June 19, 1934. J. N. HELTZEL 1,963,700

ROAD JOINT INSTALLER

Filed May 29, 1929 2 Sheets-Sheet 1

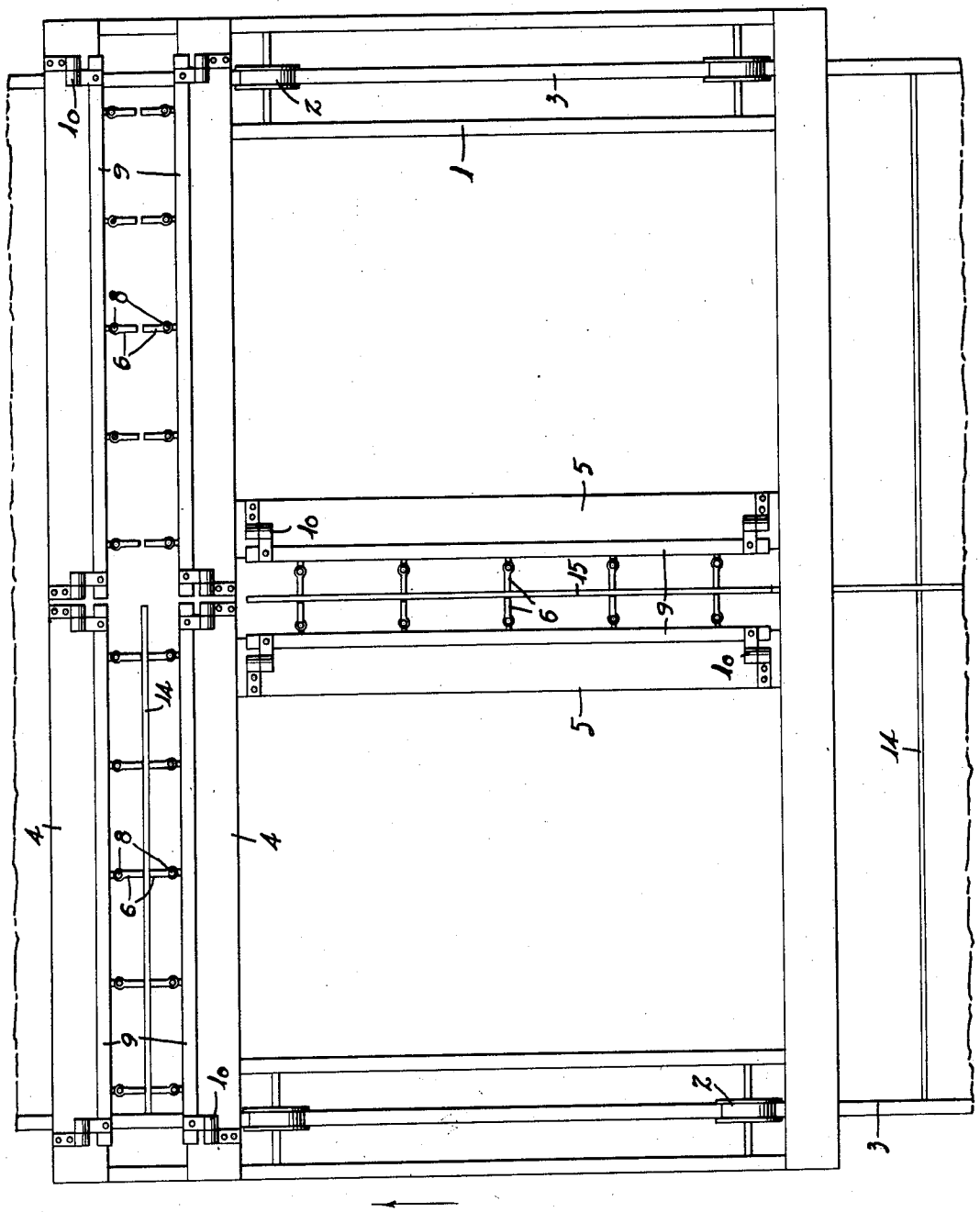


FIG. 1.

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Filed May 29, 1929 2 Sheets-Sheet 2

FIG. 2.

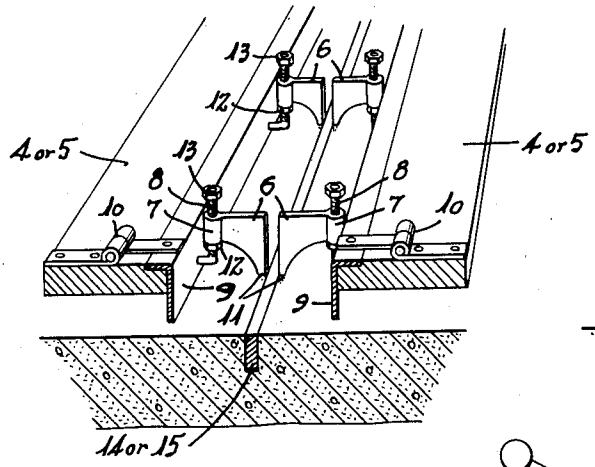


FIG. 3.

