Aug. 15, 1967 C. A. CRAYTON 3,335,646

SIDEWALK PAVING MACHINE

Filed June 30, 1965 3 Sheets-Sheet 1

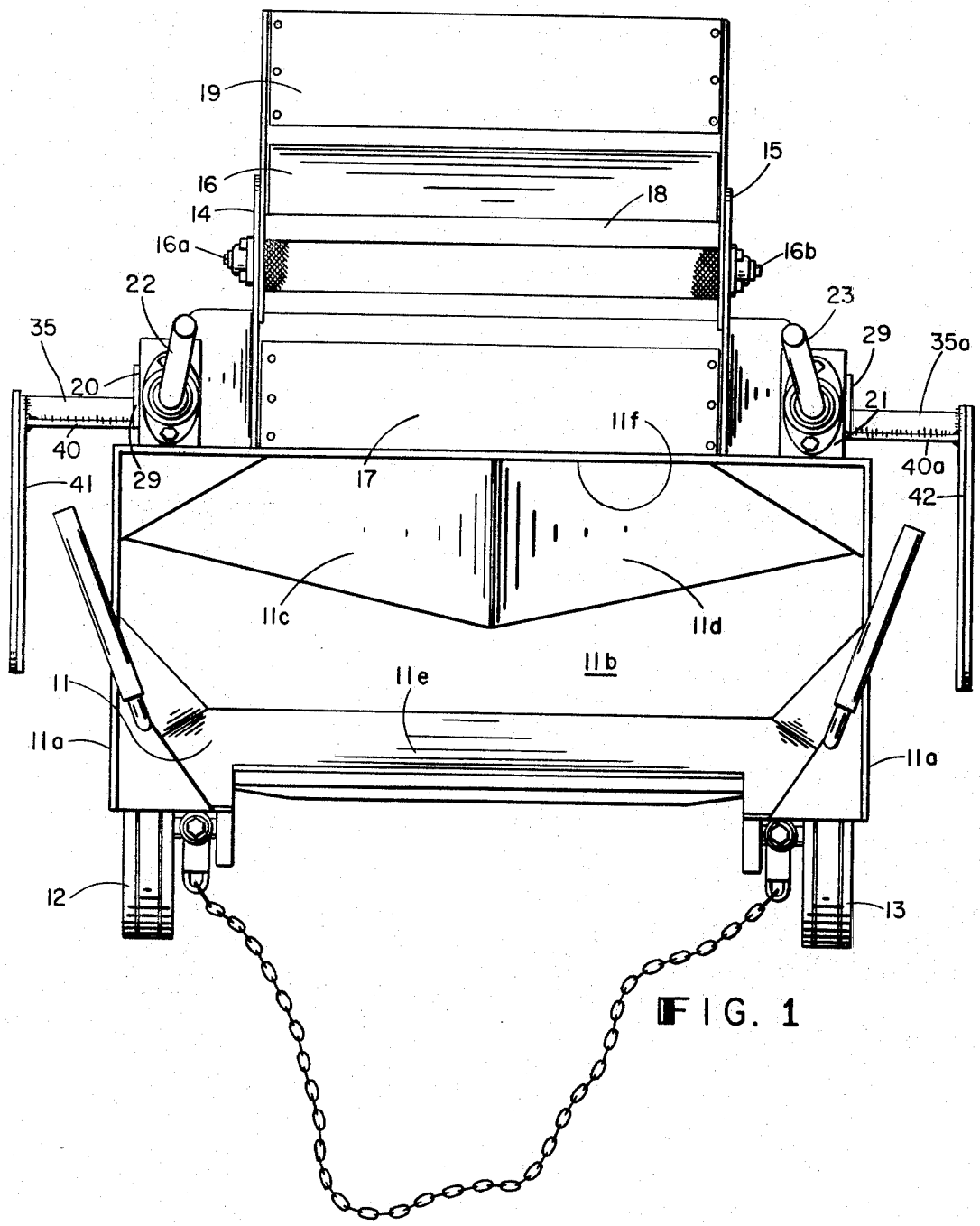


FIG. 1

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