

R. S. BLOME & W. J. SINEK.  
PAVEMENT BLOCKING DEVICE.  
APPLICATION FILED MAY 14, 1909.

Patented Aug. 16, 1910.

5 SHEETS—SHEET 1.

967,714.

Fig. 1.

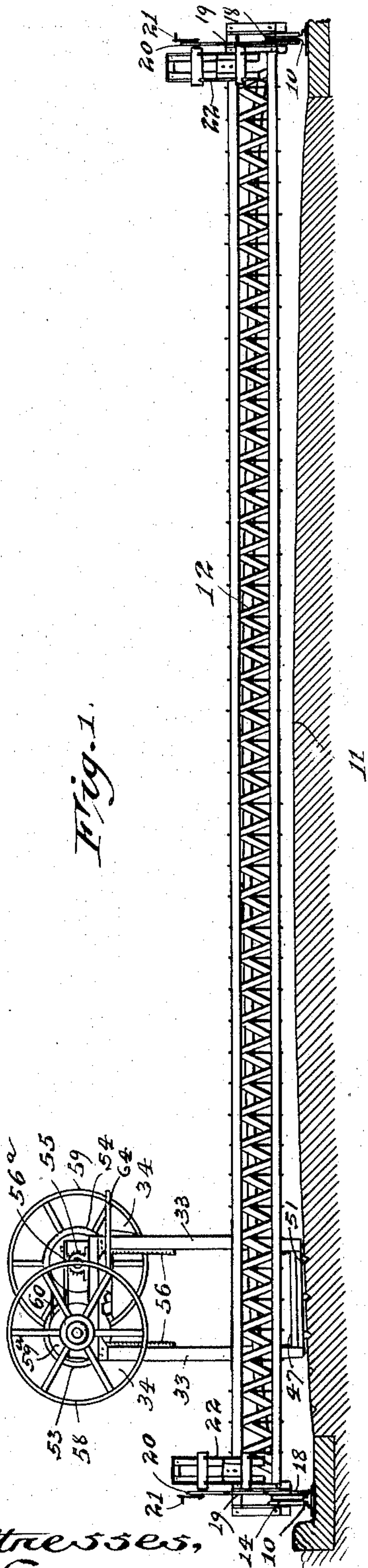
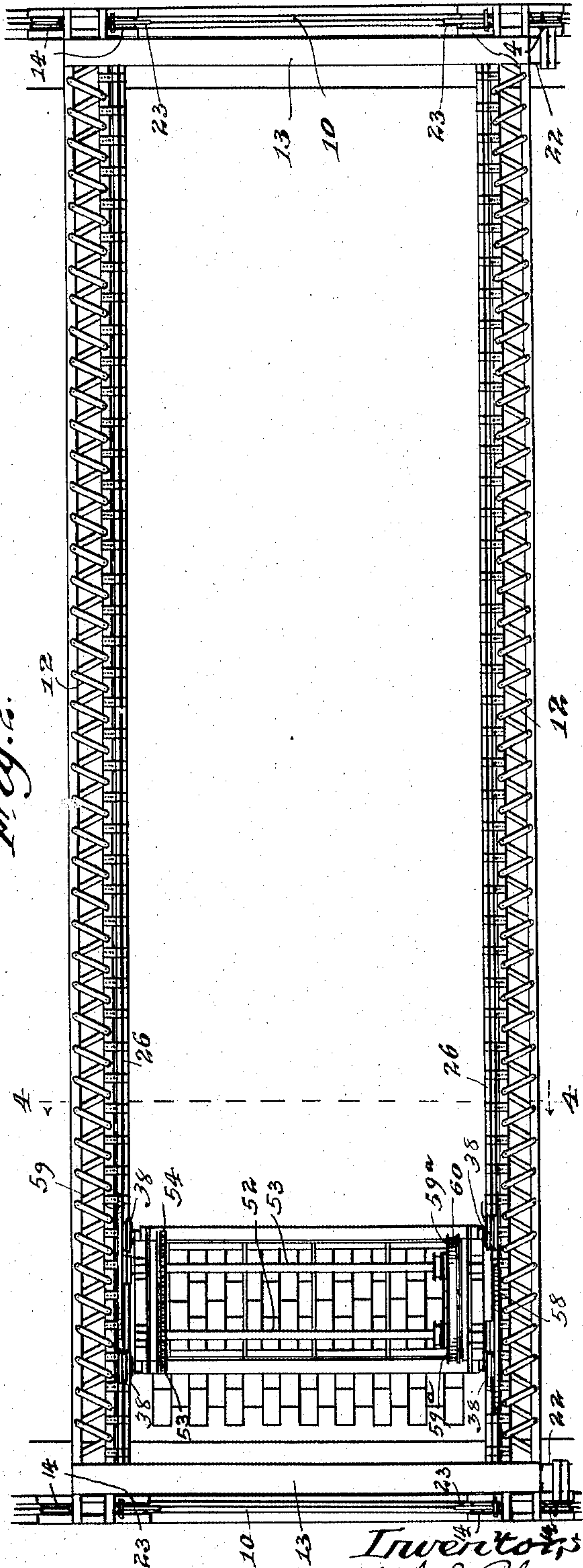


