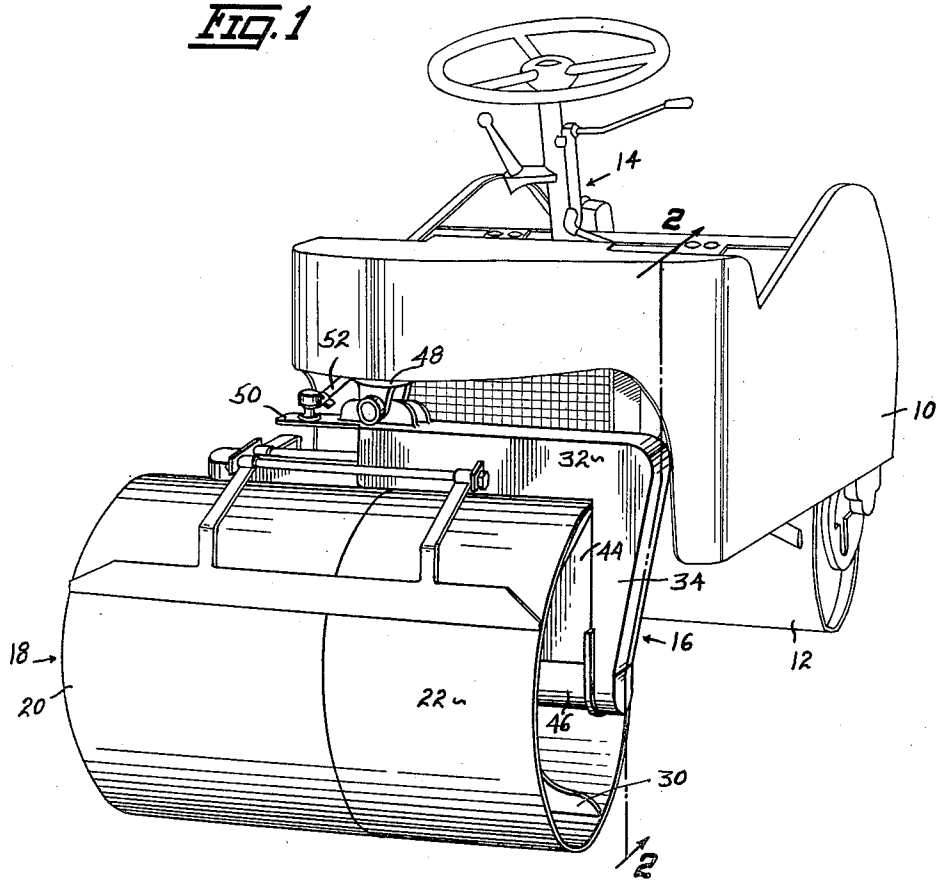
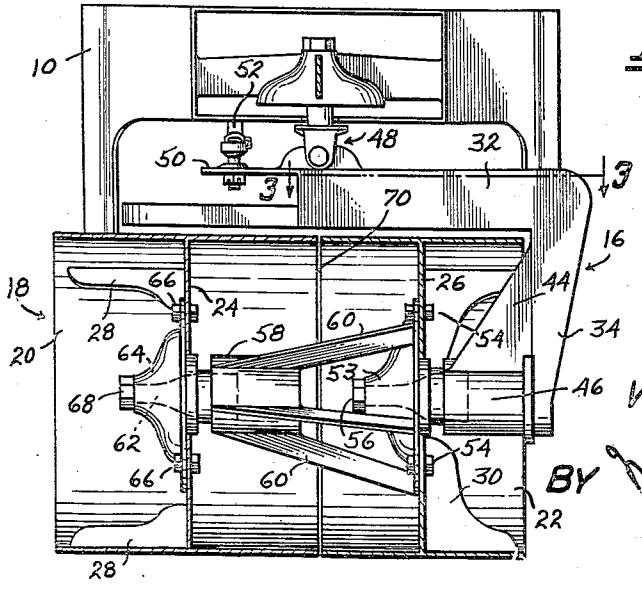


