

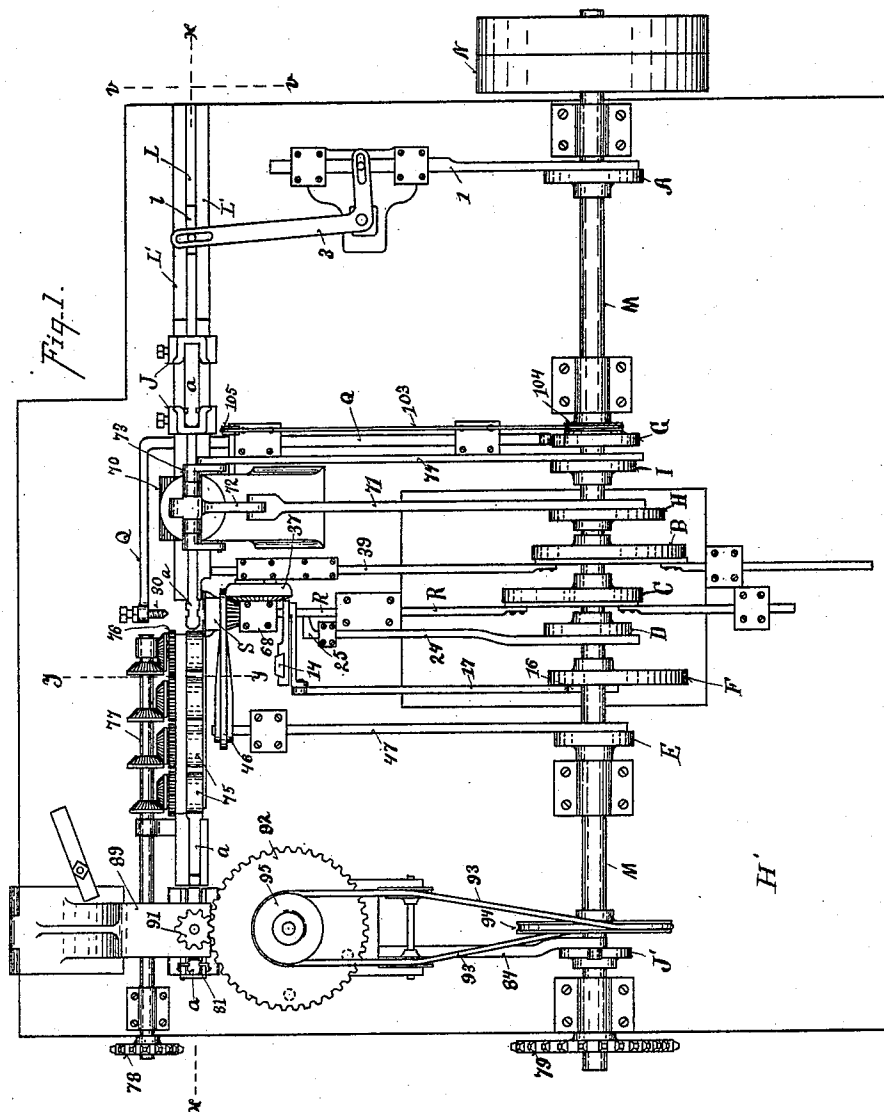
(No Model.)

4 Sheets—Sheet 1.

A. R. TIFFANY.
TAG WIRING MACHINE.

No. 470,957.

Patented Mar. 15, 1892.



2 Witnesses

C. N. Miles

Geo Ashton.

