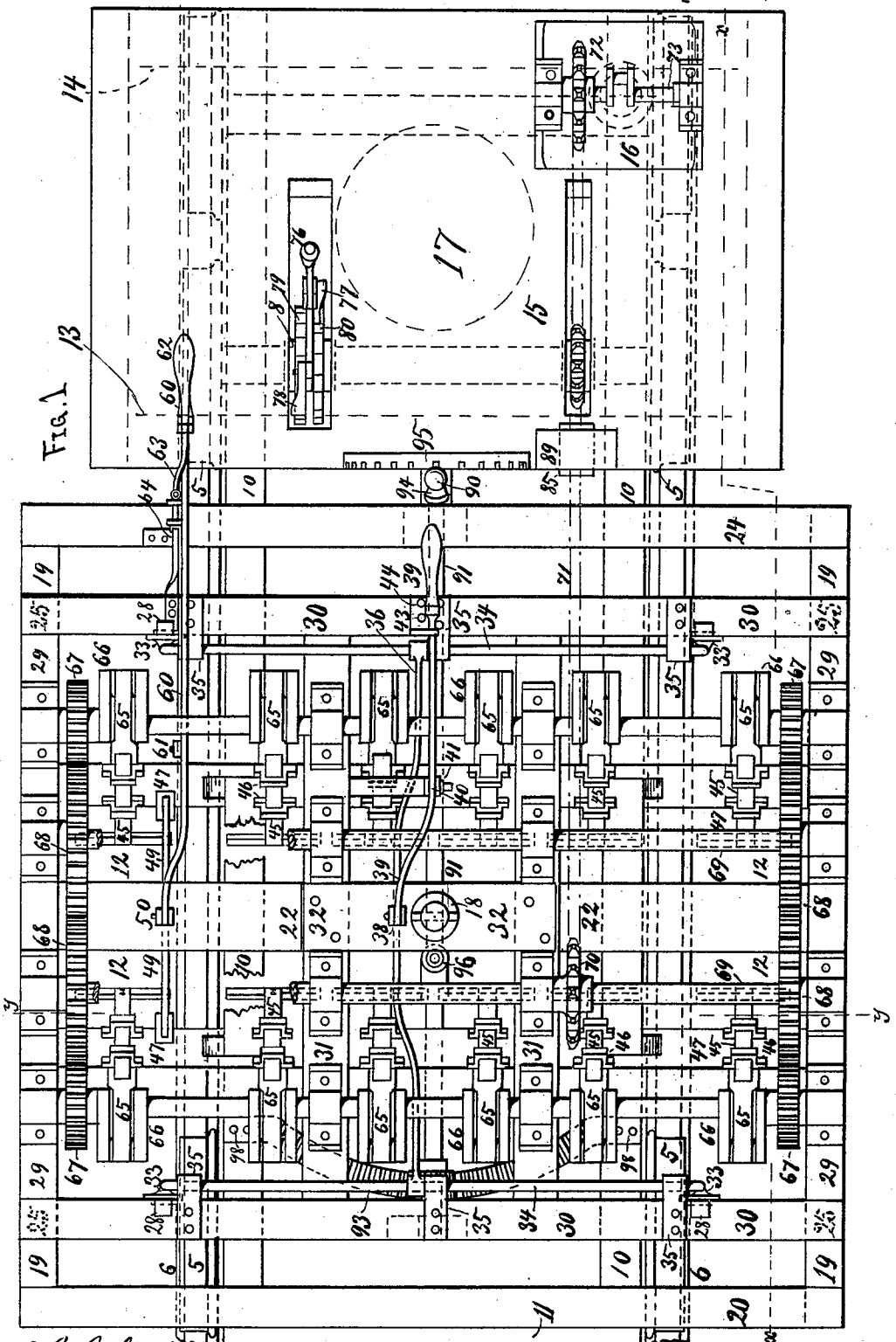
(No Model.) 3 Sheets—Sheet 1.

G. SMEDEMAN.

TAMPING MACHINE.

No. 602,112. Patented Apr. 12, 1898.

Fig. 1.



Witnesses. E. G. Carlsen, F. E. Carlsen. Gustaf Smedeman, Inventor. By A. M. Carlsen, Atty.

