2 Sheets—Sheet 1.

W. & H. N. HUMISTON.

SOAP CUTTING MACHINE.

No. 105,458. Patented July 19, 1870.

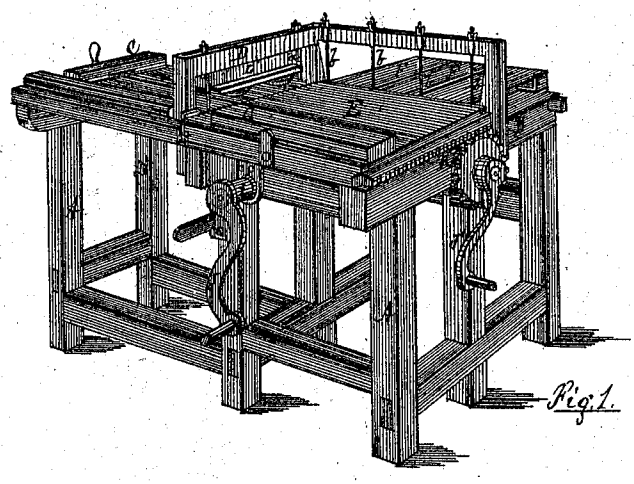

Fig. 1.

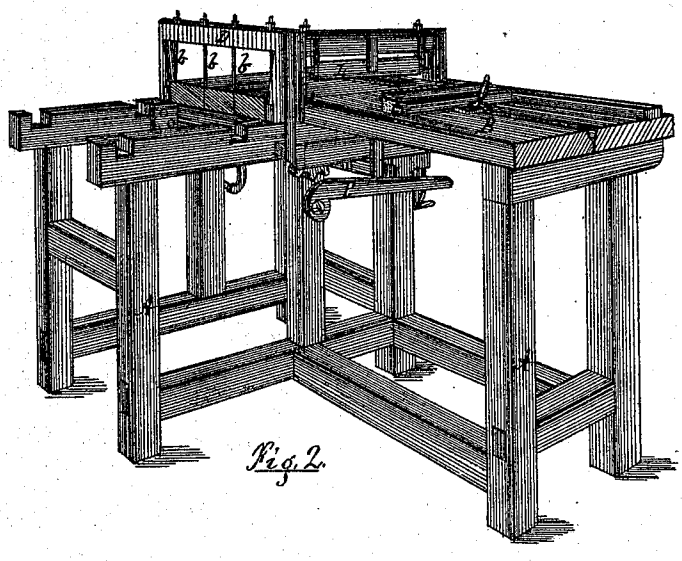

Fig. 2.

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Inventors:
Willis Humiston
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2 Sheets—Sheet 2.

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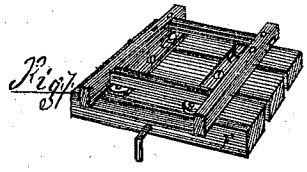

Fig. 7.

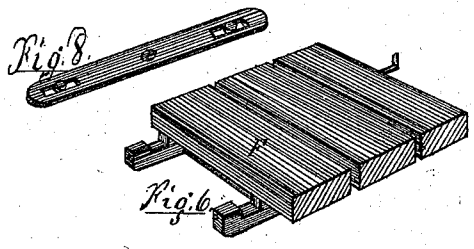

Fig. 8.

Fig. 6.

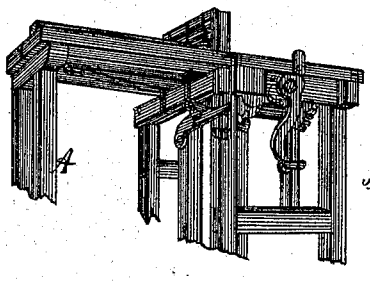

Fig. 5.

Fig. 9.

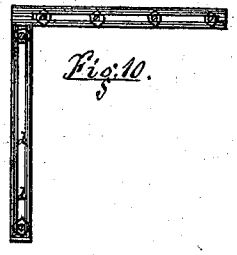

Fig. 10.