Inventor

Albert R. Tiffany

By his Attorneys *Wood & Bond*

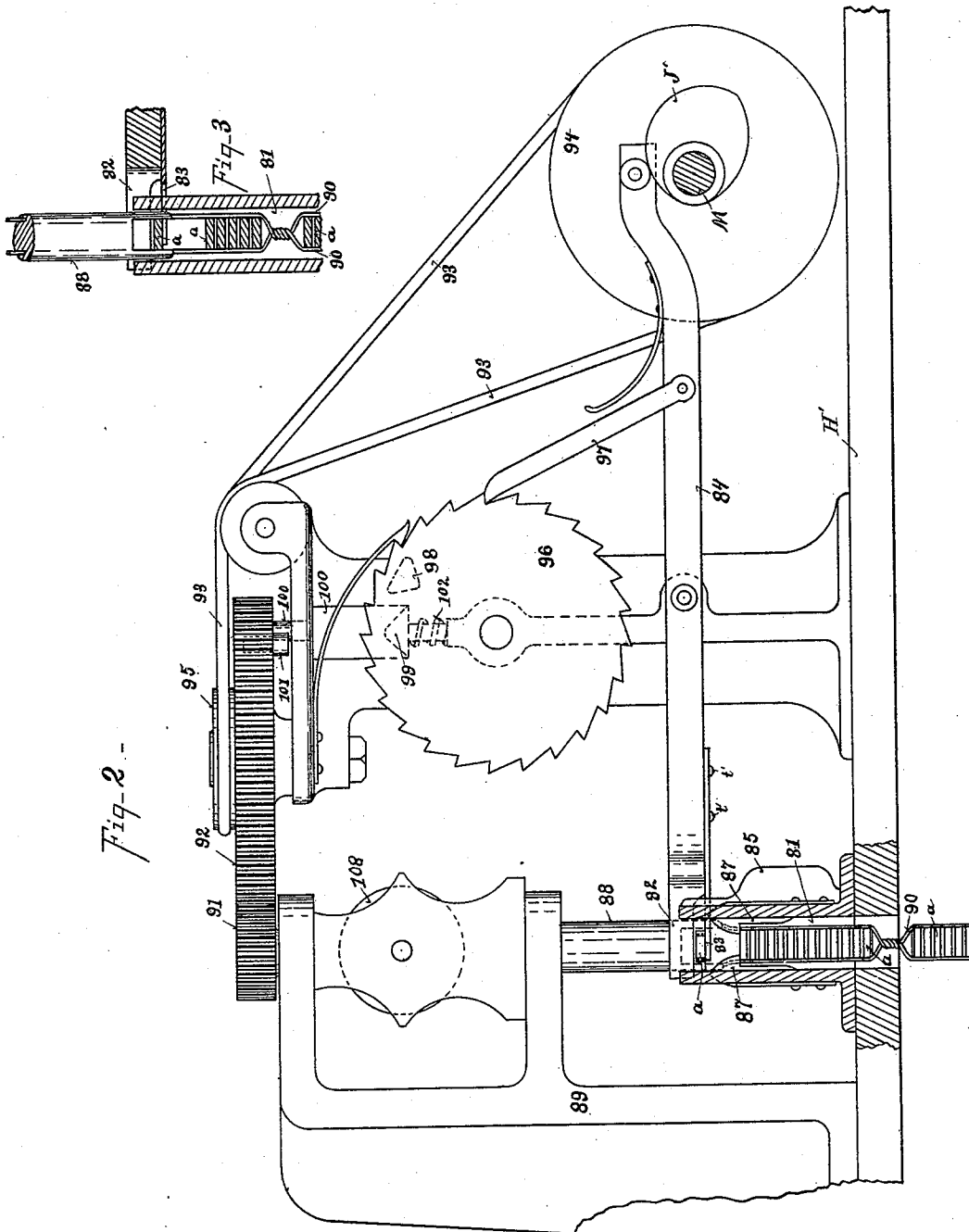
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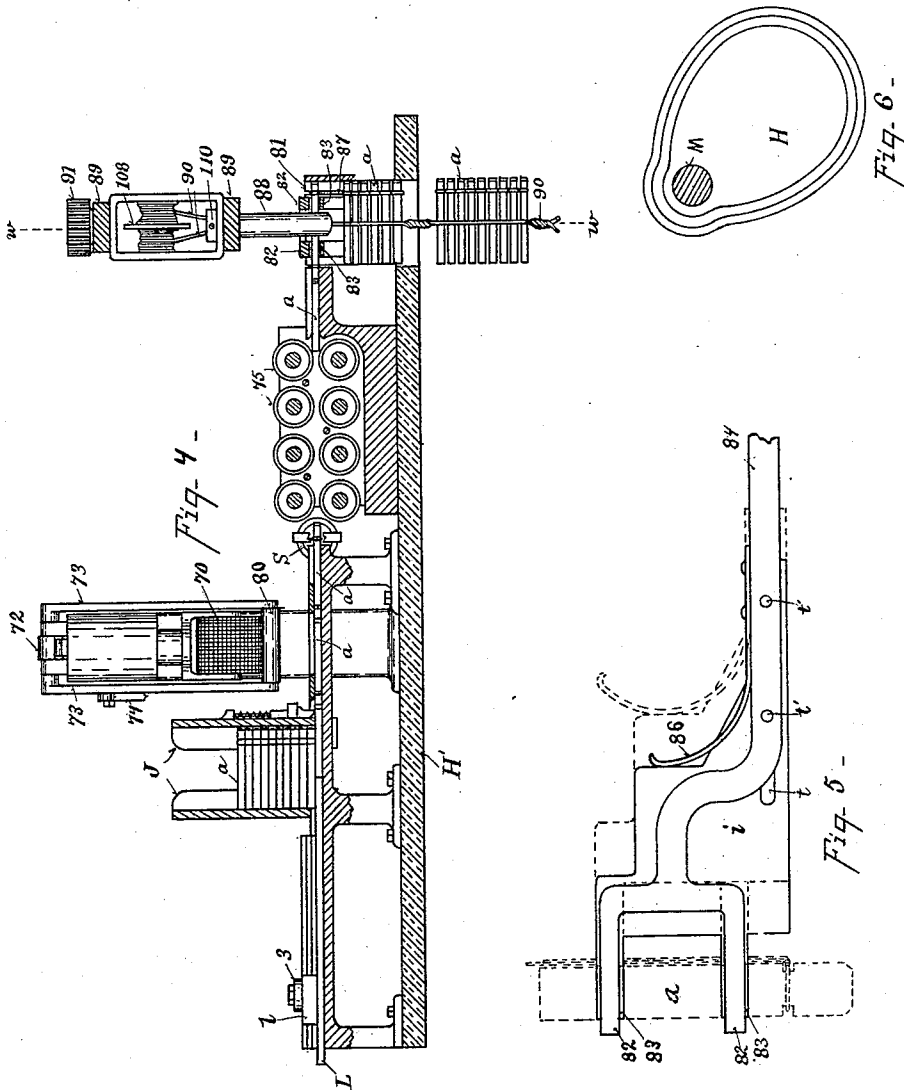
