Oct. 13, 1925.

1,556,604

C. JACKSON

TAMPING OR BALLASTING MACHINE

Filed Dec. 29. 1924

3 Sheets-Sheet 1

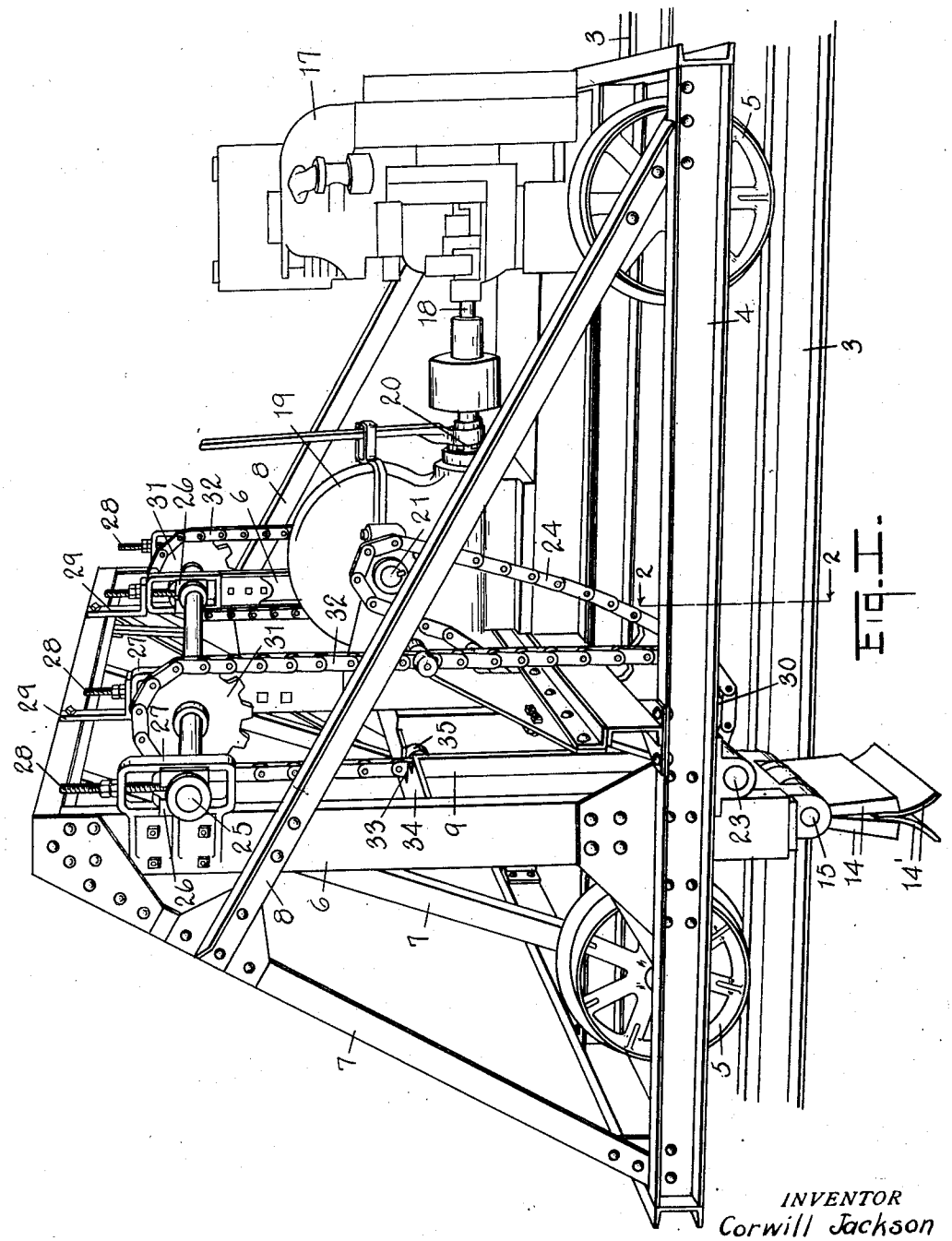


Fig. 1.

