

No. 729,274.

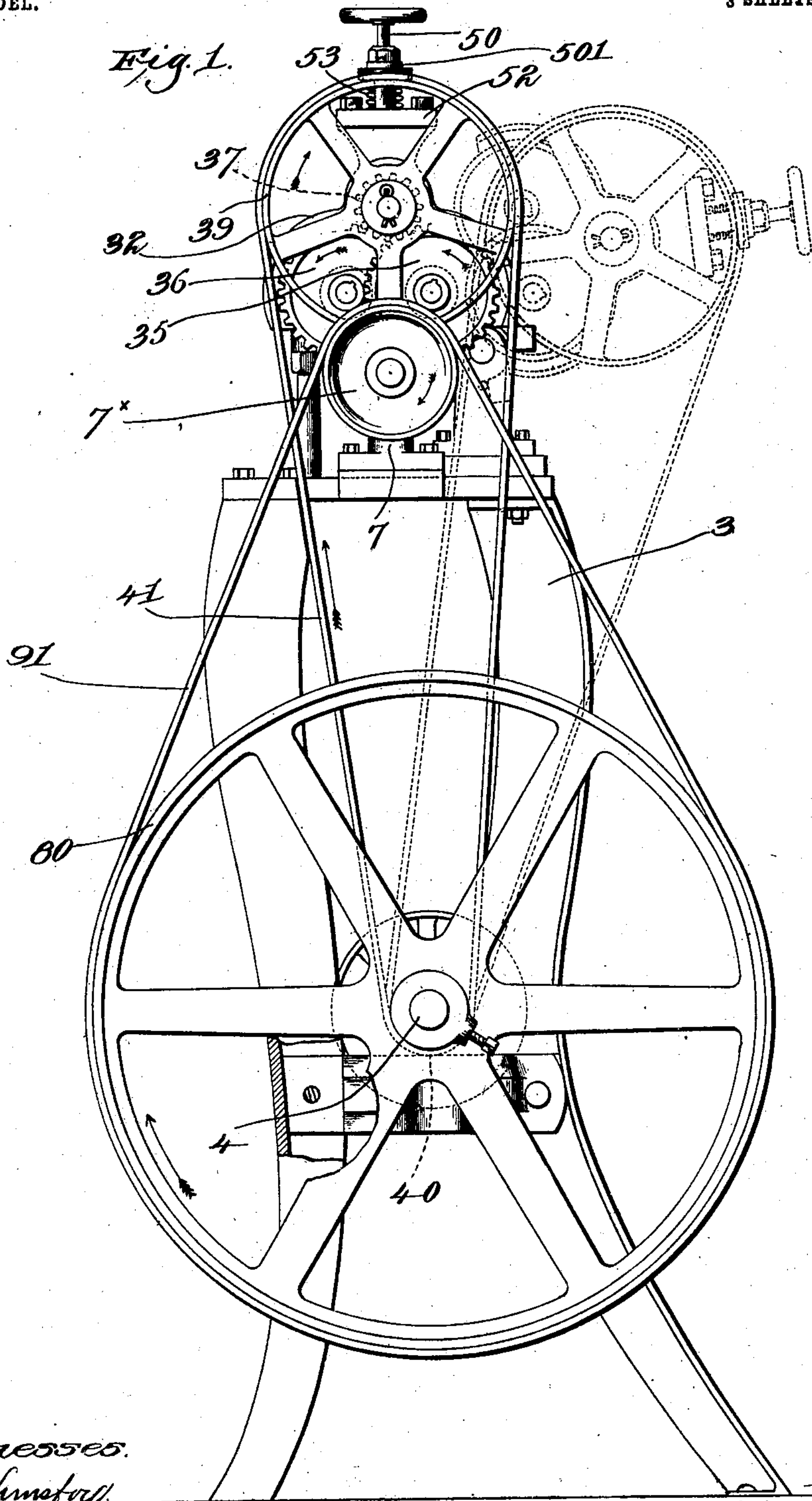
PATENTED MAY 26, 1903.