Fig. 2.



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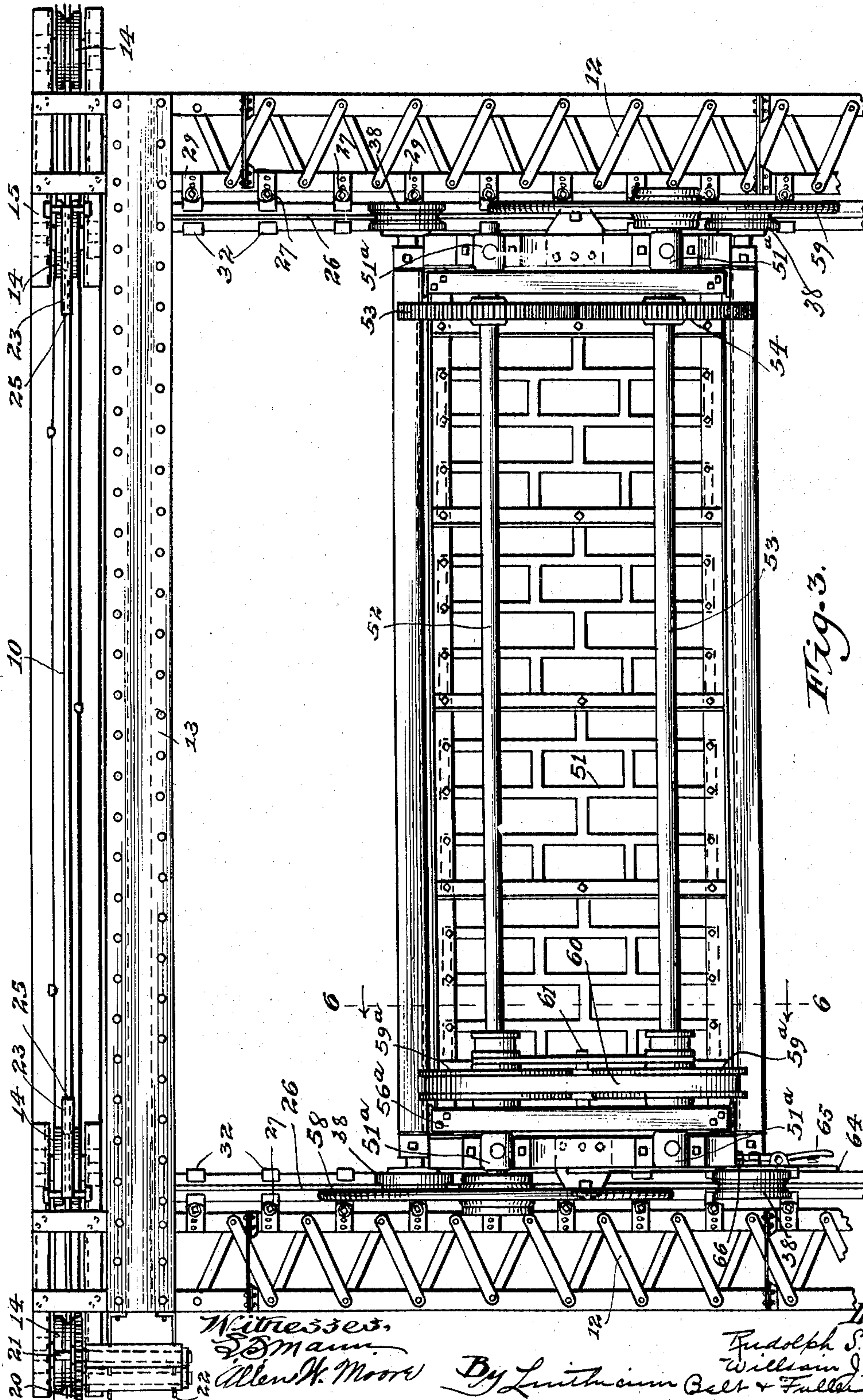
