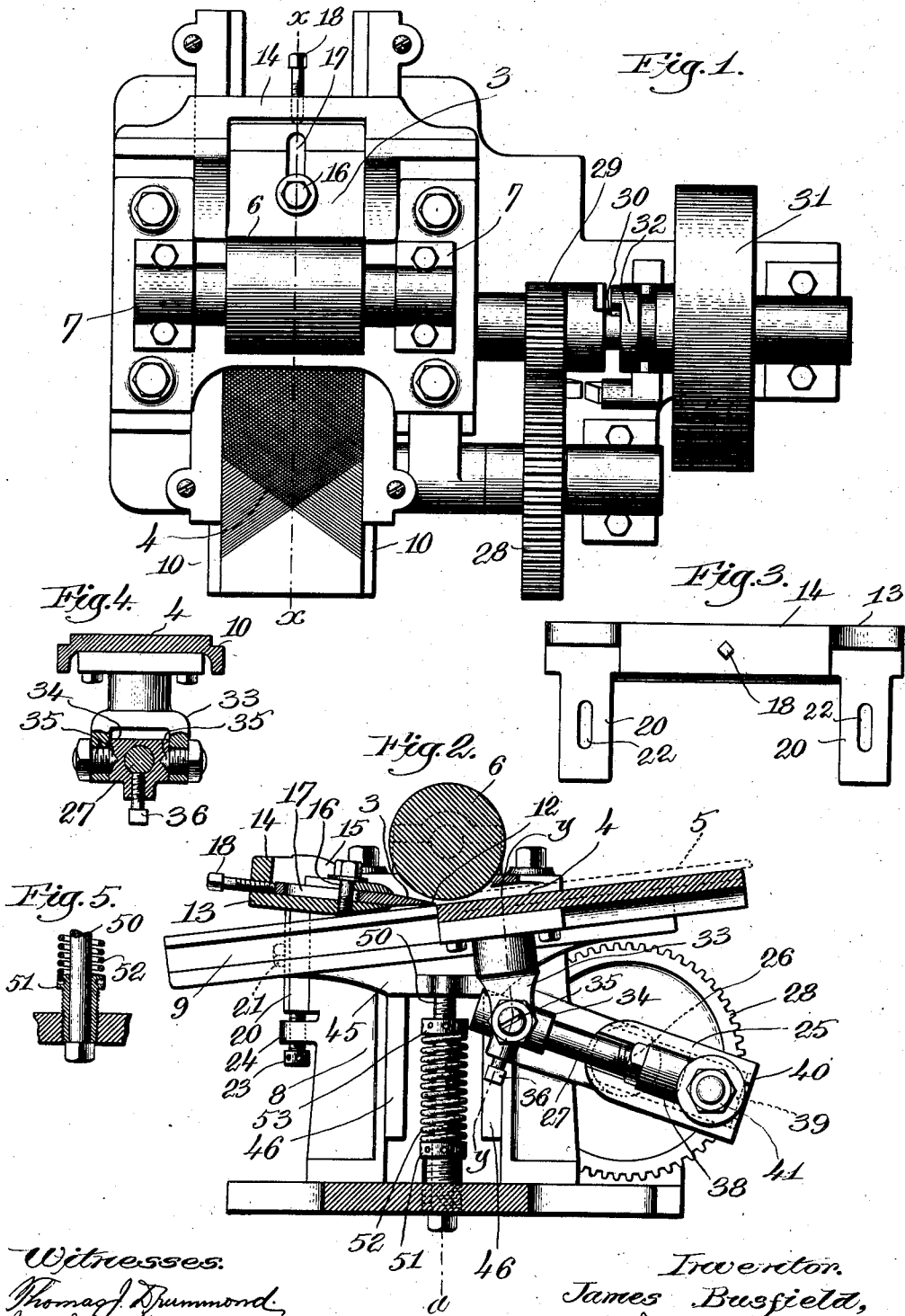


J. BUSFIELD.
LEATHER SPLITTING MACHINE.
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937,765.

Patented Oct. 26, 1909.



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LEATHER-SPLITTING MACHINE.

937,765.

Specification of Letters Patent.

Patented Oct. 26, 1909.

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To all whom it may concern:

Be it known that I, JAMES BUSFIELD, a citizen of the United States, residing at Haverhill, county of Essex, and State of Massachusetts, have invented an Improvement in Leather-Splitting Machines, of which the following description, in connection with the accompanying drawing, is a specification, like numerals on the drawing representing like parts.