A. BUTEAU.  
BUFFING MACHINE.

APPLICATION FILED OCT. 27, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses.  
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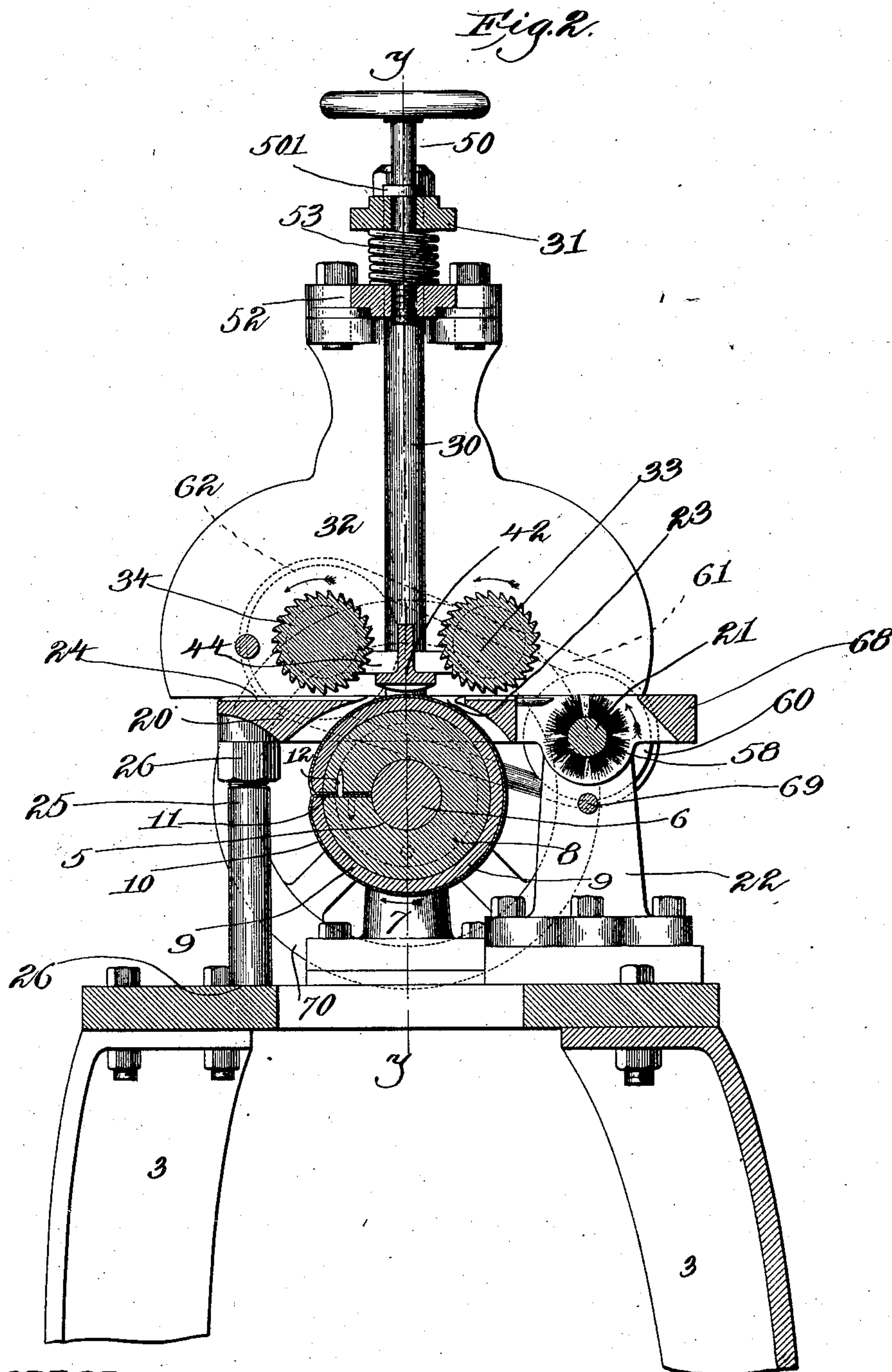
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3 SHEETS—SHEET 2.



