W. H. Watson,

Tobacco Press,

No. 57,800, Patented Sept. 4, 1866.

Fig. 1.

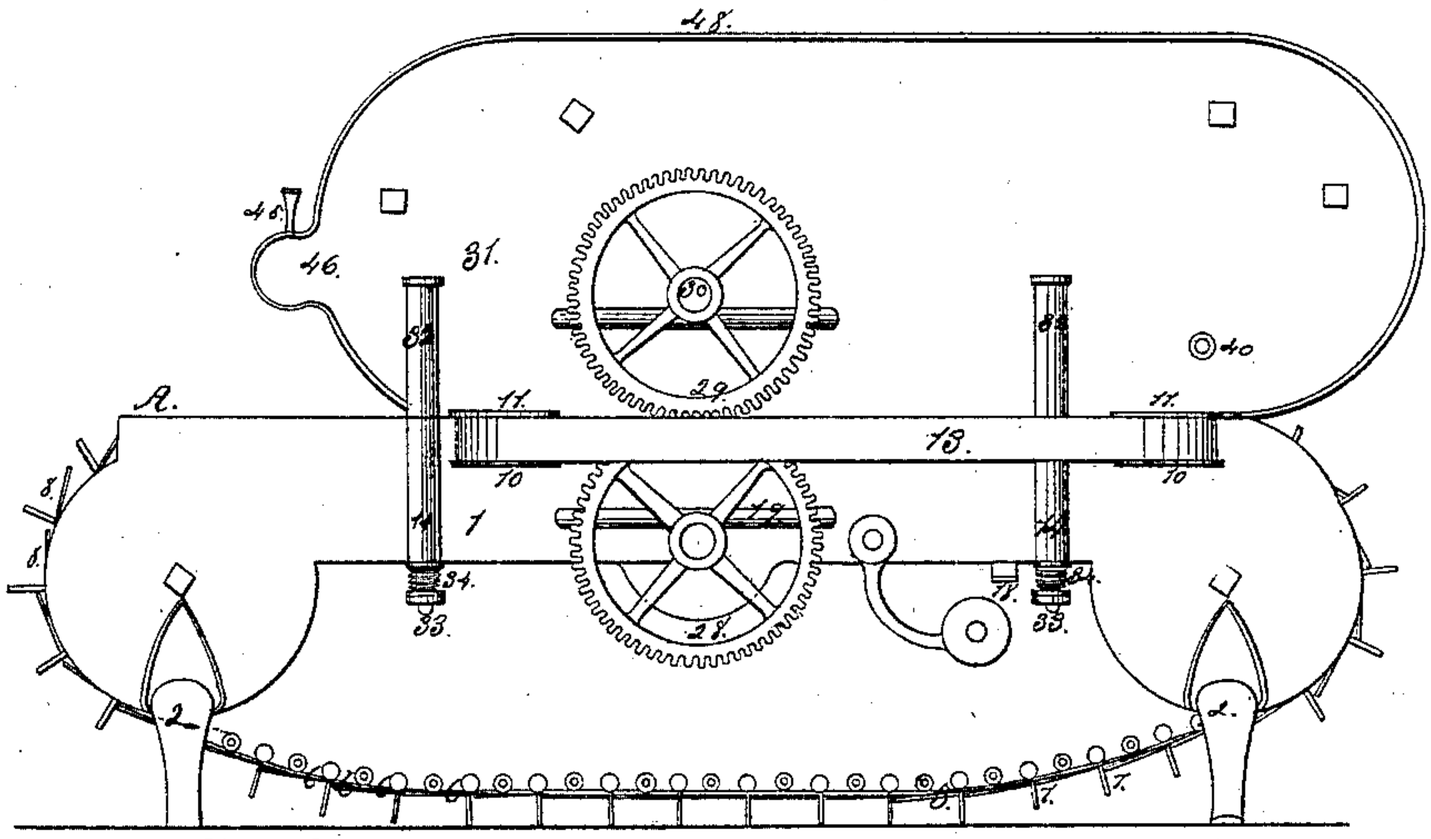


Fig. 3.

Fig. 4.

Fig. 2.

Fig. 5.

