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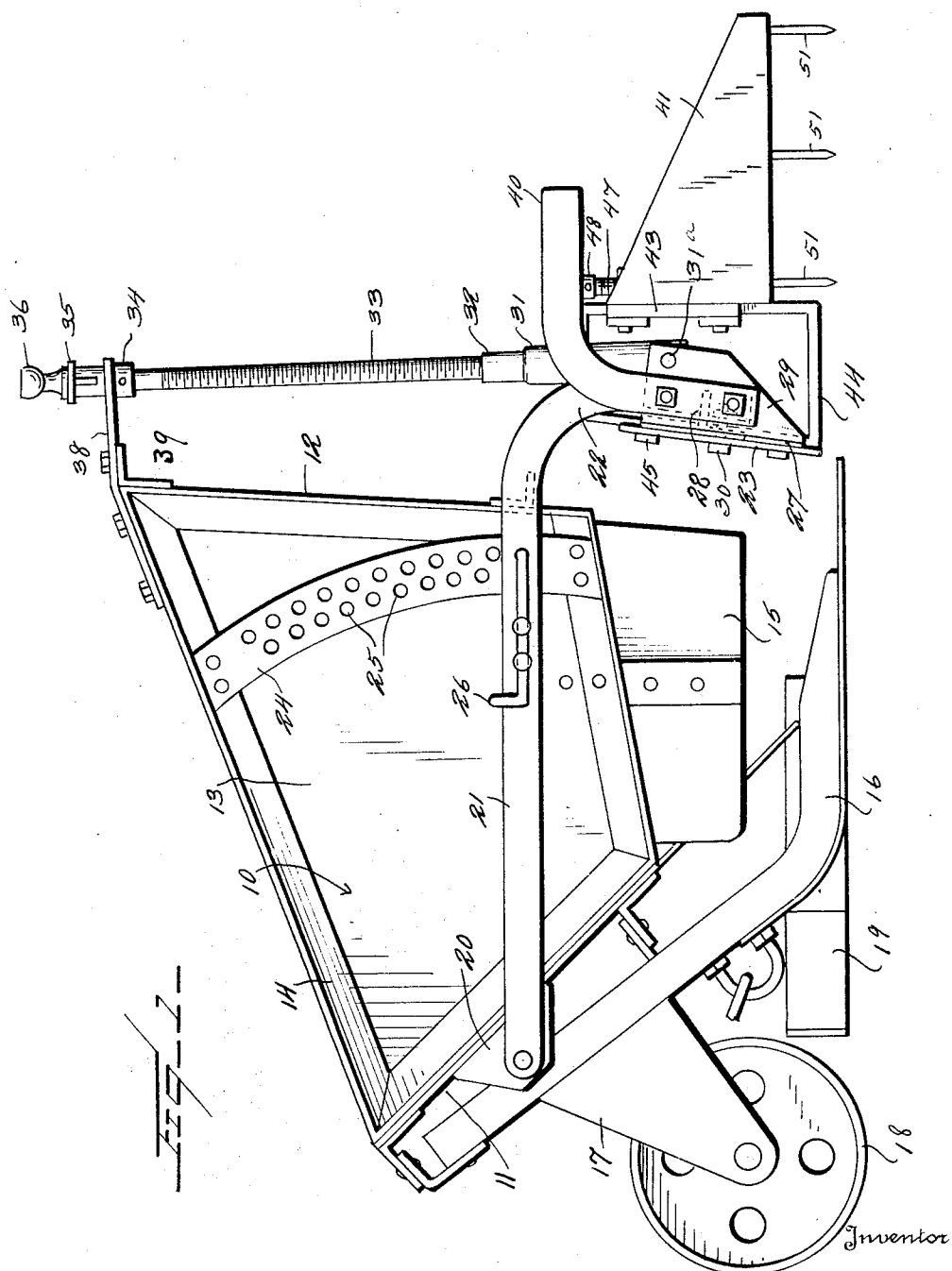
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STONE AND ASPHALT SPREADER

