(No Model.) 2 Sheets—Sheet 1.

W. H. JOHNSON.

MACHINE FOR BENDING SHOVEL HANDLES.

No. 368,475. Patented Aug. 16, 1887.

Fig. 1.

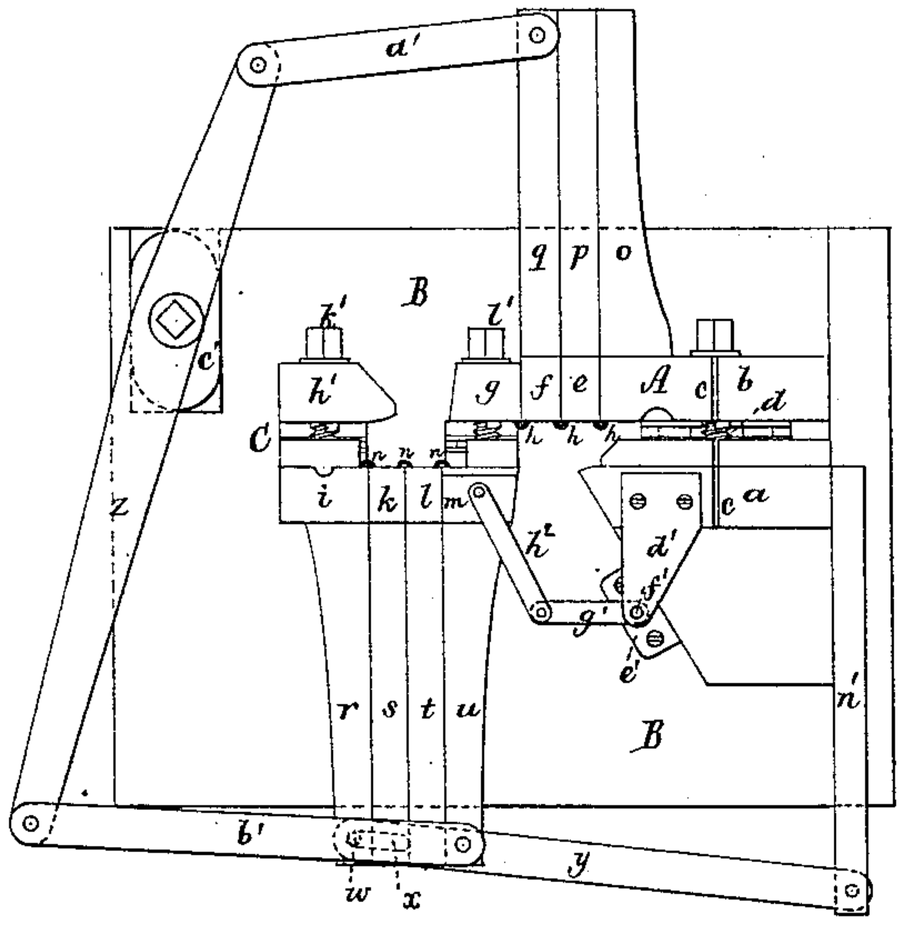


Fig. 4.

