

J. ILIFF.
TIE TAMPING MACHINE.
APPLICATION FILED FEB. 25, 1910.

971,504.

Patented Sept. 27, 1910.

4 SHEETS—SHEET 1.

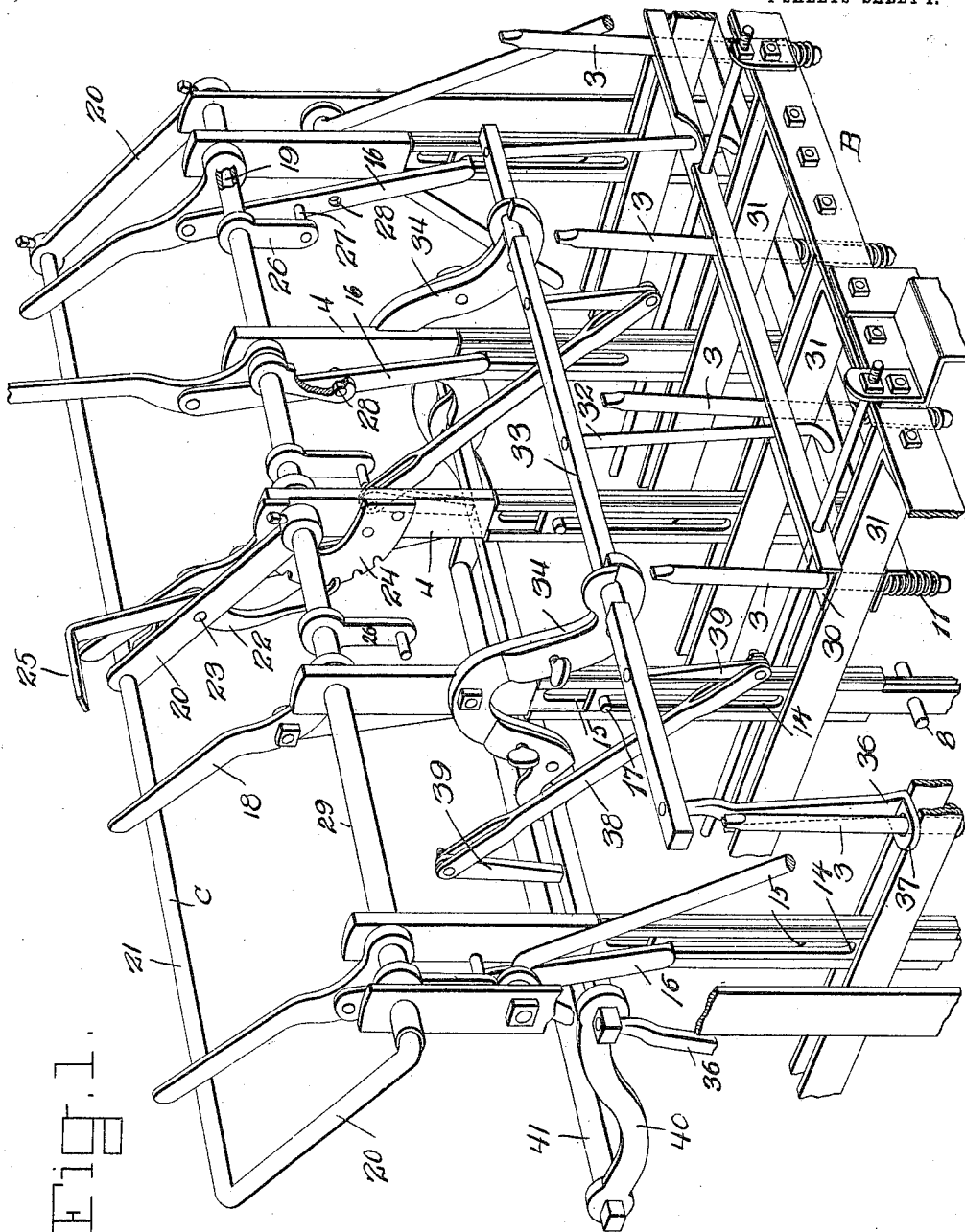


Fig. 1.