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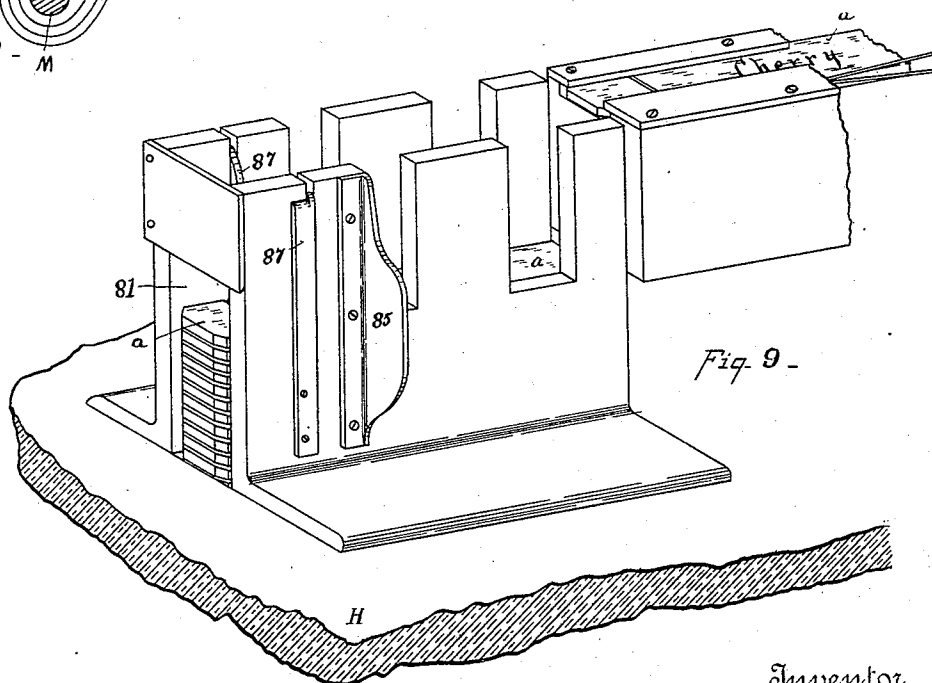
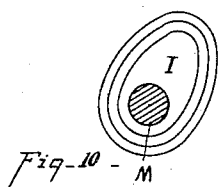
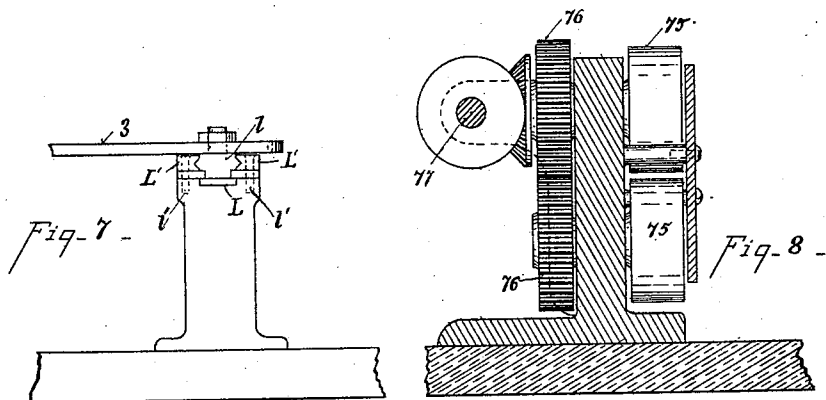
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UNITED STATES PATENT OFFICE.