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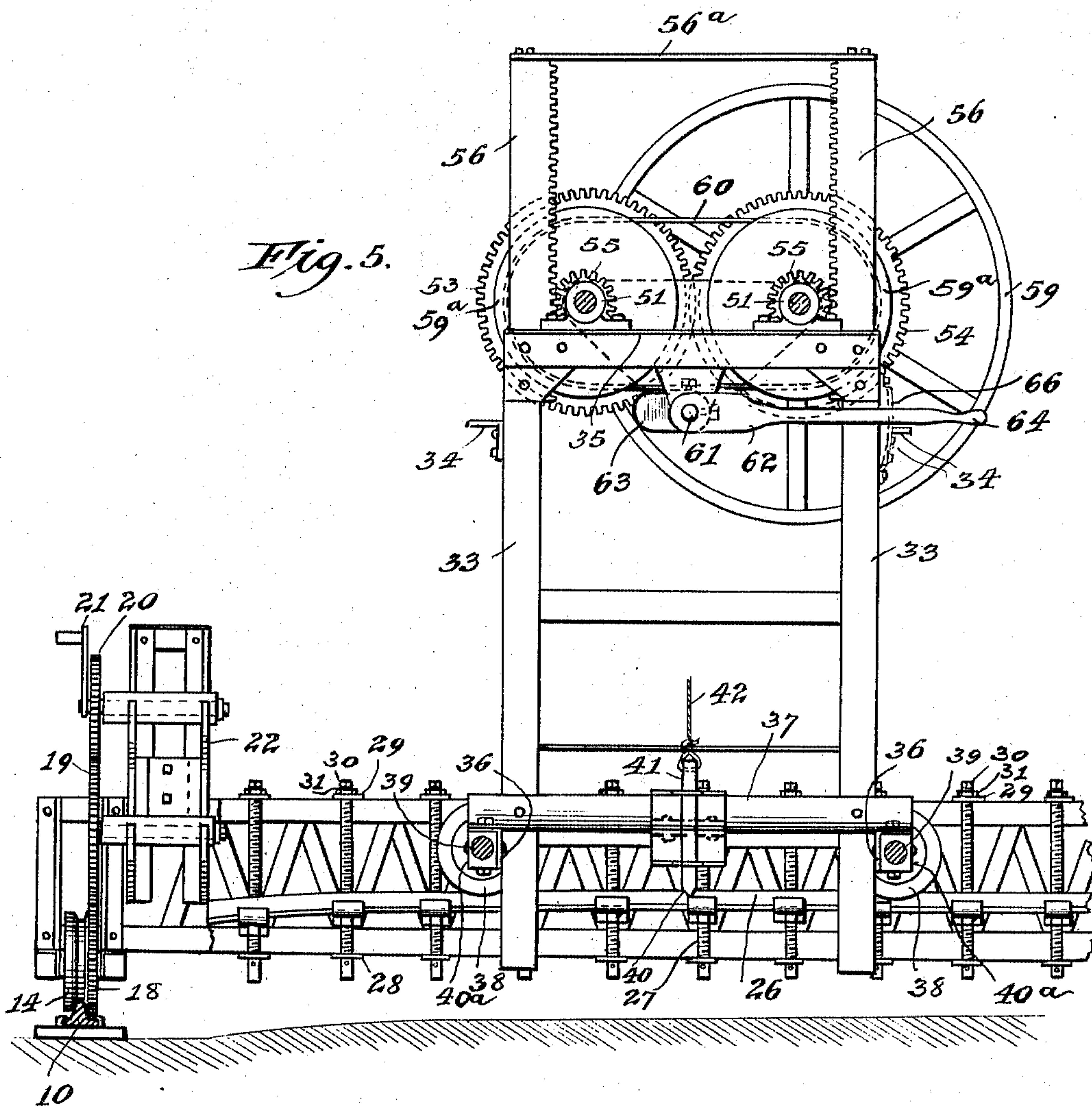
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