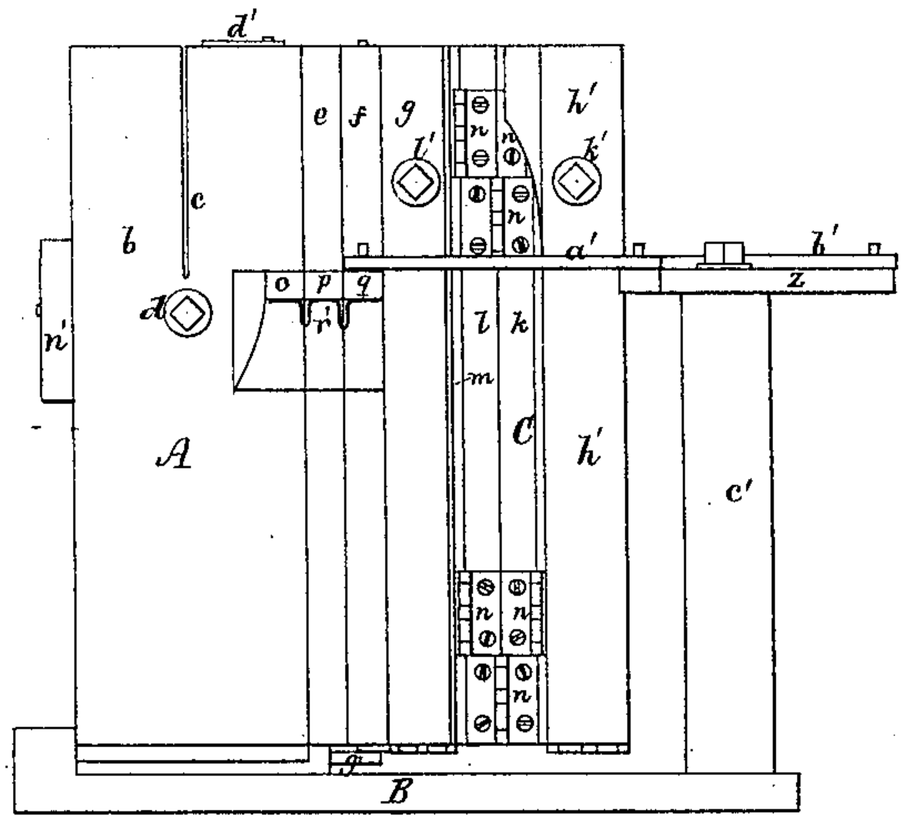


Fig. 3

