

No. 819,722.

PATENTED MAY 8, 1906.

J. BUSFIELD.  
BUFFING ROLL.

APPLICATION FILED JUNE 16, 1905.

3 SHEETS—SHEET 1.

Fig. 1.

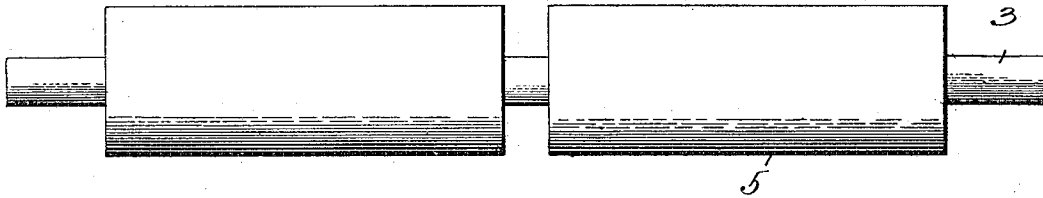


Fig. 2.

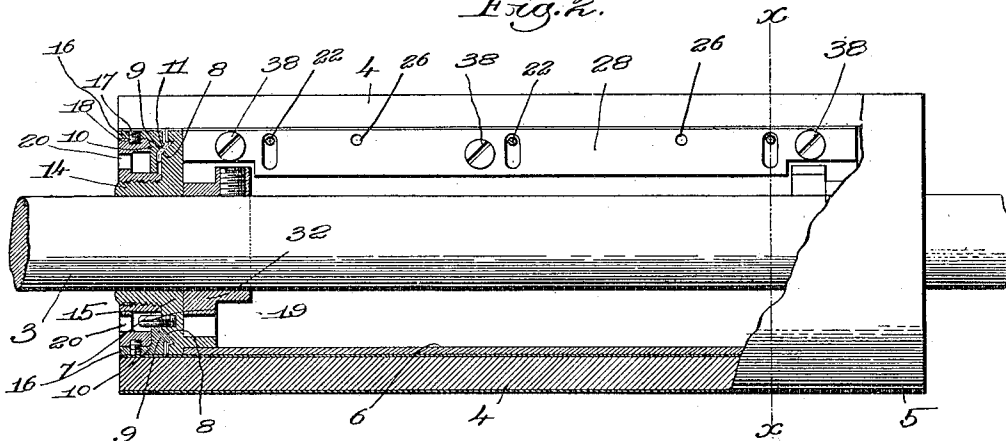


Fig. 3.

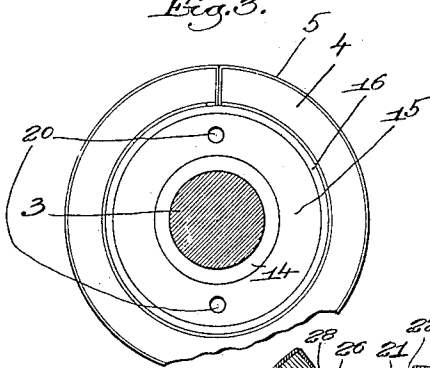


Fig. 4.

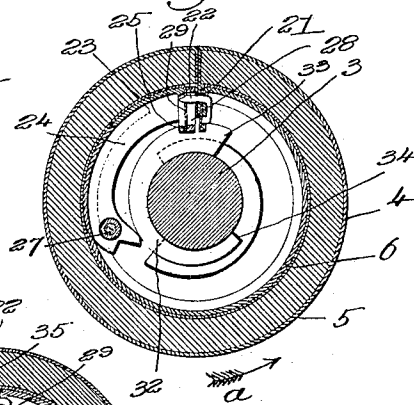
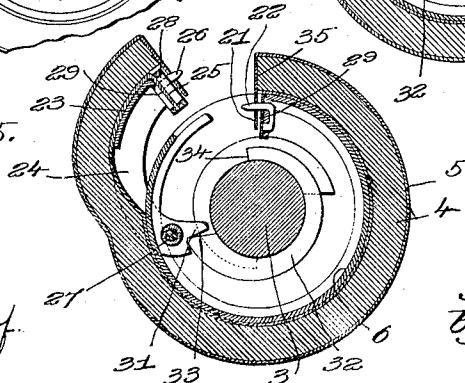


Fig. 5.