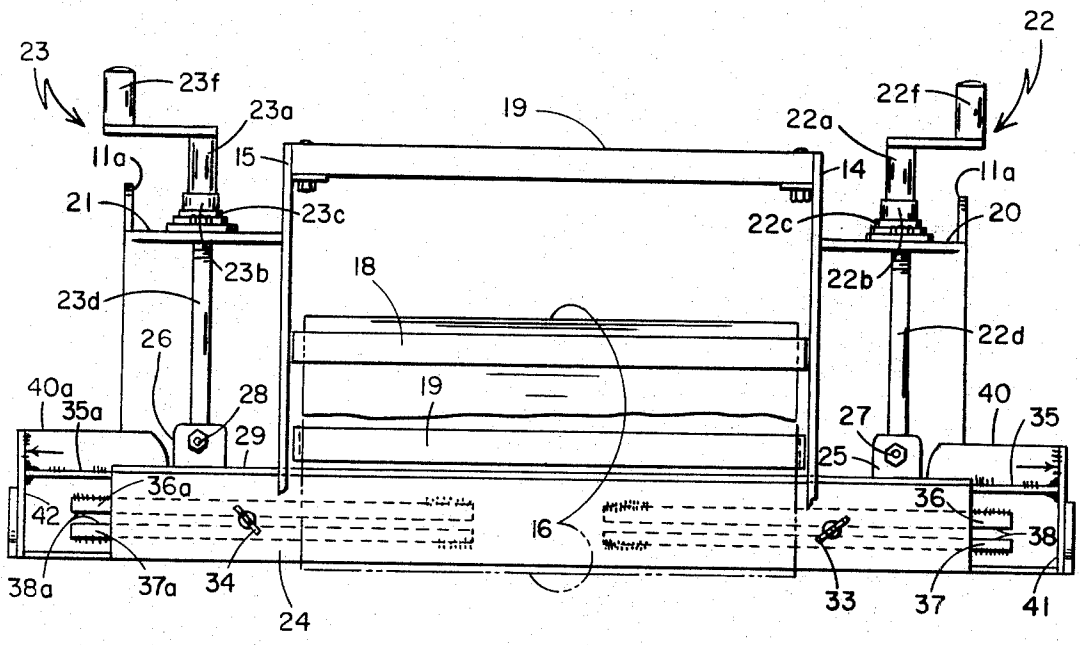


FIG. 2

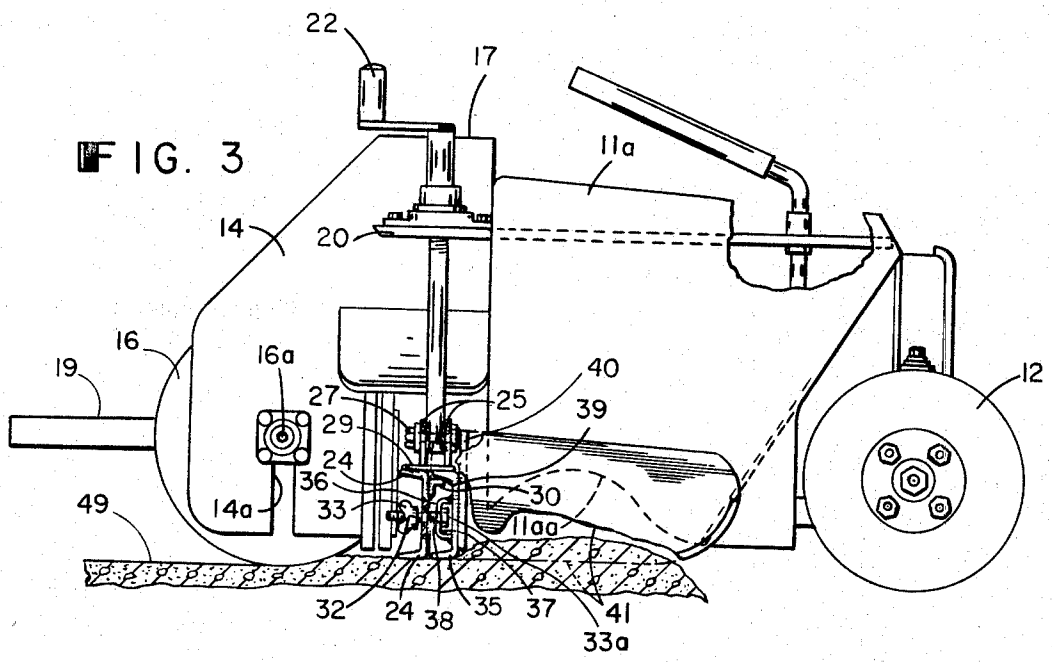
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FIG. 3