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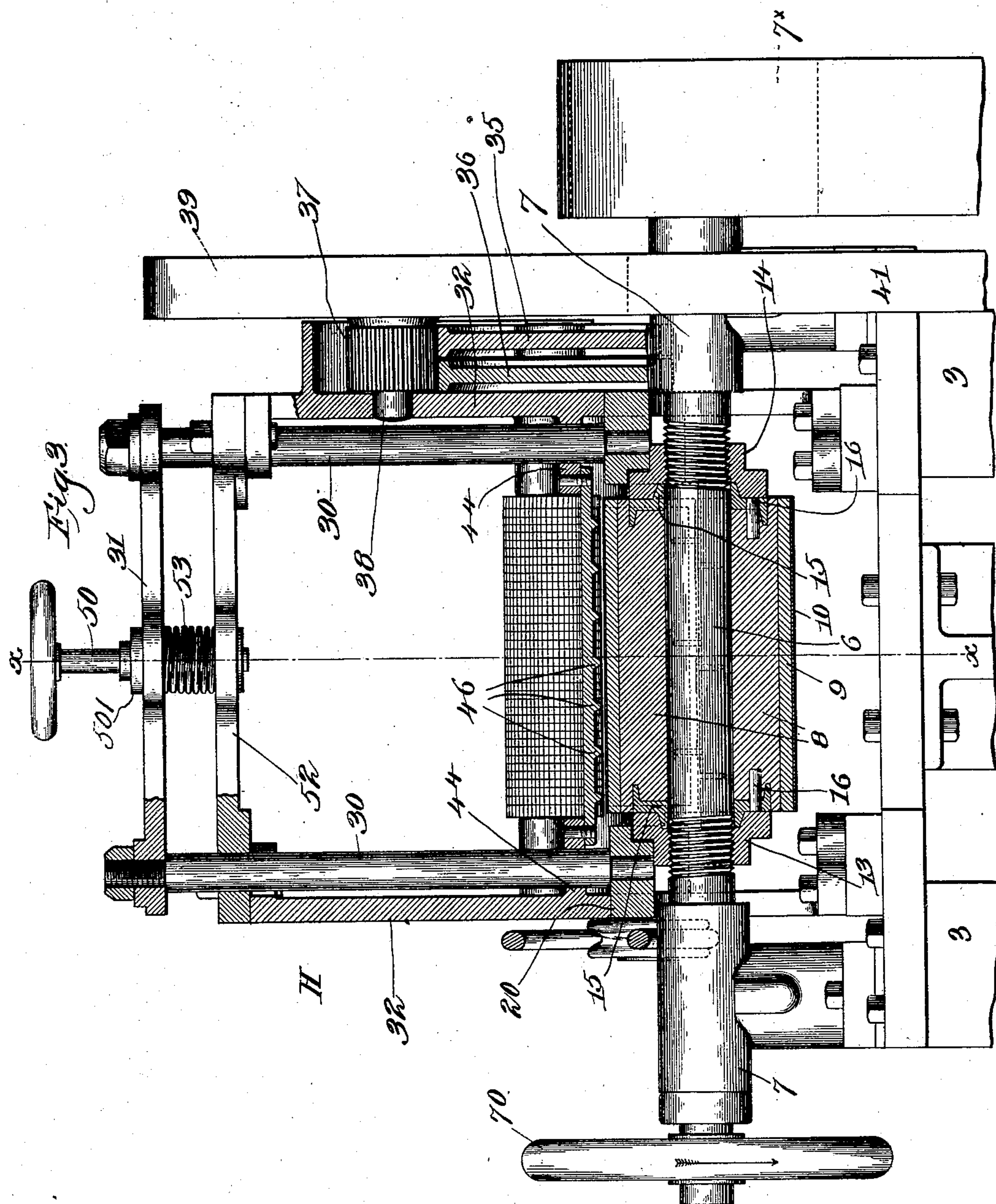
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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

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## BUFFING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 729,274, dated May 26, 1903.

Application filed October 27, 1902. Serial No. 128,844. (No model.)

*To all whom it may concern:*

Be it known that I, ALPHONSE BUTEAU, a citizen of the United States, residing at Auburn, in the county of Androscoggin and State of Maine, have invented an Improvement in Buffing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to buffing-machines, and the particular embodiment of my invention herein illustrated is a machine adapted to operate on soles of shoes, boots, &c.

In the manufacture of shoes it is frequently desirable to roughen slightly the surface of a shoe-sole for the purpose of providing a suitable surface to which to apply adhesive for the purpose of cementing said sole to the innersole or filling in a shoe; and it is the object of my present invention to provide a machine through which the soles of shoes may be passed for the purpose of thus resurfacing them.

