

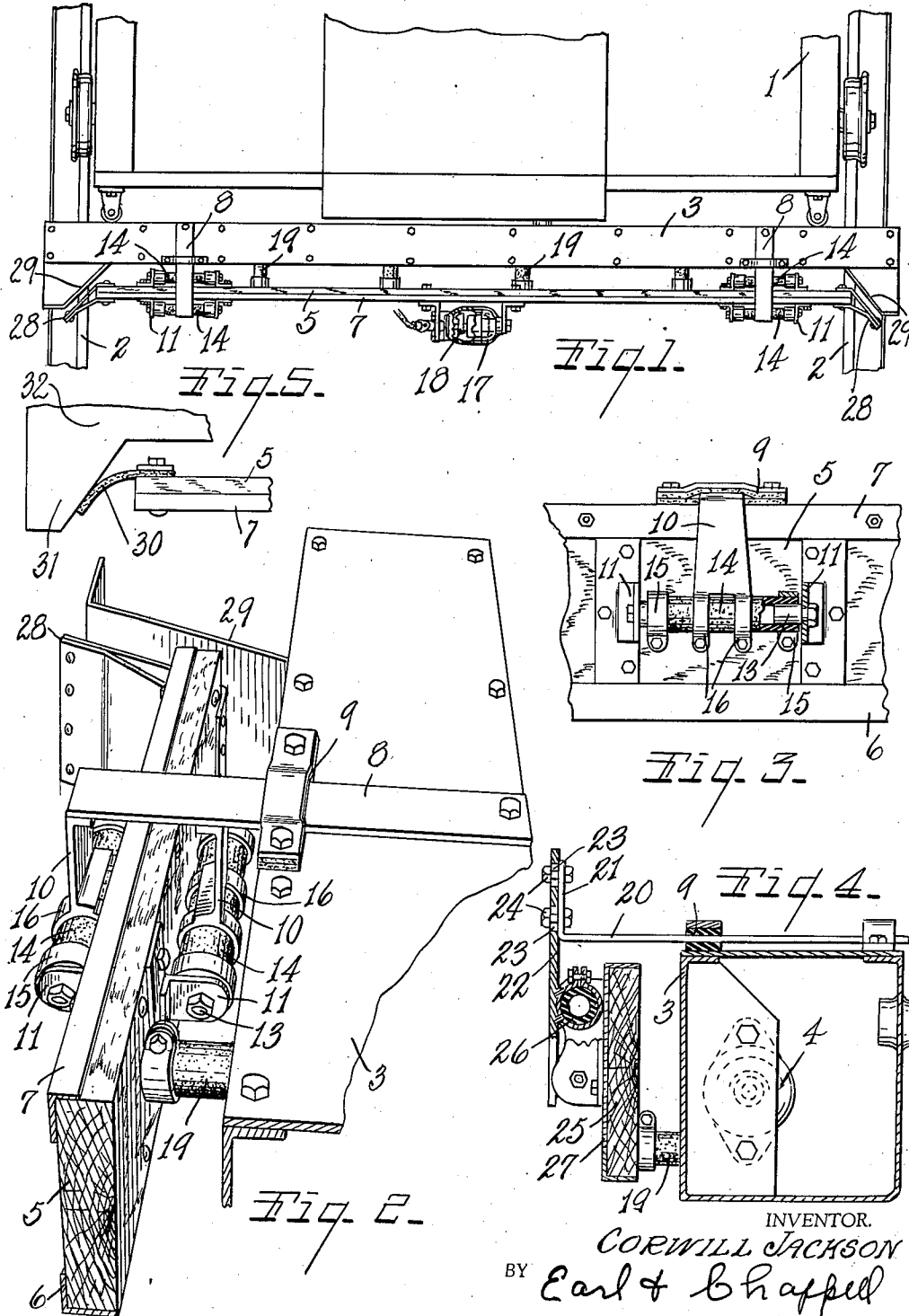
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CONCRETE PLACEMENT MACHINE

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CONCRETE PLACEMENT MACHINE

Corwill Jackson, Ludington, Mich.

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9 Claims. (Cl. 94—45)

This invention relates to improvement in concrete placement machines.

The main objects of this invention are:

First, to provide an improved machine for the placement of concrete in pavements, paving slabs, and the like which is quite simple and economical in structure and at the same time is highly efficient.

Second, to provide in a machine of this character an improved vibratory member which is uniformly efficient from end to end thereof.

Objects relating to details and economies of the invention will appear from the description to follow. The invention is defined in the claims.

Preferred embodiments of the invention are illustrated in the accompanying drawing, in which:

Fig. 1 is a fragmentary plan view of a concrete placing machine of the paving machine type embodying the features of my invention, only such parts being illustrated as are deemed necessary to show my present improvements and certain of the parts being shown conventionally.