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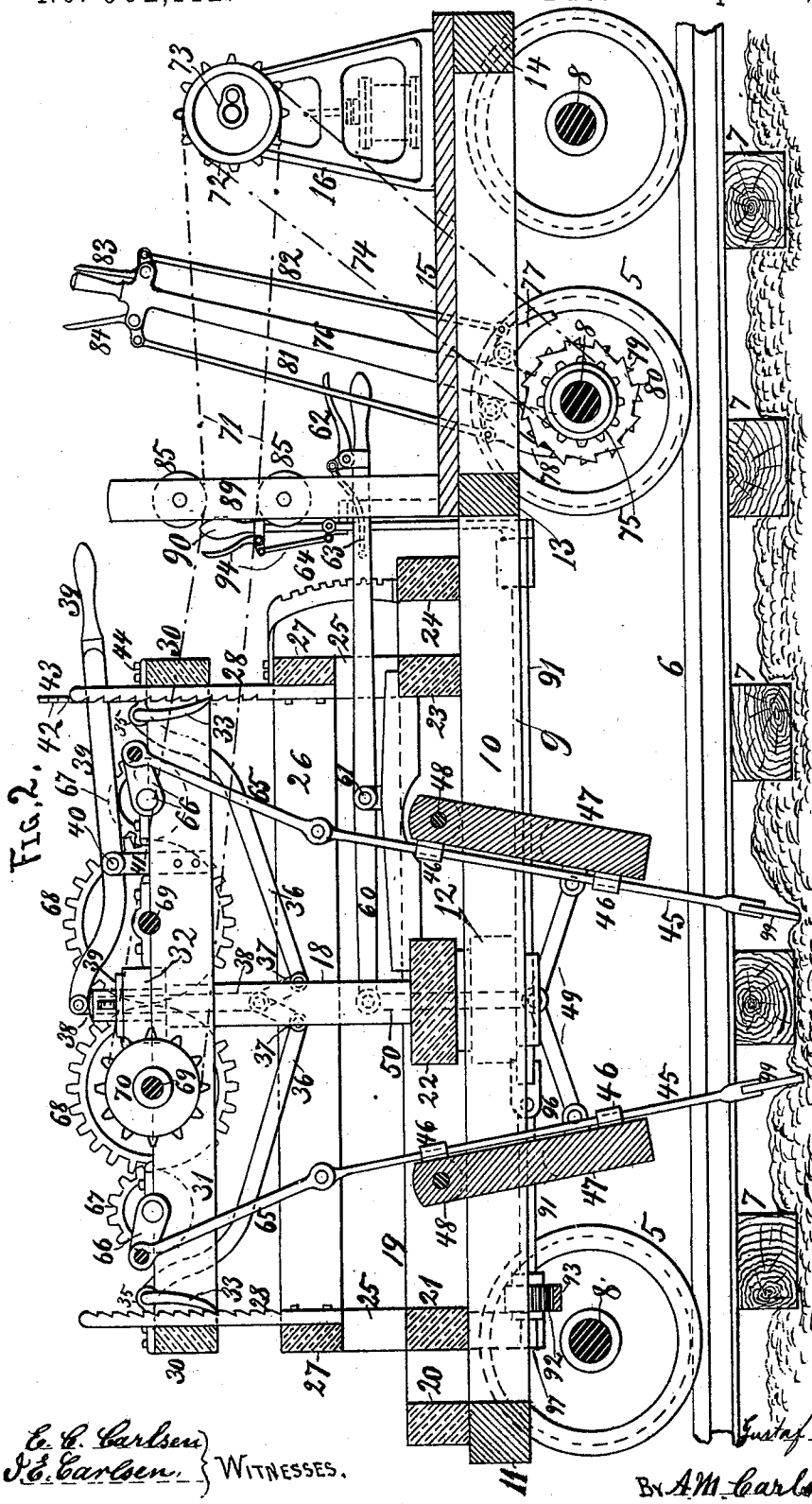


FIG. 2.