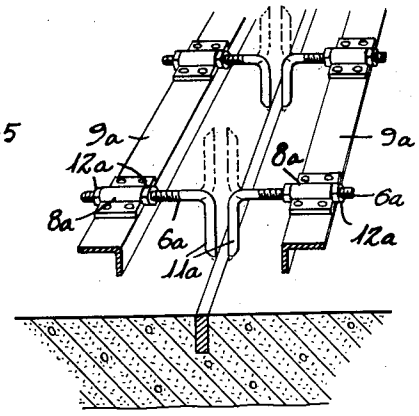


FIG. 4.

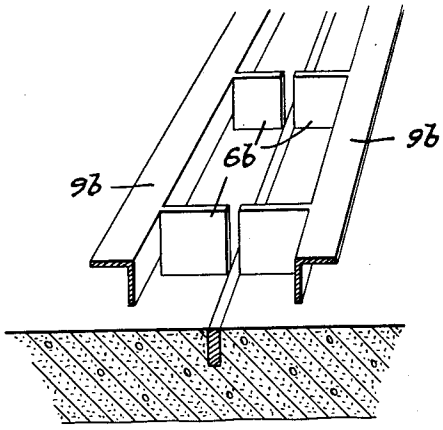


FIG. 5.

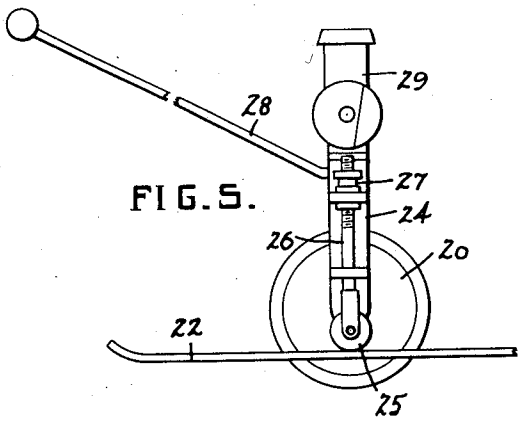


FIG. 6.

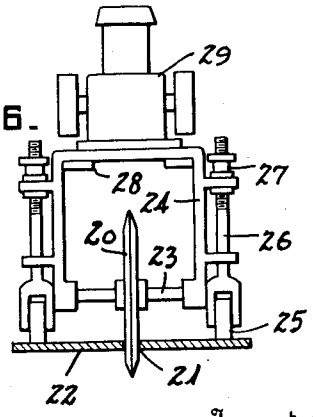
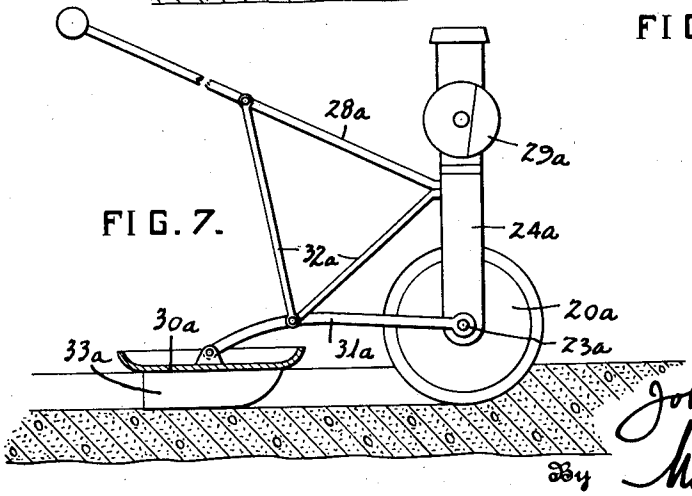


FIG. 7.



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ROAD JOINT INSTALLER

John N. Heltzel, Warren, Ohio

Application May 29, 1929, Serial No. 367,054

19 Claims. (Cl. 94—39)

The present invention relates to road joint installers, and aims to provide a simple and convenient means for installing joint strips, members or forms in a concrete road under construction.

A further object of the invention is the provision of novel means for guiding the joint strips, members or forms down into the plastic concrete in order that such strips, members or forms may be accurately positioned in the road or pavement.

With the foregoing and other objects in view, which will be apparent as the description proceeds, the invention resides in the construction and arrangement of parts as hereinafter described and claimed, it being understood that changes can be made within the scope of what is claimed, without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a plan view of a movable bridge or frame embodying the improvements.