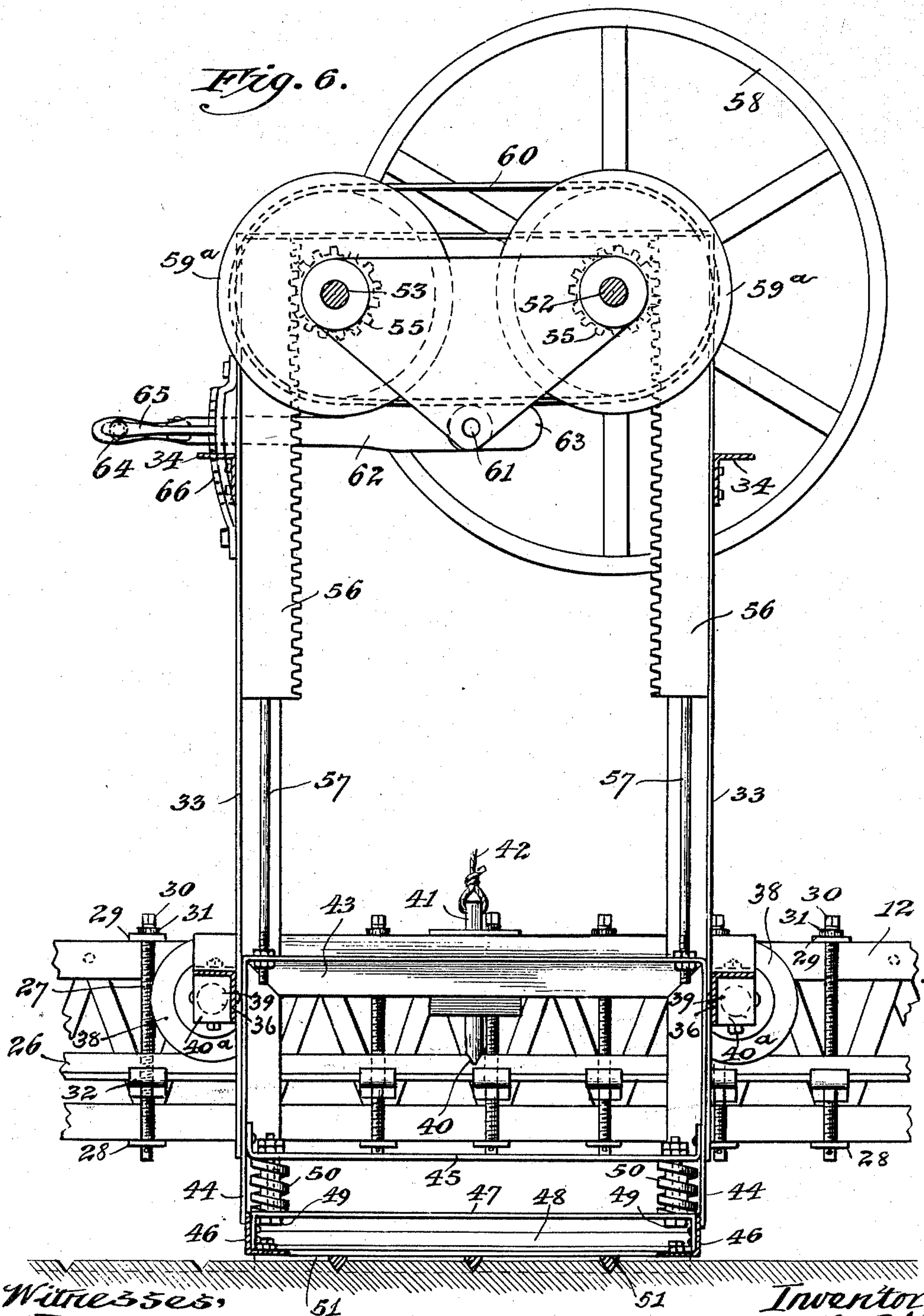
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5 SHEETS—SHEET 5.



