

No. 712,083.

Patented Oct. 28, 1902.

W. C. MORRILL.
SPIKE EXTRACTOR.

(Application filed Apr. 28, 1902.)

(No Model.)

3 Sheets—Sheet 1.

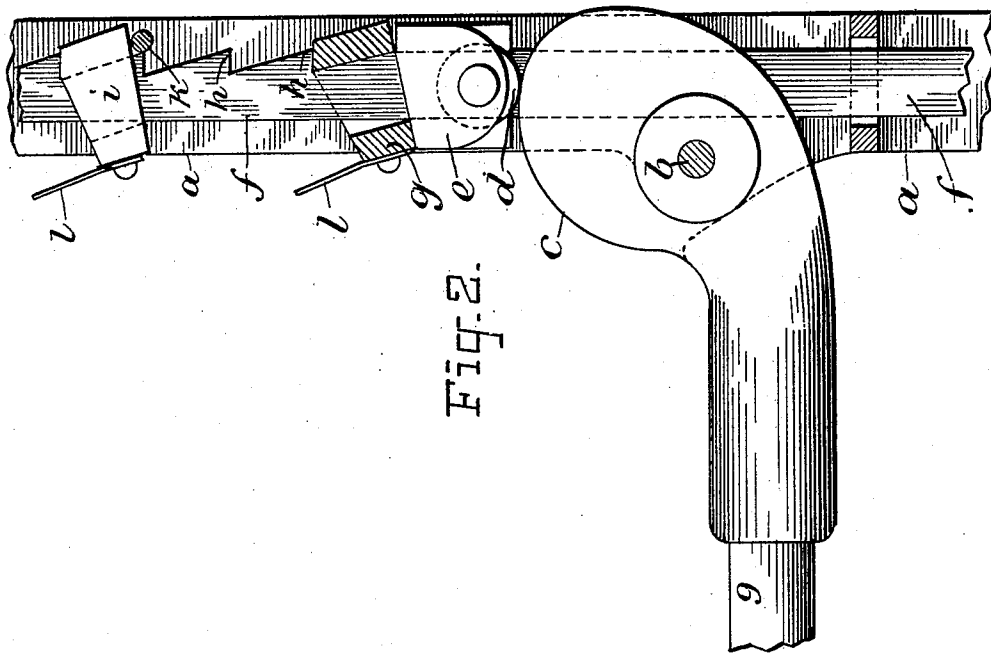


Fig. 2.

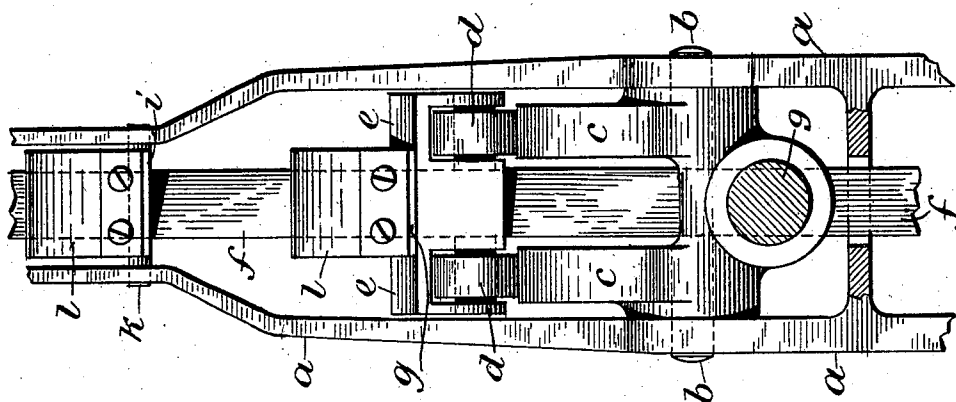


Fig. 1.