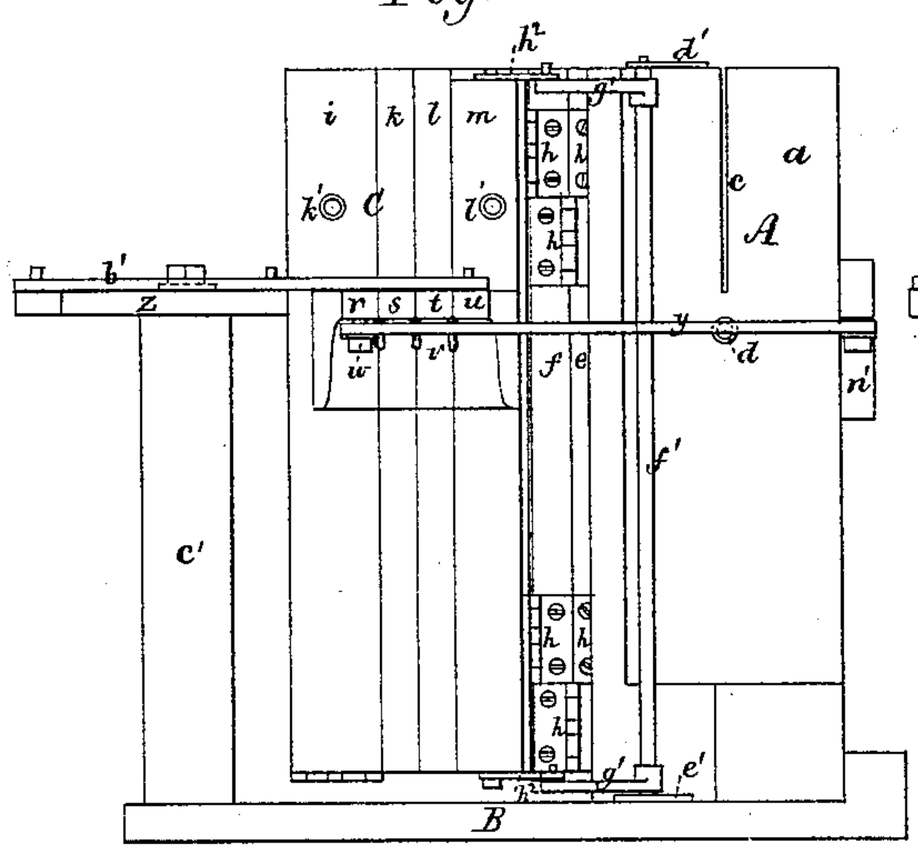
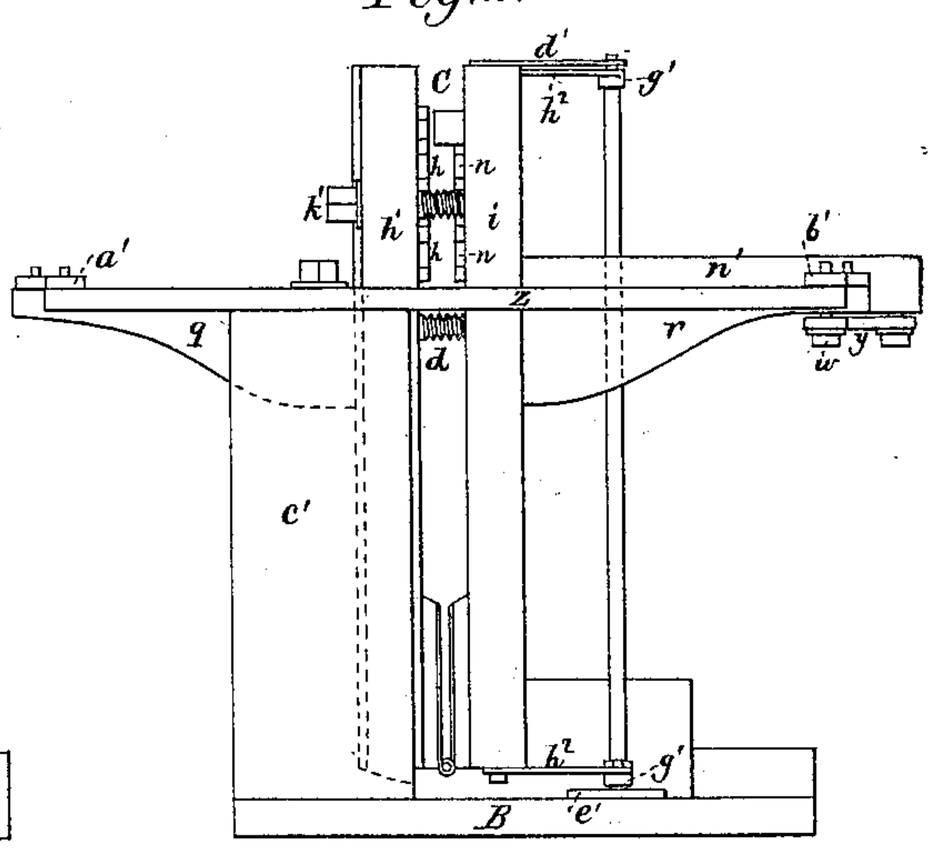


