

(Model.)

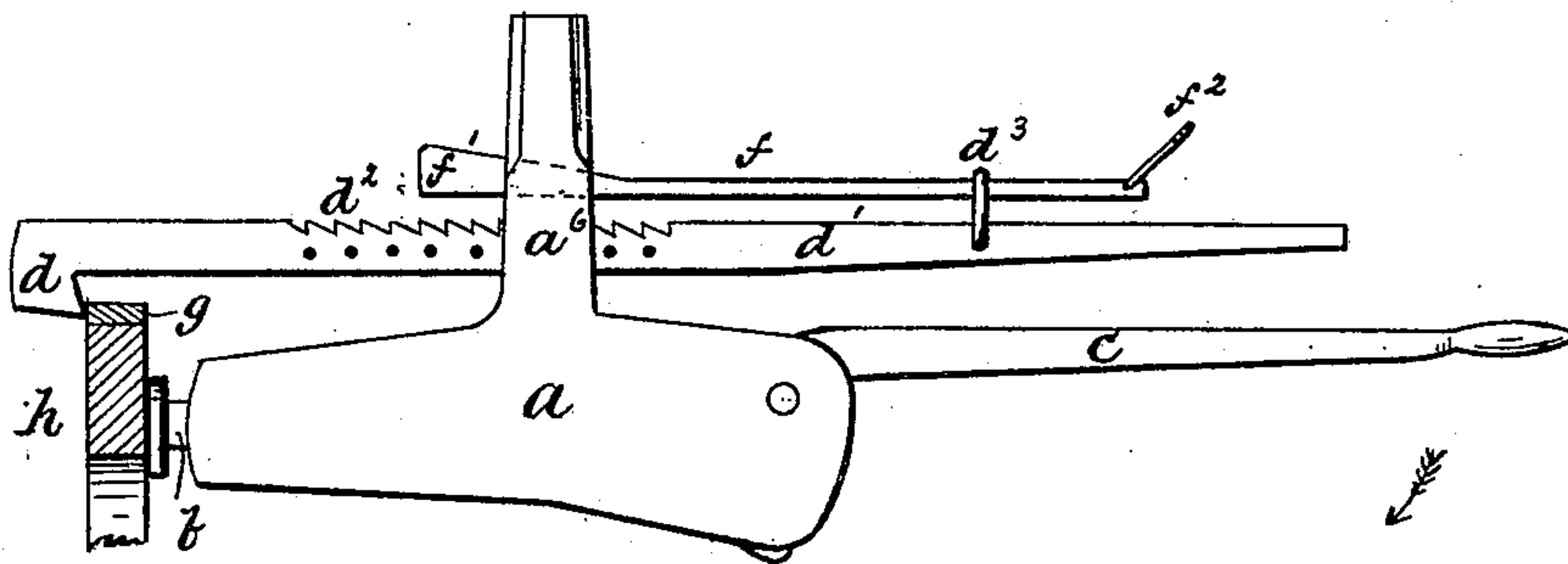
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# APPARATUS FOR PULLING TIRES FROM WHEELS:

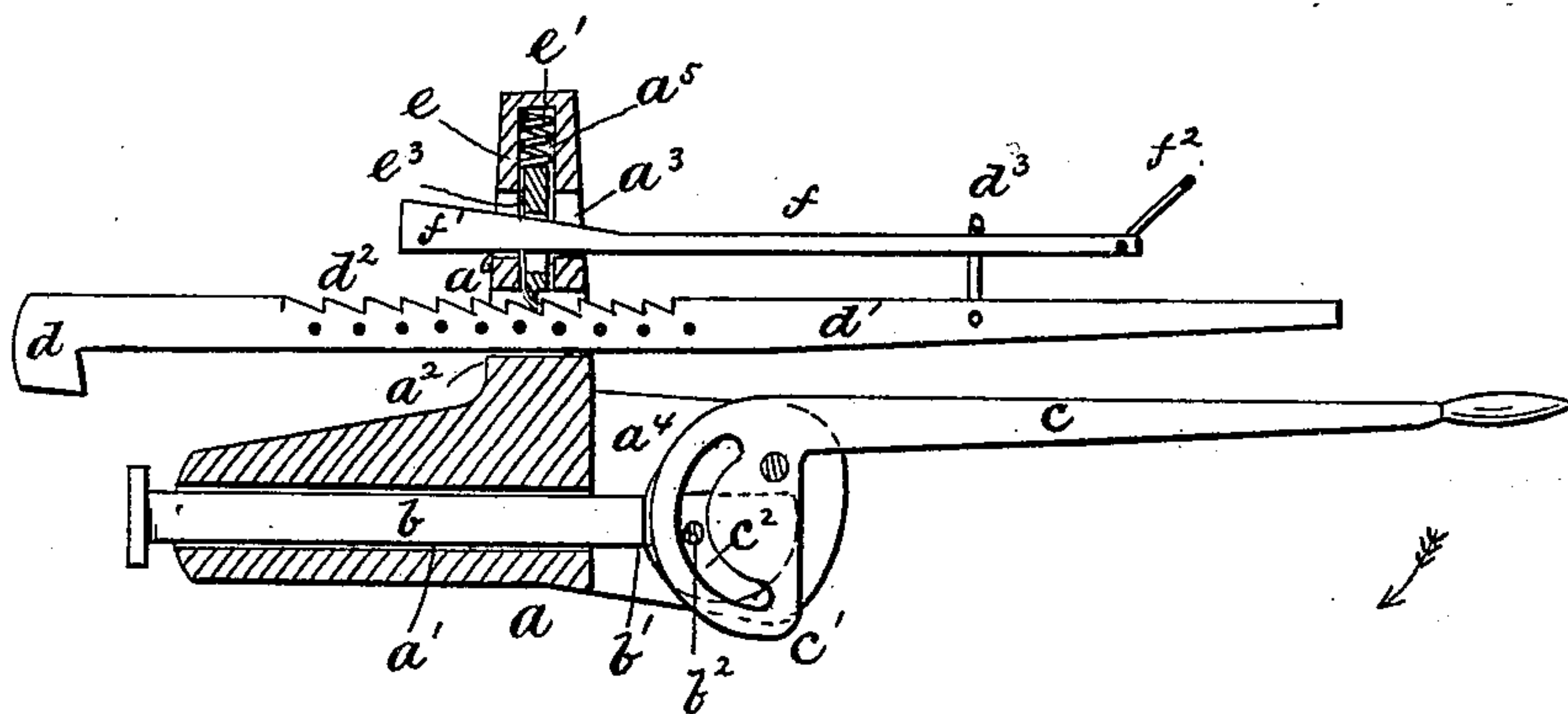
No. 246,919.

Patented Sept. 13, 1881.

*Fig. 1.*



*Fig. 2.*



Witnesses:  
M. M. Lacey  
A Parker

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# UNITED STATES PATENT OFFICE.

DAVID F. SPANGLER, OF DAYTON, WASHINGTON TERRITORY.

## APPARATUS FOR PULLING TIRES FROM WHEELS.

SPECIFICATION forming part of Letters Patent No. 246,919, dated September 13, 1881.

Application filed May 26, 1881. (Model.)

*To all whom it may concern:*

Be it known that I, DAVID F. SPANGLER, a citizen of the United States, residing at Dayton, in the county of Columbia, Washington Territory, have invented certain new and useful Improvements in Devices for Pulling Tires from Wheels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention has for its object to furnish a device by which the tires of wagon-wheels may be easily pulled off.

It consists in a mortised guide-block, a pusher, one end of which is to be placed against the felly of the wheel, while the other end is connected to a pivoted cam-lever, and in an adjustable hook for catching hold of the tire, all arranged to operate as hereinafter fully set forth.

In the drawings, Figure 1 is a side elevation, and Fig. 2 is a longitudinal vertical section, of a device constructed according to my invention.

$a$  is the guide-block, which carries the several parts of my invention. It is constructed with the longitudinal mortises  $a'$   $a^2$   $a^3$ , all parallel with each other, and with a mortise,  $a^4$ , cut in its rear end and across the mortise  $a'$ , and with a mortise,  $a^5$ , cut from one side inward across the mortises  $a^2$   $a^3$ , as shown.

$b$  is a pusher placed in the mortise  $a'$ , and having one end arranged so that it can be placed against the side of the felly of the wheel, while its other end extends into the rear cross-mortise,  $a^4$ , and is provided with a shoulder,  $b'$ , and a pin,  $b^2$ , by which it is connected to the lever  $c$ .