Witnesses

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Inventor

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By

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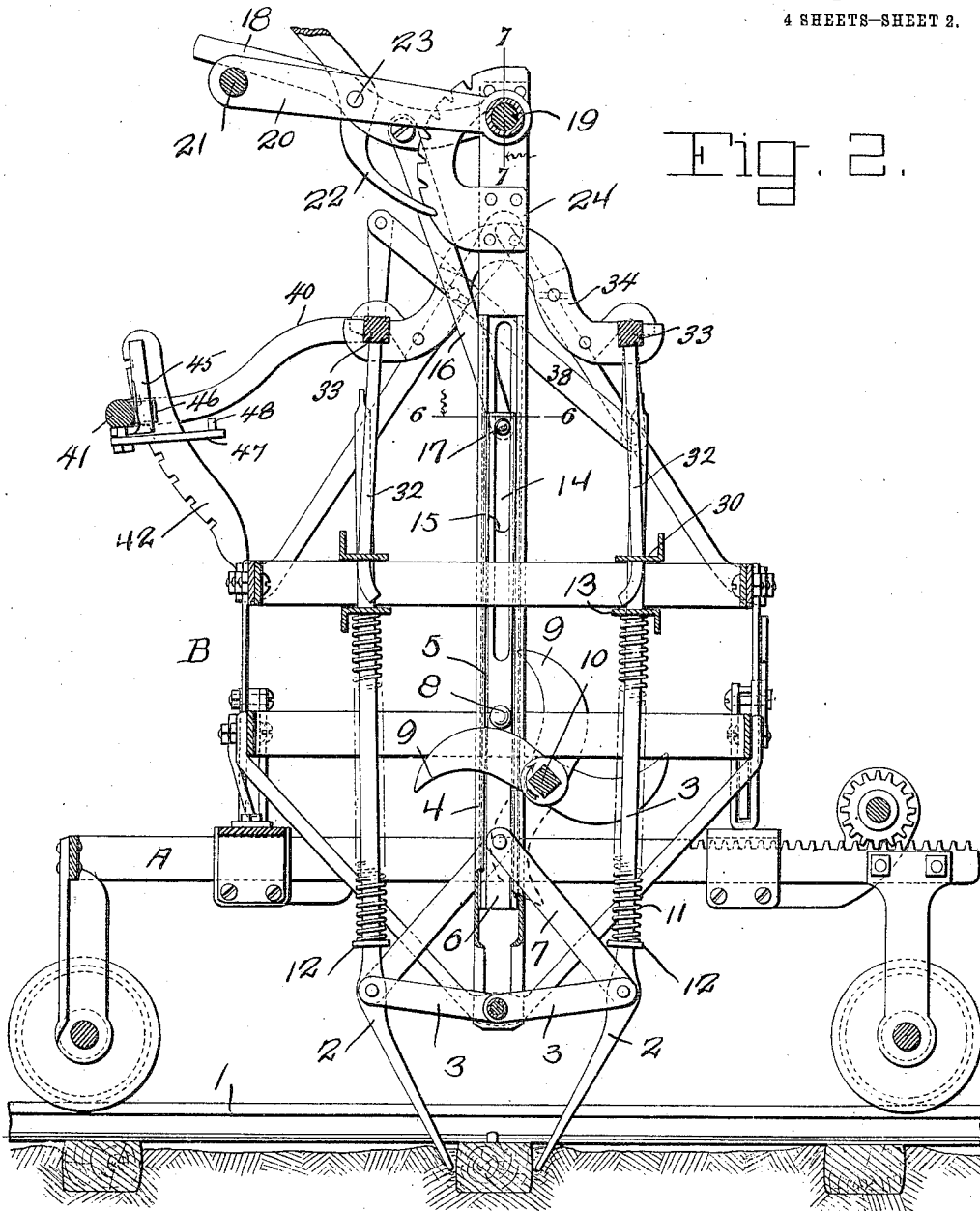


Fig. 2.