The machine in which my invention is embodied comprises, broadly, a rotating buffing-cylinder having an abrading-surface and means to pass the material to be buffed or operated upon over the cylinder and to hold the same in contact with the surface of the cylinder, the surface speed of the cylinder being very much faster than the speed of the material, whereby an abrading action takes place. Pivoted to the frame is a head, which supports a bed over which the material is fed during the abrading process. The bed is illustrated as having an opening therein and when in its operative position is so situated that the buffing-cylinder is partially received in said opening, the surface of the bed over which the work moves being substantially tangent to the surface of the cylinder. The head also carries suitable feed-rolls, which positively feed the material across the bed, and an adjustable guide which holds the material in contact with the cylinder.

Referring to the drawings, Figure 1 is a side elevation of my improved machine. Fig. 2 is a section on the line *x x*, Fig. 3; and Fig. 3 is a section on the line *y y*, Fig. 2.

The frame of the machine, which may be of

any suitable shape, is designated generally by 3, and it supports a main shaft 4, from which the operative parts of the machine are driven.

The buffing-cylinder is designated generally by 5, it being mounted upon a suitable shaft 6, supported in bearings 7, carried by the framework and having a pulley 7<sup>x</sup> thereon, which is driven from the large pulley 80 on the driving-shaft by means of the belt 91 or in any other suitable way. The buffing or abrading cylinder 5 is preferably detachably mounted upon the shaft, and for this purpose it is shown as a divided cylinder, which is clamped to the shaft between and by means of two locking-collars. The special form of cylinder herein shown comprises the divided core 8, which is slipped upon the shaft and around which is a layer 9 of some yieldable material, such as felt, the whole being enveloped by a covering or envelop 10, which is in the form of sandpaper, emery-paper, or any other suitable similar abrading material. The envelop 10 is held in place by having the edges thereof bent inwardly, as at 11, between the two parts of the divided core 8, the said edges being secured to the core in any suitable way, as by means of tacks or nails 12. The ends of the core are engaged by the locking-collars 13 and 14, which are mounted on the shaft and which serve to hold the two parts of the divided cylinder in operative position. For this purpose each end of the core is shown as having projecting therefrom a conical rib 15, and the collars 13 and 14 are provided with annular recesses shaped to receive said ribs. The collars are shown as being screw-threaded to the shaft, the collar 13 having a right-hand screw-threaded engagement with the shaft and the collar 14 having a left-hand engagement therewith. The collars are also locked to the core, so as to have rotary movement therewith, but to permit the collars moving longitudinally on the shaft with reference to the core, this being accomplished by providing each collar with a pin 16, which engages a suitable recess in the end of the core. With this construction it will be seen that if the cylinder is held from rotary movement and the shaft is turned in the



direction of the arrow, Fig. 3, the collars will be turned toward the ends of the shaft and separated from each other, thus permitting the cylinder 5 to be removed from the shaft.

5 An opposite movement of the shaft with reference to the cylinder will throw the collars toward the ends of the cylinder, when by the engagement of the projections or ribs 15 with the recesses in the collars the two parts of  
10 the divided cylinder are firmly held to the shaft.

The head of the machine (designated generally by H) carries the feeding mechanism, the bed-plate over which the work is fed, and  
15 the guide for holding the work in contact with the cylinder. As herein illustrated, the base 20 of the head constitutes the bed of the machine, over which the work is fed and is pivoted upon the rod or shaft 21, which is  
20 supported in bearings 22 on the frame of the machine. The bed 20 is formed with the opening 23 therein, which opening when the head is in its operative position, as shown in Fig. 2, is adapted to partially receive the abrading or buffing cylinder 5, the top surface 24  
25 of said bed being substantially tangentially arranged with reference to the surface of the cylinder. A suitable strut 25, which is secured to the front end of the bed 20 and which  
30 rests upon the frame, as at 26, serves to support the bed in its operative position. I will preferably screw-thread the strut to the bed, whereby by screwing up or unscrewing the  
35 or lowered as desired. A suitable check-nut 26 is preferably employed for locking the strut in adjusted position.