Fig. 2 is an enlarged fragmentary perspective view, the vibratory member and screed being shown in section.

Fig. 3 is a fragmentary front elevation of the vibratory member.

Fig. 4 is a fragmentary section of a somewhat modified form or embodiment of my invention, particularly in the mounting of the vibratory member.

Fig. 5 is a fragmentary plan view showing a modified form of end guard extension for the vibratory member.

This invention relates to the type of concrete placing machine illustrated and claimed in my application for Letters Patent filed May 5, 1941, Serial No. 391,922, and is an adaptation and in some respects an improvement upon the structure of the said application.

Referring to the accompanying drawing, 1 represents the carriage of a paving machine which is adapted to travel upon the side forms 2. The carriage is commonly powered. The screed 3 is disposed at the front of the machine and is preferably provided with a vibrating motor 4.

The plank-like vibratory member 5 is, in the embodiment illustrated, formed of wood, a wood plank of approximately twelve inches in width and two inches thickness and of the desired length having been found to be very suitable. In the embodiment shown in Fig. 2, the plank is provided with an angle-shaped shoe or wear plate 6 at its lower edge and an angle reinforcing

bar 7 at its upper edge, this last named bar being mainly provided to prevent warping of the plank in use. The vibratory member is supported in front of the screed and in spaced relation thereto and is supported in a vertical edgewise position and adapted to support a substantial mass of the material treated as the vibratory member is advanced with the screed.

The particular supporting means illustrated comprises the bars 8 projecting forwardly from the screed, being bolted to the top thereof and being provided at the front edge of the screed with vibration absorbing members 9. The bars 8 are provided with pairs of depending hangers 10 which depend at the sides of the vibratory member.

The vibratory member is provided with angled brackets 11 having studs 13 to which the ends of the tubular resilient support members 14 are clamped or secured by means of the clamps 15. The hangers 10 are provided with clamps 16 which clampingly engage the support members at intermediate points and in substantially spaced relation to the brackets 11. These support members 14 are in the form of sections of reinforced rubber tubing or heavy hose-like material, having substantial resilience although they are substantially non-extensible.

With this arrangement, the vibratory member is effectively held in upright position and at the same time is free to vibrate under the action of a vibrating unit 17 which, in the embodiment illustrated, is an electric motor, the rotor 4 of which is provided with an unbalancing weight 18. The axis of the rotor is disposed in parallel relation to the vibratory member.

Thrust members 19 are mounted on the vibratory member to supportingly contact the front of the screed, thus relieving the supporting connection described of undue stress when the vibratory member is advanced against the concrete to be placed. These thrust members 19, however, are designed to absorb the vibration—that is, to prevent and minimize the vibrations translated from the vibratory member to the screed and also allowing the full effect of the vibratory unit 17 to be exerted on the vibratory member 5.

In the structure shown in my application for patent referred to, the purpose was to transmit certain modified vibrations to the screed and that is desirable in certain conditions. The vibrating unit 4 of the screed can be used or not as desired and in some conditions in which it is desired to vibrate the screed, the vibratory mem-

ber and screed are associated so that they coact as in the disclosure of my said application.

By utilizing a wood vibratory member I have found that the vibrations are transmitted uniformly throughout the length thereof and that it does not damp out in certain zones as is likely to be the case when made entirely of metal unless made sufficiently rugged to prevent, which of course means added weight and also such structures require added power in the vibrating unit.

In the embodiment of my invention shown in Fig. 4, the supporting bars 20 have upright arm portions 21 in their forward ends, the hangers 22 being slotted at 23 to receive the attaching bolts 24 which permit vertical adjustment of the vibratory member 25. These hangers are secured to resilient supports 26 of the character described. In this embodiment, the wood vibratory member is provided with a sheet metal facing 27 which serves the double purpose of preventing undue wear on the wood and also preventing warping.

The vibratory member is highly effective in reducing the harsh concrete mixtures to a semi-fluid condition and to prevent the material flowing around the ends of the vibratory member I provide forwardly and outwardly projecting wings 28 at the ends thereof, these wings being in spaced relation to the wings 29 of the screed.

In Fig. 5, I show a modified form or embodiment in which flexible wings or extensions 30 are provided for the vibratory member 5, these flexible wings being supported by the wings 31 of the screed 32. The weight of the material against these flexible wings 30 urges them into supporting relation to the wings of the screed.