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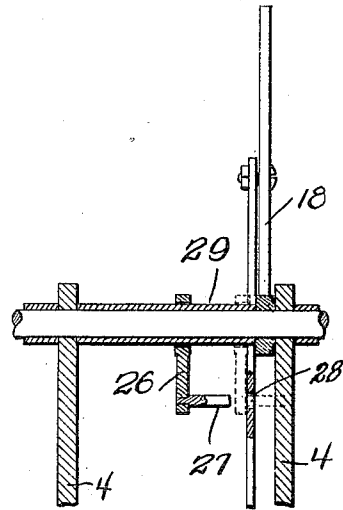
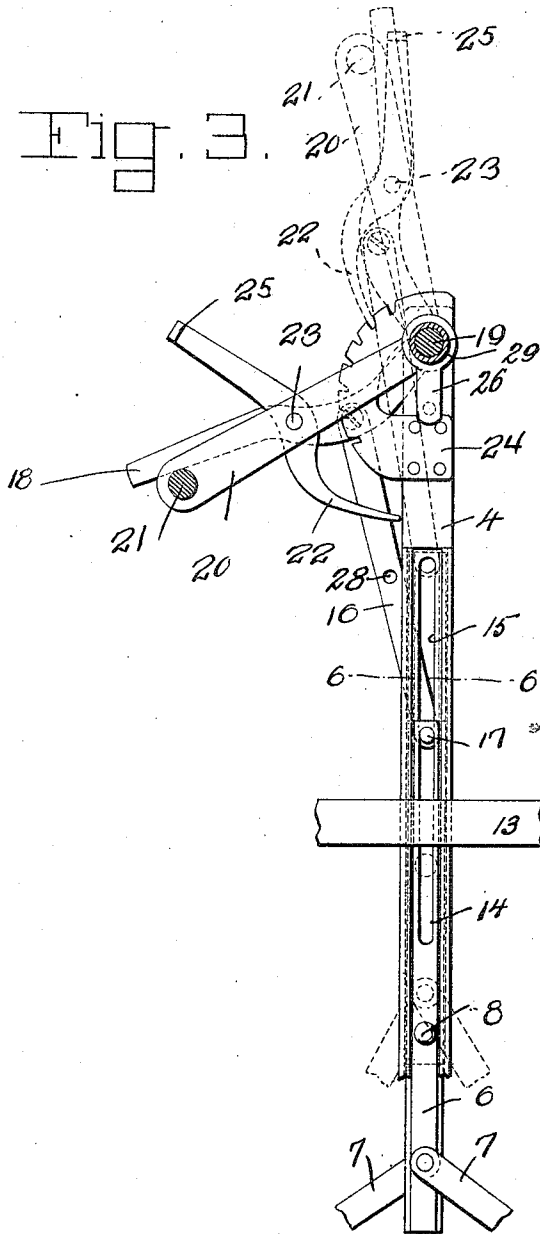


Fig. 7.

