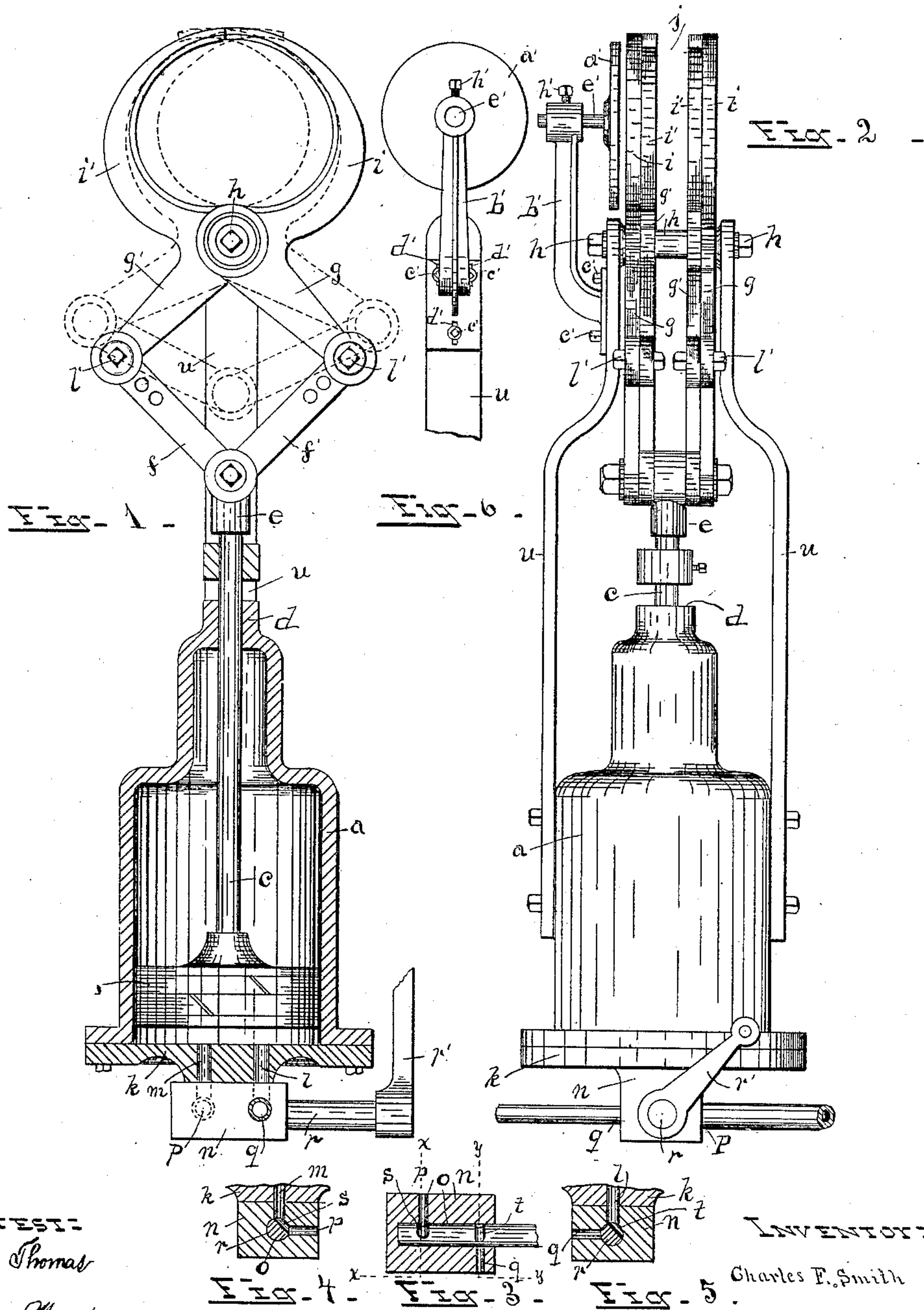


(No Model.)

C. F. SMITH.  
KINDLING WOOD PRESS.

No. 432,772.

Patented July 22, 1890.



ATTEST:  
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# UNITED STATES PATENT OFFICE.

CHARLES F. SMITH, OF WEST BAY CITY, MICHIGAN.

## KINDLING-WOOD PRESS.

SPECIFICATION forming part of Letters Patent No. 432,772, dated July 22, 1890.

Application filed October 25, 1889. Serial No. 328,143. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES F. SMITH, a citizen of the United States, residing at West Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Kindling-Wood Presses; and I do 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 the letters of reference marked thereon, which form a part of this specification.

This invention pertains to improvements in machines for pressing a bundle of kindling-wood pieces into a compact package, and for holding the same for tying or binding together; and the invention consists in the combination and arrangement of the several parts or devices which are used in the construction of the device, which will be hereinafter fully described, and pointed out in the claims of this specification.

The object of the invention is to provide a kindling-wood press which will perform the operation of pressing and holding the package in an efficient manner, and at the same time be simple in arrangement of parts and cheaply constructed and easily operated.

I illustrate my improved device in the accompanying drawings, in which the same letters of reference will be found designating the same parts throughout the several views, and which I now proceed to explain.

Figure 1 represents a side view in elevation, and partly sectional, of my improved kindling-wood press with the parts in position to receive the wood to be operated upon.

Fig. 2 is a view of the right-hand side of the same. Fig. 3 is a horizontal section of the valve on the lower end of the cylinder. Fig. 4 is a section of Fig. 3, taken at  $x x$ . Fig. 5 is a section of Fig. 3, taken at  $y y$ . Fig. 6 is a view of the rear side of gage-plate and arm.