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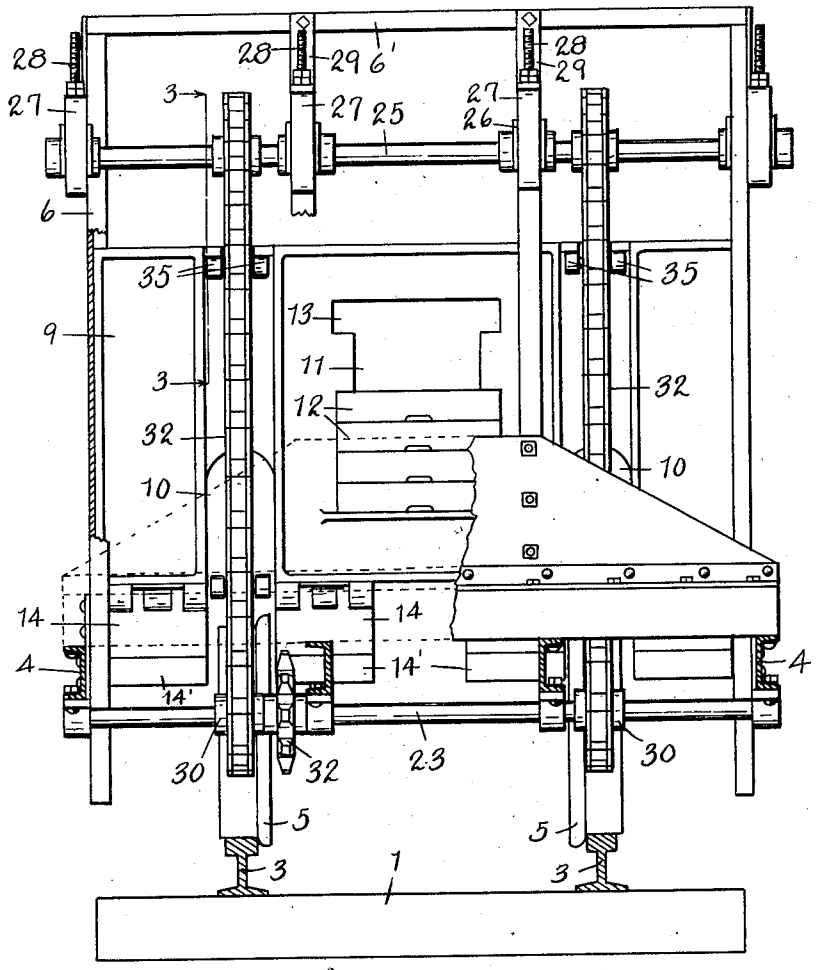


FIG. II.

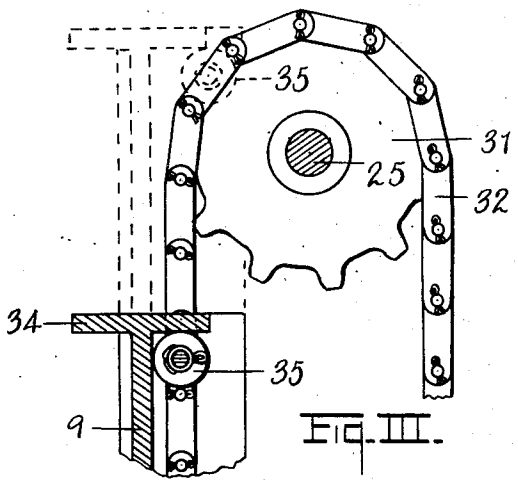


FIG. III.

