N. C. STUDY.

TAMPING MACHINE.

APPLICATION FILED JUNE 10, 1919.

1,341,944. Patented June 1, 1920.

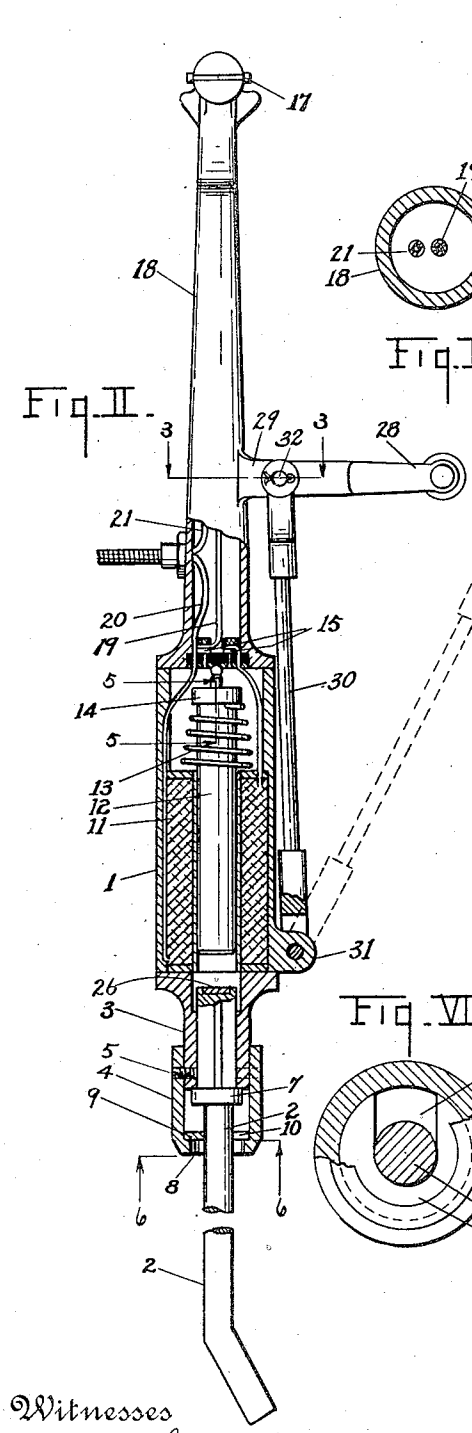


Fig. II.

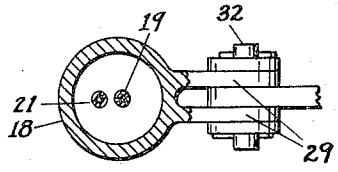


Fig. III.

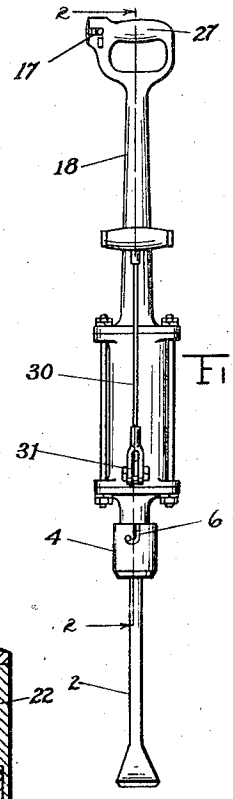


Fig. I.

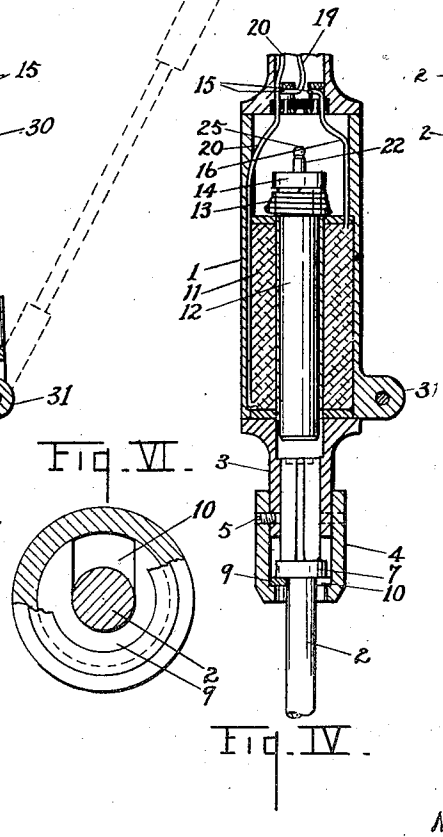


Fig. VI.