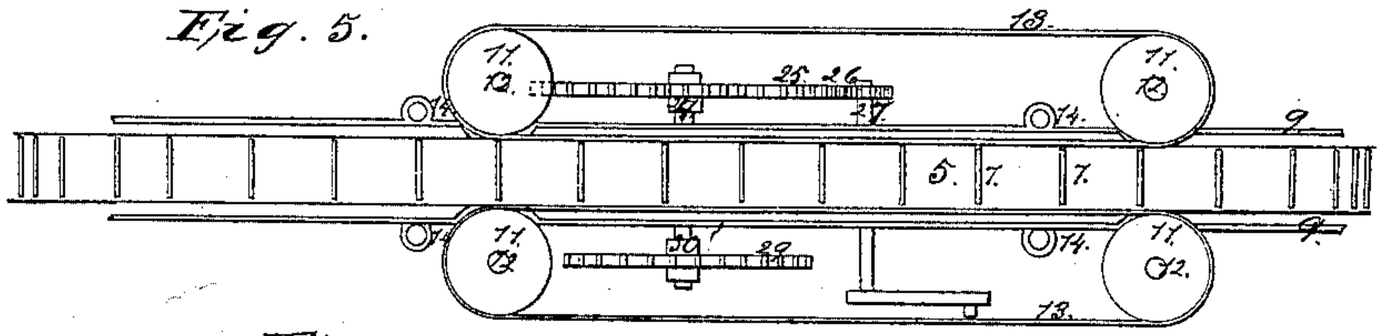
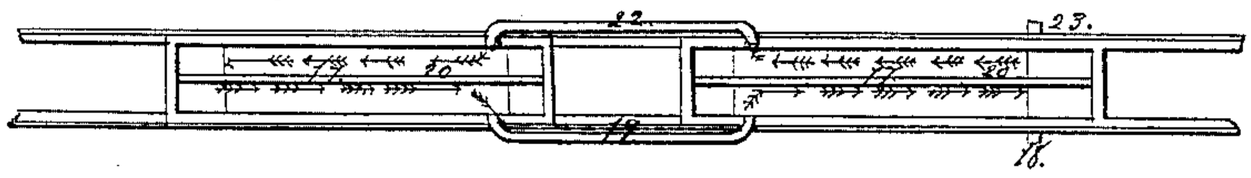


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM H. WATSON, OF YONKERS, NEW YORK.

IMPROVEMENT IN MACHINES FOR PRESSING TOBACCO.

Specification forming part of Letters Patent No. **57,800,** dated September 4, 1866; antedated August 21, 1866.

To all whom it may concern:

Be it known that I, WILLIAM H. WATSON, of Yonkers, in the county of Westchester and State of New York, have invented, made, and applied to use a new and Improved Machine for Pressing Tobacco and other substances; and I do declare the following to be a full, clear, and correct description of the same, reference being had to the accompanying drawings, making a part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a side elevation of my improved machine; Fig. 2, a vertical section of the same; Fig. 3, a detached view of a portion of the chain employed by me; Fig. 4, one of the pressing-blocks used by me; Fig. 5, top view of chain and side belt employed by me; Fig. 6, top view of steam or heating chambers.

In the drawings like parts of the invention are designated by the same letters of reference.

The nature of my invention consists (*a*) in constructing the chain as hereinafter fully described; (*b*) in the use or employment of the pressing-block constructed as hereinafter specified; (*c*) in combining with the chain, constructed as hereinafter described, the pressing-block constructed as described in arranging the chain-wheel and the blocks; (*d*) in the use or employment of the heating-chambers, as hereinafter described; (*e*) in subjecting the tobacco or other substance, while under pressure, to the influence of heat, for the purpose specified.

To enable those skilled in the art to make and use my invention, I will speak of its construction and operation.

Construction: 1 shows the lower frame of the machine formed of the metal sides, bolted together and provided with the feet 2. At the ends of the lower frame, 1, are the rollers 3, revolving upon the shafts 4, inserted and held in the lower frame, 1. 5 shows a chain, formed of any suitable metal, and made up of a series of links, 6, pinned or bolted together. In the center of each link is secured the vertical cross-piece 7, while a flat plate of metal, 8, serving to cover the point of jointure of two links is riveted at one side to the link *b*. This plate of metal 8 also fills the space between the vertical cross-pieces 7. This plate of metal, 8, and two of the vertical cross-pieces, 7, form, as it were, a partition, in which the tobacco or other substance to be pressed is placed.

Upon the inside of the lower frame, 1, extending from the top of the same and placed upon each side of the frame and above the chain, are the side bearings, 9, running the entire length of the frame, save where they are slotted, for the purpose hereinafter indicated.

