C. H. VAN DORN.

Rotting Hemp and Flax.

No. 5,776. Patented Sept. 19, 1848.

Fig: 1.

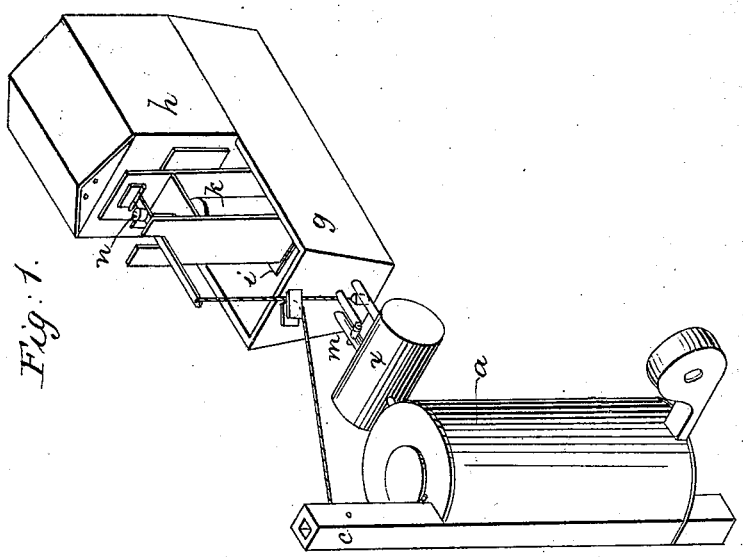
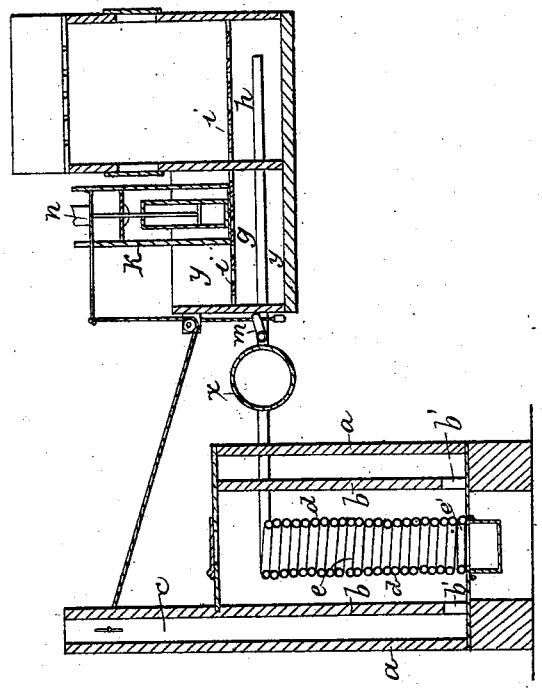


Fig: 2.



UNITED STATES PATENT OFFICE.

CHS. H. VAN DORN, OF ST. LOUIS, MISSOURI.

IMPROVED APPARATUS FOR ROTTING HEMP.

Specification forming part of Letters Patent No. **5,776,** dated September 19, 1848.

To all whom it may concern:

Be it known that I, CHARLES H. VAN DORN, of St. Louis, in the State of Missouri, have invented a new and Improved Apparatus for Rotting Hemp and Flax; and I do hereby declare that the following is a full, clear, and exact description of the principle or character which distinguishes it from all other things before known, and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is an isometrical view of the apparatus, and Fig. 2 a vertical section.

The same letters indicate like parts in all the figures.

The nature of my invention consists in heating the water in the hemp and flax vats by passing tubes of hot air through them, and then causing the heated air to enter the drying-room, where the hemp or flax is dried, thus using all the heat from the furnace, and economically rotting and drying the hemp or flax to prepare it for breaking.

The apparatus is constructed as follows: A furnace is built with an outside case-wall, *a*, within which there is an interior one, *b*, leaving a flue-space between them. The top of the inner wall, *b*, terminates in a cone, and the outer one is closed over it and terminates in a chimney, *c*, which chimney communicates with the space just named. Openings *b'* are made through the wall *b* into the space. Within the wall *b* the stove or air-heating apparatus *e* is placed. It consists of a cylinder composed of a coil of wrought-iron pipes, *d*, cemented together into a cylinder, the interior of which forms the fire-chamber, into which the fuel is put. When the fire is made, it passes up over the top of the cylinder *e*, and then down the outside of it, thereby enveloping the coil of pipe in flame, &c., and thence the smoke, &c., passes out under the bottom of the wall *b*, (where spaces *b'* are left for that purpose,) and up the flue between the two walls and out the chimney. The lower end of the coil of pipe *e'* passes out through the side of the furnace and communicates with a blower, by which air is forced through the coil. The upper end of this coil is carried out through the side of the furnace and enters a reservoir-pipe, *x*, from which the heated air is conducted by branch pipes *g*, provided with stop-cocks to the vats *y*, filled with water, in which the hemp is put. It passes through these vats *y* of ordinary construction in straight or coiled pipes, thereby heating the water to a proper temperature, and the air then enters a drying-room, *h*, which is placed at the ends of the vats. This room, like the vats, is furnished with a grating, *i*, on which the hemp or flax is placed, and under which the tubes above named enter the chamber. The exit of the hot air from the pipes is through small apertures made through the sides of the pipes, which diffuses it through the drying-room. This room (as well as the vats) is made smaller at the bottom than at the top, so that the heating-space shall be contracted. The top of the drying-room is perforated, so that the steam from the drying hemp or flax may be carried off with the hot air as it rises. In the vats I place a heat-register, *k*, consisting of a tube in which a piston, *l*, works up and down, which tube is partly filled with mercury, so as to move the piston upward by expanding, which, by rising, shuts a valve in the chimney and stops the draft and checks the heat when raised too high by means of its connection with said valve. A weight, *n*, upon the upper end of the piston-rod forces it down as the vat cools. Another similar apparatus may also be attached to a stop-cock, *m*, in the air-pipes, and the piston *l* connected therewith to work it for turning off the hot air when in excess, by which the temperature is perfectly regulated. This connection is not shown in the drawings, but will be readily understood, and it may be connected in a variety of ways.

I propose modifying my heating apparatus by coiling a metal pipe around the flue of a steam-boiler or other heater when such a mode can be conveniently and economically adopted, and other and well-known means can be adopted for heating air without changing the character of the last part of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The employment of heated air in the manner described for heating the vats for rotting the hemp or flax, and then passing said heated air into the drying-room for drying the hemp

or flax that has been rotted preparatory to breaking, by which a great economy of heat is effected.

2. Placing regulators in the vats for keeping the water at the proper temperature, combined and connected with the valves or dampers in the chimney and heated pipes *g*, as set forth, so that by increasing or diminishing the heat the dampers shall be opened or closed, substantially as herein described.

CHS. H. VAN DORN.

Witnesses:
WM. H. BISHOP,
LUND WASHINGTON, Sr.