Fig. IV.

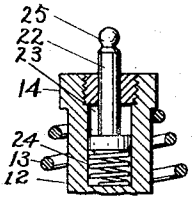


Fig. V.

Witnesses

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TAMPING-MACHINE.

1,341,944. Specification of Letters Patent. Patented June 1, 1920.

Application filed June 10, 1919. Serial No. 303,166.

To all whom it may concern:

Be it known that I, NATHANIEL C. STUDY, a citizen of the United States, residing at Kalamazoo, Michigan, have invented certain new and useful Improvements in Tamping-Machines, of which the following is a specification.

This invention relates to improvements in tamping machines.

My improvements are specially designed by me for embodiment in tie tamping machines, and I have illustrated and described same herein as I have embodied in such a machine. Certain features of my improvements are, however, desirable for use in other relations.

The main objects of this invention are:

First, to provide an improved electrically driven tamping machine which is very efficient and at the same time very light in weight, simple, economical and durable in structure.

Second, to provide an improved tamping machine which is conveniently handled by the workman and with comparatively little effort, the same being easily manipulated in the various relations and positions in which tampers are required in railway construction and the like.

Further objects, and objects relating to structural details, 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. This invention is clearly defined and pointed out in the claims.

A structure which is a preferred embodiment of my invention is clearly illustrated in the accompanying drawing forming a part of this specification, in which:

Figure I is a front view of my improved tamping machine.

Fig. II is a view partially in central longitudinal section on line 2—2 of Fig. I, and partially in side elevation.

Fig. III is a detail view partially in cross section on a line corresponding to line 3—3 of Fig. II.

Fig. IV is a detail view partially in longitudinal section, corresponding to Fig. II, with the impact member and the tamping bar at the limits of their out strokes.

Fig. V is a detail view partially in section on a line corresponding to line 5—5 of Fig. II showing the arrangement of the contact carried by the impact member.

Fig. VI is a detail view partially in section on a line 6—6 of Fig. II.

In the drawing, similar reference characters refer to similar parts throughout the several views, and the sectional views are taken looking in the direction of the little arrows at the ends of the section lines.

Referring to the drawing, I provide a cylindrical casing like body member 1, having a holder at its lower end for the tamping bar 2. This holder comprises a socket member 3, in which the tamping bar reciprocates, and a cap-like retaining member 4 removably secured to the member 3 by a bayonet joint, the member 3 being provided with pins 5 and the member 4 with bayonet slots 6.

The tamping bar has a stop collar 7, the opening in the lower end of member 4 being such as to permit the passage of this collar. The retaining plate 9 has a slot 10 therein so that it may be slipped upon the tamping bar below the collar, and seated in retaining member as shown.

Within the body member is an electromagnet or solenoid, 11, for actuating the reciprocating impact member 12, the tamping bar being arranged to receive the blows of this impact member. The strokes of the impact member and the tamping member are such that they are separated when both are at the limit of their strokes (see Fig. IV). The impact member is returned by the spring 13. The spring 13 is seated on the upper end of the solenoid and engages a collar 14 on the upper end of the impact member.

The circuit is controlled by a pair of fixed contacts 15, one of which is connected to the solenoid by the wire 16, and the other by a wire 19 to a switch designated generally by the numeral 17 mounted at the end of handle 18. The other lead of the solenoid is indicated at 20. The circuit wire leading to the switch 17 is indicated at 21. The impact member 12 carries a contact member 22, it being yieldingly supported by the coiled spring 24. The contact member 22 has a rounded head 25 which engages the contact members 15 when the impact member is in its initial position, thereby closing the circuit to the solenoid and thereby actuating the impact member. The spring 24 re-

tains contact member 22 in its circuit closing position during a portion of the stroke of the impact member, thereby insuring its complete actuation at each stroke.