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# UNITED STATES PATENT OFFICE.

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## PAVEMENT-BLOCKING DEVICE.

967,714.

Specification of Letters Patent. Patented Aug. 16, 1910.

Application filed May 14, 1909. Serial No. 496,012.

*To all whom it may concern:*

Be it known that we, RUDOLPH S. BLOME and WILLIAM J. SINEK, citizens of the United States, both residing at Chicago, in the county of Cook and State of Illinois, have jointly invented certain new and useful Improvements in Pavement-Blocking Devices, of which the following is a specification.

This invention concerns appliances or machines for providing on the top surfaces of pavements, before they have set or hardened, impressions whereby to give the pavement a block-like appearance and to enable the draft animals to obtain more effective and secure footholds.

Heretofore it has been proposed to groove or score the surfaces of such pavements by means of sliding shoes or markers, but we have found that the best result can be obtained by employing a vertically-reciprocable or adjustable marker provided with ribs or groove-forming portions adapted to be pressed vertically into the top surface or face of the pavement. In one embodiment of our improved device set forth hereinafter in detail this marker takes somewhat the form of a grid, the spaces between the groove producing portions being desirably, although not necessarily, left open. In order to facilitate the marking or scoring by an appliance of this character we provide in our improved device a main frame adapted to extend across the roadway and travel by means of rollers on rails temporarily laid alongside the pavement. Movable longitudinally of such frame, that is transversely of the pavement, we provide an adjustable marker frame carrying the marker proper, which may be depressed to force the marking portions thereof into the pavement's surface, and may be elevated sufficiently to raise the marker above the pavement, whereby the combined frame and marker may be shifted on the main frame to a new position to repeat the scoring or blocking operation. Preferably means are provided for holding or maintaining the main frame fixedly in position while the marker is operating on the pavement transversely thereof, and in addition the marker frame may be adjustably held in various positions so that the scoring or blocking produced while in one position will form a direct extension of that

while the marker and frame are locked in the next adjacent position.

Various other features of novelty and improvement will be made apparent from a consideration of the following detailed description of a preferred and desirable embodiment of this invention. This description should be read in connection with the accompanying drawings, which form a part of this specification and wherein like reference characters refer to the same parts throughout the various views.

In these drawings—Figure 1 is a transverse section through the roadway illustrating our improved marking device in elevation; Fig. 2 is a plan view of the appliance shown in Fig. 1; Fig. 3 is a fragmentary plan view, on an enlarged scale, of one end portion of the main frame and the marking elements; Fig. 4 is a section on line 4—4 of Fig. 2; Fig. 5 is a partial elevation of the blocking machine on an enlarged scale; and Fig. 6 is a vertical section through the marker on line 6—6 of Fig. 3, as viewed in the direction indicated by the arrows.