$c$  is the operating-lever, which is pivoted at one side of the mortise  $a^4$ , and is provided with a lateral arm or cam,  $c'$ , which extends past the inner end of the pusher  $b$ . The arm  $c'$  has its inner edge, next the end of pusher, curved or made cam-shaped, as shown, so that it will bear on the shoulder  $b'$  and drive the pusher outward against the felly. The arm  $c'$  is also provided with a curved slot,  $c^2$ , through which the pin  $b^2$  projects. By this slot a connection is made with the pusher  $b$ , by which the latter is drawn back from the felly. The pusher could

be operated by this pin-connection alone without the shoulder  $b'$ ; but I prefer to employ the latter, as it furnishes a bearing for the cam  $c'$ , which is not liable to get out of order. By pulling the lever  $c$  in the direction indicated by the arrow the cam  $c'$  drives the pusher outward against the felly.

$d$  is an adjustable hook, which catches over the tire. It has its shank  $d'$  placed in the middle mortise,  $a^2$ , and it has formed on its outer edge a series of ratchet teeth,  $d^2$ , and with a guide-ring,  $d^3$ , near its outer or rear end.

$e$  is a sliding pawl, placed in the cross-mortise  $a^5$  so that its inner end engages in the teeth  $d^2$ . It is pressed against the teeth of the hooked bar by a spring,  $e'$ , placed in the outer end of the mortise  $a^5$ . The pawl is disengaged by a lever,  $f$ , which passes through a mortise,  $e^3$ , and is provided with a wedge-shaped end,  $f'$ , which bears against the inner side of the mortise  $a^3$  and against the outer end of the mortise  $e^3$  in the pawl. By pulling on the ring  $f^2$  the lever-bar is drawn so that it disengages the pawl from the hooked bar, and the latter can be set outward or inward, as may be desired. A reverse movement of the lever  $f$  permits the pawl to engage and hold the hooked bar firmly in place.

A pawl or fastening could easily be fixed on the outside of the side projection,  $a^6$ , of the guide-block, so as to hold the hooked bar; but I prefer to place the pawl in a mortise and operate it in the manner shown.

In using the device the hook  $d$  is placed over the tire  $g$  and the pusher against the felly  $h$ , as shown in Fig. 1. The lever  $c$  is drawn down slightly, which movement pushes the felly slightly from under the tire. The lever  $c$  is drawn back to the initial position, and the device is moved a short distance along the periphery of the wheel, and again the lever  $c$  is drawn down, as before, so as to move the felly. This operation is continued entirely around the wheel. The second time the device is passed around the wheel the felly is pushed still farther. The operation is repeated till the tire is entirely detached from the rim of the wheel. The device may be set to any width of tire and thickness of felly.

The tire can be removed by this device without bruising or otherwise injuring the felly. The operation is performed very rapidly, and the work is efficiently done.



Instead of an automatic pawl-fastening for the hook-bar, the latter could be provided with a series of pin-holes,  $d^4$ , in which could be placed pins on opposite sides of the extension  $a^6$ ; but the removal and resetting of these pins would involve much trouble and time, and I do not prefer to employ them.

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

10 1. The combination, substantially as hereinbefore set forth, of a guide or head block provided with parallel mortises or guide-channels, a pusher placed in one of the mortises, a pivoted lever arranged to give longitudinal movement to the pusher and drive it against the felly, and an adjustable hook-bar placed in the other mortise, and having its outer or hooked end arranged to catch over the edge of the tire, and held to the head-block by a suitable fastening, substantially as set forth.

20 2. The combination, with the head-block  $a$ , provided with a guideway or mortise,  $a'$ , and rear cross-mortise,  $a^4$ , and a hook,  $d$ , having its shank made fast to the head-block and ar-

ranged to catch over the edge of the tire, of a pusher,  $b$ , placed in the mortise  $a'$ , and having its inner end provided with a cross pin or bolt,  $b$ , and the lever  $c$ , pivoted in the mortise  $a^4$ , and having a lateral arm,  $c'$ , and cam-slot  $c^2$ , through which the pin  $b^2$  projects, and operating substantially as and for the purpose set forth.

3. In a tire-pulley, the combination, substantially as hereinbefore set forth, of the head-block  $a$ , having the mortises  $a^2$   $a^3$  and cross-mortise  $a^5$ , the hook-bar  $d$ , provided with the ratchet-teeth  $d^2$  on its edge, and placed in the mortise  $a^2$ , pawl  $e$ , provided with a mortise,  $e^3$ , and placed in the mortise  $a^5$ , the detaching-bar  $f$ , provided with the wedge-shaped end  $f'$ , and the spring  $e'$ , all arranged to operate substantially as described, and for the purposes set forth.

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

DAVID F. SPANGLER.

Witnesses:

R. F. STURDEVANT,  
JOHN W. NORRIS.