Fig. 2 is a perspective view illustrating two pairs of guide members.

Fig. 3 is a perspective view similar to Fig. 2 illustrating a modification.

Fig. 4 is a similar perspective view illustrating a more simple construction.

Fig. 5 is a side elevation of a device to be used in connection with the joint installer for cutting a groove or slot in the concrete.

Fig. 6 is a front view of said device.

Fig. 7 is a side elevation of a modified form of groove or slot cutting device.

A bridge or frame 1 has wheels 2 to roll on the side rails or forms 3 between which the road is built, and said bridge has transverse and longitudinal pairs of spaced platforms 4 and 5, respectively, on which the workmen are supported while installing and finishing the joints.

Pairs of guide members or arms 6 are disposed between each pair of platforms and have sleeves 7 rotatable and slidable on spindles 8 normally in vertical position and having their lower ends secured to angle irons or bars 9 seatable on the adjacent edge portions of the platforms, said angle irons or bars being hinged, as at 10, on the platforms to swing upwardly and outwardly for raising the arms 6 off the concrete.

The arms 6 have parallel vertical edges and terminate at the lower ends of said edges in spurs 11, which may enter the concrete at the opposite sides of the joint or which may be supported above the surface of the concrete by means of nuts 12 threaded on the spindles 8 and supporting the sleeves 7. Nuts 13 or other stops are engaged on the upper ends of the spindles 8, to prevent the arms 6 from falling off said spindles. The nuts 13 may also be used for clamping the sleeves 7 in place.

One set of arms 6 is provided between the platforms 5 for installing longitudinal joints, and two sets of arms are provided between the platforms 4, one at each side of the longitudinal joint line, for installing the transverse joints, which may either be in alinement, as seen in Fig. 1, or in staggered relation.

When the bars 9 are swung inwardly against the inner edges of the platforms, and the arms 6 positioned the transverse and longitudinal joint strips, members or forms 14 and 15, respectively, may be positioned between the arms and then forced downwardly into the plastic concrete. The concrete may be previously cut, grooved or otherwise prepared so as to receive the strips. The strips may be of premolded material, metal, or other suitable material, or forms may be provided to be removed subsequently to provide grooves which may be filled with tar, or other sealing material.

The arms 6 may be swung upwardly out of the way between the platforms, with the bars 9, to enable the joints to be conveniently finished and the concrete edged along the joint strips or forms.

The arms 6 may also be moved vertically on the spindles 8, for purpose of adjustment, and to remove said arms from the concrete after the strips are in place. Rams or other implements may be employed to force the strips down into the concrete.

Fig. 3 illustrates horizontal rods 6*a* mounted for sliding and rotary movements in bearings 8*a* secured on the angle irons or bars 9*a*, and the adjacent ends of said rods have fingers 11*a* which may be turned downwardly for guiding the joint strip or form down into the concrete. Said fingers may enter the concrete or may be spaced above same, and the rods 6*a* are maintained in their adjusted positions by nuts 12*a* thereon bearing against the ends of the bearings 8*a*, but permitting the rods to rotate so that the fingers 11*a* may be turned upwardly away from the concrete to permit the surface of the concrete to be floated or trowelled, and the edges of the joint finished.

Fig. 4 illustrates a simple form wherein the angle irons or bars 9*b* have the guide members 6*b* welded or otherwise secured thereto and extending toward one another to guide the joint strip or form downwardly between them.

Figs. 5 and 6 illustrate a device adapted to

move between the parallel platforms for cutting a groove or slot in the plastic concrete. The device comprises a cutter disk 20 movable in a slot 21 of a guide plate 22 that is disposed on the plastic concrete with the slot extending along the line of the joint, to guide said disk along said line.

The disk 20 is secured on a shaft 23 mounted in a yoke 24, and wheels or rollers 25 are provided to roll on the plate 22 for supporting the disk at the desired depth in the concrete. The wheels 25 are mounted in the lower bifurcated ends of vertical rods 26 slidably connected with the yoke 24, and adjusted by means of nuts 27 threaded on said rods and swivelled to the yoke, thereby enabling the yoke to be adjusted upwardly and downwardly to regulate the depth of the cut made by the disk.

A handle 28 is connected to the yoke for moving the device along the slot 21, and the device is preferably vibrated in order that the disk will cut through the plastic concrete more readily. To vibrate the yoke an engine 29 having an off-balanced fly wheel is mounted on the yoke, or any other suitable means may be employed.

When the arms or guide members are swung out of the way, the groove cutting device may be moved between the parallel platforms, and the plate 22 may be placed on the concrete below the space between the platforms to guide the disk 20. The slot or groove may thus be cut in the concrete to receive the joint strip or form.