This invention relates to leather-splitting machines, and the embodiment of the invention herein illustrated is one adapted for splitting the heel end of soles of shoes for the purpose of providing a flap portion which in the manufacture of the shoe may be turned down to cover the breast of the heel. I wish it understood, however, that the invention is not limited to a machine for this purpose, as it may be embodied in leather-splitting machines adapted to split leather for any purpose.

The features wherein my invention resides will be pointed out particularly in the claims at the end of this specification wherein I have illustrated and described one embodiment of my invention which I have selected for the purpose of illustrating the principle thereof.

In the drawings, wherein this selected embodiment is illustrated, Figure 1 is a plan view of such a machine; Fig. 2 is a vertical section on the line $x-x$, Fig. 1; Fig. 3 is a view of the knife-holder; Fig. 4 is a section on the line $y-y$, Fig. 2; Fig. 5 is a section on the line a , Fig. 2.

The machine herein shown comprises a splitting knife, a reciprocating bed or table on which the leather is placed, which bed or table moves toward and from the knife, and a presser element adapted to act on the leather supported by the table and to hold said leather against the table while it is acted on by the splitting knife.

In the present embodiment 3 is the splitting knife, 4 the reciprocating bed or table on which the leather 5 to be split is placed, as shown in dotted lines Fig. 2, and 6 is the presser element which is herein shown as a roll journaled in fixed bearings 7 carried by the frame 8 which supports the operative parts of the machine.

The reciprocating bed 4 is arranged to be reciprocated in ways 9 formed in the frame 8, said ways being herein shown in the form of grooves in which ribs or wings 10 on the

sides of the bed 4 are received. The bed is reciprocated by some suitable mechanism, one type of which will be presently described.

The splitting knife 3 is provided with a cutting edge 12 and is sustained by a knife holder 13 which is shown as shaped to present a back 14 and sides 15 between which the knife is received. The knife is held in adjusted position on the holder by means of a clamping screw 16 in a well known way, said knife being provided with the slot 17 through which the clamping screw passes to permit said knife to be adjusted.

18 is a set screw which is screwed into the back of the holder and which forms a back rest for the knife. Said knife holder 13 is arranged to be adjusted vertically or transversely to the direction of movement of the reciprocating bed thereby to carry the edge of the knife closer to or farther from said bed, depending on the thickness it is desired to give to the split portion of the leather.

The knife holder 13 is provided with two arms 20 which overlie the end of the frame 8 and which are clamped thereto by clamping bolts 21. To permit of the vertical adjustment of the holder 13, said arms are provided with slots 22 through which the bolts 21 extend, and for effecting the adjustment, I have shown an adjusting screw 23 for engagement with the end of each arm, each adjusting screw being screw-threaded through a boss 24 extending from the frame 8. By this means the knife holder can be adjusted into different vertical positions and maintained in its adjusted position.

In the preferred embodiment of my invention, I propose to employ a mechanism for reciprocating the bed or table 4 which is so constructed that the length of reciprocation of said bed can be adjusted and the position of said bed relative to the knife can also be adjusted. As herein shown the bed is reciprocated by a crank arm 25 carried by a shaft 26 and a link or pitman 27 pivotally connected to the crank arm and to the bed. The shaft 26 is provided with a gear 28 that meshes with and is driven by a driving gear 29 on the driving shaft 30, and said driving shaft is driven by a suitable driving pulley 31 which is adapted to be clutched to the shaft 30 and unclutched therefrom by means of a clutch 32 of any suitable or usual pattern, but preferably one which will automat-

ically operate to unclutch the driving wheel from the shaft after the bed 4 has made one complete reciprocation. For connecting the pitman to the bed 4, said bed has rigid therewith a forked stud 33 between the fork of which is received a sleeve 34 which is pivotally mounted on the studs 35 that are carried by the arms of the fork. The end of the link 27 extends through the sleeve 34 and is clamped thereto by a clamping screw 36. The other end of the link 27 is screw-threaded into a hub 38 which is pivotally mounted on a block 39 that is received in ways 40 in the crank arm 25, said block being clamped to the ways by a clamping bolt 41. By loosening the clamping screws 36 and 41 and shifting the block 39 with its connected pitman 27 in the ways 40 toward and from the axis of rotation of the shaft 26 and afterward setting up the clamping screws 36 and 41, the length of the throw of the crank and consequently the length of the reciprocating movement of the bed can be easily adjusted. By loosening the clamping screw 36 the bed 4 may be adjusted toward or from the knife edge without varying in any way the length of the stroke. By means of the adjustments herein provided for, it will be seen that the length of the reciprocating stroke of the bed may be adjusted, and the normal position of said bed relative to the knife may also be adjusted. I have also provided for vertically adjusting the bed toward and from the knife, or in other words, adjusting said bed in a direction transverse to its reciprocating movement, and for yieldingly supporting the bed so that it will yield slightly in a vertical direction if the stock or leather being operated on varies in thickness. This is accomplished in the present embodiment by making the ways 9 in which the bed travels in a bed-supporting member 45 which is adjustably carried by the frame 8. Said bed-supporting member is provided with the arms or guides 46 which engage the uprights of the frame 8 and serve to hold the member 45 in its proper position, and said member is supported by two headed struts 50 which loosely pass through supporting sleeves or bushings 51 that are in turn screw-threaded into the base of the frame, as seen in Fig. 5. Surrounding each of the struts 50 is a spring 52, one end of which engages the collar or bushing 51, the other end of which engages a collar 53 screw-threaded to the strut 50. With this construction it will be seen that the springs 52 serve to yieldingly support the bed-supporting member 45 and that by adjusting the bushings 51 vertically in the frame the position of the bed-supporting member 45 can be adjusted; while by adjusting the collars 53 the tension of the springs 52 can be adjusted. This construction, therefore, provides for both adjusting the tension of the springs which support the