10 are brackets, cast upon the lower frame a short distance from the lugs 14 and 32 upon the upper and lower frames. These brackets 10 serve to support the pulleys 11, moving freely upon the spindles 12, secured in said bracket 10. Over these pulleys 11, and bearing upon the inner surface of the side bearings, 9, upon the lower frame, are passed the endless belts 13, formed of metal or any suitable material, which belts 13 are operated by the lateral pressure of the tobacco or other substance being pressed as the same passes through the machine. The use of these belts 13 is to prevent the tobacco or other substance adhering to the sides of the machine, thus diminishing the friction the tobacco or other substance would be subjected to in passing through the machine, and at the same time giving to the tobacco or other substance pressed a smooth and finished appearance upon its edge. The lower frame is also provided with the lugs 14, for the purpose hereinafter mentioned.

15 shows a longitudinal bearing, upon which the chain 5 rests. This bearing 15 is cut away at or about its center to receive the toothed wheel 16 gearing into the chain 5 and driving the same. This bearing 15, upon each side of the opening for the toothed wheel 16, is divided through its center longitudinally by the partitions 17, which divisions of it form chambers or receptacles 20 for steam or heat introduced therein.

In the present instance it is intended that steam should be employed, in which case the steam is admitted through the opening 18 in the under side of the chamber and passes in the direction indicated by the arrows in Fig. 6 to the pipe 19, and through the same to the chamber 20; thence it passes in the direction of the arrows in the same, drawing through an opening, 21, in the end of the partition to the pipe 22 and to the exit-pipe 23. Thus it will be observed that the steam or heat intro-

duced is brought into direct contact with the under surface of the bearing 15, heating the same, and the chain resting or bearing upon it.

24 is the main or driving shaft inserted in the lower frame near its center. Upon one end of this shaft 24 is keyed the cog-wheel 25, gearing into the pinion 26 upon the shaft 27 passing through the lower frame. Upon the main or driving shaft 24 is placed the toothed wheel 16, and upon its opposite end the gear-wheel 28 is keyed, which gears into the gear-wheel 29 upon the shaft 30. The wheels 28 and 29 run at the same rate of speed. Upon the opposite end of shaft 27 is placed the driving-pulley.

31 shows the upper frame of the machine, made very nearly the length of the lower frame. The upper frame has cast upon its sides the lugs 32, which, when the upper frame is placed above and upon the lower frame, are directly in line with lugs 14 upon the lower frame. Through these lugs 14 and 32 are passed the bolts 33 for the purpose of holding the frames together. On the lower portion of these bolts 33 are passed the spiral springs 34, which springs 34 allow the upper frame to rise from the lower frame in case an undue quantity of tobacco or other substance, or any hard foreign substance, should be introduced into the cells of the chain, which, if so introduced, might tend to strain or break the machine if the upper frame did not accommodate itself to the same, as stated.

Upon the inside of the upper frame are cast the ledges forming the gutter 35 to receive the ends of the pressing-blocks 36 inserted within the same. This gutter 35 extends around the upper portion of the frame above the steam-chamber in said frame. Below and at the ends of this steam or heating chamber 39 the frame has upon its interior the ledge 37, for the purpose of supporting the ends of the pressing-blocks 36, and keeping the same in position as they progress through the machine under the heating-chamber 39.

36 shows the blocks of metal or other suitable material, employed for the purpose of pressing the tobacco or other substance placed in the cells upon the chain 5. These blocks upon their face correspond, or nearly so, to the cells in chain 5. These blocks 36 are provided with the projecting sides 36½, projecting from the block half the thickness of the vertical cross-pieces 7 in the chain, and serve to keep the face of the blocks equidistant from each other, so that the same shall enter the cells at the proper point. These projecting sides 36½ are made sufficiently strong to withstand the forward pressure of the wheel as the blocks are pressed toward each other in their passage through the machine. The ends 38 of these blocks project a sufficient distance beyond the face and the projecting sides of the same to fit into and traverse the gutter previously alluded to.

The upper frame has inserted in its interior the box 39, into which steam or heat may be introduced through the opening 40 in the frame, while, upon the opposite side of the frame is placed the exit-pipe 41. The steam or heat introduced takes the same course, as indicated, in the case of the steam or heat chamber in the lower frame, and serves to heat the pressing-blocks as they pass beneath it. This box 39 is cut away directly over the opening in the lower steam-chamber to receive the pressing-block wheel 42 held upon shaft 30. The under side of this box 39 forms a bearing, upon or against which the backs of the pressing-blocks bear in their progress through the machine.