Fig. 2.



Witnesses

S. N. Piper

A. J. Busby

Inventor.

William H. Johnson.

by R H Eddy atty.

(No Model.) 2 Sheets—Sheet 2.

W. H. JOHNSON.

MACHINE FOR BENDING SHOVEL HANDLES.

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Fig. 5.

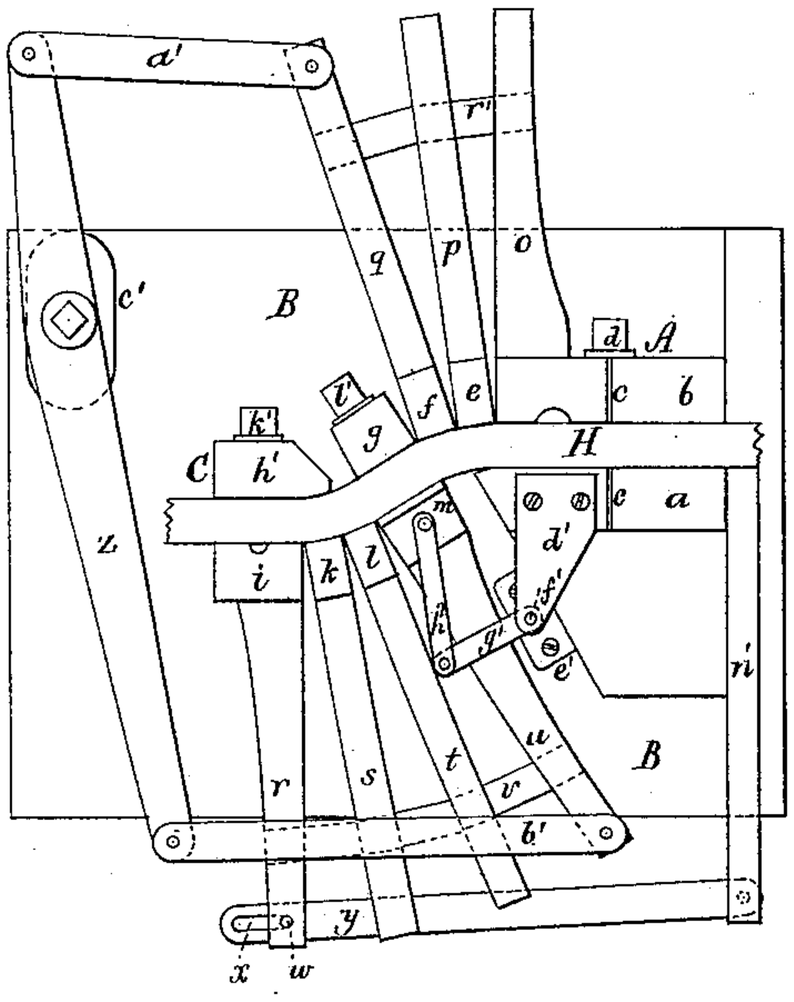
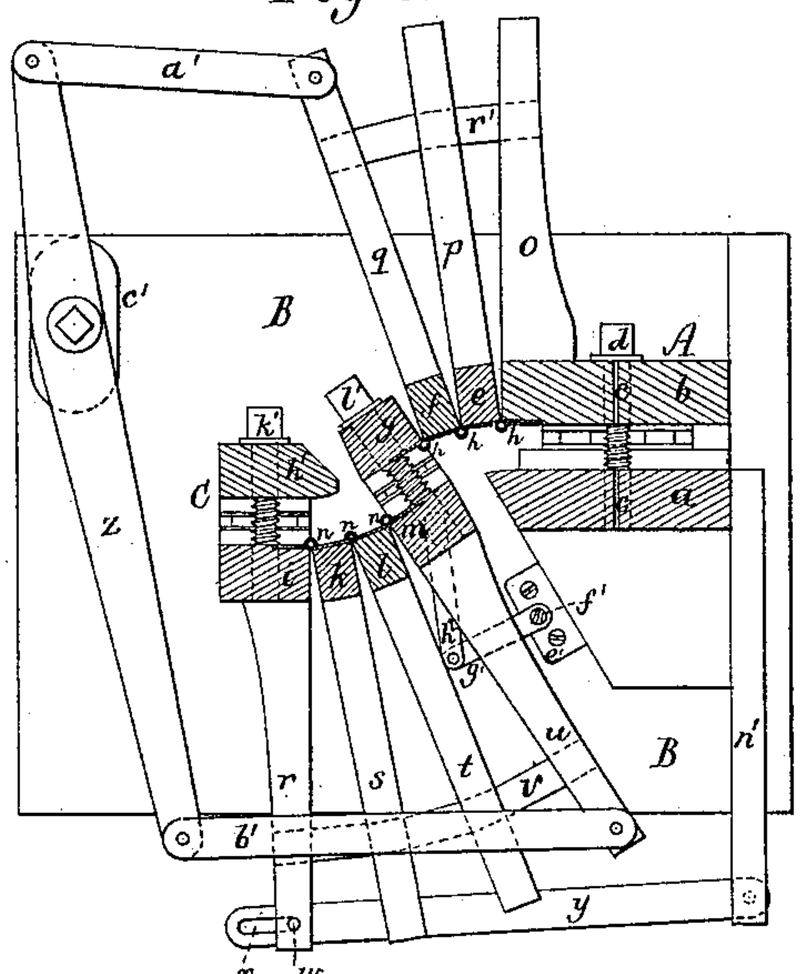


Fig. 6.



Witnesses.
S. N. Piper.
H. J. Busby

Inventor.
William H. Johnson.
by R K Eaton atty.

UNITED STATES PATENT OFFICE.

WILLIAM HOLMAN JOHNSON, OF INDUSTRY, MAINE.

MACHINE FOR BENDING SHOVEL-HANDLES.

SPECIFICATION forming part of Letters Patent No. 368,475, dated August 16, 1887.

Application filed December 13, 1886. Serial No. 221,348. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HOLMAN JOHNSON, of Industry, in the county of Franklin, of the State of Maine, have invented a new and useful Improvement in Machinery for Bending Shovel-Handles or Various other Articles of Wood; and I do hereby declare the same to be described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 an end elevation, Fig. 3 a front elevation, and Fig. 4 a rear view, of a machine embodying my invention, the nature of which is defined in the claims hereinafter presented. The above-mentioned figures show the positions of the several parts of the machine preparatory to the introduction into it of a shovel-handle for being bent by it. Fig. 5 is a top view of the machine, representing a shovel-handle, H, in and bent by it. Fig. 6 is a horizontal section taken through the hinges of the several jaw-sections.

The machine consists of two or more sectional vises, A and C, constructed, connected, arranged, and having mechanism for operating them substantially as hereinafter described.