To prevent the adhering of the impact member to the tamping bar, an insulating disk 26 is arranged in the impact face of the tamping bar, thus insuring the prompt separating of these parts.

The handle 18, which for convenience is designated as the main handle, is mounted on the upper end of the body member, and is preferably in alinement therewith as illustrated. The handle 18 is provided with a grip 27 at its outer end.

I provide a supplementary or auxiliary handle 28 which is adapted to be mounted on an ear 29 on the front side of the handle 18, or on the link-like handle member 30 which is mounted on an ear 31 at the lower end of the body. The link-like handle member 30 is adapted to be engaged by pin 32 by which the auxiliary handle 28 is mounted on the ear 29 so that it is supported out of the way of the operator.

By providing the handles as illustrated, the machine may be handled and adjusted to meet the particular requirements of the work, or the convenience of the operator entailing the least effort on the part of the operator.

My improved tamping machine is efficient, is comparatively light in weight, and is economical and durable in construction.

I have illustrated and described my improvements as I have embodied them in a structure which is very satisfactory. I have not attempted to illustrate other embodiments or adaptations, as I believe the disclosure made will enable those skilled in the art to which my invention relates to embody or adapt the same, 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 tamper, the combination of a casing-like body member having an ear on its upper side at its lower end, a rigid main handle at the upper end of said body member disposed in alinement therewith and having an ear on its upper side and a grip at its outer end, a link-like handle member pivotally mounted on said ear on said body, an auxiliary handle provided with a grip and adapted to be mounted on said link-like handle member or on said ear on said main handle, said link-like handle member being adapted to be engaged by the pin by which said auxiliary handle is mounted on said ear, a reciprocating impact member within said body member, and a tamper bar reciprocatingly mounted in said body member to receive the blows of said impact member.

2. In a tamper, the combination of a casing-like body member having an ear on its upper side at its lower end, a rigid main handle at the upper end of said body member disposed in alinement therewith and having an ear on its upper side and a grip at its outer end, a link-like handle member pivotally mounted on said ear on said body, an auxiliary handle provided with a grip and adapted to be mounted on said link-like handle member or on said ear on said main handle, a reciprocating impact member within said body member and a tamper bar reciprocatingly mounted in said body member to receive the blows of said impact member.

3. In a tamper, the combination of a casing-like body member, a rigid main handle at the upper end of said body member, a link-like handle member pivotally mounted on said body member at the lower end thereof, an auxiliary handle adapted to be mounted on said link-like handle member, or on the side of said main handle, a reciprocating impact member within said body member, and a tamper bar reciprocatingly mounted in said body member to receive the blows of said impact member.

4. In a tamper, the combination of a casing like body member, a fixed main handle at the upper end of said body member, an auxiliary handle adapted to be mounted on the upper side of said main handle, or on the upper side of said body member at the lower end thereof, a reciprocating impact member within said body member, and a tamper bar reciprocatingly mounted in said body member to receive the blows of said impact member.

5. In a tamper, the combination of a casing-like body member, a rigid main handle at the upper end of said body member, a link-like handle member pivotally mounted on the upper side of said body member at the lower end thereof, so that both handles may be grasped and the second handle member swung on its pivot or the body member swung thereon, a reciprocating impact member within said body member, and a tamper bar reciprocatingly mounted in said body member to receive the blows of said impact member.

6. In a tamper, the combination of a casing-like body member provided with a handle whereby it may be manually manipulated and supported and with a tamping bar holder, a solenoid mounted within said body member, a reciprocating impact member actuated thereby, a return spring for said impact member, an electrical connection for said solenoid comprising a pair of fixed contacts at the upper end of said body member, a contact having a spherical head mounted on said impact member and coacting with said fixed contacts to close the circuit when the impact member is in its initial position, said impact member contact being

yieldingly supported by a spring which maintains the contacts in engagement during a portion of the work stroke of the impact member, and a tamper bar reciprocatingly mounted in said holder to receive the blows of said impact member, the stroke of said tamper bar exceeding that of the impact member so that it is out of contact with the impact member when both are at the limit of their out strokes, said tamping bar having an insulating member in its impact face.