bed and for adjusting the bed vertically or transversely to the direction of reciprocation thereof.

The operation of the machine will be readily understood from the above description, and briefly stated is as follows: The parts are shown in Figs. 1 and 2 in their normal position, that is, in the position they will be when the machine is at rest. The piece of leather 5 or other material which is to be split is placed on the bed (the upper surface of said bed being preferably scored or roughened, as shown in Fig. 1, so that it will grip the leather), and the clutch 32 is then thrown into operation. As the shaft 26 is rotated the bed will be reciprocated toward the splitting knife 3, as will be obvious, and the leather 5 will be carried under the presser roll 6. Said roll operates to hold the leather firmly on the bed so that said leather will be carried forward by the bed toward the splitting knife, such forward movement of the bed and leather operating obviously to split the leather, the splitting operation continuing until the bed has reached the forward limit of its movement. When the bed has returned to the position shown in Fig. 2, the clutch is thrown out of operation, thus stopping the machine and enabling the operator to remove the split piece of leather and place a new one on the bed.

In the splitting of soles as above described, it is desirable that the split portion of the sole should be of uniform thickness regardless of any variation in thickness of the sole. The construction I have herein illustrated is one by which a uniform thickness of the split portion is secured. It will be noted that the knife and the presser roll have a fixed position relative to each other but that the bed is yieldingly sustained. As a result the part which is split will always be of uniform thickness, while the bed will yield to accommodate any variation in thickness of the sole.

I have not attempted to show herein all embodiments of my invention, as the selected form herein shown is sufficient to illustrate the principle thereof.

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

1. In a leather-splitting machine, the combination with a stationary splitting knife, of a yieldingly-supported bed for sustaining the leather to be split, means to give the bed a definite forward and backward movement in a fixed direction parallel to the face thereof on which the leather rests, a presser roll mounted in fixed bearings and adapted to hold the leather on the bed while it is acted on by the knife, and means to maintain the face of the bed always parallel to the direction of movement thereof.

2. In a leather-splitting machine, the com-

5 bination with a frame, of a bed-supporting member yieldingly and adjustably sustained thereby, a bed sustained by said member, a stationary splitting knife, and means to move said bed in the bed-supporting member a definite distance toward and from the splitting knife.

10 3. In a leather-splitting machine, the combination with a frame, of a bed-supporting member sustained thereby, means to adjust said member vertically, a bed supported in an inclined position on said member, a stationary splitting knife, and means to reciprocate said bed in a direction parallel to the upper surface thereof.

20 4. In a leather-splitting machine, the combination with a frame having uprights, of a bed-supporting member provided with arms or guides which engage said uprights, means to adjust said member vertically relative to the frame, said member having inclined ways, a bed received within said ways, means to give the bed a definite forward and backward movement, a stationary splitting knife toward and from which the bed moves, and a presser element to hold the leather against the bed while acted on by the knife.

5. In a leather-splitting machine, the combination with a bed for sustaining the leather to be split, of a rotary member having a crank arm adjustable as to its length, a connecting member adjustably secured both to the crank arm and to the bed, a stationary splitting knife, a rotatably-mounted presser roller having a fixed relation to the splitting knife, and means for adjusting the bed toward and from the presser roller.

6. In a leather-splitting machine, the combination with a stationary splitting knife, of a reciprocating bed for supporting the leather to be split, said bed having a fork, a sleeve pivoted to the fork, a connecting member extending through and adjustably secured to the sleeve, and a crank member having an adjustable crank arm secured to said connecting member.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JAMES BUSFIELD.

Witnesses:

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