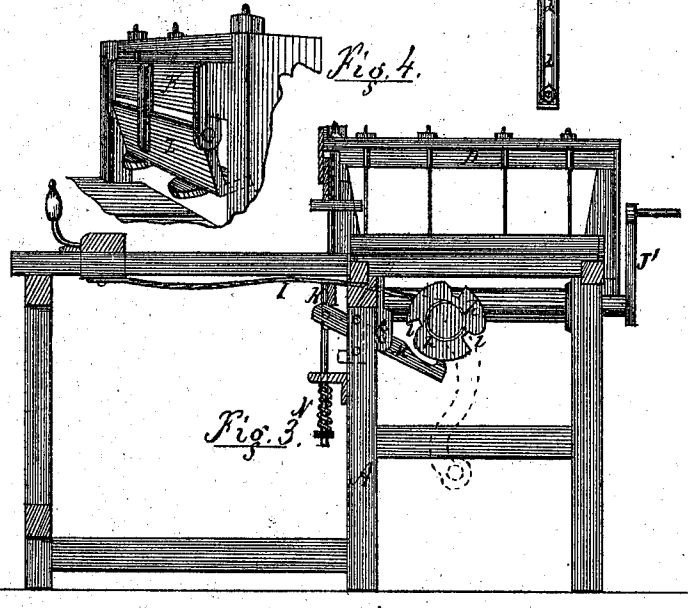

Fig. 4.

Fig. 3.

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UNITED STATES PATENT OFFICE.

WILLIS HUMISTON AND HORACE N. HUMISTON, OF TROY, NEW YORK.

IMPROVED SOAP-CUTTING MACHINE.

Specification forming part of Letters Patent No. **105,458**, dated July 19, 1870.

To all whom it may concern:

Be it known that we, WILLIS HUMISTON, of the city of Troy, New York, and HORACE N. HUMISTON, of the same place, have invented a new and Improved Soap-Cutting Machine; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being hereby had to the accompanying drawings, which form and make a part of this our specification.

Like letters represent and refer to like or corresponding parts.

As a matter of convenience, and to better illustrate our invention, we have caused the drawings to be made on two sheets or separate pieces of paper.

Figures 1 and 2, Sheet I, are perspective views of our improved soap-cutting machine in different positions, showing the various parts thereof, more fully hereinafter described and set forth. Fig. 3, Sheet II, is a plan or elevation, wherein are more clearly shown the various parts of our improved machine, each being more fully hereinafter described and set forth. Fig. 4, Sheet II, is an enlarged perspective view of the device for stamping the soap with the maker's name, or other device desired to use, the operation and the connection of the same with the other parts of the machine being more fully hereinafter described. Fig. 5, Sheet II, is also a perspective view of the machine, showing the under side of the same, and more clearly represening the mechanism by which the same is operated, all being hereinafter more fully described and specified. Fig. 6, Sheet II, is a perspective view of the drying board or frame, onto which the soap is run after being cut in any desired form, and more fully hereinafter described. Figs. 7, 8, and 9, Sheet II, are views showing the mechanism by which said drying board or frame is opened or spread apart, thereby allowing air to penetrate all parts of the soap placed thereon, in the manner and for the purposes hereinatter more fully described and set forth. Fig. 10, Sheet II, is a view showing the slotted bars into and by means of which the cutting-wires are secured and held in their proper position, as more fully hereinafter described.

The nature of our said invention and improvements consists in the use and employment of three suitably-constructed tables or carriages, upon and over which the soap being cut passes in and during the several processes of being trimmed, cut into bars, and dried, said tables or carriages being constructed and arranged substantially in the manner and for the purposes more fully hereinafter described and set forth.

It also consists in the use and employment of adjustable wires for the purpose of cutting and trimming soap, said wires being made adjustable by means of a suitably-slotted head or frame-work of wood or metal, and can be so arranged as to cut the soap in any desired form, as more fully hereinafter described and specified.

It also consists in the use of a suitably-constructed die or stamp, in connection with the trimming or cutting carriage or frame, and so arranged as to plainly stamp upon each piece or bar of soap cut the maker's name, or other device desired, substantially in the manner and by the means hereinafter more fully described and set forth.

It also consists in the employment or a spur or cog wheel, in combination with a lever or arm projecting from and connected to the die or stamp, whereby and by means whereof the said stamp or die is allowed to drop or fall at any desired parts of the slab of soap being trimmed, substantially by the means and for the purposes hereinafter described and specified.

It also consists in the use and employment of a coiled spring, or its equivalent, in combination with the spur-wheel and the die or stamp, whereby the force of the blow of said stamp or die may be regulated and governed, as more fully hereinafter described and set forth.

