

(No Model.)

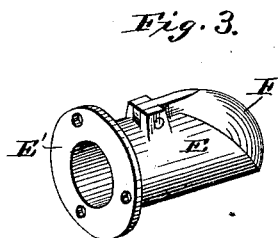
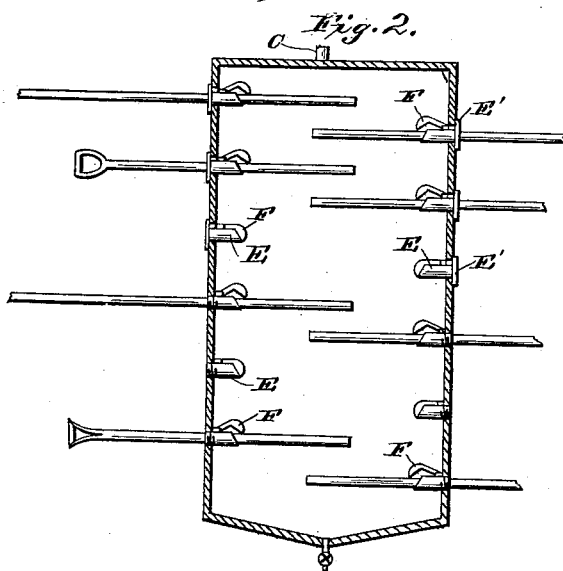
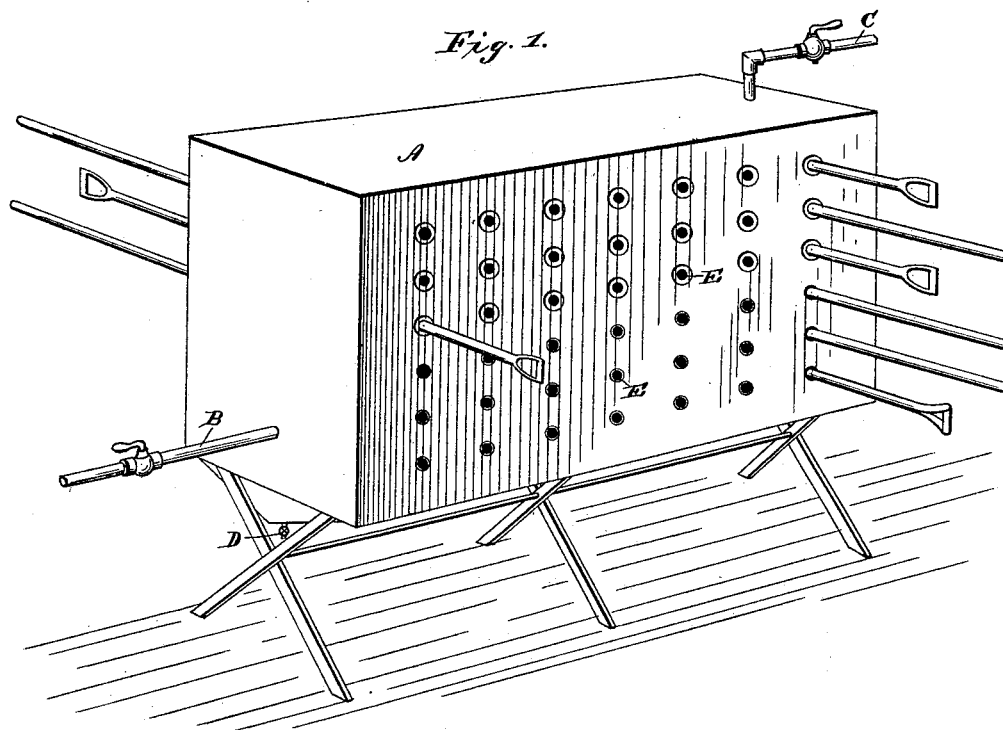
2 Sheets—Sheet 1.

R. T. PETTEBONE.

APPARATUS FOR STEAMING WOOD TO BE AFTERWARD BENT.

No. 385,878.

Patented July 10, 1888.



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Fig. 4.

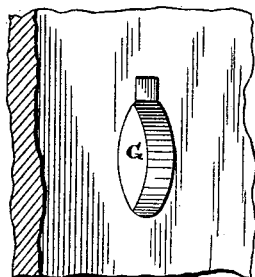


Fig. 7.

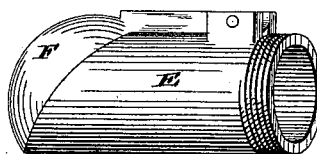


Fig. 5.