Referring to these drawings, it will be noticed that we support on a pair of rails 10, 10, temporarily laid lengthwise and outside of the pavement 11, a main rectangular supporting frame extended transversely over the pavement, as is clearly illustrated in Fig. 1. This frame, as is illustrated, is composed of a pair of parallel, spaced, box-like, latticed girders or beams 12, 12 connected together and properly held apart at their ends by a pair of similar and somewhat shorter box-like latticed girders or beams 13, 13, the tops of which are in this particular construction made of plates. These connecting girders 13, as is clearly illustrated in Fig. 4, are disposed above and rest upon the ends of the longitudinal girders 12. Each end of each of the latter girders is supported on a pair of grooved wheels or flanged rollers 14, 14 adapted to travel on the temporary rails 10. These rollers, as will be readily understood, are provided with suitable bearings for the reception of their axles or shafts. One manner of mounting such wheels or rollers is to provide the device with a number of wheel brackets or supports 15 projecting both forwardly and rearwardly from the longitudinal girders and braced as at 16 and 17 to



hold them in proper relation with respect to the girders which they support. At each end of the machine one of the grooved wheels 14 has a gear 18 rotatable therewith, such gear meshing with a suitably-mounted intermediate gear 19, the latter in turn co-operating with an upper gear 20, the shaft of which is supplied with an actuating handle 21. It should, therefore, be apparent that by turning such handles the entire marking or blocking appliance may be caused to travel on its rails lengthwise the pavement. The particular means for supporting such gears and their shafts is immaterial, but in the present instance we have shown the boxes or bearings of the shafts of such gears mounted on a pair of outstanding supporting plates or brackets 22. Each of the girders 12 at each end is supplied with a pawl or locking-dog 23 pivoted or hinged to the main frame at 24, the lower or free ends of such pawls or dogs being adapted to engage in notches 25 provided in the top edge of the rail for their reception, these coöperating dogs and notches acting to fixedly hold the main frame in position and prevent its unintentional rolling on its supporting rails. These notches are so spaced that when one transverse strip of the pavement has been grooved, scored, or blocked, as described hereinafter, the whole appliance may be shifted longitudinally and locked in its next position so that the blocking or grooving performed in such new position will comprise a direct extension of that previously accomplished. In other words, the ends of such grooves will register.

On the inner faces of the parallel long girders 12 of the main supporting frame we provide a pair of supplemental tracks 26, each of which is supported and vertically-adjustable by a plurality of upright screws or screw-threaded shafts 27, the lower and top portions of which are rotatable in laterally-extended ears or plates 28 and 29 secured to and projecting inwardly of the frame. The top end 30 of each of these screws is squared or of angular section for the application of a wrench whereby the screws may be turned. Also between such head and the plate 29 each screw is equipped with a washer 31 which assists in maintaining the screw in position. Threaded on each of these screws is a rail stirrup 32 fitted to the base of the rail 26. It will, therefore, be obvious that by turning these screws the rails may be raised or lowered and may be caused to conform substantially to the crown or curve of the top face of the pavement. Adapted to travel on these tracks 26 is a carriage or marker frame composed of the four upright angle posts 33, connected together at their top ends by the longer and shorter horizontal angle bars 34 and 35, the lower ends of such angle posts

being similarly joined or connected together by the longitudinal angle bars 36 and the transverse angle bars 37. As is clearly indicated in Figs. 3 and 5, the bars 37 project beyond the corner posts and have the longitudinal bars 36 secured to such extending ends. This marker frame has pairs of grooved rollers 38 adapted to travel on the rails 26, such rollers being mounted on the pair of shafts 39 and rotatable in suitable bearings 40<sup>a</sup> mounted on the angle bars 36. In order to hold this marker frame in various adjusted positions, whereby the adjacent sections of blocked or scored pavement will match, the tops of the rails 26 are supplied at intervals with notches 40 into which the lower beveled ends of a pair of sliding locking pins 41 are adapted to fit, cables or ropes 42 fastened to said pins extending to the upper portion of the frame to facilitate the manipulation or raising of the pins, it being understood that their own weight is sufficient to maintain them in locking or co-operative engagement with the notches. Fitted so as to vertically reciprocate in this marker frame is a marker carrier or frame 43, the corners of which are adapted to fit within and be retained in position by the upright angle-posts 33, such corners also having depending angle portions 44. This frame or marker carrier, as will be readily understood, may be of any suitable or desired formation, but in the present instance its angle corner members at each end are connected together by a U-shaped strap 45. Beneath these straps and retained within the corner angles 44 there is a rectangular frame composed of a pair of longitudinal angle bars 46, the ends of which are connected together by an inverted U-shaped bar 47, the angles 46 being also transversely connected together intermediate their ends by small strengthening angle bars 48. This frame 46, 47, 48 is flexibly or yieldingly mounted on the marker carrier 43 by means of bolts 49 passing through holes of the straps 45 and 47, coil compression springs 50 surrounding sleeves on such bolts and being interposed between the straps or bars 45 and 47. It will, therefore, be apparent that this lower frame is yieldingly mounted on the marker carrier 43. Secured to the bottom faces of the angle bars 46 we provide a grid or skeleton frame marker 51 formed as shown in Fig. 3 to represent the staggered blocks of a pavement, the metallic strips forming the portions of this grid marker being V-shaped or sharp on their lower portions, as is indicated clearly in Fig. 6.