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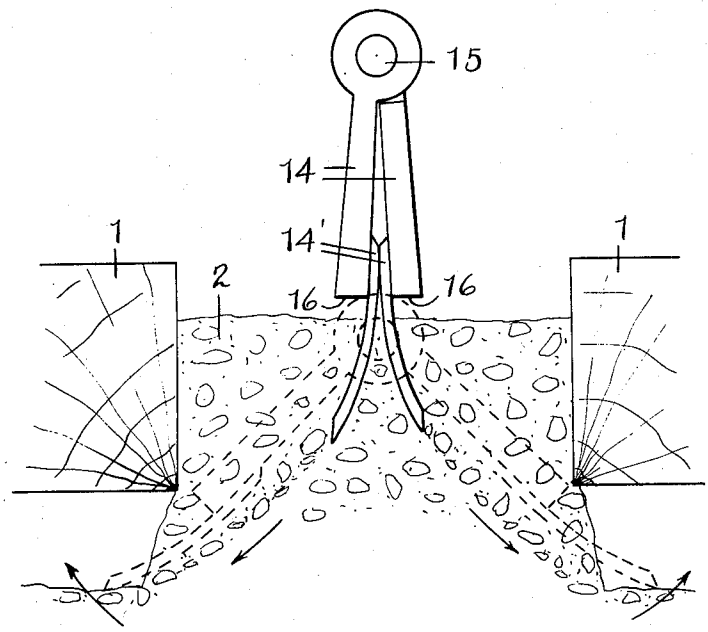


Fig. IV.

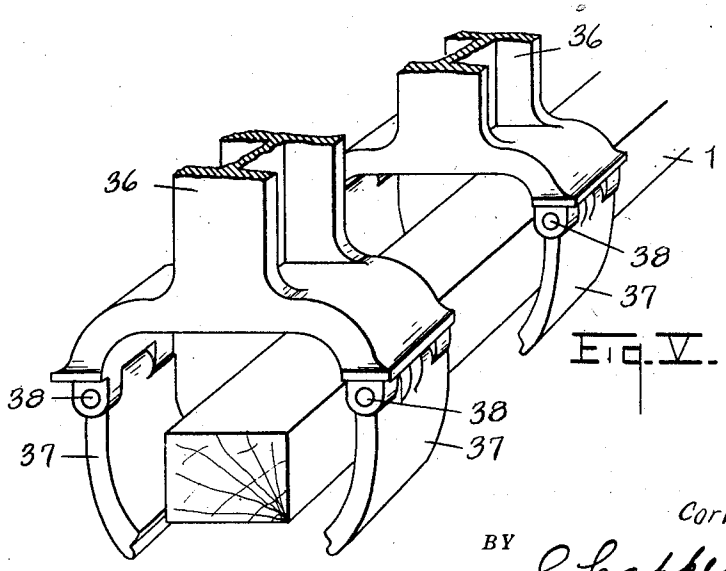


Fig. V.

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Patented Oct. 13, 1925. 1,556,604

UNITED STATES PATENT OFFICE.

CORWILL JACKSON, OF CHICAGO, ILLINOIS.

TAMPING OR BALLASTING MACHINE.

Application filed December 29, 1924. Serial No. 758,658.

To all whom it may concern:

Be it known that I, CORWILL JACKSON, a citizen of the United States, residing at Chicago, county of Cook, State of Illinois, have invented certain new and useful Improvements in Tamping or Ballasting Machines, of which the following is a specification.

This invention relates to improvements in tamping or ballasting machines.

The main objects of this invention are:

First, to provide an improved tamping or ballasting machine for railway tracks which is of very large capacity.

Second, to provide an improved tamping or ballasting machine for railway tracks in which the material is tamped under and around the ties in a very efficient manner.

Third, to provide a machine embodying these advantages which is very easily operated.

Fourth, to provide a structure of the class described which is comparatively economical and is very strong and durable.

Objects pertaining to details and economies of construction and operation of my invention will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification. The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing forming a part of this application, in which:

Fig I is a perspective view of my improved tamping or ballasting machine.

Fig. II is a fragmentary end view partially in vertical section on a line corresponding to line 2—2 of Fig. I.

Fig. III is a fragmentary longitudinal section on a line corresponding to line 3—3 of Fig. II, the crosshead being shown in one position by full lines and in another position by dotted lines.

Fig. IV is a fragmentary view illustrating the action of the tamper upon the ballast and the operative relation thereof to the ties.

Fig. V is a fragmentary perspective view illustrating a modified form of my improvements especially adapted for use on roadbeds of sand or similar material.