C. E. Carlsen
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(No Model.) 3 Sheets—Sheet 3.

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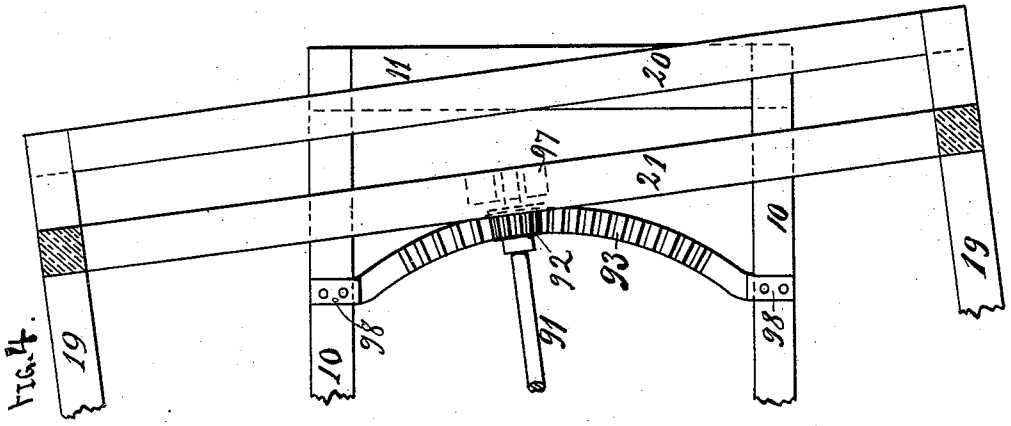


FIG. 4.

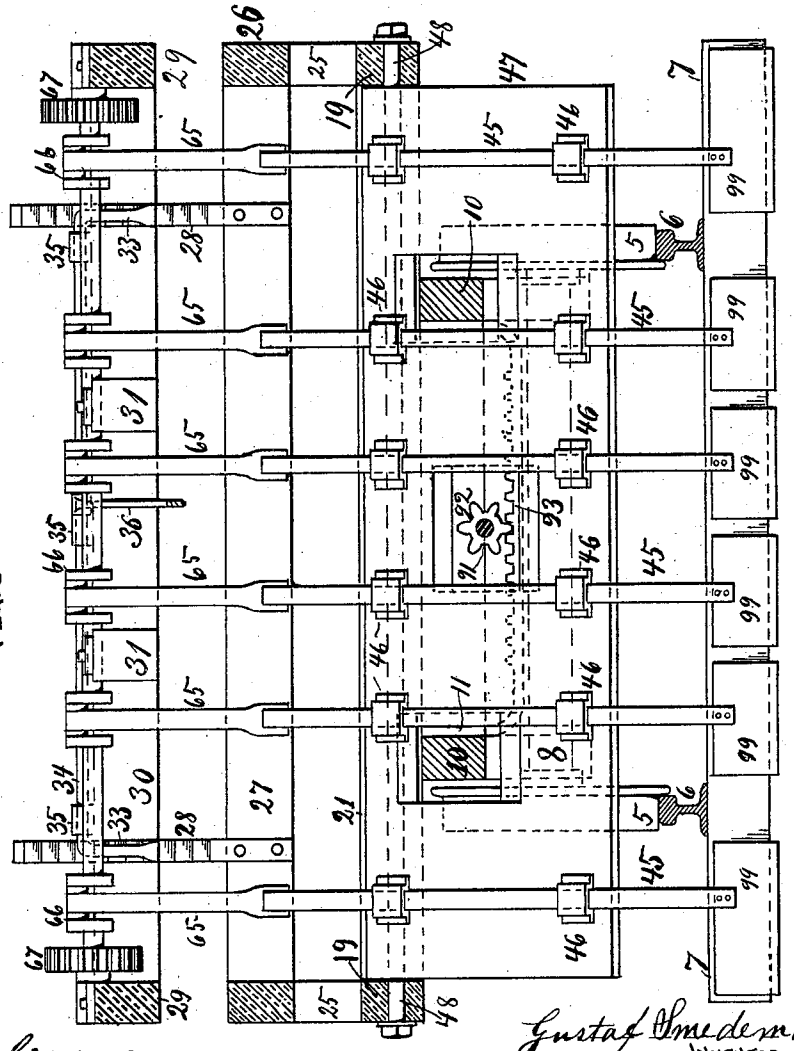


FIG. 3.

E. E. Carlsen
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} WITNESSES.

Gustaf Smedeman
INVENTOR
By A. M. Carlsen ATT'Y.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GUSTAF SMEDEMAN, OF WASHBURN, WISCONSIN, ASSIGNOR OF ONE-HALF TO JACOB ANDERSON, OF RACINE, WISCONSIN.

