(57) Abrégé/Abstract:
A track lifting section (19), delimited by two rail undercarriages (4), of a machine (1) for tamping a track is extended in the longitudinal direction of the track in a first working pass for lifting the track and introducing ballast underneath the track 2. In a further working pass for producing the final desired position and for tamping the track (2), the track lifting section (19) is shortened.
ABSTRACT

A track lifting section (19), delimited by two rail undercarriages (4), of a machine (1) for tamping a track is extended in the longitudinal direction of the track in a first working pass for lifting the track and introducing ballast underneath the track. In a further working pass for producing the final desired position and for tamping the track (2), the track lifting section (19) is shortened.
A method and machine for tamping a track

The invention relates to a method of tamping a track, wherein the track to be lifted and tamped is delimited by two rail undercarriages, thus forming a track lifting section, and to a machine for tamping a track.

From GB 2 151 675, a tamping machine is known which is supported at each end on a respective rail undercarriage and by means of these defines a track lifting section. Provided in the space between the two rail undercarriages is a satellite frame, mounted for displacement in the longitudinal direction of the machine, which is equipped with a tamping unit for tamping the track as well as a track lifting and lining unit. During working operations, the machine travels continuously while the satellite frame is advanced in steps for tamping the individual sleepers of the track.

A tamping machine which likewise travels continuously during working operations is known according to US 4 644 868, with a satellite frame being displaceable relative to the machine frame. A track lifting and lining unit is longitudinally displaceably mounted on the machine frame and thus is also displaceable relative to the machine frame during working operations. The track lifting section is delimited, on the one hand, by the front rail undercarriage of the machine, with regard to the working direction, and, on the other hand, by a rail undercarriage connected to the satellite frame. Within the track lifting section, the lifting of the track into the desired position as well as the tamping thereof takes place.

Finally, a further tamping machine still is known according to US 4 794 862, on which machine a chute for ejecting ballast is provided within the tamping section.
With that, the track is ballasted in an optimal way in connection with the track position correction to achieve a durable track position.

The object of the invention lies in providing a track tamping method of the specified kind with which even a freshly ballasted track can be tamped quickly. Additionally, it is the object of the invention to create a machine for tamping a track which may be used in an optimal way both for tamping a freshly ballasted track as well as for normal tamping.

The earlier-mentioned object of the invention is achieved in that in a method of tamping a track, in a first working pass, the track lifting section is extended in the longitudinal direction of the track for a track lifting operation and for introducing ballast underneath the track, and that, in a further working pass for producing the final desired position and tamping the track, the track lifting section is shortened.

By virtue of extending the track lifting section delimited by the rail undercarriages, it is possible to lift the track to a greater height without thereby overstressing the rails with regard to the bending line. This particularly high lifting of the track has the advantage that, within the scope of a single working pass, a voluminous ballast delivery is possible particularly in connection with newly ballasting the track. As soon as all of the new ballast is located underneath the track, it is possible by simply shortening the track lifting section to carry out right away the concluding, permanent position correction and tamping of the track.

The object of creating a machine is achieved in that, in the region of the undercarriage connected to the satellite frame, the satellite frame is connected by means of a drive to guide rollers which are mounted on the machine frame for displacement in the longitudinal direction of the machine.
By means of this structurally very simple solution it is possible to realize the particular advantage that the track lifting section can be changed by merely actuating drives, without further retooling operations being necessary for carrying out the tamping of the track. Above all, the particular efficiency of the tamping machine, travelling continuously during working operations, is preserved fully without restriction, both in the extended and in the normal mode of operation.

Additional advantageous embodiments of the invention become apparent from the disclosure and the drawings.

The invention will be described in more detail below with reference to embodiments represented in the drawings in which:

- Fig. 1 shows a simplified side view of a tamping machine having a satellite frame displaceable relative to a machine frame,

- Fig. 2 shows an enlarged side view of a portion of the tamping machine,

- Figs. 3 and 4 each show a schematic representation of the tamping machine with different tamping sections, and

- Fig. 5 shows a greatly simplified side view of a further embodiment of a tamping machine designed in accordance with the invention.