ALBERT R. TIFFANY, OF DAYTON, OHIO, ASSIGNOR OF ONE-HALF TO
WESLEY YOUNG, OF SAME PLACE.

TAG-WIRING MACHINE.

SPECIFICATION forming part of Letters Patent No. 470,957, dated March 15, 1892.

Application filed August 12, 1891. Serial No. 402,468. (No model.)

To all whom it may concern:

Be it known that I, ALBERT R. TIFFANY, a citizen of the United States, and a resident of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Tag-Wiring Machines, of which the following is a specification.

The object of my invention is to provide attachments for the machine shown and described in Letters Patent of the United States No. 444,403, granted me January 6, 1881, whereby several new and useful results are accomplished. My said former machine is for wiring wooden tags. The attachments, which are herein shown and described, perform the following additional functions: first, printing or marking the tags before they are wired, and then after they are wired passing the same to the bundling-machine, where the tags are secured by two wires, forming links, twisted round a series of said tags, the machine accurately counting any given number of tags into position for being baled, the baling being carried on automatically in such a manner as to count the tags and twist by means of wire links any desired number or series into a chain.

The various features of my invention will be fully set forth in the description of the accompanying drawings, making a part of this specification, in which—

Figure 1 is a top plan view of my improvement. Fig. 2 is an end elevation representing the binding device. Fig. 3 is a detail view on line *ww*, Fig. 4. Fig. 4 is a section on line *xx*, Fig. 1. Fig. 5 is a detail view of the binding-fingers. Fig. 6 is a detail of the cam H. Fig. 7 is an end view of the feeding-frame on line *vv*, Fig. 1. Fig. 8 is a section on line *yy*, Fig. 1. Fig. 9 is a perspective view of the binding-pocket. Fig. 10 is a detail view of cam I.

The parts shown in my former specification are represented by the same reference figures and letters.

H' represents the frame of the machine.

M represents the driving-shaft, and N the main driving-pulley.

A B C D E F G represent cams secured to

the shaft M. These seven parts and their connecting mechanism are constructed and operated substantially as shown in my said former patent, but between the cams G and B are located cams H and I. The cam H operates the connecting-rod 71, which operates the crank-arm of the printing-press. Cam I operates the connecting-rod 74 for intermittently reciprocating inking-roll 80 across the face of the type for inking the same.