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Bradway

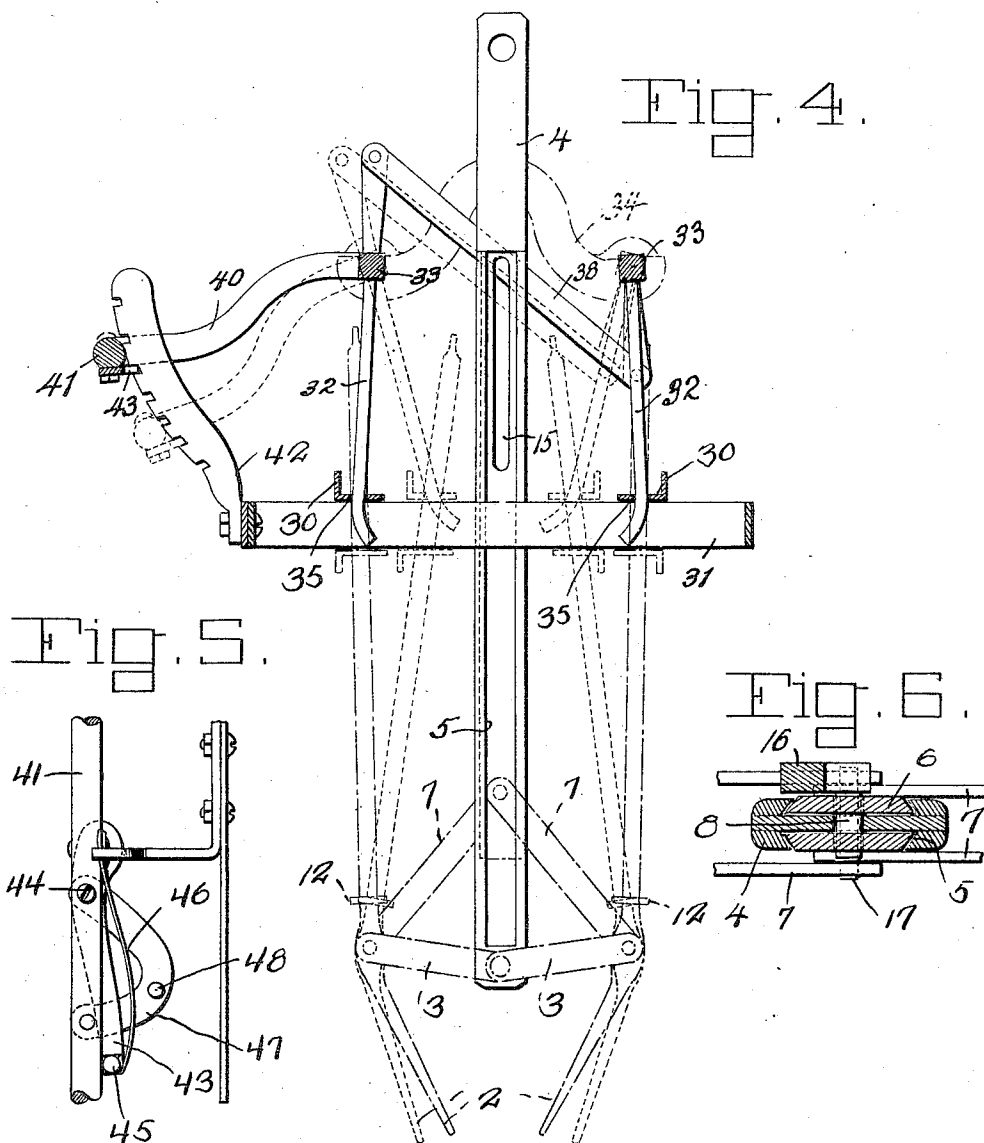
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4 SHEETS—SHEET 4.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN ILIFF, OF MADISON, WISCONSIN.

TIE-TAMPING MACHINE.

971,504.

Specification of Letters Patent. Patented Sept. 27, 1910.

Application filed February 25, 1910. Serial No. 545,984.

To all whom it may concern:

Be it known that I, JOHN ILIFF, a citizen of the United States, residing at Madison, in the county of Dane and State of Wisconsin, have invented new and useful Improvements in Tie-Tamping Machines, of which the following is a specification.

This invention relates to a tie tamping machine and more particularly to improvements in the machine disclosed in United States Letters Patent No. 893,505, granted to me July 14, 1908.

The invention has for one of its objects to provide improvements in the mechanism for raising and lowering tampers to and from set position and for holding any pair of tampers out of operation whenever necessity requires.

Another object of the invention is to improve the mechanism for adjusting the tampers to ties of different widths.