It also consists in the use of one or more adjustable drying-carriages, so constructed and arranged that, when the soap has been cut and run upon the same, it may be spread apart or opened, thereby allowing the air to freely circulate through the soap, in the manner, by the means, and for the purposes hereinafter more fully described and set forth.

It also consists in the employment of one or more slotted frames, in combination with the cutting and trimming wires, so that the said wires may be adjusted to cut any size bar de-

sired, substantially in the manner, by the means, and for the purposes hereinafter more fully described and set forth.

To enable others skilled in the art to which our invention relates to make and use the same, we will here proceed to describe the construction and operation thereof, which is as follows, to wit:

A at all the figures represents the frame upon which our machine is placed, which frame is made of wood, and of sufficient size and strength to answer the required purpose. The top of this frame A is L-shaped, and of any required length and width.

B, Fig. 2, is the frame or table, upon which the slab of soap is first placed when it is desired to trim the same, so as to have said slabs all of uniform width.

C, same figure, is a rectangular piece of wood or metal, about the length of the width of a slab of soap, and by means of which the slab of soap is pressed or forced against the cutting-wires, whereby said slab of soap is cut into bars, as more fully hereinafter described.

D, Figs. 1, 2, and 3, represents a wood or metal frame, elevated a few inches above the table B, and is for the purpose of fastening and securing the ends of the cutting and trimming wires *a a* and *b b*. (Shown at Figs. 1, 2, and 3.) This frame D has a slot running the entire length of the top of the same; also, a similar one on the bottom or lower part thereof, as shown at Fig. 10, the slot being marked *d*. These slots *d* in the top and bottom of said frame D are for the purpose of allowing the cutting and trimming wires *a a* and *b b b* to be adjusted, by means of nuts or otherwise, so as to cut any width or size of bar required.

E, Fig. 1, is the carriage or table upon which the slab of soap is run after having been trimmed to the desired width by the trimming-wires *a a*, Fig. 1. This table or carriage E we also design to make of wood, and of size to correspond with the trimming table or carriage B.

F, Figs. 1 and 6, shows the drying table or carriage upon which the soap is run after passing from the cutting-table E through the cutting-wires *b b*, which said cutting-wires may be adjusted to any width, as hereinbefore described. Said slab of soap is run through said cutting-wires *b b* by means of a rectangular piece of wood or metal, marked G, Fig. 1, and similar in construction to the pieces hereinbefore described, and marked C; or, if deemed best, these rectangular cleats C and G may be made stationary, and the tables or carriages B and E themselves made to move and force the slab of soap through the cutting and trimming wires *a a* and *b b;* but in either case the cleats or pieces C and G act as the support or rest for the slab of soap being cut.

The motive power to these cleats or pieces C and G may be furnished by any mechanical devices deemed best, either a rack and pinion, as shown at H, Fig. 1, or by a cord and pulley, as shown at I, Fig. 3. This pulley (marked *h*) Fig. 3, is firmly fastened to the shaft I, Fig. 1, running under the machine, and is provided with one or more suitably-shaped notches on the periphery thereof, by means of which the blows of the stamp L, Fig. 3, are regulated, as more fully hereinafter described.

In the operation of the machine the cord I is wound around the shaft *i*, and not around the spur-wheel *h*.

The machine is designed to be worked by hand by means of the cranks J and J′, Fig. 1.

To that part of the frame D over the trimming-carriage, and to which the wires *a a* are attached, I attach a suitable rectangular-shaped frame, K, (shown at Fig. 4,) which said frame works or slides in suitably-constructed grooves in said frame D. To the upper part of this frame K, I attach, with a hinge-joint, the stamp or die L, Figs. 1, 2, and 4, which said stamp, as also the frame K, we construct of some metal adapted to the required purpose, and of suitable size and strength. To the lower part of said frame K, and at about the center thereof, we attach securely, but by a loose joint, the hooked lever or arm M, Fig. 3, which said lever, being fastened at the center thereof, *e*, Fig. 3, is in a position at right angles with the frame K and stamp L.

In trimming the soap placed on the table B, the spur-wheel *h* will be revolved, thereby allowing the lever M to fall in the notches *l l* on said wheel *h*, the weight of the stamp or die being sufficient to cause the same to drop when it is not held up by means of the lever M pressing against the natural periphery of said wheel *h;* but, if desired to strike a heavier blow with said stamp, so as to plainly stamp the maker's name or other device upon the soap, a coiled spring, N, Fig. 3, may be attached below the lever M, whereby any force desired may be given to said stamp L.