103 represents a belt driven by pulley 104 on the main shaft M and driving the pulley 105 for operating an ink-feeding roller. These parts are of the usual form of construction for printing-presses and are not new, except in the combination of devices employed for performing an intermediate step in the operation of this machine—to wit, stamping or printing a name on the face of the label or tag *a*.

The hopper J is of a little different form of construction from that shown in my former patent, but it operates in the same manner. So, also, the ways over the slide L are reinforced by means of the supplemental plates L' and stud *l* and pins *l'*, which hold the ways L steadily and prevent the slide from buckling. The wire-holding mechanism employs an angle-arm Q, which carries the holding-screw 30. This screw is reciprocated to and from the tag by the cam G, so as to engage against the wire in the act of twisting the same. After the tag has been marked by the printing-press it is conveyed to the twisting-head S and accompanying mechanism for twisting the wire around the tag, which mechanism is constructed and operated in the same manner as shown in my said former patent. The tag *a*, after it has been wired, is pushed forward by the next succeeding tag into a binding-pocket 81, where the tags are secured in bales by means of links formed of two wires, which are twisted around the bales, forming a link, and several of these links are united together in the chain, as many as may be desired. These several steps take place in time movements in the following manner:

The tags are fed in the usual manner by the bell-crank 3 from the hopper J, but come first under a printing-press 70, which is oper-

ated to print the name on the tag by means of the cam H through the connecting-rod 71 and crank-arm 72.

73 represents a yoke, at the lower end of which is the inking-roll 80, the yoke being reciprocated across the face of the type by means of the connecting-rod 74, operated by the cam I. The tags, being successively stamped with the name, are then passed to the wiring device shown in my former patent. From thence the tags are grasped by a series of rollers 75, through which they are fed onto the bunching device. The rollers 75 are provided with rubber tires and are operated in pairs by means of gears 76, the upper roller of each pair receiving motion from beveled gears upon shaft 77, which is operated from the main shaft by means of a chain belt (not shown) connecting the wheels 78 and 79. As the tags are successively fed forward, they pass separately into the binding-pocket 81. As they pass into the pocket, they are passed between the upper and lower jaws of the binding-fingers 82 and 83, the tag *a* being loosely held between the fingers, as shown in dotted lines, Fig. 5, the binding-fingers being at the inner extremity of the arm 84, which is vibrated by means of the cam J' on the main shaft. These lower jaws or fingers are projections of plate *i*, which is provided with a slot *t*, sliding over the pins *t'*. As the arm 84 is vibrated to pass the inner end of the arm downward, the lower plate *i* engages with the incline 85 on the side of the binding-pocket and is forced backward, allowing the tag to drop on the top of the stack, as indicated in dotted lines, Fig. 5, the lower fingers being secured to the arm 84 by means of a slot and the screws or pins so as to reciprocate thereon. The lower fingers are thrown forward in the extended position again when the fingers rise by means of the spring 86.

87 represents spring-clutches, which catch the tag when it is forced down by the fingers and hold it in contact with the remainder of the bunch.

88 represents the wire-twisting spindle, which is slotted in its lower end, forming a fork to permit the tag to pass through. This spindle is suspended vertically between the binding-fingers and the bracket 89 and is provided with a spool 108, which supplies the binding-wire 90, the wire being supplied in two strands, one issuing from each of the forks in the lower end of the spindle 88. The spindle is rotated at regular intervals by means of gears 91 92, the gear 92 being driven by means of the belt 93 on the pulley 94 of the main shaft. The belt is adjusted loosely, so as to slide on pulley 95, except when the dogging device is released, allowing the gear 92 to revolve, and when it makes one revolution the dogging device again re-engages.

96 represents a ratchet-wheel, the teeth of which are engaged by pawl 97, pivoted to the

vibrating shaft 84, so that at each vibration of the shaft which deposits a tag in the bundle the ratchet-wheel is rotated the distance of one tooth.