Extended longitudinally of the marker frame and rotatable in bearings 51<sup>a</sup> on the transverse angle bars 35 we provide a pair of shafts 52 and 53 rotatably connected together near one end by a pair of intermeshing gears 53 and 54 of equal diameter, one



gear being fixed to each shaft. Near the corners of the marker frame the shafts 52 and 53 are provided with four pinions 55, the teeth of which mesh with those of four upright racks 56 connected together at the top ends by bars 56<sup>a</sup> and vertically-slidable in the angles 33, and connected at their lower ends by rods 57 to the marker carrier 43. It will, therefore, be apparent that if either one of the shafts 52 or 53 is rotated the marker carrier and the marker supported thereon may be readily raised or lowered. To facilitate this manual turning or actuation of these shafts we mount on their opposite ends the comparatively large hand wheels 58 and 59, the rotation of either of which will operate to adjust the position of the marker.

Inasmuch as the die formed by the grid or skeleton frame marker and its actuating parts have some little weight, it is desirable to provide some means for controlling or retarding their descent, and for this purpose we fix to each of the shafts 52 and 53 a grooved pulley 59<sup>a</sup> passing around which is an endless metallic belt or band 60. In order to provide means for tightening such band whereby it may act as a friction or brake strap we pivot or fulcrum at 61 a brake-lever 62 having a curved short end 63 and a handle 64 at its opposite end, the latter being equipped with a spring-actuated, manually-operated pawl or dog 65, one end of which is intended to coöperate with the notches of a curved bar or segment 66. It should, therefore, be apparent that by adjusting or manipulating the lever 62 through its handle 64 and locking the lever in the desired position the required amount of friction may be produced on the pulleys 59<sup>a</sup> and the shafts 52 and 53 to which they are affixed.

The operation of this appliance is substantially as follows: Assuming that the marker and its carrier has been raised or elevated sufficiently to escape the pavement, and that the parallel tracks 26 have been adjusted to conform substantially to the crown or curve of the pavement, the whole supporting or main frame is caused to travel on the temporary rails 10 until the marker is brought to the desired longitudinal position over the pavement, whereupon the operator permits the locking dogs or catches 23 to engage in the notches 25 of the rails to hold the machine temporarily fixedly in position. - It is, of course, understood that this machine is caused to travel on these rails by reason of the turning of the handles 21. The main frame having thus been locked in the required position the marker frame is rolled along on the tracks 26 to one end of its limit of travel thereon, in which position it may be readily locked by the pair of sliding pins 41. The operator then turns

one of the handles 58 or 59 so as to lower the skeleton marker and yieldingly press the sharp-edged bars constituting the same into the surface of the pavement while it is yet soft to provide a block-like appearance. The marker is then vertically lifted by turning the handle in the opposite direction, it being understood that during the descent of such marker a suitable braking effect may be produced by means of manipulation of the handle 64 to put greater or less pressure on the metallic endless band 60. The marker having been raised the marker frame is rolled along on the tracks, the sliding lock 41 having been first lifted, to a position adjacent to that which it previously occupied, and such that when the marker is again pressed in the surface of the pavement the grooves produced will form extensions of those previously made in the surface. The notches 40 of the tracks 26 are so related that by successively locking the marker frame in its various positions and manipulating the marker, the entire transverse strip of the pavement will be operated upon and given a block-like appearance. When this strip has been completed the main frame is again unlocked by lifting the catches 23 out of their notches and the whole frame shifted to an adjacent position by turning the handles 21, in which position the frame can be again locked to block the next succeeding transverse strip or section of the pavement.