7. In a tamper, the combination of a casing-like body member, provided with a handle whereby it may be manually manipulated and supported and with a tamping bar holder, a solenoid mounted within said body member, a reciprocating impact member actuated thereby, a return spring for said impact member, an electrical connection for said solenoid comprising a pair of fixed contacts, a contact mounted on said impact member and coacting with said fixed contacts to close the circuit when the impact member is in its initial position and a tamper bar reciprocatingly mounted in said holder to receive the blows of said impact member, the stroke of said tamper bar exceeding that of the impact member so that it is out of contact with the impact member when both are at the limit of their out strokes, said tamping bar having an insulating member in its impact face.

8. In a tamper, the combination of a casing-like body member, provided with a handle whereby it may be manually manipulated and supported and with a tamping bar holder, a solenoid mounted within said body member, a reciprocating impact member actuated thereby, a return spring for said impact member, an electrical connection for said solenoid comprising a pair of fixed contacts at the upper end of said body member, a contact having a spherical head mounted on said impact member and coacting with said fixed contacts to close the circuit when the impact member is in its initial position, said impact member contact being yieldingly supported by a spring which maintains the contacts in engagement during a portion of the work stroke of the impact member, and a tamper bar reciprocatingly mounted in said holder to receive the blows of said impact member.

9. In a tamper, the combination of a casing-like body member, provided with a handle whereby it may be manually manipulated and supported, and with a tamping bar holder, a solenoid mounted within said body member, a reciprocating impact member actuated thereby, a return spring for said impact member, an electrical connection for said solenoid comprising a pair of fixed contacts, a contact mounted on said impact member and coacting with said fixed contacts to close the circuit when the impact member is in its initial position, and a tamper bar reciprocatingly mounted in said holder to receive the blows of said impact member.

10. In a tamper, the combination of a body member provided with a handle whereby it may be manually manipulated and supported and with a tamping bar holder, a solenoid, a reciprocating impact member actuated thereby, a return spring for said impact member, an electrical connection for said solenoid comprising a pair of fixed contacts, a contact mounted on said impact member and coacting with said fixed contacts to close the circuit when the impact member is in its initial position, said impact member contact being yieldingly supported by a spring which maintains the contacts in engagement during a portion of the work stroke of the impact member, and a tamper bar reciprocatingly mounted in said holder to receive the blows of said impact member, the stroke of said tamper bar exceeding that of the impact member so that it is out of contact with the impact member when both are at the limit of their out strokes.

11. In a tamper, the combination of a body member, provided with a handle whereby it may be manually manipulated and supported and with a tamping bar holder, a solenoid, a reciprocating impact member actuated thereby, a return spring for said impact member, an electrical connection for said solenoid comprising a pair of fixed contacts, a contact mounted on said impact member and coacting with said fixed contacts to close the circuit when the impact member is in its initial position, said impact member contact being yieldingly supported by a spring which maintains the contacts in engagement during a portion of the work stroke of the impact member, and a tamper bar reciprocatingly mounted in said holder to receive the blows of said impact member.

12. In a tamper, the combination of a body member, provided with a handle whereby it may be manually manipulated and supported and with a tamping bar holder, a solenoid, a reciprocating impact member actuated thereby, a return spring for said impact member, an electrical connection for said solenoid comprising a pair of fixed contacts, a contact on said impact member and coacting with said fixed contacts to close the circuit when the impact member is in its initial position, and a tamper bar reciprocatingly mounted in said holder to receive the blows of said impact member, the strokes of said tamper bar exceeding that of the impact member so that it is out of contact with the impact member when both are at the limit of their out strokes.

13. In a tamper, the combination of a casing-like body member, a tamper bar, an

impact means, a rigid main handle at the upper end of said body member, and a link-like handle member pivotally mounted on said body at the lower end thereof so that the body may be pivoted on said handle member or the handle member swung on its pivot.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

NATHANIEL C. STUDY. [L. S.]

Witnesses:
D. O. STEWART,
F. E. MCALLISTER.