98 represents a lug projecting from the face of the ratchet-wheel to engage with the incline 99 upon the dogging-rod 100. This rod is held in engagement with the pin 101 by means of the spring 102. At each revolution of the ratchet-wheel the dogging-rod is withdrawn, releasing the pin 101 and allowing the gear 92 to make one revolution, when the dogging device re-engages and holds it until the ratchet-wheel has completed another revolution. The binding-fork is thus revolved by means of the gear 91, twisting the wires 90 at regular intervals and binding the tags into a chain of bundles, each containing a certain number of tags. I have here shown the ratchet-wheel 96 containing twenty-five teeth. Hence as it moves one notch as each of the tags is deposited into the binding-pocket, when it has performed one revolution twenty-five tags have thus been deposited. During the last movement of depositing the twenty-fifth tag the incline 98 has depressed the incline 99, releasing the dogging-rod 100, the gear 91 making three revolutions to the gear 92 one revolution, when it is desired to put three twists in the wire, the number of twists depending upon the relative size of the gears 91 and 92.

The necessary interval for wiring the tag or period between the feeding forward of the tag is maintained in the feeding of the wired tag forward to the binding-pocket. This interval of time the ratchet-wheel is idle and is sufficient for the twisting of the link of the chain round a series of tags to form a bundle. As the gear 92 comes back into position, the dogging-rod shoots in front of the pin 101 of the gear 92 and locks it against further movement until the ratchet-wheel 96 has made another revolution, which again releases the dog. If a greater or less number of tags is desired to be formed in one link or bale, the ratchet-wheel is changed, so as to have a corresponding number of teeth.

It will be observed that the bottom of the binding-pocket is open, allowing the chain of links or bales of tags to pass freely through the same. Before starting the operation the ends of the two wires are twisted and the first tag in the bundle or chain is deposited onto this twist by the arm 84, the second tag is pressed down upon this, and so on until the last tag is pressed into position.

To prevent the wire from being reeled off too fast and to pack the tags close together, I may employ the usual tension 110, which may be of any well-known construction.

I do not claim any special novelty in the form of constructing the ink marking or printing device or in the detailed features of construction. I have shown what I consider to

be the best form; but these features may be variously modified without affecting the principle of the invention herein specified.

Having described my invention, what I claim is—

1. In a tag-wiring machine having the tag-feeding and the wire looping and twisting mechanism for twisting a strand of wire around a tag, the tag-marking mechanism interposed between the tag-feeding and the tag-wiring mechanism, whereby the tags are fed forward, marked, and wired, substantially as specified.

2. In a tag-wiring machine having tag-feeding mechanism and tag-wiring mechanism for twisting the wire round each individual tag, a second tag-feeding mechanism, in combination with the binding-pocket and the mechanism for twisting strands of wire round a series of tags, forming the same into bales, substantially as specified.

3. In combination with the tag-wiring mechanism, a series of feeding-rolls 75, adapted to receive the wired tag and carry the same forward and deliver the same to the tag-feeding mechanism, which deposits the said tags serially in a binding-pocket, and mechanism for wiring together a series of said tags in the binding-pocket, substantially as specified.

4. In combination with tag-wiring mechanism, the binding-pocket 81, the binding-fingers 82 and 83, located in the upper part of said

pocket, the twisting-spindle 88, suspended vertically between the binding-fingers, tag-feeding mechanism, and means, substantially as described, for operating the twisting-spindle automatically and intermittently to twist together a series of tags into a link or bundle, substantially as specified.

5. The combination, with tag-wiring mechanism, of the packing-shaft 84, the cam J' for intermittently operating said shaft, the binding-fingers 82 and 83, between which the tags are received, means for operating said binding-fingers, the binding-pocket 81, and means for reciprocating the lower binding-fingers to press and drop the tag into the binding-pocket, substantially as specified.

6. The combination, with tag-wiring mechanism, of the binding-pocket 81, the vibratory arm 84, the binding-fingers 82 and 83, located in the upper part of the binding-pocket on the extremity of said vibratory arm, the springs 86 for said fingers, the incline 85 on the binding-pocket, the spring-clutches 87 in the binding-pocket, and the twisting-spindle 88, suspended between the binding-fingers, substantially as described.

In testimony whereof I have hereunto set my hand.

ALBERT R. TIFFANY.

Witnesses:

T. SIMMONS,
C. W. MILES.