With these objects in view and others as will appear as the description proceeds the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawings which illustrate one embodiment of the invention: Figure 1 is a perspective view of the top portion of the tamping machine showing the improvements embodied therein. Fig. 2 is a vertical transverse sectional view of the machine. Fig. 3 is a detail view of the tamper raising and lowering means. Fig. 4 is a sectional view of the mechanism for adjusting oppositely disposed tampers inwardly or outwardly to operate on ties of different widths. Fig. 5 is a plan view of the latch device of the mechanism for laterally adjusting the tampers. Fig. 6 is a sectional view on line 6—6, Fig. 2. Fig. 7 is a detail sectional view on line 7—7, Fig. 2.

Similar reference characters are employed to designate corresponding parts throughout the several views.

Referring to the drawings A designates the car of the machine which is supported on the rails 1 of a track the ties of which are being tamped and on the car is a carriage B which is adapted to move on the car

transversely of the track so that the tampers will progressively tamp the ballast along opposite sides of the tie throughout its length, the mechanism for moving the carriage back and forth for this purpose being omitted from the present case as it forms no part of the invention and reference is to be had to the Letters Patent hereinbefore referred to for an understanding of the carriage operating means.

On the carriage B are a plurality of pairs of tampers 2, the tampers of each pair being oppositely disposed so as to act on opposite sides of the tie or in other words the tampers are arranged in two sets of five each and one set tamps the ballast at one side of the tie and the other set tamps the ballast at the opposite side. In Fig. 1 the upper extremities of the rods or shanks 3 of one set of tampers are shown, the other set being broken away. Each pair of tampers is connected by links 3 to the lower end of a post 4 secured to and forming a part of the carriage B and each post is provided at opposite sides with dove-tail guide-ways 5 and in each guide-way is a dove-tail slide 6 to move vertically therein. The lower end of each slide 6 is connected by a link 7 with one of the tampers 2 and consequently as the slide moves upwardly the tamper is raised. On the slides 6 are laterally projecting pins or projections 8 with which cam arms 9 on a rotary shaft 10 engage for raising the slides and hence, lifting the tampers whereby the springs 11 of the latter are placed under tension so as to cause the downward tamping stroke as soon as the cam arms 9 pass from under the slide pins 8. The springs 11 surround the shanks 3 of the tampers and their lower ends bear against collars 12 of the latter and their upper ends bear against the members 13 on the carriage. The slides 6 have longitudinal slots 14 which register with a longitudinal slot 15 in the guide post 4 in which the slides move. These slots 14 are located at the upper ends of the slides 6 and in this respect they differ from the slides in the patented construction referred to. The slides for each pair of tampers are adapted to be raised or lowered by a link 16 that has its lower end provided with a pin 17 which extends

through the slots 14 of both slides and through the slot 15 of the post guiding such slides and the upper end of the link 16 is connected with a lever 18 which is fulcrumed
 5 on a horizontal rod or bar 19 supported on the upper ends of the posts 4, there being one lever 18 for each pair of oppositely disposed tampers. The object of arranging the slots 16 in the upper ends of the slides
 10 is that the pin 17 will never be in the path of the tamper actuating cams 19 no matter in what position the slides 6 may be and by reason of this the tampers can be raised or lowered to their limit while the cam shaft
 15 10 continues to rotate and thus it is never necessary to stop the machine to raise or lower the tampers.

The tampers are adapted to be raised or lowered together by a swinging frame or
 20 lever C which consists of end and intermediate arms 20 secured to the ends of the rod 19 and on the outer extremities of these arms is a connecting bar 21. The individual levers 18 are of such length that their outer
 25 ends can rest on the connecting bar or handle 21 of the lever C and they will be held on this bar by the weight of the slides and tampers and the tension of the tamper springs and as a consequence all the indi-
 30 vidual levers will swing upwardly or downwardly with a corresponding swinging movement of the lever frame C. The tampers can be held in any position of vertical adjustment by means of a latch 22 ful-
 35 crumed at 23 on the intermediate arm 20 of the lever frame and arranged to engage a notched sector 24 secured to the middle post 4, the latch being provided with a handle 25 for facilitating the releasing
 40 and locking of the latch. Thus, the lever frame C may be held completely raised so that the lower ends of the tampers will be held above the road-bed when moving the tamping machine from place to place and
 45 by engaging the latch in a lower notch the tampers will be supported in working position and when they are in their extreme lower working position the latch will be locked as shown in Fig. 2.

