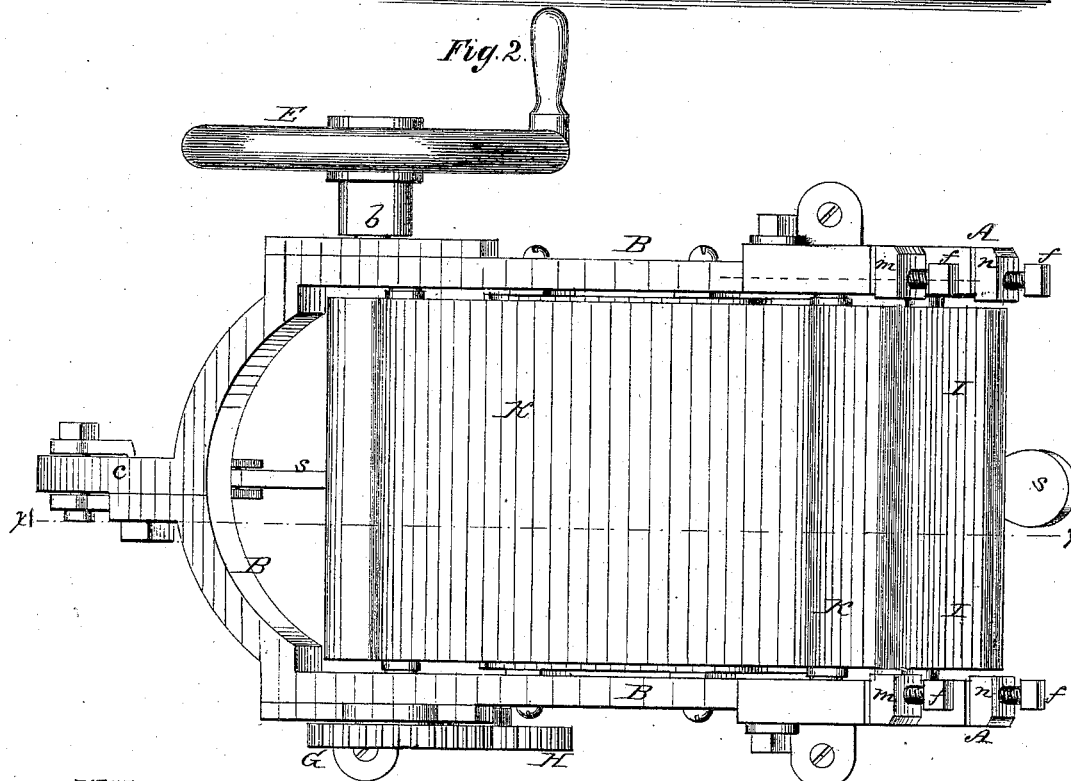
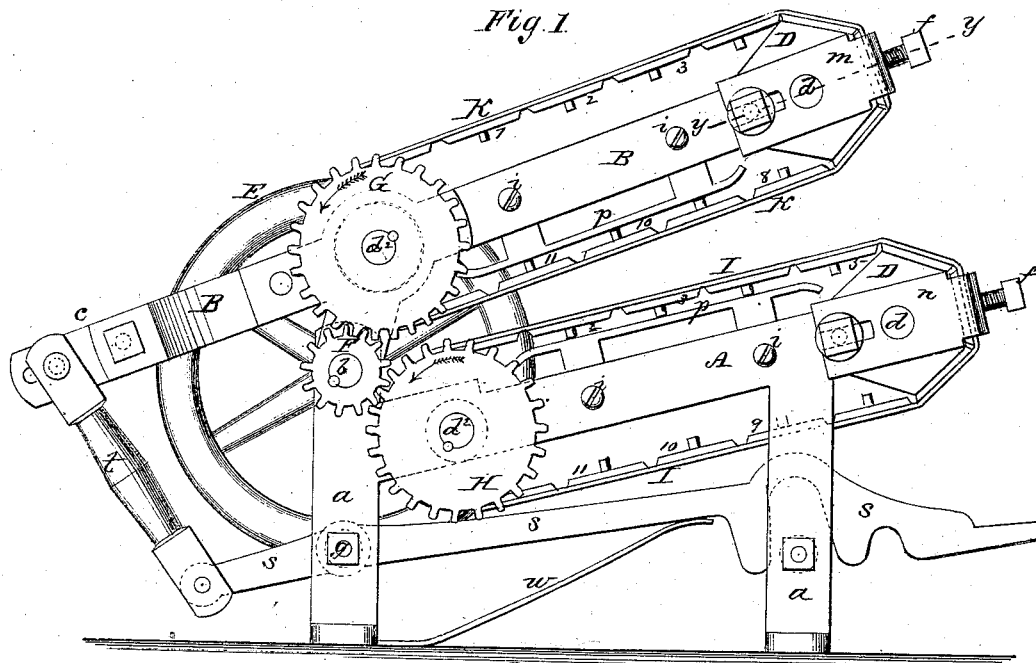


U. R. WILLIAMS & W. P. MARTIN
MACHINE FOR BOARDING LEATHER.

No. 110,944.