In the drawing the sectional views are taken looking in the direction of the little arrows at the ends of the section lines and similar numerals of reference indicate similar parts in all of the views.

Referring to the drawing, 1 represents the ties of a railway track, 2 the ballast and 3 the rails. In the embodiment illustrated the main frame of the machine designated generally by the numeral 4 is adapted as a truck frame being provided with carrying wheels 5 adapted to travel upon the rails of the track to be ballasted.

On this frame 4 I mount a pair of channeled inwardly facing ways 6 connected at their upper ends by the cross piece 6′ and rigidly supported by bracing members 7 and 8, it being understood that the frame and the supports for the channeled ways constitute a rigid unit.

The tamper crosshead 9 is mounted to reciprocate in these ways, the crosshead being recessed at 10 on its lower edge to straddle the rails when in its actuated or down position. This crosshead is in practice a casting and in order to permit some variation in the weight thereof it is preferably formed with a T-shaped opening 11 at the center thereof adapted to receive the weights 12. These weights may be inserted or removed by bringing into alinement with the cross portion 13 of the opening.

The tamper blades 14 are mounted on the crosshead by means of the pivots 15 in coacting pairs, the tamper blades being positioned so that they pass down at the sides of the rails. The curved tips or edges 14′ of the blades are in the embodiment illustrated in Figs. I and IV formed as separate pieces for convenience in manufacture. These tips are arranged to provide shoulders 16 spaced substantially from the ends of the blades.

Thus arranged the ends of the blades are directed outwardly or diverged so that on the down stroke of the crosshead the blades separate, pushing or driving the ballasting material under the ties as illustrated in Fig. IV. This results in driving or compacting the ballasting material under the ties and also between the ties so that they are very effectively supported, this being the result that is aimed at by hand-tamping. The crosshead acts as a drop hammer, being raised and dropped or released so that it is actuated by gravity.

An engine 17 is mounted upon the frame, its driving shaft 18 being connected to the worm transmission designated generally by the numeral 19 through a clutch indicated conventionally at 20. The driven shaft 21 of the transmission is connected to the sprocket 22 on the shaft 23 by means of the sprocket chain 24.

A shaft 25 is adjustably mounted on the ways 6, the bearings 26 for the shaft 25 being carried by yoke-like bearing brackets 27 and being adjustably supported therein by the threaded rods 28. The shaft 25 is further supported by the bearing brackets 29 disposed intermediate the brackets 27. The brackets 29 also carry bearings 26 for the shaft.

The shafts 23 and 25 are provided with sprockets 30 and 31, respectively having the crosshead lifting chains 32 thereon. These chains 32 are supported so that the inner reaches thereof are in a plane parallel to the plane of reciprocation of the crosshead, the crosshead having notches 33 in the top piece 34 thereof to receive these pins. At intervals the chains are provided with lifting lugs, preferably in the form of rollers 35 which engage the top piece of the crosshead supporting and lifting the same until the lifting lugs pass forwardly over the top sprockets 31 when the crosshead is released and is free to drop, it being again engaged by a succeeding lug on the chain and again raised and dropped.

Machines embodying the features of this invention are very efficient, that is, the ballast is packed around and under the ties in a very efficient manner and also very rapidly. For gravel, crushed stone or cinder ballast the form of tampering blades in Figs I–IV is very effective. However, in some cases the ballast is of fine material such as sand which does not pack readily and there is a tendency for it to work out at the opposite side of the tie.

To prevent this I provide a tamper of the form illustrated in Fig. V in which the crosshead arms 36 are provided with a pair of opposed blades 37 pivoted at 38 so that the blades straddle the tie being tamped and are curved so that they move toward each other when engaging the ballast on the down stroke instead of separating as is the case where the blades are arranged back to back as shown in Figs. I and IV. In the embodiment shown in Fig. V the one blade serves as a support for the ballast as it is driven down by the opposing blade.