50 By providing individual levers in the manner described any pair of tampers can be thrown out of operation without interfering with the operation of the other tampers and for this purpose a hook 26 is sup-
 55 ported on the bar 19 on which the levers are fulcrumed and the bill forming pin 27 of the hooks is adapted to engage in an opening 28 of the link that connects the lever with the slides of each pair of tampers. In
 60 Fig. 1 the second lever from the right is shown locked in raised position so that the tampers connected therewith will be rendered inoperative. As shown in Fig. 7, the

individual levers 18 are held against lateral movement by the adjacent post 4 and a
 65 spacing sleeve 29 interposed between the lever and the next post 4 and the locking hook 26 is loosely supported on the sleeve 29 so that it can be moved laterally from the full to the dotted line position for locking
 70 a pair of tampers out of use.

The mechanism whereby oppositely dis-
 posed tampers can be adjusted toward or from each other for adapting them to tamp
 75 ties of different widths will now be described. Four of the tampers of each set have their upper ends freely slidable in a horizontal bar 30 which slides laterally on the horizontal cross beams 31 of the car-
 80 riage and these bars 30 are connected with crank arms 32 secured to horizontal rock shafts 33 supported at opposite sides of the posts 4 by brackets 34 secured to the second and fourth post 4. The arms 32 have their
 85 lower extremities slidably engaged in openings 35 of the slide bars 30 as shown in Fig. 4 and hence as the rock shafts are rocked the bars 30 will move inwardly toward each
 90 other or outwardly from each other so as to thereby throw the tamping ends of the tampers near together or farther apart, as shown by the dotted and broken lines in Fig. 4. The fifth tamper of each set is
 95 moved laterally by a crank arm 36, Fig. 1, that is secured to the rock shaft with its lower end formed into a laterally extending eye 37 disposed in line with the adjacent
 100 slide bar 30 and the fifth tamper has its shank slidably engaged in the eye. The reason for not extending the slide bar 30 to engage with the fifth tamper is to accommo-
 105 date in the space between the extremity of the slide bar 30 and crank arm 36, the reversing mechanism for moving the carriage B back and forth transversely on the car.
 110 The rock shafts 30 are connected together to move in unison by links 38 connected with upwardly and downwardly extending arms 39 on the respective rock shafts. One of the rock shafts has outwardly extending
 115 arms 40 connected by a horizontal bar 41 so as to form a swinging lever that moves over a notched locking bar or segment 42, Figs. 4 and 5, and to be held in any locked position by a latch 43 adapted to engage in any
 120 notch of the member 42. This latch 43 is fulcrumed at 44 on the connecting bar 41 and has a handle 45 and operating on the latch is a leaf spring 46 adapted to hold the latch in locking position, the latch being
 125 movable on a bracket 47 secured to the bar 41 and carrying a stop 48 for limiting the releasing movement of the latch. In adjusting the tampers the end of the latch 45 is swung inwardly and while held in this position, the lever frame 40—41 is swung up-

wardly or downwardly to throw the tampering ends of the tampers inwardly or outwardly as the conditions require and when they are thus adjusted to the width of the tie the latch is released so as to engage in the nearest notch of the member 42 and thus hold the tampers in set position as they are operated for tamping the ballast.

From the foregoing description taken in connection with the accompanying drawing the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains and while I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof, I desire to have it understood that the apparatus shown is merely illustrative and that such changes may be made when desired as are within the scope of the claims.