44 shows a wheel supported upon the shaft 46, driven by the friction occasioned by the face of the blocks impinging upon the same as they pass said wheel, which wheel may be covered with woolen or any suitable soft substance, and may be supplied with oil by the oil-cup 45 communicating with the same. The object of this wheel 44 is to oil the face of the blocks before coming into contact with the tobacco or other substance to be pressed.

The sides of the upper and lower frames are bolted together a sufficient distance apart to allow the free movement of the pressing-blocks and the chain, and the space between the sides of the upper frame is inclosed by the metal cover secured thereto, which serves to confine the steam or heat introduced therein. A portion of this cover may be removed, as at 48, to allow the pressing-blocks to be placed in position within the gutter, or to be conveniently removed therefrom when desired.

46½ shows ledges cast upon both sides of the upper and lower frames, the ledges in the upper frame being above the steam-chamber, while those in the lower frame are below the steam-chamber. These ledges are employed to keep the steam-chambers stationary.

My improved machine being thus constructed, and the upper frame being bolted to the lower one, the machine is ready for operation, and is set in motion by connecting the driving-pulley to any suitable motor. Steam or heat is admitted to the steam or heat chambers in the upper and lower frames when desirable to use the same. The tobacco prepared in rolls, or in any form, is then placed into the cells upon the chain 5, at the front end of the machine designated as A in Fig. 1, and as the same progresses the pressing-blocks, operated as heretofore described, partially enter between the vertical cross-pieces, and the tobacco placed in the cells and covered by the pressing-blocks is carried along by the chain until the same (the tobacco) comes into contact with the side belts. At this point a gradual pressure is imparted to the tobacco until one of the pressing-blocks becomes parallel with the cell into which it has entered, when a uniform pressure is imparted to the tobacco until the same is thoroughly pressed, and this operation is continued in the case of all the pressing-blocks until the tobacco placed in the cells is thoroughly pressed.

The principal use or value of the side belts, as previously stated, is to prevent the tobacco adhering to the sides of the machine, and to give a smooth finished appearance to the ends of the tobacco pressed. After the tobacco has been pressed, as stated, and when the chain having passed beyond the side belts, and the pressing-blocks having been relieved from contact with the tobacco, passes over the roller 3 at the back end of the machine, designated as B in Fig. 2, the links forming the chain are thrown into a partially-vertical position, and the plate 8, forming the bottom of the cell, being placed in a corresponding position, the pressed tobacco or other substance is thrown from the cell, or is sufficiently loosened to admit of its being readily removed therefrom.

Steam or heat is employed for the purpose of partially drying the tobacco when too wet; also, to enable tobacco to be worked in cold harsh weather by softening the same while under pressure, and to give color and luster to the tobacco pressed.

It will be observed that the wheels operating the chain and blocks are arranged, relative to the same, so that they shall push or urge forward, instead of pulling, the chain and blocks, thus tending to keep the links of the chain, as well as the pressing-blocks, close to each other as they pass beyond said wheels. This will be found particularly valuable, as it prevents the breakage or straining of the chain, which is important, that the cells may preserve their uniformity of size; for, if the cells, from the chain being strained, should vary in size while the machine was in operation, the blocks would fail to enter the cells, thus disarranging and breaking the entire machine.

My improved machine can be used advantageously, not only to press plug-tobacco in the manufacture of it, but also for re-pressing damaged tobacco, or tobacco that may need re-working, as well as other substances.

I do not intend to confine myself to the use of the connected links or chains, as shown, being well aware that cells may be formed with unconnected links or blocks, and operated in a manner similar to that employed in operating the pressing-blocks 36.

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

1. The chain 5, constructed and operating substantially as described, for the purposes specified.

2. The pressing-blocks 36, constructed and operating substantially as described, for the purposes specified.

3. In combination with the chain 5, constructed and operated substantially as shown, the pressing-blocks 36, constructed and operating substantially as shown, for the purposes shown.

4. The heating-chambers, constructed and operating substantially as described, for the purpose specified.

5. In subjecting the tobacco or other substance to be pressed to the influence of heat while under pressure, as shown, for the purposes designated.

W. H. WATSON.

In presence of—
A. SIDNEY DOANE,
S. M. OSTRANDER.