In the drawings, A is a vise fixed on a platform, B, the stationary jaw of such vise being shown at *a* and its movable jaw at *b*, each jaw, to enable it to adapt itself to an article to be grasped between them, being slitted downward a short distance from its top, as shown at *c*. The movable jaw is hinged at its lower part to the fixed jaw *a*, a screw, *d*, going through the movable jaw and screwing into the fixed jaw, and being for the purpose of moving the movable jaw toward the stationary jaw. The movable jaw constitutes one of a series of jaw-sections, *b*, *e*, *f*, and *g*, connected by hinges *h*, so as to enable each section *e*, *f*, or *g* to be turned or moved laterally relatively to the section *b*.

The sectional vise C is composed of a single jaw, *h'*, and a set of jaw-sections, *i*, *k*, *l*, and *m*, such jaw-sections being arranged edge to edge, and connected by hinges *n*, so as to enable them to swing laterally. The jaw *h'*, at its lower end or foot, is hinged to the jaw-section *i*, and is provided with a clamping-screw, *k'*, which goes through such jaw *h'* and screws into the section *i*.

The jaw-section *m* is arranged in the rear of jaw-section *g*, both sections being hinged together at or near their feet, and they are provided with a clamping-screw, *l'*, which goes through the section *g* and screws into the section *m*. A strut, *n'*, extends in one direction from the jaw *a*, while another such strut, *o*, projects in the opposite direction from the fellow jaw, *b*. Like struts, *p* and *q*, extend from the jaws *e* and *f*, and there is attached to the three struts *o*, *p*, and *q* a belt, *r'*, to limit the distances of movement of the struts *p* and *q* relatively to the strut *o*. Furthermore, from the jaws *i*, *k*, *l*, and *m* other struts, *r*, *s*, *t*, and *u*, project, they being connected by a band, *v*, to limit their movements apart from each other.

From the strut *r* a stud, *w*, is extended down through a slot, *x*, in an arm, *y*, pivoted to the strut *n'*, and arranged as represented. The said stud and slot are to allow the vise C while moving from its position shown in Fig. 1 to that represented in Figs. 5 and 6 to move toward the vise A and maintain its parallelism relatively thereto. The struts *q* and *u* are joined to the arms of a lever, *z*, by connecting-rods *a'* and *b'*, pivoted to such lever and to the said struts, the said lever being arranged as represented and fulcrumed to a post, *c'*. Furthermore, there is in rear of the jaw *a*, and journaled in projections *d' e'* therefor, an upright shaft, *f'*, having two arms, *g'*, extending from it. Each of the said arms, by a link, *h²*, is connected with the jaw-section *m*, each link being pivoted to its arm and to such jaw-section. The said shaft *f'*, arms *g'*, and links *h²* are to prevent the movable vise C and the jaw-sections between it and the vise A from swaying or tipping laterally out of their vertical positions while in movement.

On taking hold of the longer arm of the lever *z* and moving it inward the jaw-sections and their movable struts may be moved into positions as shown in Fig. 5, so as to bend the shovel-handle H in the requisite manner when it is grasped between the jaws of the sectional vises.

Before being introduced into the machine

such shovel-handle or piece of wood to be bent is to be steamed, to render it more or less soft and yielding. After having been inserted and clamped within the jaws of the vises the sectional jaws are to be moved laterally, as may be required, to bend the handle or piece of wood in the desired manner.

I claim—

1. A wood-bending machine, substantially as described, consisting of vises A and C, each of which has one of its jaws in sections and arranged and connected by hinges, as set forth, the terminal sections *g* and *m* of two next adjacent vises being arranged one in front of the other and provided with a clamping-screw, and hinged together at or near their feet, as explained, and such vises being provided with mechanism for moving their jaw-sections laterally, as and for the purpose as explained, such mechanism, as represented, consisting of the sets of struts *n'*, *o*, *p*, *q*, *r*, *s*, *t*, and *u*, the slotted arm *y*, the lever *z*, connecting-rods *a'* *b'*, and belts *v* and *r'*, all being to operate essentially as specified.

2. A wood-bending machine consisting of vises, of which one jaw of each is in sections, arranged and hinged together, as described, and one terminal section of one sectional jaw is arranged in rear of that of the other sectional jaw, and with it provided with a clamping-screw, all being substantially and for use as set forth.

WILLIAM HOLMAN JOHNSON.

Witnesses:

KATE JOHNSON,

WINNIE JOHNSON.