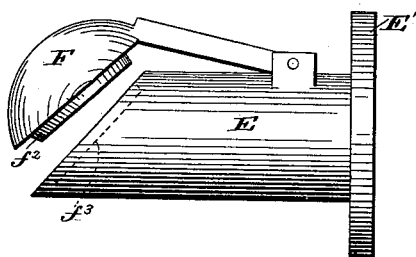


Fig. 8.

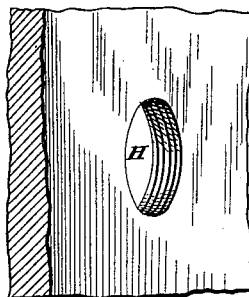


Fig. 6.

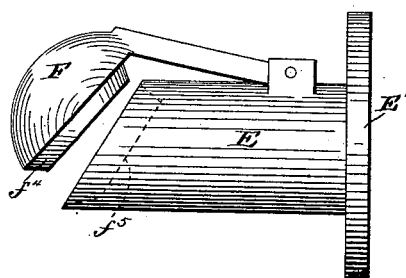
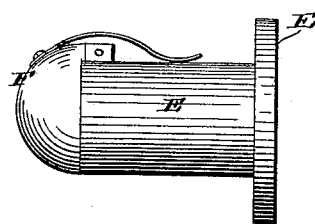


Fig. 9.



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UNITED STATES PATENT OFFICE.

ROBERT T. PETTEBONE, OF WYOMING, PENNSYLVANIA.

APPARATUS FOR STEAMING WOOD TO BE AFTERWARD BENT.

SPECIFICATION forming part of Letters Patent No. 325,878, dated July 10, 1888.

Application filed April 7, 1888. Serial No 269,976. (No model.)

To all whom it may concern:

Be it known that I, ROBERT T. PETTEBONE, of Wyoming, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Steaming Pieces of Wood to be Afterward Bent; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures and letters of reference marked thereon.

My invention has for its object to provide an improved apparatus for steaming pieces of wood that are to be afterward bent, and more particularly for steaming the handles of shovels, scoops, spades, and other tools.

In the ordinary process of steaming handles prior to bending them the handles are placed vertically in a tub or tank of water heated either by the introduction of live steam or by a fire built beneath it, and the steam and heat are permitted to have access to the entire handles, thereby loosening and softening the fiber of the wood above the part to be bent, which causes shrinkage and breakage on the handles being dried out by quick process, as by the use of artificial heat, and results in the damaging, checking, and ruining of a great many handles, especially the type of handles known as "D" handles. To overcome this loss in handles, and also to economize in steam, I have devised an apparatus for steaming handles by means of which only that portion of the handle to be bent is exposed to the action of the steam, all other portions being protected not only from steam but also from the action of undue heat. This apparatus preferably consists of a closed chamber of wood or metal, but preferably metal, having inlet and outlet passages for steam, and suitable cocks at the bottom for the withdrawal of any water of condensation that may accumulate, and having also suitable openings in its sides, through which to insert the portion of the handles to be steamed, said openings being preferably shaped to conform to the contour of the handle—that is to say, made round, square, oblong, or oval, &c., accordingly as the handles are thus shaped—and each opening being preferably provided with a valve, which is adapted, when a handle is inserted,

to be opened, and which closes automatically upon the withdrawal of the handle, so as to prevent a wastage of steam and heat.

While the valved openings through which to introduce the handles into the steam-chamber may be made in the walls of the chamber itself, I by preference employ what I term "holders," each consisting, preferably, of a tubular casting having a bore corresponding to the contour of the handle and carrying an automatically-closing valve, such as above referred to, said holders being inserted in the walls of the chamber and held by screw-connections, flanges, and bolts or otherwise, as hereinafter indicated.

In order that the details of my invention may be more fully understood, reference is made to the accompanying drawings, in which—

Figure 1 represents a perspective view of an apparatus constructed in accordance therewith. Fig. 2 is a cross sectional view of the same; Fig. 3, a perspective view of one of the handle-holders; Fig. 4, a view of the aperture in the steam-chamber, in which a holder such as represented in Fig. 3 is adapted to be inserted; Figs. 5, 6, 7, and 9, views of modified forms of holders; Fig. 8, a view of an aperture in the wall of the steam-chamber, in which a holder like the one represented in Fig. 7 is adapted to be inserted.

Similar letters of reference in the several figures indicate the same parts.

The letter A indicates the steam chamber or tank in which the steaming operation is carried on.

B is the inlet-pipe for steam, and C the discharge-pipe, said pipes being provided with suitable cocks or valves by which to regulate and control the condition of the steam-chamber.