Machines embodying my improvements are of large capacity and perform the work very efficiently. I have illustrated and described my improvements in an embodiment which I have found very practical. I have not attempted to illustrate or describe other adaptations which I contemplate as I believe the disclosure made 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 with a truck adapted to travel upon a railway track, vertical ways on said truck, a crosshead mounted to reciprocate in said ways and recessed on its under side to receive the rails of the track, tamper blades pivotally mounted on said crosshead in coacting pairs, there being a pair of blades at each side of said recesses in said crosshead, the ends of the blades being outwardly directed so that they tend to separate upon contacting with the material to be tamped, and means for actuating said crosshead.

2. In a machine of the class described, the combination with a truck adapted to travel upon a railway track, vertical ways on said truck, a crosshead mounted to reciprocate in said ways, tamper blades pivotally mounted on said crosshead in coacting pairs, the ends of the blades being outwardly directed so that they tend to separate upon contacting with the material to be tamped, and means for actuating said crosshead.

3. In a machine of the class described, the combination with a truck adapted to travel upon a railway track, vertical ways on said truck, a crosshead mounted to reciprocate in said ways and recessed on its under side to receive the rails of the track, tamper blades pivotally mounted on said crosshead at each side of said recesses, the ends of the blades being laterally directed so that they tend to swing laterally upon contacting with the material to be tamped, and means for actuating said crosshead.

4. In a machine of the class described, the combination with a truck adapted to travel upon a railway track, vertical ways on said truck, a crosshead mounted to reciprocate in said ways, tamper blades pivotally mounted on said crosshead, the ends of the blades being laterally directed so that they tend to swing laterally upon contacting with the material to be tamped, and means for actuating said crosshead.

5. In a machine of the class described, the combination with vertical ways, of a crosshead reciprocating in said ways, tools mounted on said crosshead in coacting pairs, the pairs of tools being spaced on said crosshead to reciprocate at the sides of a rail as the crosshead travels in said ways, the ends of said tools being directed outwardly, and means for actuating said crosshead.

6. In a machine of the class described, the combination with a railway truck, of a crosshead reciprocatingly mounted thereon, tools mounted on said crosshead in coacting pairs,

the ends of the tools being directed outwardly, and means for actuating said crosshead.

7. In a machine of the class described, the combination with vertical ways, of a crosshead constituting a drop hammer reciprocating in said ways, tools pivotally mounted on said crosshead for free swinging and reciprocating movement at the sides of a rail as the crosshead travels in said ways, the ends of said tools being directed forwardly relative to the plane of the axis of the tool pivots, and means for actuating said crosshead.

8. In a machine of the class described, the combination with a railway truck, of a crosshead reciprocatingly mounted thereon, tools mounted on said crosshead for free pivotal movement in a plane transverse to the plane in which said crosshead reciprocates, the ends of the tools being directed forwardly relative to the plane of the axis of the tool pivots, and means for actuating said crosshead.

9. In a machine of the class described, the combination with a railway truck, of a crosshead mounted thereon, tools mounted on said crosshead in coacting pairs and so that they tend to separate upon contacting with the material worked upon, and means for actuating said crosshead.

10. In a machine of the class described, the combination of a drop hammer member, and a pair of tools mounted thereon so that they tend to separate upon contacting with the material worked upon.

11. In a machine of the class described, the combination of a reciprocatingly mounted crosshead, tools mounted on said crosshead in coacting pairs, the ends of the tools being curved outwardly, and means for actuating said crosshead.

12. In a machine of the class described, the combination of an impact member, and tools mounted on said impact member in coacting pairs and so that they tend to separate upon coming into contact with the material worked upon.

13. In a machine of the class described, the combination of a head member, and tools pivotally mounted on said head member in coacting pairs, the pairs of tools being disposed to receive a rail of a railway track between them, said tools being mounted so that they swing toward each other on the upstroke of the head member and tend to separate upon coming into contact with the material worked upon.

14. In a machine of the class described, the combination of a head member, and tools pivotally mounted on said head member in coacting pairs so that they swing toward each other on the upstroke of the head member and tend to separate upon coming into contact with the material worked upon.