Fig. 7 illustrates a modified form of groove cutting device, comprising the cutter disk 20*a* mounted on the shaft 23*a* on which the yoke 24*a* is mounted.

A handle 28*a* is secured to said yoke, and an engine 29*a* having an off-balanced flywheel is mounted on said yoke to vibrate the disk.

A float 30*a* is trailed from the shaft 23*a* by the links 31*a*, and is connected to the handle 28*a* by the braces 32*a*.

Said float has a depending blade 33*a* to follow the disk 20*a* and form the groove or slot to receive the joint strip, material or form. The float 30*a* smooths off the surface of the concrete at the opposite sides of the groove.

Having thus described the invention, what is claimed as new is:

1. A joint installer having two sets of guide members extending toward one another and adapted to guide a joint strip or form between them, the guide members of each set being spaced apart to contact with the joint strip or form at longitudinally spaced points.

2. A joint installer comprising spaced members having guide members extending therefrom and adapted to guide a joint strip or form between the firstnamed members, the guide members of each of the firstnamed members being spaced apart to contact with the joint strip or form at longitudinally spaced points.

3. A joint installer having two sets of guide members extending toward one another and spaced apart for guiding a joint strip or form downwardly between them, the guide members of each set being spaced apart to contact with the joint strip or form at spaced longitudinal points, and the guide members of the two sets being arranged in pairs.

4. A joint installer comprising spaced members having pairs of guide members extending toward one another and spaced apart for guiding a joint strip or form downwardly between them, the guide members of each of the firstnamed members being spaced apart to contact with the joint strip or form at spaced longitudinal points.

5. A joint installer comprising spaced members, arms extending from each member toward the other member, said arms of the two members being spaced apart for guiding a joint strip or form, and means for adjustably supporting said arms from said members.

6. A joint installer comprising spaced platforms, bars hingedly mounted on said platforms, and guide arms extending from each bar toward the opposite bar, said arms being spaced apart for guiding the joint strip or form.

7. A joint installer comprising spaced platforms, bars hingedly mounted on said platforms, arms extending from each bar toward the opposite bar, and means adjustably supporting said arms from the bars, said arms being spaced apart for guiding a joint strip or form between them.

8. A joint installer comprising spaced members, and guide arms extending from each member toward the opposite member, said arms being spaced apart for guiding a joint strip or form between them.

9. A joint installer comprising a plurality of guide members for guiding a joint strip or form to move into plastic concrete, and means for mounting said members to permit them to be individually moved away from said strip or form when it is deposited in the concrete.

10. A joint installer having two sets of guide members adapted to guide a joint strip or form between them to enter plastic concrete, the guide members of each set being spaced apart to contact with the joint strip or form at longitudinally spaced points, and said members having portions to enter the concrete adjacent to the strip or form.

11. A joint installer having two sets of guide members adapted to guide a joint strip or form between them to enter plastic concrete, the guide members of each set being spaced apart to contact with the joint strip or form at longitudinally spaced points, and said members having portions to enter the concrete adjacent to the strip or form, and means for mounting said members for individual movement away from the joint strip or form when it has been deposited in the concrete.

12. A joint installer comprising spaced members, arms extending from each member toward the other member and having portions to enter plastic concrete, said arms of the two members being spaced apart for guiding a joint strip or form between them to enter the plastic concrete, and means for adjustably mounting said arms on said members for the individual movement of each arm from the joint strip or form when it has been deposited in the concrete.

13. The method of constructing joints in concrete roadways, which consists in cleaving through soft concrete, independently and movably mounting guide members at opposite sides of the cleft for guiding a strip into the cleft, depositing a strip of joint material in the cleft guided and supported by said members, and removing the guide members from the strip during the finishing operation.

14. A joint installing apparatus, comprising a wheeled carriage operating on side forms and spanning a road under construction, a pair of longitudinal joint supporting and aligning members to receive and align a joint between them, either member being capable of being independently moved from contact with the strip.

15. A joint installing apparatus, comprising a wheeled carriage operating on side forms and spanning a road under construction, a longitudinal joint aligning and installing means, comprising spaced elements hingedly connected so that either of the elements may be independently moved in or out of contact with a joint strip to facilitate the finishing of the concrete along the strip.

16. In a road building machine, a joint installer consisting of opposed spaced members movably mounted at one end to permit of individual raising of the members.

17. In a road building machine, a joint installer composed of spaced members for receiving joint material therebetween and guiding same into the concrete, said members being pivoted to their ends for individual swinging to remove same from the concrete.

18. In a road building machine, a joint installer comprising opposed spaced members adapted to receive joint material and guide same into the concrete said members being mounted for individual movement away from the joint.

19. The herein described method for building roads, which consists in placing a guide member alternately at opposite sides of joint material in the concrete, and finishing up to and above said joint material while held in place by said guide member.

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