TAMPING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 602,112, dated April 12, 1898.

Application filed February 6, 1897. Serial No. 622,371. (No model.)

To all whom it may concern:

Be it known that I, GUSTAF SMEDEMAN, a citizen of the United States, residing at Washburn, in the county of Bayfield and State of Wisconsin, have invented certain new and useful Improvements in Tamping-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in machinery used for the repair of railway-tracks when the rails and the ties are sunk or settled by washouts or from other causes. Heretofore the ties have in such events usually been raised to their normal level by the use of shovels and tamping-bars operated by hand and foot power, which process is well known as the "tamping" of the ties, and accordingly I call my machine a "tamping-machine."

The objects of my invention are, first, to provide a machine which may travel on the railway-tracks and do the tamping by steam-power and thus dispense with the crew required to handle the hand-power tamping-bars; second, to provide a tamping-machine in which the tamping-bars may readily be lowered for work and raised while moving the machine; third, to provide a tamping-machine in which the tamping-bars may readily be adjusted so as to work parallel with the sides of a tie, whether it lies transversely under the rails or has got into an oblique position, as is often the case; fourth, to provide a tamping-machine with tamping-bars that rise automatically as the gravel gets packed under the tie and are adjustable as to the thickness or width of the ties.

With these and other minor objects in view my invention consists of the novel construction and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of my complete tamping-machine, excepting that the detail parts of the steam engine and boiler are not shown, the same being not regarded as new and may be of any suitable construction. Fig. 2 is a longitudinal section on the line $x\ x$ in Fig. 1. Fig. 3 is a cross-section on the line $y\ y$ in Fig. 1. Fig. 4 is a plan view of a portion of the framework, illustrating the mechanism for swinging the tamper-carrying frame.

Referring to the various parts in the drawings by reference-numerals, 5 5 designate the carrier-wheels, riding on the rails 6 upon the ties 7. (Best shown in Fig. 2.) Upon the axles 8 of the wheels 5, which in the present instance are six in number, I mount the main frame 9, consisting of the two longitudinal timbers 10 and the cross-timbers 11, 12, 13, and 14. Upon one end of this main frame the platform 15 is secured, which carries the engine 16 and boiler 17, the latter indicated in dotted circular line in Fig. 1 only. Upon the other end of the main frame is supported the tamper-frame, which may be swung some in the horizontal plane on its center post 18, projecting upward from the timber 12 of the main frame. The tamper-frame consists of a lower section made up of the two side timbers 19, cross-timbers 20 21 22 23 24, the four posts 25, projecting upward from said side timbers, and the frame elevation secured upon said posts and consisting of the two side timbers 26 and cross-timbers 27, from which project upwardly four ratchet-toothed upright rack-bars 28, on which slides up and down the upper section of the tamper-frame, which section is made up of the side timbers or bars 29, cross-bars 30, the two interior longitudinal bars 31 and the short center plank 32, secured to the latter and serving mainly to guide the tamper-frame upon its round center stud or post 18. The upper section of the tamper-frame may be supported at various heights by the engagement with the rack-bars 28 of the dogs 33, formed at the ends of two rock-shafts 34, journaled in the bearings 35, secured upon the upper frame-section. Said rock-shafts are each provided with a rocker-arm 36, which by the links 37 are connected to the bottom end of the upwardly-extending rod 38, the upper end of which connects with the hand-lever 39, fulcrumed at 40 to the bracket 41, secured upon

the upper frame-section. This lever 39 may be sprung into different notches 42 in the upright 43, secured at 44, and thus hold the dogs in or out of engagement with the rack-bars 28, thereby allowing the upper frame-section to be raised and lowered and to rise gradually with the motion or working of the tamping-bars 45, which slide in the guides 46, secured upon the cross-bars 47, which rock on their end pivots 48, by which they are secured in the side bars of the lower section of the tamper-frame and are adapted to be closed or spread by the links 49, rod 50, and hand-lever 60, fulcrumed at 61, and being provided with the finger-latch 62 63, engaging the toothed segment 64.

The tamping-bars are connected by the pitmen 65 with the multiple crank-shafts 66, journaled in the upper frame-section and provided with the cog-wheels 67, driven by the idler-wheels 68, secured on the shafts 69, one of which is provided with a sprocket-wheel 70, which is driven by the belt-chain 71 and the sprocket-wheel 72, secured on the shaft 73 of the engine 16.