What is claimed is—

1. A tamping machine comprising a tamper, a slide connected therewith to reciprocate with the movement of the tamper, a link connected with the slide, a lever connected with the link and operating through the same for adjusting the vertical position of the tamper, and a locking device engaging the link for holding the tamper out of operation.

2. A tamping machine comprising a pair of tampers, separate slides connected with the tampers to move therewith, a link arranged to engage both slides, a lever connected with the link for raising the slides, and a device arranged to engage the link when the lever is raised for holding the tampers inoperative.

3. A tamping machine comprising oppositely disposed tampers, slides connected therewith, a post on which the slides are mounted, means operating on the slides to move the tampers on their upstroke, means for moving the tampers on the tamping stroke, a link having a slot and pin connection with each slide, means operating through the link for holding both tampers out of inoperative relation with the first-mentioned means, and a device for engaging the link for locking the tampers out of operation.

4. A tamping machine comprising a plurality of tampers, separately actuated devices for holding any tamper in inoperative position, and a single device operating through the first-mentioned devices for adjusting the vertical position of the tampers.

5. A tamping machine comprising a plurality of tampers, individual levers operatively connected with the tampers for raising the same, a device for holding any

tamper out of operation, and a common lever arranged to operate through the first-mentioned levers for adjusting the vertical position of the tampers.

6. A tamping machine comprising a plurality of tampers, a lever connected with each tamper for raising the same, a device for locking each tamper in raised or inoperative position, a lever arranged to engage the first-mentioned levers to operate through the same to raise or lower the tampers simultaneously, and a locking device for holding the last-mentioned lever in different positions of adjustment.

7. A tamping machine comprising a plurality of tampers, means for actuating the same, individual devices for raising the tampers, and a common device operating through the first-mentioned devices to raise and lower all the tampers simultaneously.

8. A tamping machine comprising a plurality of tampers, means for actuating the same, individual devices for raising the tampers, a common device operating through the first-mentioned devices to raise and lower all the tampers simultaneously, and means for holding the last-mentioned device in different positions of adjustment.

9. A tamping machine comprising a plurality of tampers, means for actuating the same, levers mounted on a common axis and separately connected with the tampers for raising and lowering the same, a device on which the levers normally bear and by which they are simultaneously movable for collectively raising or lowering the tampers, and means for holding the device in different positions of adjustment.

10. A tamping machine comprising a plurality of tampers, means for actuating the tampers, separate levers operatively connected with the tampers and arranged on a common axis, and a single lever swinging on an axis coincident with the common axis of the first-mentioned levers and operating through the latter to collectively raise or lower the tampers.

11. A tamping machine comprising a plurality of tampers, means for actuating the tampers, separate levers operatively connected with the tampers and arranged on a common axis, a single lever swinging on an axle coincident with the common axis of the first-mentioned levers and operating through the latter to collectively raise or lower the tampers, and means for holding any tamper out of operation with its lever disengaged from the single lever.

12. A tamping machine comprising a plurality of tampers, means for actuating the tampers, separate levers operatively connected with the tampers and arranged on a common axis, a single lever swinging on an axle

coincident with the common axis of the first-mentioned levers and operating through the latter to collectively raise or lower the tampers, means for holding any tamper out of operation with its lever disengaged from the single lever, and a latch device for holding the single lever in different positions of adjustment.

13. A tamping machine comprising a plurality of tampers, slides connected with the tampers, means operating on the slides to move the tampers in one direction, separate means for moving the tampers in the opposite direction, levers operatively connected with the slides for raising and lowering the tampers, devices for holding the individual tampers raised, and a single lever with which the first-mentioned levers are normally held in engagement, said single lever being adjustable to different positions for collectively adjusting the tampers.

14. A tamping machine comprising a plurality of tampers, slides connected therewith, supporting posts on which the slides are guided, a rod supported by the posts, levers fulcrumed on the rod, links connecting the levers with the individual tampers, and locking devices mounted on the rod and operating through the links for holding any tamper in inoperative position.

