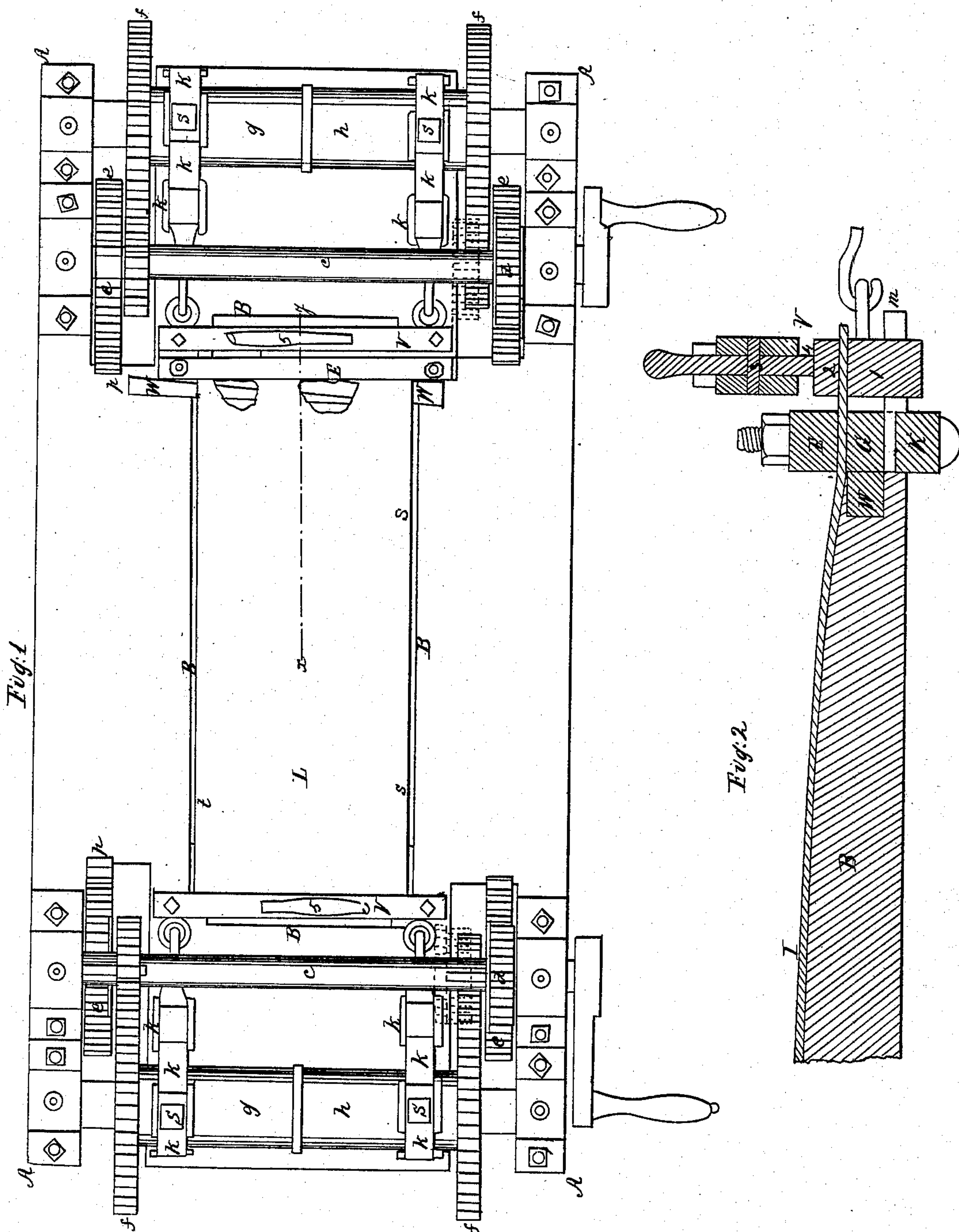


B. ROWE.  
BELT STRETCHER.

No. 8.052.

Patented Apr. 22, 1851.





# UNITED STATES PATENT OFFICE.

BRADFORD ROWE, OF ALBANY, NEW YORK.

## MACHINE FOR STRETCHING LEATHER.

Specification of Letters Patent No. 8,052, dated April 22, 1851.

*To all whom it may concern:*

Be it known that I, BRADFORD ROWE, of the city of Albany and State of New York, have invented a new and useful Machine for the Purpose of Stretching Leather, which I call "Rowe's Belt-Stretching Machine"; and I declare the following specification with the drawings hereto attached as part of the same to be a full and accurate description thereof.

Figure 1, represents the plan of the machine; Fig. 2, represents a vertical section through the center of the holding board, clamp and vise with the stretched leather in its place, the section being in the line and for the distance  $xy$  shown in the plan.