Patented Jan. 10, 1871.



Witnesses:
Chas. E. Warren
Frank L. Matthews

Inventors:
U. R. Williams and
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Fig. 3.

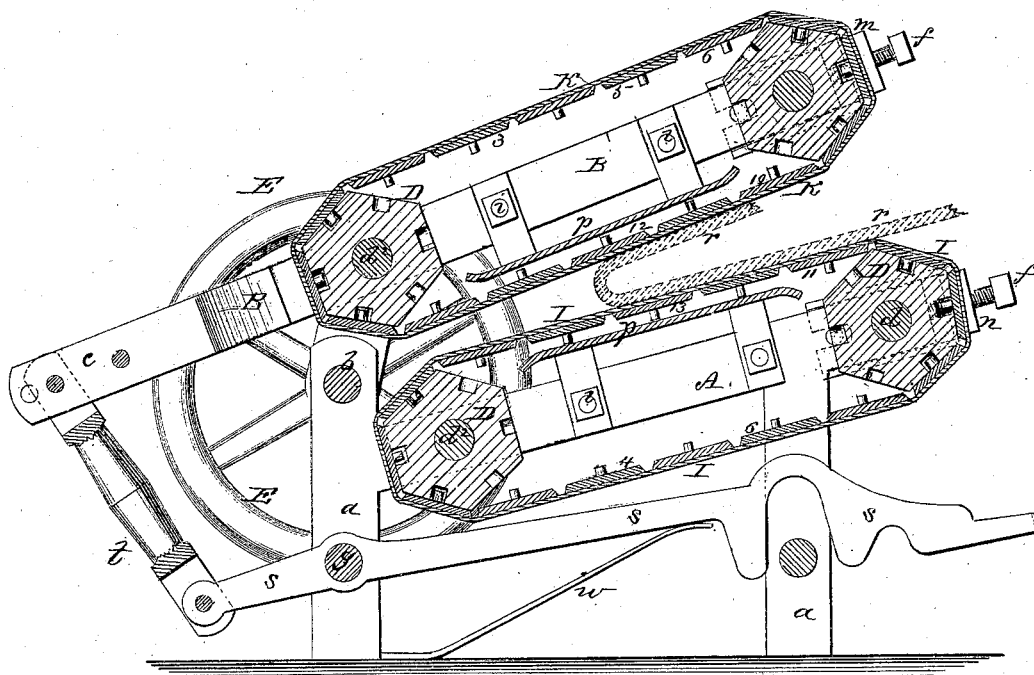
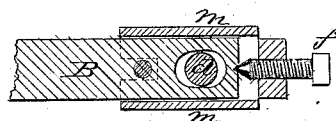


Fig. 4.



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United States Patent Office.

URBAN R. WILLIAMS AND WILLIAM P. MARTIN, OF SALEM,
MASSACHUSETTS.

Letters Patent No. 110,944, dated January 10, 1871.

IMPROVEMENT IN MACHINES FOR BOARDING LEATHER.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, URBAN R. WILLIAMS and WILLIAM P. MARTIN, of Salem, Essex county, in the State of Massachusetts, have invented a new and useful Machine for Boarding Leather; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing making part of this application.

Previous to our invention the operation known to leather manufacturers as "boarding" has been performed either by hand or by an apparatus composed of a reciprocatory rubbing device mounted over and acting in conjunction with a table, the stock being subjected, between the reciprocatory rubber and table, to an operation closely resembling the hand operation. In both the hand-labor process and the apparatus just referred to the stock is partially folded over and rolled along, then another portion of the stock similarly folded and rubbed or rolled together, and so on until the whole piece of leather is boarded in a manner familiar to leather manufacturers.

Our invention has for its object to provide an organized machine or mechanism, by means of which the whole length of the stock may be boarded by being subjected to a continuous operation; and to this end

Our invention consists in an organized mechanism, in which the leather is rolled between two plane surfaces which move in opposite directions, as will be hereinafter more fully explained.

To enable those skilled in the art to make and use our invention, we will proceed to describe it more fully, referring by letters to the accompanying drawing, in which—

Figure 1 is a side elevation;

Figure 2, a top view;

Figure 3, a vertical longitudinal section, at *x x*, fig. 2; and

Figure 4, a detail section, at *y y*, fig. 1, of a machine embracing our invention.

In the several figures the same part will be found designated by the same letter of reference.

A is a suitably-constructed stationary or main frame, which is provided with supporting standards or legs *a*, and is so made as to stand in a plane slightly oblique to the floor or horizontal foundation on which it rests, as clearly illustrated.

At the rear end of frame A is the main driving-shaft *b*, and mounted on this shaft, so as to be immediately over this frame A, is an auxiliary and vibratory frame, B, which is formed with a projecting arm, *c*, at its rear end, by means of which, through the medium of a mechanism to be presently described, it is vibrated.