$a$  represents a vertical steam-cylinder, and  $b$  is a piston within the cylinder, having a piston-rod  $c$  extending upward through the upper head  $d$ , and is provided on its upper end with a head  $e$ , to which is pivoted the lower ends of the diagonal bars  $f$  and  $f'$ , while to the upper ends of these bars  $f$  and  $f'$  are piv-

oted at  $l'$  to the lower ends of the levers  $g$  and  $g'$ , these levers being crossed and pivoted together at  $h$ , while the opposite ends of the levers are curved toward each other to form gripping-jaws  $i$  and  $i'$ . It will be observed, as shown in Fig. 2, that there are two sets of these jaws  $i$  and  $i'$ ; also of the levers and bars  $f$  and  $f'$ , the upper ends of the opposite jaws being arranged to overlap and pass each other, and a space  $j$  is arranged between the two sets of jaws to permit the passage of a twine around the package for securing the sticks together.

$u$  are supporting-bars which are firmly bolted by their lower ends to the opposite sides of the cylinder  $a$ , and the upper ends are arranged to bear against the outsides of the levers  $g$  and  $g'$  at their pivotal point, and the bolt  $h$  is passed through the bars and through the levers, so that the bars form a support to retain the bolt or pivot on which the levers oscillate rigidly in position.

$a'$  is a gage-plate arranged in a vertical position on one side of and near the jaws  $i$ , and is held in position by an arm  $b'$ , the lower end of which is secured to the supporting-bar  $u$  by bolts  $c'$ , passed through slots  $d'$ , to allow a vertical adjustment of the arm, and the upper end of the arm is provided with a transverse opening, through which passes a shaft  $e'$ , the end of the shaft being secured to the rear side of the plate  $a'$ , and  $h'$  is a set-screw passed into the upper end of the arm against the shaft to retain the shaft in position and allow a horizontal adjustment of the gage-plate to be made to and from the jaws, as described. The head  $k$ , below the piston, is provided with an inlet-port  $l$  and also with an exhaust-port  $m$ .

$n$  is a valve-casing provided with a central chamber  $o$ , and is secured in position with its upper side resting against the lower side of the head  $k$ , and is provided with openings forming a continuation of the ports  $l$  and  $m$  into the chamber  $o$ , and the casing is also provided on one side with an exhaust-pipe opening  $p$ , coincident with the opening  $m$ , and on its opposite side with an inlet-pipe opening  $q$ , coincident with the opening  $l$ .

$r$  is a valve placed within and filling the chamber  $o$ , and is provided on the upper side of its periphery with the transverse slots or



grooves *s* and *t*, the groove *s* being coincident with the exhaust-openings *m* and *p*, while the groove *t* is arranged to coincide with the inlet-openings *l* and *q*, and so that when the valve is turned to the position shown in Fig. 4 the groove *s* will register with the openings *m* and *p* and allow the steam to exhaust from the cylinder, while the inlet-port is closed, as shown in Fig. 5. While oscillating the valve to the opposite position, the groove *t* will register with the openings *l* and *q* and allow the steam to pass in, while the exhaust-ports will be closed. The opening *q* is connected with a steam-pipe from the boiler, and the parts being in position with the piston in the lower portion of the cylinder, as shown in Fig. 1. The jaws will then be extended and a sufficient quantity of the kindling-wood (which consists of short sticks of a uniform length, but of various small transverse dimensions) is then placed in the open jaws with the ends of the sticks against the gage-plate to bring the ends to a uniform position in relation to each other. The valve *r* is then turned by the lever *r'* to admit steam to below the piston, which then rises, moving the head *e* and the ends of the bars *f* and *f'*, pivoted thereto upwardly, and causing the ends of the levers *g* and *g'* to swing outwardly and close the jaws *i* and *i'* toward each other and around the bundle of sticks, and then a piece of marlin twine or other suitable binding material is passed around the bundle in the space *j* and securely tied. The valve is then operated to open the exhaust-port, and the piston then descends and the parts then resume their original position and the kindling-wood package is then released.

It will be noticed that the action of the jaws upon the sticks is that the pressing is performed by beginning at the bottom of the bundle and rolling the sticks together, so that

the sticks will be enabled to roll together and form a more solid and compact bundle than when squeezed together by a pressure from one direction; and the jaws are so arranged that should the quantity of sticks vary in different bundles the pressing operation will in each size be as effectually and efficiently performed as if the bundles were all of an exact size.

For any great variation in the size of the packages the variation in the opening of the jaws can be regulated by the openings *t'* in the bars *f* and *f'*, which are arranged for receiving the pivots holding the ends of the levers.

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

In a kindling-wood press, the combination, with a vertical steam-cylinder carrying a piston and piston-rod, and having connected with its lower end a valve provided with ingress and exhaust ports and having the standards *u* projecting upwardly from the opposite sides of its upper end, of the levers *g* and *g'*, between and with their middle portions pivoted to the upper ends of the said standards and provided on their upper portions with outwardly-bent and inwardly-curved gripping-jaws, as described, and the diagonal bars *f* and *f'*, with their upper ends pivoted to the lower ends of the said levers, and with their lower ends pivotally secured to the upper end of the piston-rod, substantially as set forth.

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

CHARLES F. SMITH.

Witnesses:

GEORGE A. BERRIDGE,  
JAS. E. THOMAS.