A A A A is a strong table or frame supporting at each extremity, upon sufficient upright supports a stretching apparatus, extending across the entire width of the table consisting of a shaft  $c$  turned by a winch near each extremity of which are small cog wheels  $d d$  which gear into and drive wheels  $e e$  larger than themselves—these wheels ( $e e$ ) are fixed on shafts which lie under the table and are not shown in the drawing, and which have also upon them small wheels  $n$ ; the latter in turn cog into wheels  $f f$  fixed each upon the end of barrels  $g, h$  which turn loosely upon a rod or shaft that runs through the axis of the barrels from end to end. On each of the barrels is a stud or pin  $s$  for the purpose of catching into the links of a chain  $k$  by which the motion of the barrels is communicated to each end of the vise  $V$  which holds one end of the leather to be stretched. This vise is shown in section in Fig. 2. It consists of a lower jaw 1 and upper jaw 2 between which the leather is gripped, 3, a top bar supported upon the lower jaw by a screw standard 4 at each end thereof. Through the center of this top bar a vertical screw passes to force down the upper jaw upon the lower one, or the same thing is done as shown in the drawings, by an eccentric lever 5 traveling in a slot.

B, B B, represents the holding board, which is a piece of strong plank about the width of, or a trifle wider than the leather to be stretched. Its main part is arched vertically lengthwise and is in length equal to that length of the leather, which lies between the vises before the stretching operation is commenced. Portions of the lower ends of the board are extended in tenons  $m$

which pass through mortises cut in the lower jaws 1 to keep the vises in place and insure steady working of the apparatus.

The operation of stretching is thus performed. The board B being laid upon the table A with its tenons inserted into the mortises of the vises. The leather L (shown by its color in the drawings is laid upon the board and its ends secured in the vises, which are placed up against the ends of the main boards. The winches are turned at each end of the machine and the leather stretched out in a direct manner by the similar and equal movement of the barrels. When the leather has been well stretched in this manner, it will be seen that one end of the leather has more tension than the other, in consequence of the different quality of the fiber, which always exists in the animal skin. This irregularity is a great evil in the character of belting preventing belts from adhering with a fair surface of equal tenacity to pulleys. When this is discovered the remedy is effected by stretching the slack edge of the leather, in this manner. Supposing the edge S S to be the slack one, the wheels  $e, e$ , on the stretched side are to be stopped by the pawls P fixed for that purpose and the wheels  $d$  on the same side, shoved out of gear with the wheels  $e$ . Now turning the winches will move only the barrels  $h$  and draw equally each end of the side  $s, s$ , of the leather as shown in the drawings.

When the stretching is accomplished, the next process is to secure the leather to each end of the holding board. This is done by the clamp composed of the three parts or slats E, G, K, each of equal length, being so much longer than the width of the board, as to allow the use of a screw bolt or pin at each end to hold them together G being so thick as to fill the space between the tenon of the board and the leather—and the other two sufficiently thick to operate firmly as a clamp. The clamp being applied firmly in its place wedges W, W are driven in between the clamp and the ends of the board so as to keep the leather from retracting. Each end being thus secured the vises are released and the board with the leather removed to season. Other leather and a new board being substituted, the work can be repeated with an indefinite number of pieces of leather.

In Fig. 1 one end of the leather is shown,



as in the vise alone—the other in the vise with one clamp applied.

The process of stretching leather has been done by a direct pull drawing upon the fibers 5 equally through its whole width. Also by fixing one or both the clamps holding the leather upon a center pin or swivel from which the draft was made allowing the leather in some degree to accommodate itself 10 in stretching to its inequality of fiber. But this process produces a very inferior result in stretching leather compared with that effected by this machine, as has been fully proved by practical tests of both processes. 15 The use of the holding board also in keeping the leather from contracting toward center and forming wrinkles longitudinally during the process of stretching, makes a material difference in the quality of the work; also 20 the simple plan of securing the leather to the board whilst damp and at full stretch works great economy in completing the process.

I do not claim the shafts, wheels, chains and vises by which the process of stretching 25 is done, that may be effected by various mechanical arrangements.

I claim—

1. The method or device of stretching leather, especially for belting, by the use of

apparatus so arranged that after a piece of 30 leather has received by an equable strain applied to its ends for their whole width; the proper stretch that the material can bear on or along one edge thereof, if it be found that the other edge and parts intermediate 35 between it and the first edge, (from the difference in quality of fiber), has not received its proper tension the further stretching of the first side shall be stopped whilst, by the application of the mechanical stress at the 40 other edge of the leather, it and the parts between it and the first side, shall be duly stretched, substantially in the manner set forth in this specification.

2. I claim the holding board as essential, 45 in all leather stretching apparatus, where it can be applied in keeping the material, whilst being stretched from contracting in width and becoming defective thereby.

I claim the holding board with its clamps 50 and wedges in combination with the apparatus for stretching, for the uses and purpose, substantially as set forth in the above specification.

BRADFORD ROWE.

Witnesses:

RUTH VARUH DE WITT,  
J. B. BRINSMADE, Jr.