At each end of the frames A and B is mounted, in suitable bearings, a shaft, *d d'*, and on each end of these four shafts is secured a polygonal drum or pulley D.

To one end of the main driving-shaft (where the pulley or wheel E is secured) the motive power to operate or drive the machine is applied, and at the other end of said shaft is keyed on a driving-spur pinion, F, which meshes into and drives two spur-gears, G H.

These gears are keyed respectively on to the adjacent ends of the two shafts *d'*, which are arranged in the rear ends of frames A and B, and impart to these shafts and their drums rotary motions in the same directions, as indicated by the arrows at fig. 1, and these drums drive the two endless aprons I and K, which pass over them, and also over the other two drums, which latter serve merely as loose pulleys for said aprons.

The two drums, which are mounted at the front ends of frames A and B, have their shafts arranged in adjustable boxes *m n*, which, by means of set-screws *f*, may be moved on the frames A and B for the purpose of distending or making more or less taut the endless aprons. These aprons may be made of leather or any other suitable material, and are provided with cross-slats 1, 2, 3, &c., of sufficient strength, arranged closely together, and about equal in width to one of the sides of the polygonally-shaped drums, so that they will just permit the apron secured to them to pass freely over the drums.

In a working machine we have found it expedient to have interposed between the material of the apron and the slats layers of cork, but these details of construction and the character of the materials for construction may, of course, be varied to suit the nature of the work to be done, and as may be found best in practice.

To each of the frames A and B there is secured, by bolts *i*, a supporting table or bearing plane, *p*, as clearly seen at figs. 1 and 3, which serve as supports to the aprons. These tables or supports *p* should be so arranged that the slats 1, 2, 3, &c., will bear on them at all times, and their front and rear ends should be slightly beveled off, so that the aprons and slats will easily run onto and off of them.

On the cross-bar *g*, at the rear end of the main frame A, is pivoted a treadle or foot-lever, *s*, the rear end of which is coupled to the lower end of a link-bar, *t*, which has its upper end pivoted to the arm *c* of the vibratory frame B, in which is hung the upper apron; is held up or away from the lower apron, which is mounted in the stationary frame A, by the spring W, and is depressed and brought down toward it at pleasure by the operator placing his foot on the forward end of the lever *s*. It will be understood that, since

the vibratory frame B is hung and turns on the main driving-shaft, the pinion on said shaft and the gear on the said frame are not thrown out of gear in the least by the motions of the frame.

The means we have shown and described for moving the vibratory frame we have found to work well, but other means may be devised and used with advantage in carrying out our invention. By having the vibratory frame mounted on the shaft on which the driving-pinion is located, said frame, it will be seen, can be moved up and down without causing any derangement of the driving-gearing, and, though other means might be devised for permitting the motions necessary to one frame without throwing the machine out of gear, we deem that shown to be important, on account of its simplicity and efficiency.

The operation of our new machine for boarding leather will be readily understood by those skilled in the manufacture of that article to be as follows:

The necessary motive power having been applied to drive the main shaft, and through it and the gearing the other working parts of the mechanism, the operative stands in front of the machine, and, with one foot on the treadle *s*, introduces the leather, as illustrated at *r*, fig. 3, while, at the same time, he depresses the upper apron, by pressing down the treadle *s*, until it bears on the folded material, which is caught in between the surfaces of the aprons moving in opposite directions, as indicated by arrows at fig. 3, and by them folded over and run out of the machine thoroughly boarded. The top fold or portion passes out toward the operator, while the under fold or portion, with the same velocity, is drawn in. As the material is thus rolled through or subjected to the boarding process, the operator regulates the degree of pressure to which the stock is subjected at the fold according to his ex-

perience and judgment and the nature of the stock being treated. It will be seen that, by means of a machine embodying the continuous operation described and adapted to operate on the principle described, all kinds of stock, both that which is finished on the flesh side and that which is finished on the grain side, can be boarded in the most efficient and economical manner; and it will also be seen that in that kind of stock in which it is desirable to have a figure produced, this can be done with a much greater degree of perfection than when the boarding is done according to the heretofore-practiced processes, since in our invention the figure can be made perfectly continuous and even.

We do not wish to be understood as limiting our claim of invention to any of the details of construction of our machine; but

Having fully described its construction and operation as we have made and successfully used it;

What we claim as new, and desire to secure by Letters Patent, is—

1. A machine for boarding leather, in which the stock is subjected to a continuous operation between two surfaces which move in opposite directions, substantially as set forth.

2. The movable apron-frame with its driving-gear *G*, arranged as described, so that it may be vibrated or oscillated around the axis of shaft of the driving-pinion *F*, for the purpose set forth.

In testimony whereof we have hereunto set our hands and seals this 18th day of October, 1870.

U. R. WILLIAMS. [L. S.]
WILLIAM P. MARTIN. [L. S.]

Witnesses:

I. B. F. OSGOOD,
CHARLES ROUNDY.