FIG. 2



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FIG. 3

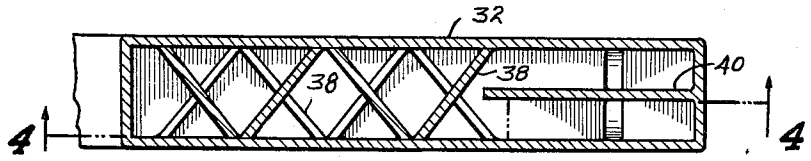


FIG. 5

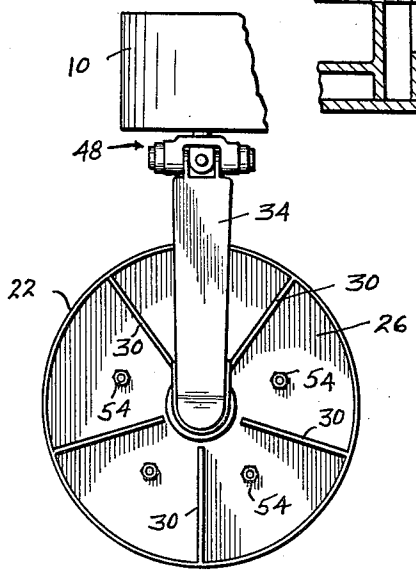


FIG. 4

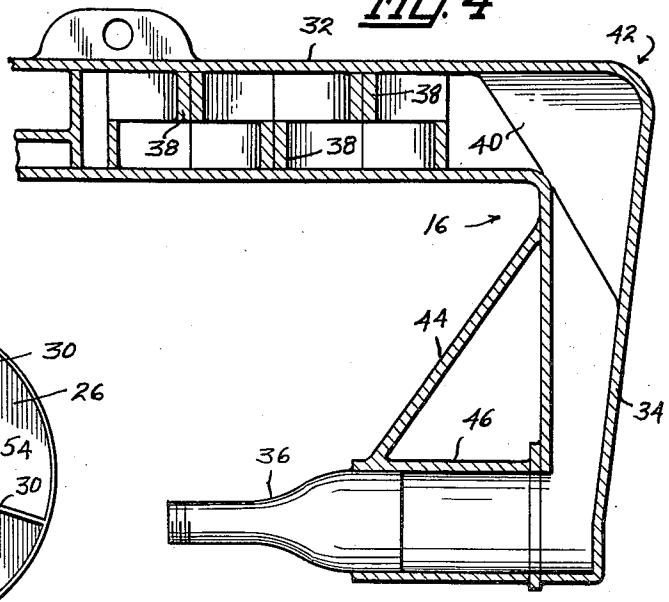
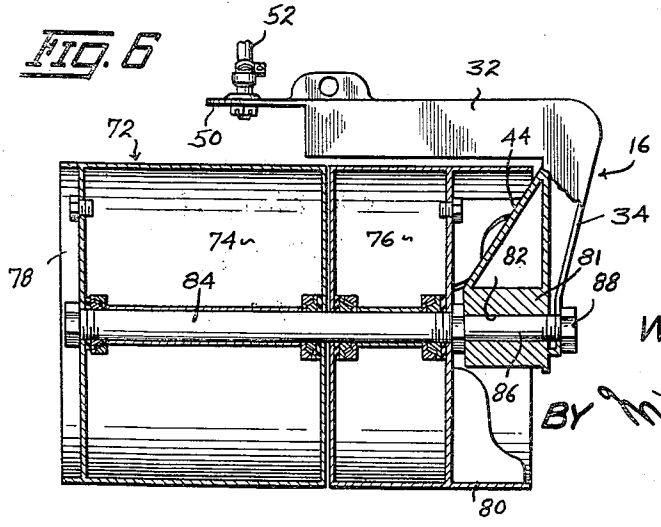


FIG. 6



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ROLLER FOR ROAD SURFACES AND THE LIKE

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4 Claims. (Cl. 94—50)

My invention relates to improvements in machines for rolling roads, driveways, tennis courts, parking areas and like surfaces and more particularly for use when an all weather material is being applied to such surfaces.

Present surface rolling machines are constructed so that the rollers cannot be maneuvered flush with a curbing or the like that may border or divide the area on which the roller is used and as a result a strip approximating a foot in width must remain adjacent such curb untouched by the roller. Hand tamping is required to finish this strip and in addition to the extra labor costs involved to the contractor doing the work, it will be appreciated that such hand tamping does not always compress this strip to a level plane with that part of the area subject to compression by the heavy roller. A machine that would thus cover all the area up to the curb would not only save costs in operation but would produce a more efficient and satisfactory result.