Filed May 20, 1930

2 Sheets-Sheet 1



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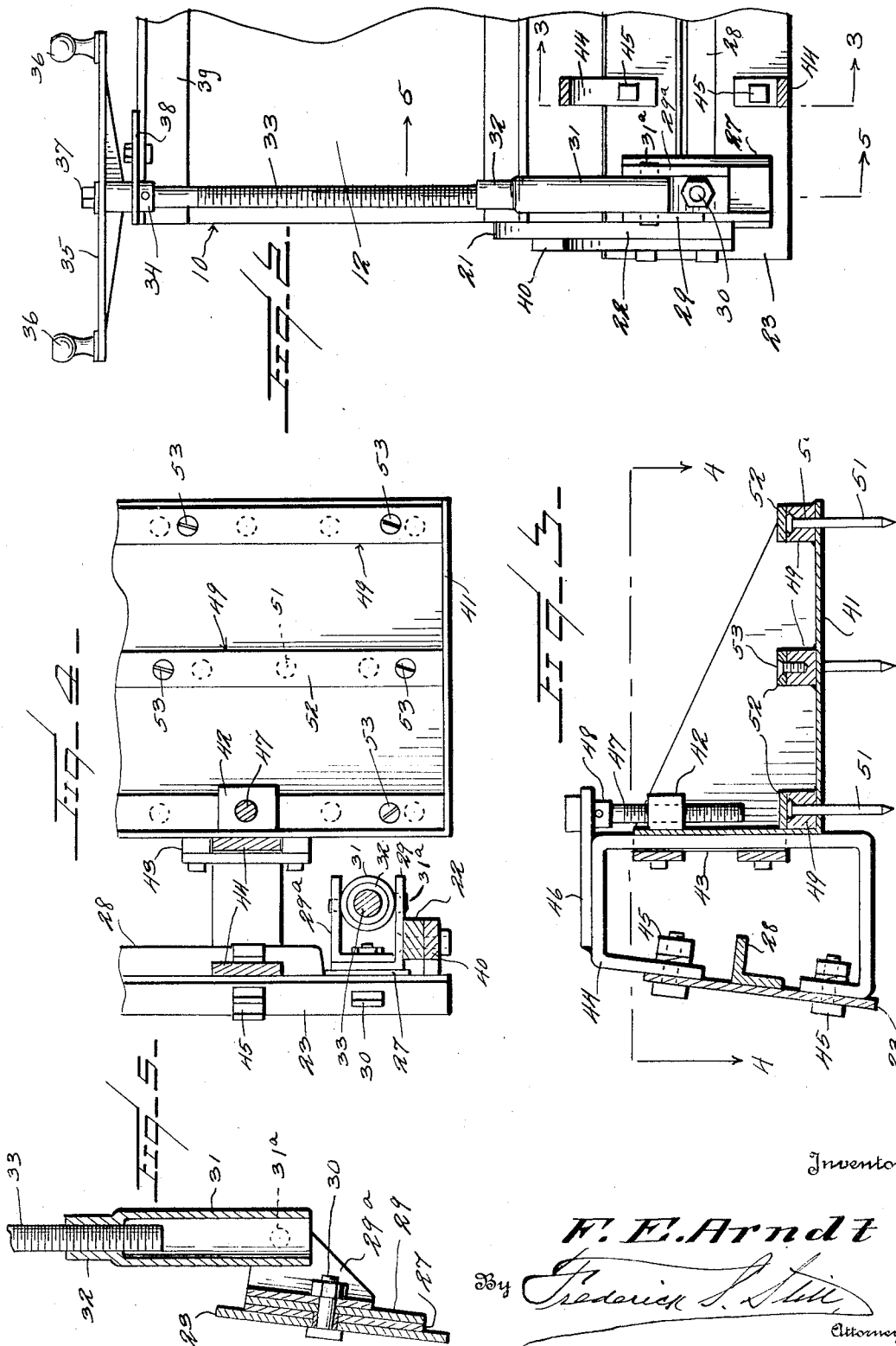
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UNITED STATES PATENT OFFICE

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STONE AND ASPHALT SPREADER

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Application May 20, 1930. Serial No. 454,067

13 Claims. (Cl. 94—44)

This invention relates generally to spreaders of the character illustrated in my Patent No. 1,502,007 granted July 22, 1924 on a stone distributor and leveler and relates particularly to certain improvements in the details of construction and certain improvements whereby the spreader may be used for spreading asphalt or stone and whereby the asphalt may be distributed or spread and raked to prepare the asphalt for rolling.

A further object in this connection is to provide simple means whereby the strike-off blade may be arranged either for adjustment by hand or for adjustment by means of screws, the latter means being particularly designed for use where asphalt is being spread which requires a more or less fine adjustment of the strike-off blade.

A further object is to provide means whereby the rake may be vertically adjusted and whereby the teeth of the rake may be renewed from time to time when unduly worn.

A further object is to provide means whereby the strike-off blade may be adjusted a little higher at one side than at the other.

Other objects will appear in the course of the following description.

My invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is an end elevation of a stone and asphalt spreader constructed in accordance with my invention;

Figure 2 is a fragmentary rear elevation of the asphalt spreader but with the asphalt rake removed;

Figure 3 is a section on the line 3—3 of Figure 2;

Figure 4 is a section on the line 4—4 of Figure 3;

Figure 5 is a fragmentary detailed section on the line 5—5 of Figure 2;

In the drawings, 10 designates a hopper-shaped container made of sheet metal having a downwardly and rearwardly convergent front wall 11 and a vertically disposed rear wall 12 with end walls 13, the body of the container being braced by the angle iron frames 14. The bottom of the hopper is open and attached to the hopper at its ends are the stop-off plates 15.

The hopper is operatively supported upon the runners 16 which are made of angle iron or channel iron attached at their upper ends to the upper end of the hopper in front thereof and extending downward and rearward and then horizontally beneath the hopper. Mounted upon these runners are the downwardly and forwardly extending

brackets 17 provided with the wheels 18, the wheels being slightly below the runners. Runner guides 19 are disposed slightly in advance of the runners.

Mounted upon brackets 20 attached to the front wall of the hopper more or less adjacent its upper end are the draw bars 21 which extend rearward and at their rear ends are bent downward as at 22 to support a strike-off blade 23. These draw bars 21 are pivoted so that they may be raised or lowered and thus raise or lower the strike-off plate 23. Where this strike-off plate is intended to be operated by hand as in stone spreading, an arcuate plate 24 is mounted at each end of the hopper, this plate being provided with apertures 25 and each draw bar 21 being provided with a latch designated generally 26 which includes a pin adapted to be inserted in any one of the apertures 25 to hold the draw bars 21 and the strike-off blade at any desired height. This is substantially the same construction as is illustrated in my Patent 1,502,007. Preferably, however, the arcuate guide plate 24 will extend from top to bottom of the hopper so as to give a very large range of adjustment to the strike-off blade whereas a relatively short range of adjustment was provided for in my Patent 1,502,007. It will be understood that the pin 26 is adapted to be entirely removed from the lever or shifted out of engagement with any of the apertures 25 under circumstances when the strike-off blade is intended to be raised or lowered by means of screws as will be later stated.

The strike-off blade 23 has welded to it at each end a reinforcing plate 27 and is also reinforced by a longitudinally extending angle 28. Attached to the reinforcing plate 27 and the strike-off blade 23 by a bolt 30 which extends through the reinforcing plate and the strike-off blade, as shown in Figure 5, are the angle irons 29 and 29^a which together form a channel. These angle irons 29 and 29^a are formed with apertures for engagement by trunnions 31^a of an adjusting screw housing 31, where an adjusting screw is to be used. This housing is hollow but the upper end of the housing is formed to provide a contracted neck 32 which is interiorly screw-threaded. There are two of these housings 31 disposed at opposite ends of the strike-off blade and pivotally connected to the strike-off blade by means of the trunnions 30, as previously stated, and coacting with these housings are the screws 33. The upper ends of these screws pass through collars 34 and at their upper ends, each screw 33 is provided with a detachable handle 35 formed with rotatable knobs 36 at its extremities. This handle is keyed upon the shank of the screw and is held in place by a

nut 37 engaging the shank of the screw. Each screw passes through an iron 38 which is detachably bolted to the flanged end of the hopper and extends rearward therefrom. These irons 38 may be attached to the hopper and to the angle iron brace 39 in any manner. By bolting, however, these irons 38 may be readily removed, together with the screws 33 if desired. Each draw bar is bolted or riveted to one side wall of the iron 39 and riveted or otherwise attached to the exterior of these draw bars are the handles 40. Obviously by rotating the screws 33 in one direction or the other, the strike-off blade 23 may be raised or lowered. In this case, of course, the latches 26 are not used, but the draw bars simply move up and down across the faces of the plates 29.

The plates 25 prevent lateral movement of the draw bars and support the draw bars from contact with the edges of the angle iron frame 14 of the hopper.

Where this construction is to be used as a stone spreader and the screws 33 are not desired to be used, the bolts 30 are removed and the angle iron 29^a is removed, thus permitting the members 31 to be disengaged from the angle irons 29. The plates 38 are removed and thus the screws 33, plates 38 and the angle irons 29^a are all detached. The bolts 30 are then replaced and then, of course, the strike-off blade may be raised or lowered by operating the handles 40. Where it is desired to use the screws 33 as adjusting means, the angle irons 29^a are put back in place with the trunnions 31^a in position, the bolt 30 is replaced and the plates 38 are reattached to the frame of the hopper. The strike-off plate will then be raised and lowered by the screws 33. Inasmuch as the bolts 30 provide for pivotal connection between the channel formed by the angle irons 29 and 29^a, it is obvious that one end of the strike-off blade may be raised or lowered to a considerable degree independently to the other end.