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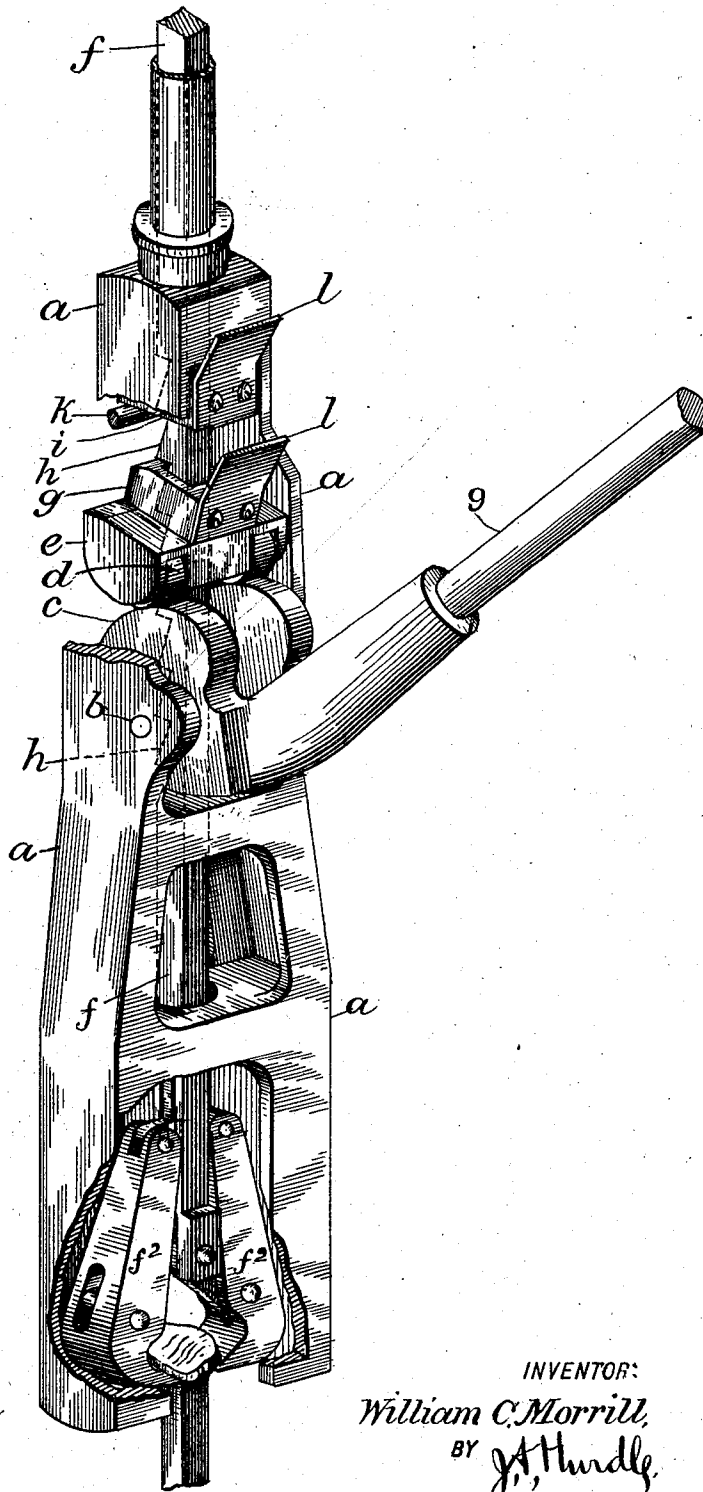
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Fig. 1.^A