Whereas we have herein set out in detail the various features of this preferred embodiment of the invention, it is to be understood that the latter is susceptible of a variety of embodiments and is not limited to the precise structural features shown and described, which may be modified within comparatively wide limits without departure from the substance and essence of this invention.

We claim:

1. In a pavement marker, the combination of a frame, a carriage mounted on the frame, means to hold the carriage at predetermined successive adjusted positions on the frame, a die upon the carriage, and means upon the carriage and connected to the die for raising and lowering the latter in substantial parallelism with the pavement, substantially as described.

2. In a pavement marker, the combination of a main frame, adapted to extend across the roadway, a marker frame movable thereon transversely of the roadway, a marker mounted in said marker frame and supplied with groove-producing portions adapted to be impressed in the pavement, and rack and pinion means for raising and lowering said marker in substantial parallelism with the pavement surface, substantially as described.



3. In a pavement marker, the combination of a frame, a carriage mounted on the frame, means to hold the carriage at predetermined successive adjusted positions on the  
 5 frame, a yieldable die upon the carriage, and means upon the carriage and connected to the die for raising and lowering the latter in substantial parallelism with the pavement.

4. In a pavement marker, the combination of a frame, a carriage mounted on the  
 10 frame, means to hold the carriage at predetermined successive adjusted positions on the frame, a rectangular die upon the carriage, and means upon the carriage and connected  
 15 to the four corners of the die for raising and lowering the latter in substantial parallelism with the pavement, substantially as described.

5. In a pavement marker, the combination of a main frame adapted to extend  
 20 across the roadway, tracks on said main frame, a marker frame supplied with rollers adapted to travel on said tracks transversely of the roadway, and a marker provided with  
 25 groove-producing portions adapted to be impressed in the top face of the pavement, means to raise and lower said marker and means to retain said marker in elevated position, substantially as described.

30 6. In a pavement marker, the combination of a main supporting frame adapted to extend across the pavement and travel lengthwise thereof on temporary rails, tracks  
 35 on said main frame, means to vertically adjust the various portions of said tracks whereby to cause them to conform substantially to the crown or curvature of the pavement, a marker frame having rollers adapted  
 40 to travel on said tracks transversely of the pavement, a marker mounted on said marker frame and adapted to be impressed in the

top face of the pavement, and means to raise and lower the marker in said marker frame, substantially as described.

7. In a pavement marker, the combination of a main supporting frame adapted to  
 45 extend across the roadway and travel lengthwise thereof on temporary rails, means to lock said frame in adjusted position, tracks on said frame disposed transversely of the  
 50 pavement, a marker frame with rollers adapted to travel on said tracks, means to lock said marker frame in a plurality of adjusted positions on said tracks, a marker  
 55 mounted in said marker frame and adapted to be impressed in the top face of the pavement, and means to raise and lower said marker in said frame, substantially as described.

8. In a pavement marker, the combination of a supporting frame, a marker adapted  
 60 to be impressed in the top face of the pavement, means to raise said marker in the frame, the marker being free to gravitate and a brake to retard the descent of the  
 65 marker, substantially as described.

9. A pavement marker including a supporting frame, a vertically reciprocatory die  
 70 mounted on the frame and adjustable horizontally thereacross, and means to hold the die against lateral motion when adjusted to determined positions on the frame and while  
 the die is being pressed upon the pavement, substantially as described.

As evidence that we claim the foregoing  
 75 as our invention we have signed the same in the presence of witnesses.

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Witnesses:

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 CLARE L. ROSENOW.