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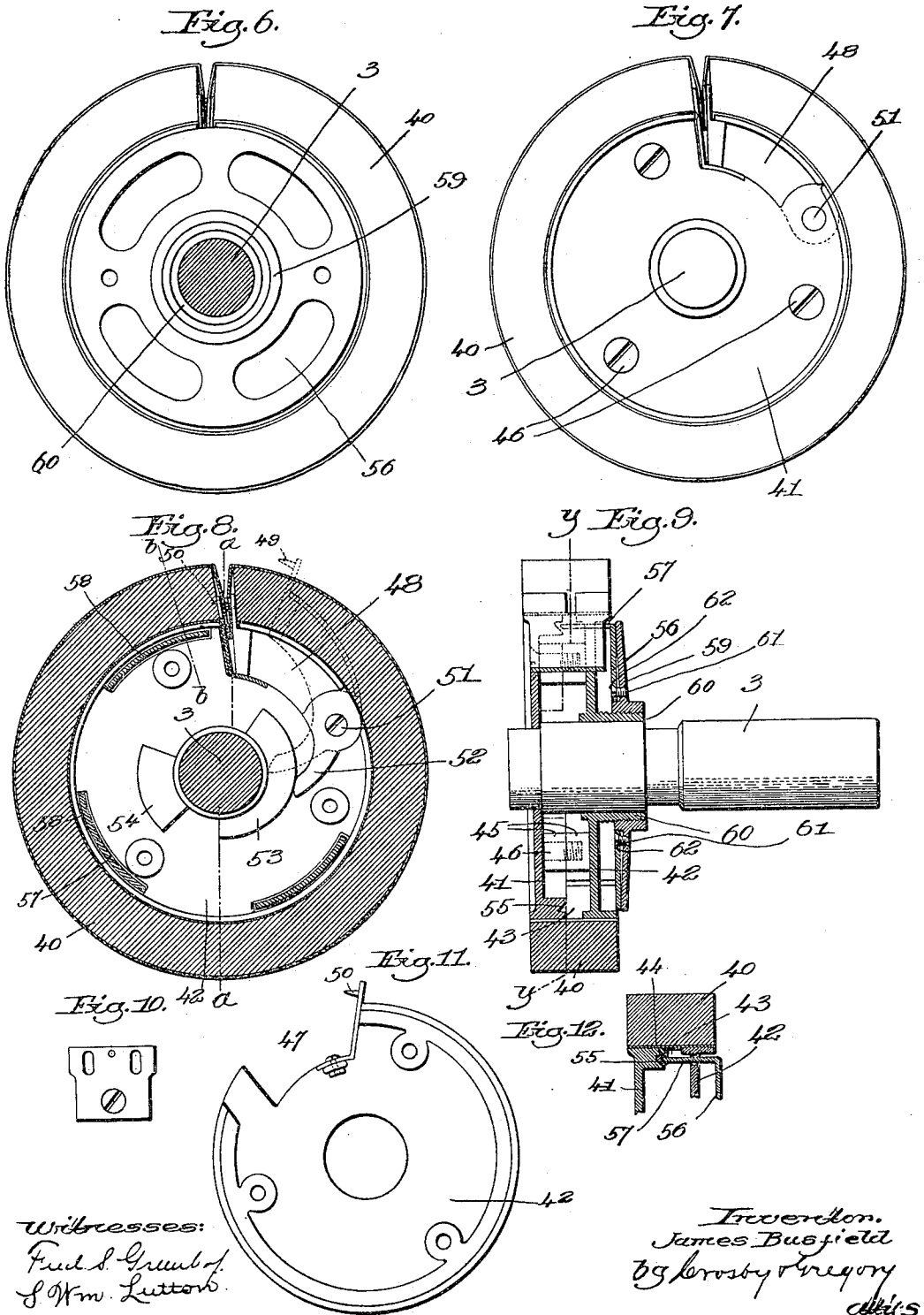
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3 SHEETS—SHEET 2.