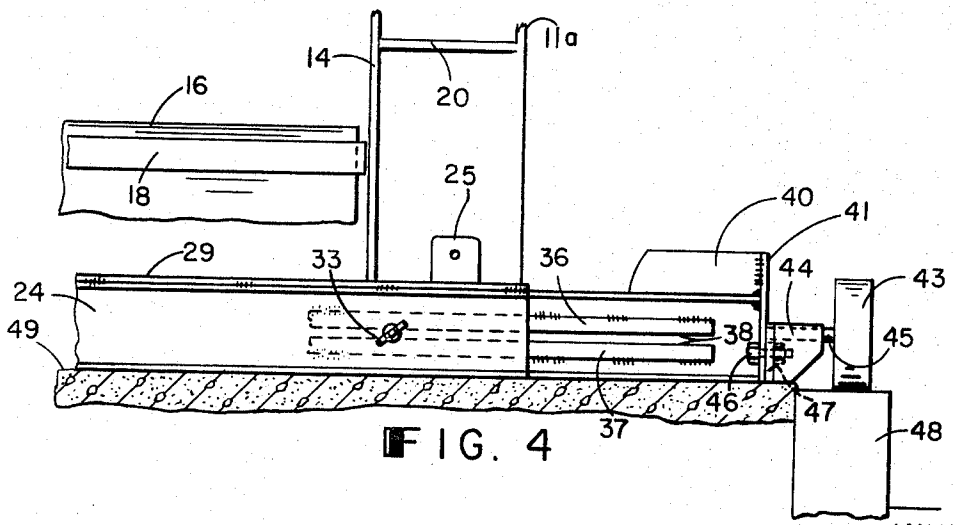


FIG. 4

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SIDEWALK PAVING MACHINE

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5 Claims. (Cl. 94—46)

This invention relates to a machine for spreading and compacting road surfacing materials. In particular, it relates to a machine suitable for forming an asphalt sidewalk or trench and including provisions for width adjustment and self-leveling.

Although devices have been hitherto described for spreading and compacting asphalt road surfaces, such prior devices are generally extremely difficult to properly adjust for differently desired spreading widths. In addition, adjustment of width in prior art machines has usually been hampered by the gumming action of asphalt. Further, it has not been hitherto possible to provide for level adjustment in trench laying and the like.

One object of this invention is to provide an asphalt spreading and compacting machine readily adjustable in spreading width and adapted for self-leveling.

Other objects and advantages of this invention will be apparent from the specification and claims which follow and from the appended drawings wherein:

FIG. 1 is a plan view.

FIG. 2 is a rear elevation with compacting roller partially removed.

FIG. 3 is a right side elevation with side plate partially removed.

FIG. 4 is a right side elevation showing self-leveling modification.

In its most general form, the spreading and compacting machine of this invention comprises a frame, a pair of forward steerable wheels attached to the frame, a receiving chamber on the frame rearward of the wheels and having an open bottom, a screed assembly rearward of the receiving chamber and vertically adjustably supported by a pair of threadable screed support members attached to the frame, and a compacting roller attached to the frame rearward of the screed assembly. The screed assembly comprises main screed supporting transversely moveable screed extensions, each of said extensions having a vertical side wall.

The screed assembly preferably comprises a main screed having a transverse vertical wall, a transverse upper channel on the forward side of said wall, and a manipulable threadable member extending through the wall. The screed extension members are forward of the main screed and have a vertical transverse wall, a transverse rearward protrusion engageable in the upper channel of the main screed and a rearward transverse channel for slidable engagement with the manipulable threadable member.

In the self-leveling modification a wheel assembly is mounted on the vertical side wall with the screed support member being disconnected. For a trench, wheel assemblies are mounted on both sides, with both screed support members being disconnected.

The embodiment illustrated in the drawings comprises a front, asphalt receiving and depositing chamber or hopper **11** comprising two side plates **11***a* having open lower cut out sections **11***aa*, back plates **11***c* and **11***d*, which are joined at a top ridge and flare downward and outward, a back wall **11***f* and a front plate **11***e*, forming an open top and a narrower open bottom **11***b*.

The hopper **11** is joined with side frame plates **14** and **15**. A pair of front steerable wheels **12** and **13** are connected to the frame. To the rear of the hopper is a large transverse roller **16** having a wooden top frame **17**, a top scraper **18** and a bottom step **19**. The axle **16***a–b* of roller **16** is adjustably vertically positionable in slots **14***a* in the side frame plates **14** and **15**. The asphalt fed into the hopper **11** goes down through the open bottom **11***b* and sides **11***aa* and fills in the space formed by the screed assembly which is comprised of main screed **24** having a vertical, transverse wall and a bottom transverse flange and two screed extensions **35** and **35***a* having vertical transverse walls, **41** and **42**, bottom transverse flanges and side vertical walls.

Attached to the back wall plate **11***f* are a pair of bracket plates **20** and **21** which in turn support a pair of screed support assemblies **22** and **23**. The assemblies comprise handles **22***f* and **23***f* connected to hollow sections **22***a* and **23***a* terminating in threaded collars **22***b* and **23***b* supported by bearings **22***c* and **23***c* mounted on brackets **20** and **21**. Threaded into collars **22***b* and **23***b* are support members **22***d* and **23***d*. The assemblies **22** and **23** are vertically adjustable and support the main screed **24** by means of yokes **25** and **26** on the screed, with removable pins **27** and **28** connecting to support members **22***d* and **23***d*. The assemblies thus permit ready vertical adjustment of the screed assembly.