Obviously, the screw mechanism must be removed and disconnected before the hand lifting device may be used and where the screw is to be used, the lock-pins or latches 26 are disengaged from the openings in the plates 24. It is intended that the stone spreader shall be carried in the assembly stock and then if it be desired to make a combined stone spreader and asphalt spreader, the parts 28, 33, 31 and the angle iron 29^a are used as attachments whereby it may be converted into an asphalt spreader with a fine adjustment. It will be seen that it is a very simple matter to convert the unit from a hand lift device to a screw lift device. By reason of the pivotal connection of the strike-off blade with the channel formed by the members 29 and 29^a, the blade may be readily adjusted higher at one end than the other so as to suit the crowning of a road for example.

Where asphalt is to be spread, it is desirable to provide means for raking the asphalt, stirring it up to prepare it for rolling. To this end, I have devised an asphalt rake which is to be mounted immediately behind the strike-off blade 23 and is to be vertically adjustable with reference thereto. To this end, I have provided the angularly bent metal plate 41 having a bottom wall and a front wall. The front wall of this plate has welded thereto or otherwise attached the fixed nuts 42 and the front wall of this plate 41 carries the blocks 43. Frames 44 are bolted to the strike-off plate 43 by the bolts 45, these frames being made of angularly bent rods, these rods being formed to provide vertical portions

at the rear of the frames having sliding engagement with the blocks 43. Each frame has welded or otherwise attached to it the outwardly projecting plate 46 through the rear end of which passes an adjusting screw 47 engaging in the corresponding nut 42. Each screw is held from longitudinal movement by a collar or equivalent device 48 and each screw has a head at its upper end whereby the screw may be rotated. By this means the tooth carrying plate 41 may be raised or lowered upon the frames 44. The horizontal portion of the plate 41 has transversely extending ribs 49 welded or otherwise attached to it, each strip having a plurality of apertures 50 through which the teeth 51 are disposed. The upper face of each plate is counter-sunk around the aperture 50 so as to form a recess for the tooth 51 and the teeth are held in place by transversely extending plates 52 disposed over the ribs or plates 49 and held in place thereon by the screws 53.

Thus whenever the teeth become worn, the holding plates 52 may be readily removed and the teeth removed and replaced. The ribs or strips 49 are of sufficient thickness as to give the necessary support to the teeth 51. It will be seen that by adjusting the screws 47, the rake may be adjusted to carry its teeth any desired distance below the lower edge of the strike-off blade 23 and thus secure a greater or less stirring up of the asphalt. It will be seen that this rake attachment may be readily removed from or put in place on the strike-off blade and while it is particularly desirable for use with asphalt, it may be used for stirring up any other materials which have been discharged from the hopper.

It will be understood that the opposite ends of the strike-off blade may be independently raised or lowered because of the pivotal connections formed by bolts 30, and that, the opposite ends of the rake will be shifted at the same time. This is necessary where spreading the stone or asphalt and raking the asphalt is being done upon surfaces which are not horizontal but which require that the strike-off blade shall be lower at one end than at the other.

It will be seen that I have provided a distributor and spreader which may be readily adapted to suit either the spreading of stone or the spreading of asphalt, that it is particularly adapted for spreading asphalt or other materials of like nature in which a very even thickness of material is necessary and in which it is desirable to make only slight variations in the thickness of the material as the asphalt is being distributed and further that I have provided means whereby this asphalt so distributed may be stirred up, agitated or raked, thus doing away with the necessity of raking the asphalt by hand prior to rolling it.

With my device, the roller can follow directly behind the spreader, thus doing away with the hand raking necessary under ordinary circumstances.

I claim:—

1. In an asphalt spreader, a strike-off blade, a plurality of brackets associated therewith attached to the rear face thereof, each bracket including a vertical element, blocks slidably mounted upon the vertical elements of the several frames, a horizontally disposed rake plate having a vertical portion, with which said blocks are engaged and having nuts mounted thereon, the rake plate having depending teeth, the brackets having rearwardly extending elements, and

screws mounted in said elements and extending through the nuts whereby the rake plate may be adjusted.

2. In an asphalt spreader, a downwardly discharging hopper, a strike-off blade disposed behind the hopper, draw bars operatively pivoted at their forward ends upon the hopper and at their rear ends operatively connected to the strike-off blade, a rake plate operatively mounted upon the strike-off blade for vertical movement and having depending teeth, and means carried by the strike-off blade whereby the rake plate may be vertically adjusted.