15. A tamping machine comprising a plurality of tampers, slides connected therewith, supporting posts on which the slides are guided, a rod supported by the posts, levers fulcrumed on the rod, links connecting the levers with the individual tampers, locking devices mounted on the rod and operating through the links for holding any tamper in inoperative position, and means operating through all the levers for collectively adjusting the vertical position of the tampers.

16. A tamping machine comprising a plurality of tampers, slides connected therewith, supporting posts on which the slides are guided, a rod supported by the posts, levers fulcrumed on the rod, links connecting the levers with the individual tampers, locking devices mounted on the rod and operating through the links for holding any tamper in inoperative position, a swinging frame connected with the rod and disposed to engage the levers for raising and lowering the tampers, and means for holding the frame in different positions of adjustment.

17. A tamping machine comprising a plurality of tampers, slides connected therewith, guide posts for the slides, said slides having slots, a link for each slide having means engaging in the slot thereof, means for reciprocating the tampers, a mechanism operating through the links for collectively adjusting the tampers, and means adapted

to engage any links for holding the tamper connected therewith in inoperative position.

18. A tamping machine comprising a plurality of tampers, means for actuating the same, a lever operatively connected with each tamper, a rod forming a common fulcrum for the levers, and devices mounted on the rod for holding any tamper raised.

19. A tamping machine comprising a plurality of tampers, slides operatively connected with the tampers, guide posts for the slides, a rod supported on the posts, a lever mounted on the rod at each post, a sleeve on the rod for engaging each lever to cooperate with the adjacent post to hold the lever in place, a link connecting each lever with a slide, a hook slidable on the sleeves for engaging the links to lock the tampers raised, a single lever connected with the rod, and on which the other levers normally bear for operating through the latter to adjust the position of the tampers, and a latch device for holding the single lever in different positions of adjustment.

20. A tamping machine comprising a plurality of tampers, slides connected therewith, operating cams, means on the slides with which the cams engage for raising the tampers, springs for moving the tampers on their tamping strokes, guide posts for the slides, said slides having slots in their upper ends and the posts having slots registering with those of the slides, links having their lower extremities engaged in the slots of the slides, and posts, and means operating through the links for raising or lowering the tampers.

21. A tampering machine comprising sets of oppositely disposed tampers, rock shafts movable simultaneously, means for connecting a plurality of tampers of each set with the adjacent rock shaft, separate means for connecting the remaining tampers with the adjacent rock shafts, whereby both sets of tampers are moved inwardly or outwardly toward or from each other, and means for actuating the rock shafts.

22. A tamping machine comprising oppositely disposed sets of tampers, means for actuating the same, a bar engaging certain of the tampers of each set for adjusting the same laterally, a device connected with each bar for shifting the same and also connected with the remaining tamper of the set, and means for simultaneously actuating the devices for moving the tampers toward or from each other collectively.

23. A tamping machine comprising oppositely disposed sets of tampers, an operating rock shaft for each set, a bar engaging a plurality of tampers of each set, means for operatively connecting each bar with one of the rock shafts, a connection independent

of the bar between each rock shaft, and the remaining tamper of each set, means for connecting the rock shafts to move together, an actuator connected with one of the rock shafts, and means for holding the actuator in different positions of adjustment.

24. A tamping machine comprising sets of tampers, means for actuating the tampers, a rock shaft for each set of tampers, a literally movable bar with which a plurality of tampers of each set engage, arms on the rock shafts engaging the bars for shifting the same, additional arms on the

rock shafts connected with the remaining tampers of each set, and means for actuating the rock shafts simultaneously to operate through the bars and said additional arms to move both sets of tampers simultaneously toward or from each other.

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

JOHN ILIFF.

Witnesses:

JEFFREY J. PANER,
CHARLES AMMEN.