With these observations in mind it is one of the important objects of this invention to provide in a surface rolling machine novel structure for suspending one of the rollers so that it may move immediately adjacent a curb or the like.

More particularly the instant invention contemplates the provision of novel means for mounting the steering roller in an off set position relative to the chassis or body frame so that it projects laterally from one side thereof.

A still further object of this invention is to provide a roller of the above class in which all supporting structure for the off set roller is disposed at the opposite side of its projecting end.

Still another object inhering in this invention is the provision of means by which the off set roller may be of the split roller type.

Other objects and advantages of this invention reside in the details of construction and correlation of the various parts and will be apparent as the description proceeds.

This invention consists of novel parts and combination of parts to be hereinafter described whereby the objects set forth are attained, as pointed out in the claims, and illustrated in the accompanying drawings, in which:

Fig. 1 is a perspective view of a roller machine showing my off set roller and mounting arm therefor, said roller being of the non water filled type,

Fig. 2 is a cross sectional view taken on the line 2—2 of Fig. 1 to show the means for attaching the mounting arm to the roller and to the body,

Fig. 3 is a cross sectional view of part of the mounting arm taken on the line 3—3 to show its interior construction,

Fig. 4 is a cross sectional view of the mounting arm taken on the line 4—4 of Fig. 3,

Fig. 5 is an end view of the roller from the attachment side of the mounting arm, and,

Fig. 6 is a longitudinal sectional view of a roller designed to be filled with water and showing my mounting arm adapted for use therewith.

Referring to the drawings a chassis or body **10** is shown

(Fig. 1) carrying a rear or compression roller **12**. A suitable motor (not shown) is used for propelling this machine and steering means **14** is provided in a well known manner. No invention is claimed in such parts which are shown to illustrate the general setting in which my new mounting arm, indicated generally at **16**, is used with the forward or steering roller **18** which is of common construction being of the split type having the adjacent sections **20** and **22**. Each section **20** and **22** has the internal ring or plate **24** and **26** respectively on the outer side of which relative to the outer side of the rollers **20** and **22** are the gussets **28** and **30** respectively for supporting the roller surfaces in a well known manner.

Roller **18** is mounted to the body **10** in a laterally off set position (Fig. 2) by my new mounting arm **16** which comprises a horizontal member **32** and a downwardly extending member **34** at one end in an inverted reverse L shape. Projecting from the lower end of portion **34** in the same direction as and parallel to portion **32** is a spindle member **36** integrally secured to portion **34** by means of a sleeve **46**. This arm **16** is substantially square in cross section and criss-crossing diagonal internal braces **38** are provided in the horizontal portion **32** (Fig. 4) with an internal gusset **40** extending between the two portions **32** and **34** at the corner **42**. An external gusset or web-like brace **44** is placed between portion **34** and the inner supporting structure **46** for the spindle **36** so that adequate strength is provided for all stresses and strains to which the arm **16** may be subjected in use.

The free end of arm portion **32** (Fig. 2) is attached by suitable spindle means **48** to the center portion of the body **10** so that it may turn easily and rock laterally on surface irregularities. Mounting **48** is similar to usual vehicle wheel mountings and no invention is claimed therefor. A steering lever **50** projects beyond arm portion **32** and is operatively connected by cable or the like **52** to the steering mechanism **14**. In mounting the roller unit **18** to arm **16**, the spindle **36** passes through an axial opening in plate **26** within roller section **22** (Fig. 2) and is journalled in a hub **53** mounted on the inner side of such plates by the bolts **54**. Nut **56** secures the outer end of spindle **36** as shown. Hub **53** may be of any suitable type and it will be understood that it has proper bearings and grease seals as is usual in wheel mountings.