Rising from the bed 20 are the uprights 30, which are connected by the cross-piece 31,  
40 said uprights forming the guiding-support for the side pieces 32, which carry the feeding mechanism, hereinafter described, and by which the guide or presser-foot, also to be described, is supported. The side pieces are  
45 herein illustrated as being held in position by the lugs or ears 44, which project from the said side pieces and through which the uprights pass.

The feeding mechanism is illustrated as  
50 two feeding-rolls 33 and 34, which have serrated surfaces for the purpose of engaging the leather or other material to feed the same forward. These rolls are journaled in the side pieces 32, and the journals of said rolls  
55 at one end extend through the side pieces and have gears 35 and 36 attached to them, respectively. A driving-gear 37, mounted on a shaft 38, also carried by one of the side  
60 pieces 32, is constructed to engage both the gears 35 and 36 and drive them in the same direction, the said shaft having a driving-pulley 39 secured thereto, which is driven from a small pulley 40 on the main shaft by means of a belt 41 or any other suitable device.

65 The guide or presser-foot which engages the material operated upon and holds the same in contact with the cylinder is designated by 42

and is shown as extending the length of the cylinder and as secured at its ends to the ears 44, through which the uprights 30 pass. This  
70 guide or presser-foot is, it will be observed, situated over the opening in the bed 20 and directly over the abrading-cylinder, and it is herein illustrated as having the transverse ribs 46 on its under side, which are adapted to  
75 engage the material.

Suitable means are provided for vertically adjusting the guide or presser-foot 42 and also the feed-rolls 33 34 in order to accommodate different thicknesses of material and  
80 also to vary the pressure with which the material is forced against the abrading-cylinder. The adjusting means herein illustrated comprises an adjusting-screw 50, mounted for rotation in the bar 31 and having a screw-  
85 threaded engagement with a cross-piece 52, which extends across and connects the side pieces 32. A suitable spring 53, situated between the cross-pieces 31 and 32, serves to normally hold the guide and feed-rolls against  
90 the work. The adjusting-screw 50 is free to move upwardly in the cross-piece 31, but is held from downward movement by the collar 501. The said screw therefore allows the  
95 feed-rolls and the guide or presser-foot 42 to yield in a vertical direction, while regulating the normal distance between cylinder and guide or presser-foot.

58 designates a brush which is mounted upon the shaft 21 and which serves to clean  
100 the surface of the material which has been operated upon by the abrading-cylinder.

The end of the shaft 21 is shown as provided with a pulley 60, over which a driving-belt 61 passes, said belt being driven by a  
105 similar pulley 62, carried on the end of the shaft of one of the feed-rolls.

The operation of the device will be readily understood from the foregoing description, and it is as follows: Upon starting the driv-  
110 ing-shaft in rotation the abrading-cylinder and the feed-rolls are given a rotation in the direction of the arrows, Figs. 1 and 2, the rotation of the feed-rolls being such as to feed the material from left to right across the sur-  
115 face of the bed and the rotation of the abrading-cylinder being such that the upper surface thereof is moved from left to right. It is necessary, of course, that the abrading-surface move very much faster than the mate-  
120 rial operated on, and therefore the driving connections between the main shaft and cylinder are such as to give the abrading-cylinder a greatly-increased speed of rotation, while the driving connections between the  
125 main shaft and feed-rolls are such as to give them a greatly-reduced speed of rotation. As the shoe-sole or other piece of work is fed forward on the bed, so as to be engaged by the feed-roll 34, the latter operates to feed it  
130 forward beneath the guide or presser-foot 42 and in contact with the upper portion of the abrading-cylinder 5, which latter by its rapid rotation abrades the surface of the sole, the



dust and particles of leather removed by the action of the cylinder being thrown away from the operator who is feeding the machine.

As the material passes from beneath the feed-roll 33 the abraded surface thereof will be thoroughly brushed and cleansed by the rotating brush 58. The spring 53 operates to yieldingly hold the presser-foot and feed-rolls against the material and allows sufficient vertical movement of these parts to compensate for any variation in the thickness of the material.

Whenever it is desired to change the buffing-cylinder or alter or repair the same, it is simply necessary to throw the head back, as illustrated in dotted lines, Fig. 1, when the cylinder is exposed and can be removed or treated, as desired. The head is held in its dotted-line position by means of the stop-rod 69, which is engaged by the tail or projecting portion 68 of the bed.