Of course the blows of the stamp L are regulated by the number of notches *l* in the spur-wheel *h*, and also by the circumference of said wheel; and this wheel must be varied or changed according to the distance required between the devices stamped upon the soap; and this distance, of course, must be changed as often as it is desired to cut different sizes of bars.

It is essential that chronometrical exactness should be observed in the construction of these parts, so that the stamp will strike in the center of every bar of soap being cut. Therefore the cord I, Fig. 3, should be made of metal that has no elasticity, a brass wire being well adapted to that purpose.

The drying-table F (shown in detail at Figs. 6, 7, 8, and 9) we design to so construct that after the soap has been cut and run upon the same it may be removed from the machine, and then opened or spread apart, thereby spreading or separating the soap and facilitating the drying of the same. When one such frame has been removed another should

be substituted in its place for the next slab of soap to be run upon.

Any suitable device may be used to separate or spread apart these drying-tables, and that shown at Figs. 8 and 9 is well adapted to that purpose.

P, Figs. 2 and 5, is a lever, by means of which the lever or arm M may be thrown out of gear and away from the wheel *h*, so that the machine may be used without the stamp L, if desired.

The operation of our machine is as follows, to wit: The slab of soap is cut in the usual way, and is then placed upon the trimming carriage or table B. The crank J being turned, the slab of soap is forced, by means of the cleat C, through the trimming-wires *a a*, and onto the cutting table or carriage E. If it is desired to stamp the soap with the maker's name or any other device, the lever P is dropped, thus throwing the lever or arm M into gear with the spur-wheel *h*, so that when said crank J is turned the said spur-wheel *h* will revolve, and the die or stamp will fall upon the slab of soap every time said arm or lever M reaches or falls into the notches *l l* in said spur-wheel *h*. The number and distance apart of said notches *l l*, of course, regulate the number of blows struck by said stamp L, which said stamp falls by its own weight, or, if desired, may be aided by the coiled spring N, Fig. 3. The slab of soap, being now properly trimmed and stamped, rests upon the cutting carriage or table E. By means of the crank J′, rack and pinion, and piece G, said slab of soap is now forced through the cutting-wires *b b b*, which said wires are adjustable by means of the slotted frame K, and may be any width apart, according to the width of bar desired to be cut. The said slab of soap, having been cut into bars by the wires *b b*, rests upon the drying-table F, which said table may be removed from the machine, and by means of suitable mechanism spread apart or opened, whereby the air may freely circulate through the soap thereon, thereby facilitating the drying thereof. Another drying table or frame is then placed upon the machine, and the same operation repeated with another slab of soap.

By the means herein described we are enabled to construct a machine that trims, stamps, cuts, and dries the soap in a cheaper, quicker, and more satisfactory manner than by any machine known for that purpose.

Having thus described the nature of our said invention and improvements relating to soap-cutting machines, what we claim as new and our invention, and desire to secure by Letters Patent of the United States of America, is—

1. The cutting table or carriage E, arranged and combined with the trimming-table B and drying table or frame F, substantially in the manner and for the purposes herein described and set forth.

2. The slotted frame K, or its equivalent, in combination with the cutting and trimming wires *a a* and *b b*, whereby said wires are made adjustable, substantially in the manner, by the means, and for the purposes hereinbefore described and set forth.

3. The die or stamp L, used in connection and in combination with the trimming-table B or cutting-table E, substantially in the manner and for the purposes hereinbefore specified and described.

4. The spur or cog wheel *h* and lever M, in combination with and operating the stamp or die L, in the manner and for the purposes substantially as herein described and set forth.

5. The coiled spring N, or its equivalent, in combination with the arm or lever M and the die or stamp L, whereby greater force may be given to said stamp, if so desired, substantially in the manner and for the purpose herein specified and set forth.

6. The adjustable drying-board F, used in connection and in combination with the cutting-table or carriage E, substantially in the manner and for the purposes herein described and specified.

7. The adjustable cutting and trimming wires *a a* and *b b*, in combination with the slotted frame K and the cutting and trimming tables or carriages E and B, all arranged and operated substantially in the manner and for the purposes hereinbefore described and set forth.

In testimony whereof we have hereunto set our hands this 27th day of February, A. D. 1869.

WILLIS HUMISTON.
HORACE N. HUMISTON.

Witnesses:
C. D. KELLUM,
JAMES DALEY.