To mount roller section **20** in axial alignment with section **22** I provide a tubular housing **58** having a plurality of radially extending braces **60** corresponding in number and position to the spacing of bolts **54** on hub **52**. Braces **60** are attached to hub **53** by means of bolts **54** (Fig. 2) so that housing **58** is spaced from and in axial alignment with spindle **36**. Housing **58** terminates in an integrally secured spindle **62** of the same type as spindle **36** and is journalled in a hub **64** attached by nuts **66** to the outer side of plate **24** in roller section **20**. Nut **68** is used in the same manner as nut **56**. Roller sections **20** and **22** are mounted by means of hubs **64** and **53** on respective spindles **62** and **36** to form a space **70** between said roller sections, which space it will be noted is in vertical alignment with spindle assembly **48** and thus allows full advantage in the use of split rollers as they rotate independently of each other in negotiating a curve.

Thus constructed, roller **18** is adequately supported by the single arm **16** at one side thereof and the opposite end of roller **18** as viewed at the left in Fig. 2 is not only off-set relative to the corresponding side of body **10**, but is not hampered by any supporting arm or frame that will interfere with its moving closely adjacent a curb, wall or the like. As a result the surface material can be machine rolled right up to the curb so as to leave nothing for hand tamping and will of course

subject the entire area to the same degree of compression.

In Fig. 6 this arm **16** is shown adapted for use with a water filled type of roller **72**. Due to the watertight compartments **74** and **76** in the respective roller sections **78** and **80** I have adapted my arm **16** for mounting thereto as follows. Spindle **36** (Fig. 4) has been removed and the lower end of portion **34** is provided with a sleeve **81** having a bore **82** (Fig. 6). The usual axle **84** which is found in such rollers is elongated to provide the extension section **86** that is rotatably journalled in opening **82** and secured to the outer side of arm portion **16** by a nut **88**. In all other respects the arm **16** is the same and roller **72** is mounted in an off-set position relative to body **10** as described above. Both water filled and nonwater filled rollers are commonly used and I have thus designed arm **16** for use with both types.

It is submitted that the invention shown and described is aptly suited to achieve the purposes intended and is characterized by a combination of highly useful and mutually cooperating elements that combine their respective and proportionate functions in accomplishing the objects sought to be obtained.

It will be understood that the phraseology employed herein is for the purpose of description and not for limitation and that modifications and changes in the construction and arrangement of this invention can be made within the scope of what is claimed, without departing from the spirit and purpose thereof. It is thus intended to cover by the claims, any modified forms of structure or mechanical equivalents which may be reasonably included within their scope.

I claim:

1. A machine for rolling a road surface or the like, comprising, a body, a roller unit consisting of a first and second roller section, a mounting arm having a horizontal portion and a depending portion at one end thereof, the free end of said horizontal portion being operatively attached to said body, a spindle integrally secured on the lower end of said depending portion and extending therefrom below and parallel to said horizontal portion, hub means on said first roller section rotatably mounted on said spindle, a tubular housing having brace means extending from one end thereof, a second spindle means integral with the other end of said housing, said second roller section being rotatably mounted on said second spindle means, and said braces being connected to said first roller section so that said first and second roller sections are in axial alignment.

2. A machine for rolling a road surface or the like having a body and a roller unit consisting of a first and second roller section, means for mounting said roller unit to said machine, comprising a mounting arm having a horizontal portion and a depending portion at one end thereof, the free end of said horizontal portion being operatively attached to said machine, a spindle integrally secured on the lower end of said depending portion and extending therefrom below and parallel to said horizontal portion, a hub axially supported in each roller section, the hub of said first roller section being rotatably journalled about said spindle, a second spindle secured to the hub in said first roller section in axial alignment with said first mentioned spindle so as to project into said second roller section, the hub of said second roller section being rotatably journalled about said second spindle, and means for connecting said hub members to respective spindles to provide a space between said roller sections whereby each roller section is rotatable independently of the other.

3. A device as defined in claim 2 wherein the position of the roller unit is such that the end thereof opposite to that end on which the supporting arm is mounted projects laterally from one side of said body.

4. A machine for rolling a road surface or the like, comprising a body, a roller unit consisting of a first and second roller section, a supporting arm secured at one end to said body, a spindle on the other end thereof, means axially connecting said first roller section to said spindle for rotation thereon, an axle connected to said first roller section in axial alignment with said spindle, said connecting means comprising brace means connected at one end of said axle, said second roller section rotatably journalled on said axle, said roller unit disposed in a laterally off-set position relative to one side of said body, and said off-set end of the roller unit being opposite to the end in which said arm is attached.

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