A transverse plate **29** is welded on top of the main screed **24** and serves as the top guide for the screed extensions **35** and **35***a*. On the front of the vertical wall of screed **24** is a transverse rail **30** spaced downward from the guide plate **29** so as to permit entry of the rearwardly tapering top rails **39** of the screed extensions **35** and **35***a*. The screed extensions **35** and **35***a*, which like the main screed are channel bars having a U-shaped cross section, carry on their rear surfaces upper and lower transverse bent rails **36** and **37** which serve to form a slotted channel **38** suitable for receiving hand-actuable wing bolts **33** and **34** which penetrate through holes **32** in the vertical transverse wall of the main screed **24** through the slot **38** formed by the rails **36** and **37**, and into threadable locking blocks **33***a*. Tightening the heads of the bolts **33** and **34** serves to draw the screed extensions **35** and **35***a* towards the main screed **24**, causing the tapering end **39** to wedge into position between the guide plate **29** and the rail **30**. When the wing nuts **33** and **34** are loosened from the locking blocks **33***a*, the top portions **39** easily disengage from the tight fit between plate **29** and rail **30** and thus permit easy lateral adjustment of the extensions **35** and **35***a*. It should be noted that the bottom surface of the screed extensions are maintained at the same level as the bottom surface of the main screed. The screed extensions are easily adjustable in spite of presence of asphalt and maintain an essentially true level with the main screed.

The self-leveling feature, which is particularly desirable where there are curbs and in trench laying, is accomplished by attaching to the screed extension on screed side plate **41**, a wheel **43** by means of a bracket **44** with bolt **46** in slot **47** of plate **41**. The wheel **43** is freely rotatable on fixed axle **45**. After the wheel is added, the clevis pin **27** is removed disconnecting jack screw **22** so that one side of the entire screed assembly is now supported by the curb wheel **43**.

The curb wheel **43** can be either pneumatic, semi-pneumatic or a steel roller and is vertically adjustable in slot **47**. Normally the wheel would be set one-half inch below the bottom of the screed. This would leave the pavement one-half inch higher than the curb while loose. The power roller which follows would then compress it evenly with the curb. In laying a trench pavement, a wheel would be used on each side whereas only one wheel would be needed for maintaining asphalt level with a curb.

It should be noted that asphalt is sticky and that it is this property which has made it difficult to readily adjust screed width in prior art devices. In this invention, all that is needed for extension on any one side is manipulation of the single wing bolt, repositioning and then re-tightening.

The machine of this invention is particularly useful for continuous deposition and first compacting of asphalt on sidewalks. A typical width roller is five feet. The open hopper is preferably low enough to permit pouring in of wheel barrow loads of hot asphalt. The device is generally towed and can be steered, a chain drive being preferred for steering the front wheels. The machine of this invention does not make any marks that are not readily removed by the power roller. The diameter of the roller is preferably about sixteen inches, the curb wheels about eight inches and the front steering wheels about twelve inches.

Although the steering mechanism is not illustrated, it is to be understood that this invention contemplates any of the conventional steering methods, as for example, chain and sprocket drives. The actual manipulation of the front wheels can be done by a steering wheel or by a manipulable bar, as for example, bar **50** which connects with mechanism not illustrated.

Although the embodiment illustrated discloses a complete receiving chamber for the asphalt, this invention is also applicable to spreading and compacting machines which do not have a receiving chamber but coact with previously deposited asphalt, often referred to as windrows, along the highway surface. Thus, the embodiment as illustrated would omit plate **11***e* so as to leave an essentially three sided scoop formed by side plates **11***a* and back plates **11***c* and **11***d*.

I claim:

1. In a spreading and compacting machine supporting a screed, the combination of:

(1) a transverse guide plate attached to the top of the screed;

(2) a transverse rail attached to the screed and spaced downward from the guide plate so as to form an upper channel;

(3) a screed extension having a tapering rail engageable in said upper channel and having its bottom surface at the same level as the bottom surface of the main screed; and

(4) means for holding the screed extension in a selected longitudinal position.

2. The device of claim **1** wherein the screed is supported by a pair of vertically adjustable threadable members attached to the frame of the machine.

3. The device of claim **1** wherein the screed is disconnected from the machine on only one side; there being a wheel assembly attached to the screed extension on the disconnected side of the screed.

4. The device of claim **1** wherein the screed has a transverse vertical wall and said holding means comprises a threadable member extending through the wall and engageable with the screed extension.

5. The device of claim **1** wherein the screed is supported by a pair of vertically adjustable threadable members attached to the frame of the machine; the screed being disconnectable from one of said members and having a wheel assembly attached to its screed extension.

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