3. A spreader including a downwardly discharging hopper, road engaging supports therefor, a strike-off blade disposed behind the hopper, means operatively connecting the strike-off blade to the hopper permitting vertical movement of the strike-off blade, opposed angle irons at each end of the strike-off blade and having flanges overlapping each other, the outwardly projecting flanges of the angle irons having trunnion openings, a bolt connecting both of said angle irons to the strike-off blade, and screws at each end of the blade detachably engaged with the hopper, internally threaded housings with which the screws engage and having trunnions engaging said openings in the angle irons.

4. In an asphalt spreader, a downwardly discharging hopper, a strike-off blade disposed behind the hopper, means mounted on the hopper for vertically adjusting the strike-off blade relative to the hopper, a rake operatively mounted upon the rear face of the strike-off blade for vertical adjustment and having depending teeth, and means carried upon the strike-off blade whereby the rake may be vertically adjusted.

5. In an asphalt spreader, a downwardly discharging hopper, road engaging supports therefor disposed below the lower end of the hopper, a strike-off blade disposed behind the hopper and normally below the lower end of the hopper, means on the hopper for supporting the strike-off blade, means on the hopper for vertically adjusting the strike-off blade, the strike-off blade adjacent the opposite ends having a pair of radially projecting flanges having trunnion openings, vertically disposed lifting screws mounted at their upper ends operatively upon the hopper, and internally threaded housings with which said lifting screws engage having trunnions engaging in said openings in the rearwardly projecting flanges.

6. In an asphalt spreader, a road engaging supporting structure, a strike-off blade mounted on but rearward of the supporting structure, the blade being vertically adjustable relative to the structure, and a rake mounted directly on the strike-off blade for vertical movement with the strike-off blade, the rake being vertically adjustable independently of the strike-off blade.

7. In an asphalt spreader, a road engaging supporting structure, a strike-off blade mounted on but rearward of the supporting structure, the strike-off blade being vertically adjustable relative to the supporting structure, a horizontally disposed plate carried directly upon the strike-off blade and extending rearward therefrom and

having a plurality of downwardly extending rake teeth, the plate being vertically adjustable upon the strike-off blade but independently adjustable relative thereto.

8. In an asphalt spreader, a road engaging supporting structure, a strike-off blade mounted on but rearward thereof for vertical adjustment, means for vertically adjusting the strike-off blade relative to the supporting structure, a toothed plate angular in cross section to provide an upwardly extending portion confronting the rear face of the strike-off blade, means for engaging said upwardly extending portion of the plate directly with the strike-off blade and permitting vertical adjustment of the plate relative to the strike-off blade, and means whereby the plate may be adjusted independently of the strike-off blade.

9. In an asphalt spreader, a road engaging supporting structure, a strike-off blade mounted on but rearward of the supporting structure, means for vertically adjusting the strike-off blade relative to the supporting structure, brackets mounted upon the rear face of the strike-off blade and extending rearward therefrom and having vertical elements, a raking element angular in cross section to provide an upwardly extending portion disposed behind said brackets and having sliding engagement with the vertical elements thereof, the horizontal portion of the raking element having depending rake teeth, screws operatively mounted upon the brackets and nuts carried by the upwardly extending portion of the raking element through which said screws pass whereby the raking element may be vertically adjusted relative to the strike-off blade.

10. In an asphalt spreader, a downwardly discharging hopper, a strike-off blade disposed behind the hopper and operatively carried thereby, and a rake operatively mounted upon the rear face of the strike-off blade and having depending teeth.

11. In an asphalt spreader, a downwardly discharging hopper, a strike-off blade disposed behind the hopper, means mounted in the hopper for vertically adjusting the strike-off blade relative to the hopper, and a rake operatively mounted upon the rear face of the strike-off blade and having depending teeth.

12. An asphalt spreader including a road engaging supporting structure, a hopper mounted thereon and having an open bottom, a strike-off blade operatively carried upon said structure but rearward of the hopper, the blade being vertically adjustable relative to the bottom of the hopper, and a rake mounted rearward of the strike-off blade.

13. In an asphalt spreader, a supporting structure including ground engaging runners, an open-bottomed hopper mounted upon said runners, a strike-off blade pivotally mounted upon said structure and disposed rearward of the hopper, means for vertically adjusting the strike-off blade relative to the bottom of the hopper, and a rake operatively carried upon the strike off blade and adjustable therewith and having depending teeth.

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