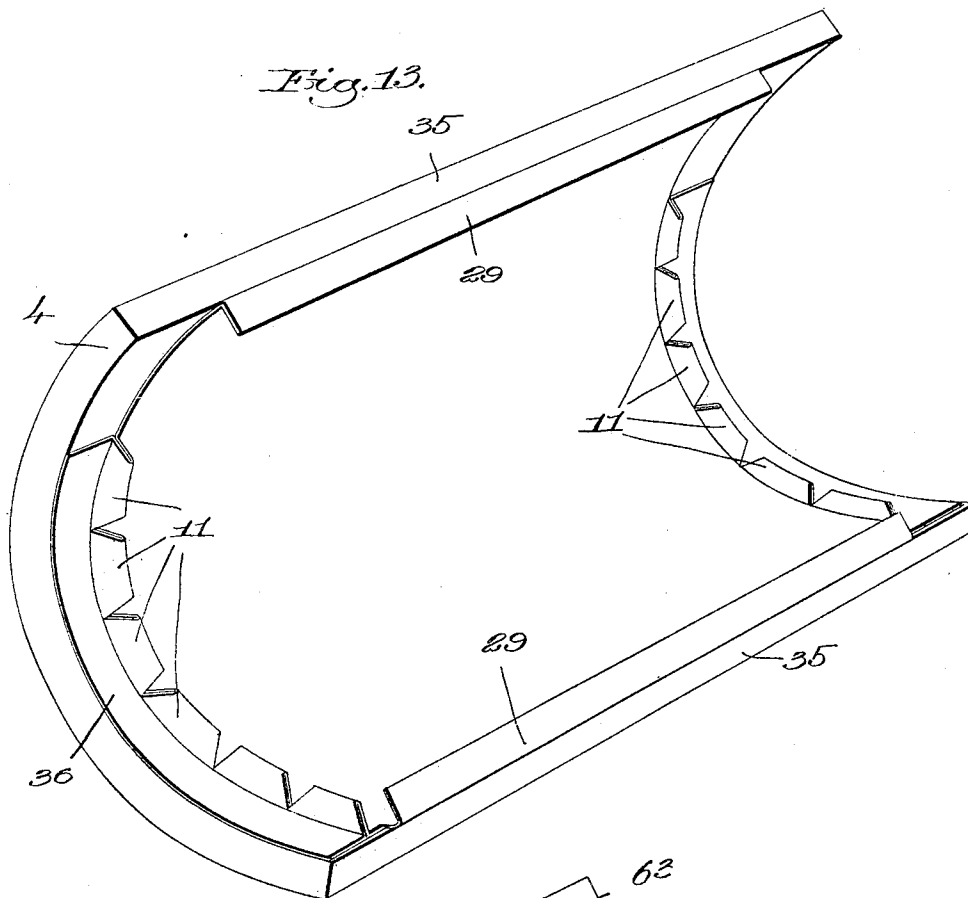
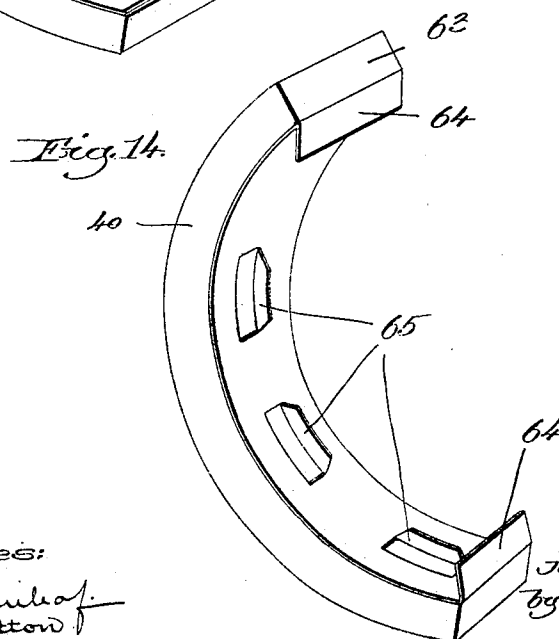
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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

JAMES BUSFIELD, OF HAVERHILL, MASSACHUSETTS.