A machine 1, visible in Figs. 1 and 2, for tamping a track 2 has an elongated machine frame 3 which is supported at its ends on the track 2 by means of rail undercarriages 4. Provided between these two rail undercarriages 4 located at the ends is a satellite frame 5 which is supported, on the one hand, on the track 2 by means of a rail undercarriage 4 and, on the other hand, on the machine.
frame 3 with the aid of a joint 7. The satellite frame 5, equipped with a tamping unit 8 as well as a track lifting-lining unit 9, is displaceable relative to the machine frame 3 by means of a displacement drive 10.

Provided in front of the satellite frame 5 and behind the forwardly located rail undercarriage 4, with regard to the working direction of the machine 1 represented by an arrow 11, is a ballast chute 12 with outlet openings 13 positioned above the track 2. Furthermore, the machine 1 has a ballast conveyor 14, extending in the longitudinal direction of the machine, by means of which ballast may be transported from a rear machine end 15 to the ballast chute 12. The rear machine end 15 is formed by a frame extension 17, supportable on a rail undercarriage 16, which is equipped with a motor unit 18 and articulated connected to the machine frame 3.

A track lifting section 19, intended for lifting the track 2 for the track position correction and for tamping, is delimited, on the one hand, by the front rail undercarriage 4 of the machine 1 and, on the other hand, by the rail undercarriage 4 of the satellite frame 5. This track lifting section 19, suited for normal tamping, is denoted by points A and B in Figs. 1 and 3. As can be seen in particular in Fig. 2, the satellite frame 5 is connected in the region of its rail undercarriage 4 by means of a hydraulic drive 20 to guide rollers 21 which are displaceably mounted on a guide 22, extending in the longitudinal direction of the machine and connected to the machine frame 3. By means of the hydraulic drive 20, the satellite frame 5 may optionally be lifted from a position of being supported on the track 2 into a position raised from the track 2 (see Fig. 4).

The mode of operation of the machine 1 will be described in more detail below.

For the purpose of freshly ballasting the track 2, correspondingly large amounts of ballast are discharged via the ballast chute 12 onto the track 2. The satellite
frame 5 is raised off the track 2 by actuation of the hydraulic drives 20 (see Fig. 4). Thus, an extended track lifting section 19 is created, delimited by the front and the rear rail undercarriage 4 of the machine 1 and marked by A and C. In this extended track lifting section it is now possible to lift the track to a greater height by means of the track lifting-lining unit 9, so that, along with the increased track lift, also larger amounts of ballast fall through the track onto the ballast bed. As soon as the desired amount of ballast is present underneath the track 2, normal tamping can be carried out by supporting the satellite frame 5 on the track 2 while releasing the hydraulic drives 20 (see Fig. 3). This causes an automatic shortening of the track lifting section 19 to a length denoted by points A and B.

In Fig. 5, a machine 1 is shown in which the tamping unit 8 as well as the track lifting-lining unit 9 are fastened directly to the machine frame 3. The rear rail undercarriage 4 is displaceable by means of a drive 23 from a forward position for normal tamping operation, represented in solid lines, into a rear end position (dash-dotted representation). With this, it is also possible to extend the track lifting section 19, if needed.
Claims

1. A method of tamping a track, wherein the track (2) to be lifted and tamped is delimited by two rail undercarriages (4), thus forming a track lifting section (19), wherein, in a first working pass, the track lifting section (19) is extended in the longitudinal direction of the track for a track lifting operation and for introducing ballast underneath the track (2), and that, in a further working pass for producing a final desired position and tamping the track (2), the track lifting section (19) is shortened.

2. A method according to claim 1, wherein the alteration of the length of the track lifting section (19) is accomplished by lifting or lowering a satellite frame (5) relative to a machine frame (3) of the machine (1), the satellite frame (5) being connected to a tamping unit (8), a track lifting-lining unit (9) and a rail undercarriage (4).

3. A machine for tamping a track (2), including a machine frame (3) supported at the ends by rail undercarriages (4) and travelling on the track (2), and a satellite frame (5) arranged between the undercarriages (4), the satellite frame including a track lifting-lining unit (9) and a tamping unit (8) and being connected at one end by means of a joint (7) to the machine frame (3) for displacement in the longitudinal direction of the machine and having an undercarriage (4) at the other end for support on the track (2), wherein, in a region of the undercarriage (4) connected to the satellite frame (5), the satellite frame (5) is connected to the frame (3) by a drive (20), for lifting the satellite frame (5) from a position supported on the track (2) to a position lifted from the track (2), the drive (20) being connected to guide rollers (21) which are mounted on the machine frame (3) for displacement in the longitudinal direction of the machine.