In moving the machine a considerable distance the belt-chain 71 is thrown off and the shorter belt-chain 74 placed on the wheel 72 on the engine and the sprocket-wheel 75 on the axle 8 of one of the pairs of carrier-wheels, thus enabling the engine to move the machine at a good rate of speed.

76 is a hand-lever pivotally secured with its lower end upon one of the axles 8, and has pivotally secured to it two pawls or dogs 77 and 78, adapted to engage reversely-arranged ratchet-wheels 79 and 80, secured upon the carrier-axle 8. Either of these pawls may be disengaged from the ratchet-wheel by means of the rods 81 and 82 and finger-levers 83 and 84. (Shown in Fig. 2.) By this arrangement the machine may readily be moved by the hand-lever 76 backward or forward from one tie to the other as fast as the tamping of a tie is finished.

85 are guiding-sheaves arranged in the post 89 for guiding the belt-chain 71. If a tie lies on a slant or oblique with the rails, the entire tamper-frame is swung correspondingly in the horizontal plane by means of the hand-lever 90, rock-shaft 91, and pinion 92, secured thereon, and the toothed segment 93, engaged by said pinion. The lever 90 may be locked by its finger-latch 94 in any desired position upon the notched segment 95, (see Fig. 1,) and thus hold the tamper-frame in the desired position, according to the direction the tie lies in.

It will be observed that the rock-shaft 91 is provided with a universal joint 96, so that while its main portion is journaled in the main frame of the machine its shorter portion is journaled, as at 97, in the swinging tamper-frame, which it follows when the pinion 92 is rocked upon the toothed segment 93, which is secured at 98 to the main-frame timbers 10. This arrangement may, however, be changed so as to journal the entire rock-shaft 91 in the main frame and let its pinion 92 engage an inverted segment, as 93, secured to the swinging tamper-frame. The mechanisms by which the height of the upper section of the tamper-frame is regulated may be modified. The multiple crank-shafts 66 may have their cranks turned in various directions, so as to operate the tamping-bars alternately. The blades 99 of the tamping-bars may be made in various shapes and larger than on the tamping-bars used by hand-power, and so on. A great many modifications and changes may be made in the construction without diverging from the spirit of my invention.

The operation has already been partly explained in the description, so it needs only further to be stated that in operating the machine the gravel needed for filling under the sunken ties is shoveled in by hand-power from the sides of the road-bed and by the power of the engine, belt-chain 71, cranks 66, and tamping-bars 45 forced down and in under the ties, thereby raising them to the desired level or height. When the machine is to be moved, the upper section of the tamper-frame is raised by hand or by a lever (not shown) to its highest limit, and if the cranks 66 stand all in one direction they are turned upward, so as to help make the tamping-bars pass freely over the ties.

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

1. A tamping-machine having an elongated main frame supported on axles and wheels, fitting the railroad-track, a platform secured upon one end of the frame and carrying an engine; a tamper-frame mounted upon the other end of the main frame, said tamper-frame being capable of swinging on its center in the horizontal plane; a tamping mechanism mounted in the tamper-frame and operatively connected with the engine, substantially as and for the purpose set forth.

2. A tamping-machine having a main frame moving on wheels on the railway-track; a tamping-frame mounted on the main frame and swinging on its center in the horizontal plane, said tamper-frame having an upper section which is capable of being raised or lowered; a tamping mechanism mounted therein and operatively connected with an engine mounted on a platform on the main frame, and means for spreading the tamping-bars and swinging the tamper-frame, and for supporting its upper section, substantially as and for the purpose set forth.

3. A tamping-machine having a main frame moving on wheels, a horizontally-swinging tamping-frame mounted thereon and consisting of a lower and an upper section; the lower section having pivotally-secured swinging planks as 47, with a series of tamping-bars sliding in guides secured on said planks, and the upper frame-section having journaled on it multiple crank-shafts operatively connect-

ed with the tamping-bars and having gears by which they receive power from an engine, also mounted on the main frame, said upper frame-section being self-adjustable up and down according to the height of the ground under the tamping-bars, and means for supporting the upper frame-section at various elevations and means for spreading the swinging planks or bars 47, substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

GUSTAF SMEDEMAN.

Witnesses:
L. N. CLAUSEN,
NELS M. OSCAR.