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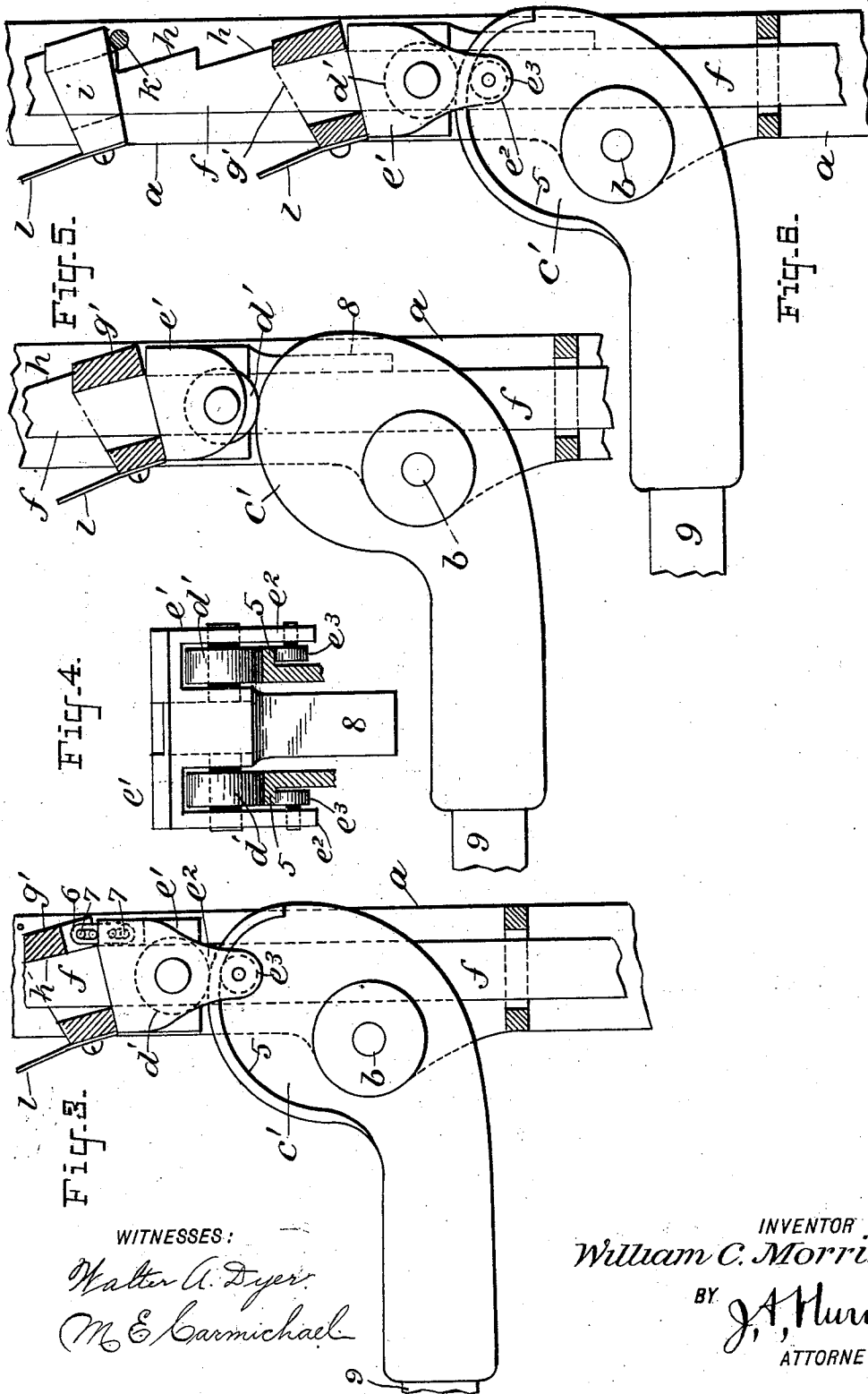
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

WILLIAM C. MORRILL, OF NEW YORK, N. Y.

SPIKE-EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 712,083, dated October 28, 1902.

Application filed April 28, 1902. Serial No. 104,952. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. MORRILL, a citizen of the United States, residing in the city of New York, borough of Manhattan, and State of New York, have invented certain new and useful Improvements in Spike-Extractors, of which the following is a specification.

This invention relates to improvements in spike pullers or extractors, of which a full and clear description will be given hereinafter.

The first feature of the invention consists of a lifting-block provided with antifriction-rollers, the latter adapted to engage in rolling contact with a lever-cam fulcrumed to the frame of the device.

The second feature of the invention consists of a lifting-block provided with rollers adapted to engage in rolling contact with the perimeter of a lever-cam and a secondary roller or dowel-pin fulcrumed or otherwise secured to a depending ear integral or otherwise connected with said lifting-block, said secondary roller adapted to engage with a projecting flange forming a part of the cam aforesaid.

The third feature of the invention consists of the lifting-block, having a single depending guiding-tongue integral or otherwise connected therewith.

The fourth feature of the invention consists of a lifting-block connected with an auxiliary drop-clutch block by means of a link or other contrivance.

In the drawings, Figure 1 represents a front elevation of a portion of the frame or structure of a spike-puller in which the lifting-block, auxiliary drop-clutch block, and fulcrumed cam-lever are contained. Fig. 1^a represents a perspective view of the pike-extracting device, having a portion of the vertical tube removed and portions of the frame broken away in order to show the working parts more clearly. Fig. 2 represents a vertical central section of the frame, in which is shown the operative mechanism partly in section and elevation. Fig. 3 represents a vertical section of the frame of the device, in which the cam-lever is provided with a horizontally-projecting flange adapted to engage with a secondary roller journaled to a depending ear of the lifting-block, the latter connected with the drop-clutch block by means of a

link, or it may be otherwise hinged thereto. Fig. 4 is a front elevation of the lifting-block shown in Fig. 3. In this view portions of the lever-cam are shown in section. Fig. 5 is also a view similar to Fig. 3, in which is shown a depending guiding-tongue integral or otherwise connected with the lifting-block, the latter provided with duplex antifriction-rollers adapted to engage in rolling contact with the perimeter of a lever-cam. Fig. 6 represents the lifting-block with its depending tongue mounted upon the ratchet-faced lifting-rod. It also shows the rollers mounted upon the lifting-block and the depending ears thereof.