15. In a machine of the class described, the combination of a reciprocatingly mounted head, and tools pivotally mounted thereon in coacting pairs, said tools being provided with outwardly curved ends and shoulders at the base of said curved ends.

16. In a machine of the class described, the combination of a drop hammer member, and tools mounted thereon for free swinging movement in planes transverse to the plane in which the drop hammer reciprocates, said tools having laterally directed ends whereby engagement with the material worked upon tends to swing them forwardly.

17. In a machine of the class described, the combination of a drop hammer member, and a blade-like tool mounted thereon and having a laterally directed end portion whereby engagement with the material worked upon tends to swing the tool in a lateral direction, said tool having a shoulder in spaced relation to its end.

18. In a machine of the class described, the combination of a drop hammer member, and tools pivotally mounted on said drop hammer member in coacting pairs for free swinging movement in a plane transverse to the plane in which the hammer reciprocates, said tools being conformed so that they tend to swing forwardly upon contacting with the material worked upon.

19. In a machine of the class described, the combination of a reciprocatingly mounted crosshead, a tool pivotally mounted on said crosshead for free swinging movement and so that it may swing from an approximately vertical position toward a horizontal position while in contact with the material worked upon, the end of the tool being directed forwardly to facilitate such swinging movement, and means for actuating said crosshead.

20. In a machine of the class described, the combination of a reciprocatingly mounted head, and a tamper pivotally mounted thereon, said tamper being provided with an outwardly curved end and a shoulder at the base of said curved end.

21. In a machine of the class described, the combination of a drop hammer member, and a tool pivotally mounted thereon and so that it may swing forwardly while in contact with the material to be tamped, said tool having a curved end portion whereby engagement with the material to be tamped tends to swing it forwardly.

22. In a machine of the class described, the combination of a drop hammer member, and a blade-like tool mounted thereon and so that it may swing forwardly while in contact with the material to be tamped, and having a forwardly directed end whereby engagement with the ballast tends to swing the tool in a lateral direction.

23. In a machine of the class described, the combination of a drop hammer member, and a tool pivotally mounted on said drop

hammer member and so that it may swing from an approximately vertical toward a horizontal position upon contacting with the material tamped.

24. In a machine of the class described, the combination of vertical ways, a crosshead reciprocating in said ways, a pair of shafts disposed in a vertical plane at one side of and parallel to the plane of said crosshead and provided with sprocket wheels, sprocket chains on said sprocket wheels provided with lifting lugs provided with rollers adapted to engage said crosshead as the lugs pass over the bottom sprockets and to be disengaged therefrom as the lugs pass over the upper sprockets, and tools on said crosshead.

25. In a machine of the class described, the combination of vertical ways, a crosshead reciprocating in said ways, a pair of shafts disposed in a vertical plane at one side of and parallel to the plane of said crosshead and provided with sprocket wheels, sprocket chains on said sprocket wheels provided with lifting lugs adapted to engage said crosshead as the lugs pass over the bottom sprockets and to be disengaged therefrom as the lugs pass over the upper sprockets, and tools on said crosshead.

26. In a machine of the class described, the combination with a truck adapted to travel upon a railway track, of vertical ways on said truck, a crosshead reciprocating in said ways, tools mounted on said crosshead, means for actuating said crosshead comprising vertically disposed chains provided with lifting lugs adapted to engage said crosshead when it is in a lowered position and to release the same when in elevated position, and means for driving said chains.

27. In a machine of the class described, the combination of vertical ways, a crosshead reciprocating in said ways, sprocket wheels disposed at one side of said crosshead, sprocket chains on said sprocket wheels provided with lifting lugs adapted to engage said crosshead as the lugs pass over the bottom sprockets and to be disengaged therefrom as the rollers pass over the upper sprockets, and a tool on said crosshead.

28. In a machine of the class described, the combination of vertical ways, a crosshead reciprocating in said ways, a driven chain disposed at one side of said crosshead and provided with lifting lugs adapted to engage said crosshead when it is in its lower position and to release the same when elevated, and a tool on said crosshead.

In witness whereof I have hereunto set my hand.

CORWILL JACKSON.