For convenience I will preferably provide the shaft 6 with the hand-wheel 70, whereby it may be turned when it is desired to remove or replace the abrading-cylinder.

While I have herein illustrated my invention as being embodied in a machine for abrading and resurfacing the soles of shoes, yet it will be obvious that the machine is not limited to this use and that the shape and detailed construction of many of the parts may be varied without departing from the invention. I therefore reserve to myself the right to make all such changes as come within the scope of the appended claims.

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

1. In a machine of the class described, a buffing-cylinder, a head movable toward and from the buffing-cylinder, said head having a bed to support the material being buffed, and adjustable means to support the head with its bed in operative position.

2. In a machine of the class described, a buffing-cylinder, a pivotally-mounted head adapted to swing toward and away from said cylinder, said head having a bed to support the material while being buffed, and means to support the head with the bed in operative position.

3. In a machine of the class described, a buffing-cylinder, a head movable toward and from said cylinder, said head having a bed to support the material being buffed, feeding-rolls carried by said head and operating to feed the material across said bed, and means to support the head in operative position.

4. In a machine of the class described, a buffing-cylinder, a pivotally-mounted head adapted to swing toward and from said cylinder, said head carrying a bed over which the material is passed as it is buffed, and feed-rolls carried by said head.

5. In a machine of the class described, a buffing-cylinder, a pivotally-mounted head adapted to swing toward and from said cylinder,

said head carrying a bed over which the material is passed as it is buffed, feed-rolls carried by said head, and a presser-foot also carried by said head and located between the feed-rolls.

6. In a machine of the class described, a buffing-cylinder, a pivotally-mounted head adapted to be swung toward or away from the buffing-cylinder, said head having a bed to support the material while being buffed, feed-rolls carried by said head and operating to feed the material across the bed, and means to adjust said feed-rolls relative to the bed.

7. In a machine of the class described, a buffing-cylinder, a head pivoted to swing toward or from the cylinder, said head carrying a bed across which the material being buffed is fed, feed-rolls carried by said head, a presser-foot also carried by said head, and means to adjust the feed-rolls and presser-foot with relation to the bed.

8. In a machine of the class described, a buffing-cylinder, a head movable toward and from the buffing-cylinder, said head having a bed to support the material being buffed, feeding-rolls yieldingly carried by said head, and means to support the head with its bed in proper operative position.

9. In a machine of the class described, a buffing-cylinder, a head pivoted to swing toward and from the cylinder, said head having a bed to support the work, two feeding-rolls yieldingly carried by said head, a presser-foot situated between the feed-rolls, and also yieldingly carried by the head, and means to adjust the presser-foot and feed-rolls relative to the bed.

10. In a machine of the class described, a frame, a buffing-cylinder supported therein, a pivoted bed above the cylinder and adapted to have the work passed thereover as it is buffed.

11. In a machine of the class described, a frame, a buffing-cylinder supported thereby, a bed pivoted to the frame and constructed to support the work as it is being buffed, and a presser-foot to engage the work and hold the latter against the cylinder.

12. In a device of the class described, a frame, a buffing device supported thereon, a head pivoted to the frame and carrying a bed constructed to support the material as it is buffed, feed-rolls to feed the material over the buffing device, and means to rotate the rolls.

13. In a device of the class described, a frame, a buffing device supported thereon, a head pivoted to the frame and carrying a bed constructed to support the material as it is buffed, feed-rolls to feed the material over the buffing device, means to rotate the rolls, a presser-foot to hold the material against the buffing device, and means to adjust the feed-rolls and presser-foot with reference to the bed to vary the pressure with which they hold the material against said bed.

14. In a machine of the class described, a

frame, a buffing-cylinder journaled therein,  
a main shaft supported by the frame, means  
to drive the buffing-cylinder from the main  
shaft, a head pivoted to the frame, feed-rolls  
5 carried by the head, means to operate said  
feed-rolls from the main shaft, and a bed also  
carried by the head and constructed to sup-  
port the material as it is buffed.

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

ALPHONSE BUTEAU.

Witnesses:

MARY E. DIXON,  
R. J. CURRAN.