Similar characters refer to similar parts throughout the drawings, in which—

a represents the upright frame, within the vertical walls of which is suspended by the fulcrum *b* the lever-cam *c*, the perimeter of the latter adapted to engage in rolling contact with the antifriction-rollers *d*, which are journaled or fulcrumed to the lifting-block *e*, mounted upon the lifting-rod *f*, the latter having gripping-jaws *f*² mounted upon the lower end thereof. The lifting-block *e* is designed to carry the auxiliary drop-clutch block *g*, which engages with the ratchet-teeth *h* of the lifting-rod *f*, the latter of which is also mounted with the drop-clutch detent-block *i*. One portion of this detent-block rests upon a pin *k*, connected with the frame aforesaid. The drop-clutch block *g* and the drop-clutch detent-block *i* are both provided with the unlocking or disengaging dash-plates *l*.

In Fig. 3 is shown the lifting-block *e'*, provided with the depending ear *e*², having journaled near its lower extremity the secondary roller *e*³, the latter adapted to engage with the projecting flange 5 of the lever-cam *c'* while the antifriction-rollers *d'* engage in rolling contact with the perimeter of the said lever-cam *c'*. The lifting-block *e'* in this instance is connected with the auxiliary drop-clutch block *g'* by means of the link-plate 6 and held in position by means of the pins 7 7.

In Fig. 4 the device is identical with that of Fig. 3, excepting that the lifting-block *e'* is provided with a depending guiding-tongue 8.

In Fig. 5 the device is the same as shown in Fig. 2, excepting the lifting-block *e'*, which is also provided with the depending guiding-

tongue 8. In Fig. 6 the lifting-block e' is provided with the secondary rollers e^3 and depending guiding-tongue 8, the rollers e^3 being adapted to engage with the projecting flange 5.

5 Mode of operation: It will be obvious that when the lever-handle 9 is forced downwardly it will cause the elongated portion of the cam to move against the antifriction-rollers d , and thereby raise the lifting-block e , carrying
10 with it the drop-clutch block g , a portion of the latter engaging, as it does, with the ratchet-teeth h of the lifting-rod f and lifting the same, with its gripping-jaws f^2 , in the usual way. I have not endeavored to show the
15 clutching or clamping jaws, as this feature is well understood. It is a well-known fact that in the spike-puller heretofore made both the lifting and drop-clutch block would at times stick together upon the lifting-rod and
20 fail to fall by natural gravitation, and thus frustrate the positive operation of the device, which is at all times essential in railroad-work. In order to overcome this objection, I have provided the lever-cam with the pro-
25 jecting flange 5. (Shown in Figs. 3, 4, and 6 of the drawings.) This flange engages with the secondary rollers e^3 , journaled to the depending ears e^2 of the said lifting-block e' . This construction insures the positive descent
30 of the lifting-block e' , and in order to make the drop-clutch block g' also positive in its descent it may be connected with the lifting-block by means of the link-plate 6, held in position by the pins 7 7, as shown in Fig. 3.
35 Then again, in order to prevent the lifting-block from rocking to and fro the same may be provided with the depending guiding-tongue 8, as shown in Figs. 3, 4, and 6.

I am aware that lifting-blocks and drop-
40 clutch blocks have heretofore been used in connection with lifting-rods of spike-extracting devices and jacks; but in all previous instances the face of the lever-cam engaging with the lifting-block would invariably be
45 crushed and worn out of shape when brought under heavy pressure. This particular feature

in itself would put the device out of action and make it inoperative for further use. These objections are overcome by the adoption of the antifriction-rollers, which have
50 never heretofore been connected with a lifting-block supporting a drop-clutch block, and the tool is further improved and made to operate more positively by other features herein shown, thus obviating the many objec-
55 tions found to exist in spike-extracting devices heretofore used. I therefore do not lay special claim on any particular or single element, but do claim the new combination herein shown. 60

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a spike-extracting device the combination consisting of the lifting-rod, the lift-
65 ing-block mounted thereon, the antifriction-rollers connected with said lifting-block, the depending guiding-tongue integral or otherwise connected with said lifting-block, and the lever-cam, substantially as shown and
70 described.

2. In a spike-extracting device the combination consisting of the lifting-block, the antifriction-rollers connected therewith, said
75 lifting-block connected with an auxillary drop-clutch block by link or hinge the whole mounted upon a lifting-rod and adapted to work in conjunction with a lever-cam.

3. In a spike-extracting device the combination consisting of the lifting-rod, the lift-
80 ing-block mounted thereon, the antifriction-rollers and secondary rollers connected with the latter, the depending guiding-tongue of the said lifting-block, the whole adapted to work in conjunction with a lever-cam, sub-
85 stantially as shown and described.

In testimony whereof I have hereunto set my hand this 23d day of April, 1902.

WILLIAM C. MORRILL.

Witnesses:

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