I have illustrated and described my invention in practical commercial embodiments thereof. I have not attempted to illustrate or describe certain adaptations or modifications which I contemplate as it is believed that this disclosure will enable those skilled in the art to embody or adapt my improvements as may be desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a machine of the class described, the combination of a laterally reciprocatory screed, a plank-like vibratory member of wood disposed vertically edgewise in front of said screed and in spaced relation thereto and adapted to support a substantial mass of material treated as the vibratory member is advanced, means for supporting said member on the screed for advancement and reciprocation therewith, comprising hangers carried by said screed depending on opposite sides of said vibratory member, spaced support brackets mounted on the sides of said vibratory member and provided with studs, tubular resilient supports clamped upon said studs, said hanger members being provided with clamps engaging said supports intermediate the ends thereof and in spaced relation to their said brackets, and means for vibrating said vibratory member at high frequency comprising an unbalanced rotor mounted on said vibratory member.

2. In a machine of the class described, the combination of a laterally reciprocatory screed, a vibratory member disposed in front of said screed and in spaced relation thereto and adapted to support a substantial mass of material treated as the vibratory member is advanced, supporting means for said vibratory member carried by said screed, said supporting means having

hanger members depending on opposite sides of said vibratory member, flexible supports connected at their ends to said vibratory member and disposed in opposed relation on the sides thereof, said hangers being secured to said supports intermediate the ends thereof, resilient vibration absorbing thrust members arranged between said vibratory member and said screed, and means carried by said vibratory member for vibrating the same at high frequency.

3. In a machine of the class described, the combination of a laterally reciprocable screed, a vibratory member adapted to support a substantial mass of material treated as the vibratory member is advanced, hangers for said vibratory member depending on opposite sides and at opposite ends thereof, said hangers being secured to the screed for reciprocation therewith, flexible supports connected at their ends to said vibratory member and disposed in opposed relation on the sides thereof, said hangers being secured to said supports intermediate and in substantially spaced relation to their points of attachment to the vibratory member, resilient vibration absorbing thrust members arranged between said vibratory member and said screed, and means carried by said vibratory member for vibrating the same at high frequency.

4. In a machine of the class described, the combination of a laterally reciprocable screed, a vibratory member adapted to support a substantial mass of material treated as the vibratory member is advanced, hangers for said vibratory member depending on opposite sides and at opposite ends thereof, said hangers being secured to the screed for reciprocation therewith, flexible supports connected at their ends to said vibratory member, said hangers being secured to said supports intermediate and in substantially spaced relation to their points of attachment to the vibratory member, and means carried by said vibratory member for vibrating the same at high frequency.

5. In a machine of the class described, the combination of a laterally reciprocatory screed, a plank-like vibratory member disposed vertically edgewise in front of said screed and in spaced relation thereto and adapted to support a substantial mass of material treated as the vibratory member is advanced, means for supporting said vibratory member carried by said screed and supporting the vibratory member in its upright spaced relation to the screed while reciprocating the member with the screed and permitting free vibratory movement thereof, said supporting means including damping means for the vibrations whereby transmission of vibrations to the screed is substantially eliminated, and means carried by said vibratory member for vibrating the same at high frequency.

6. In a machine of the class described, the combination of a laterally reciprocable screed, a plank-like vibratory member disposed vertically edgewise in front of the screed and adapted to support a substantial mass of material treated as the vibratory member is advanced, supporting means for said vibratory member connected to said screed to support the vibratory member in its upright relation to the screed while reciprocating the member with the screed and permitting free vibratory movement thereof, and means for vibrating said vibratory member at high frequency.

7. In a machine of the class described, the

combination of a laterally reciprocatory screed, a plank-like vibratory member disposed vertically edgewise in front of said screed and in spaced relation thereto and adapted to support a substantial mass of material treated as the vibratory member is advanced, means for supporting said member for reciprocation and advancement with the screed, comprising supporting bars for said vibratory member projecting forwardly from and secured to said screed, hangers mounted on said bars for vertical adjustment, and resilient connections for said hangers to said vibratory member permitting free vibratory action of the vibratory member, and means carried by said vibratory member for vibrating the same at high frequency.

8. In a machine of the class described, the combination of a laterally reciprocable screed, a plank-like vibratory member adapted to support a substantial mass of material treated as the vibratory member is advanced, said vibratory member being provided with forwardly projecting outwardly diverging wings at the ends there-

of acting to prevent the material treated from passing around the ends of the vibratory member, means supporting said member on said screed for reciprocation and advancement therewith, and means for vibrating said vibratory member at high frequency.

9. In a machine of the class described, the combination with a laterally reciprocatory screed provided with forwardly projecting wings at the ends thereof, of a vibratory member adapted to support a substantial mass of material treated as the vibratory member is advanced mounted on said screed in spaced relation thereto and to permit vibratory movement of the vibratory member, means supporting said member on said screed for reciprocation and advancement therewith, said vibratory member being provided with forwardly projecting flexible wings at the ends thereof adapted for supported engagement with the wings of said screed, and means for vibrating said vibratory member at high frequency.

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