D D are cocks for drawing off any water of condensation that may accumulate in the bottom of the chamber.

E are the holders inserted in the side walls of the chamber A, adapted to receive the handles and support them while their inner ends are being steamed. Each of said holders consists of a tubular portion having a bore which in contour corresponds to the contour of the handle with which it is intended to cooperate, and having a valve, F, adapted to normally close the inner end of the tubular portion. This valve F may be constructed in any

suitable manner; but it is preferably arranged so as to close automatically when raised and released. It may be arranged to close by its own gravity, as shown in Figs. 3, 5, 6, and 7, or it may be closed by a spring, as shown in Fig. 9. When gravity is relied upon to close it, the inner end of the tubular portion of the holder is preferably beveled, as shown, in order to provide an inclined seat upon which the valve may gravitate.

The pivot *f* of the valve is placed some distance from the opening of the holder for convenience in grinding and finishing the face of the valve and its seat. A tight joint between the valve and its seat may be secured by grinding the surfaces true and to an accurate fit, or by the interposition of a washer; or the valve may be provided with a flange, *f*², and the seat with a corresponding recess, *f*³, as shown in Fig. 5, or made plug-shaped, as shown in Fig. 6 at *f*⁴, and adapted to fit a corresponding seat, *f*⁵.

Various ways of securing the holder in the wall of the steam-chamber may be resorted to. For instance, its tubular portion may be inserted in an opening in the wall—such as shown at G in Fig. 4—and a flange, E', provided on its outer end, through which bolts, screws, or rivets may be passed to secure it; or its outer end may be screw-threaded, as shown in Fig. 7, and screwed from within the steam-chamber into an opening on the wall, such as shown at H in Fig. 8.

By preference, the holders are made of metal, either brass or iron, though rubber or other suitable material might be employed in their construction. They may be applied to one, or both, or all sides of the steam-chamber, and as many may be used as may be desired.

In the practical operation of the invention steam at the proper temperature is let into the steam-chamber and the handles to be treated are thrust in through the holders, as shown in Figs. 1 and 2. The insertion of each handle in a holder raises the valve and permits the inner end of the handle to pass into the steam-chamber, and owing to the correspondence between the contour of the handle and the bore of the holder no steam is permitted to escape through the opening around the handle. When the handle is withdrawn, the valve closes automatically and prevents the escape of steam among the other handles or parts thereof not intended to be steamed. Owing to the fact that the steam-chamber is thus kept practically closed, less steam is needed to carry on the operation, and consequently less fuel is required to be consumed. Live steam may be used, though I prefer to take the exhaust-steam from an engine, which costs nothing, and if not carried too far answers the purpose perfectly well. I am thus enabled with little or no expense for the maintenance of the apparatus to do better and quicker work than by the old process and

have no damaged or checked handles to contend with.

Having thus described my invention, what I claim as new is—

1. An apparatus for steaming handles, &c., consisting of a steam-chamber having an inlet and outlet for steam and provided with openings in its walls, through which the ends of the articles to be steamed may be thrust, substantially as described.

2. An apparatus for steaming handles, &c., consisting of a steam-chamber having openings in its walls for the introduction of the ends of the articles to be steamed, said openings being shaped to correspond to the contour of the article to be inserted, so as to prevent the escape of steam, substantially as described.

3. An apparatus for steaming handles, &c., consisting of a steam-chamber having openings in its walls for the introduction of the ends of the articles to be steamed, and valves for keeping said openings normally closed, substantially as described.

4. An apparatus for steaming handles, &c., consisting of a steam-chamber having openings in its walls for the introduction of the ends of the articles to be steamed, and automatically-closing valves for said openings, whereby upon the withdrawal of the articles from the openings the latter will be closed, substantially as described.

5. An apparatus for steaming handles, consisting of a steam-chamber having openings in its walls for the introduction of the ends of the articles to be steamed, said openings being shaped to correspond to the contour of the articles to be introduced, and automatically-closing valves for said openings, substantially as described.

6. In the herein-described steaming apparatus, the combination, with the steam-chamber, of the holders secured in the walls thereof, each of said walls consisting of a tubular portion through which the article to be steamed is introduced into the chamber, and an automatic valve closing said tubular portion upon the withdrawal of the article, substantially as described.

7. The holder consisting of the tubular portion through which the article to be steamed is passed, and an automatic valve for closing said tubular portion upon the withdrawal of said article, substantially as described.

8. The holder consisting of the tubular portion having the inclined inner end or valve-seat, and a gravitating valve for co-operating with said seat, substantially as described.

9. The holder having the tubular portion, the flange for securing it in position, and the automatic valve, substantially as described.

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