## BUFFING-ROLL.

No. 819,722.

Specification of Letters Patent.

Patented May 8, 1906.

Application filed June 16, 1905. Serial No. 265,536.

*To all whom it may concern:*

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

This invention relates to buffing-machines, and particularly to the buffing-rolls.

It has for one of its objects to provide a novel construction of buffing-roll in which the clamping devices for clamping the pad and pad-cover to the pad-holder are so located that the space necessary to receive a buffing-roll may be very much reduced and for another object to provide a novel construction of fastening device for the pad-cover which can be easily manipulated to release the pad-cover from the pad-holder or to clamp it thereto.

In that style of buffing-machines which are used for buffing the soles of shoes two buffing-rolls are generally employed, one having a pad-cover with a coarse abrasive surface and the other having a pad-cover with a finer abrasive substance. The devices for clamping the pad-covers to the holders or cylinders are usually placed at the ends of the cylinders, and such devices take up so much room that if the two rolls are placed in alinement or on the same surface they must of necessity be separated such a distance from each other as to make it awkward for an operator to work first on one and then on the other. To overcome this difficulty, it has been proposed to arrange each buffing-roll upon a separate shaft and place the shafts at an angle to each other, the operator standing within the angle, so that by merely turning his body the shoe or other article to be buffed can be moved from one roll to the other. This arrangement of buffing-rolls, however, has some disadvantages which it is desirable to overcome. By means of my improvements it is possible to place the two buffing-rolls on the same shaft and yet locate them so near together that an operator can easily work first on one and then on the other without moving out of his position.

A buffing-roll embodying my improvement comprises a shaft, a cylinder or pad-holder, and means located within the limits

of the pad-holder for clamping the pad to said holder. Said machine also comprises a shaft, a pad-holder loosely mounted thereon, said pad-holder being made of two parts, one of which is pivoted on the other, each part being provided with pad-attaching means and means whereby relative turning movement of the shaft and pad-holder operates to move the swinging part of the pad-holder toward and from the other part thereof. Said roll also comprises a pad-holder having an annular groove formed between two clamping-surfaces, means to clamp said surfaces together, and a pad provided with an inwardly-directed annular rib to be received within said groove between the clamping surfaces.

The particular features of my invention will be more fully hereinafter described and then pointed out in the claims.

Figure 1 is an outline view showing two buffing-rolls mounted on said shaft, the purpose of said view being to show how closely the rolls can be brought together without interfering with the operation of taking a pad off or replacing it on the rolls. Fig. 2 is a view of a buffing-roll, said view showing the roll partly in elevation and partly in longitudinal section. Fig. 3 is an end view of Fig. 2. Fig. 4 is a section on the line *x x*, Fig. 2. Fig. 5 is a view similar to Fig. 4, showing the two parts of the pad-holder opened away from each other. Fig. 6 shows an end view of a different style of buffer. Fig. 7 is a view of the reverse side of Fig. 6. Fig. 8 is a section on the line *y y*, Fig. 9. Fig. 9 is a section on the line *a a*, Fig. 8. Fig. 10 is a detail of one of the grip devices for securing the edge of the pad-cover to the pad. Fig. 11 is a side view of one of the parts of the pad-holder shown in Figs. 6 to 9. Fig. 12 is a section on the line *b b*, Fig. 8. Fig. 13 is a perspective view of a pad adapted for use in connection with the style of roll shown in Fig. 2, said pad being opened out to better show its construction. Fig. 14 is a similar view of a pad adapted for the style of buffer shown in Figs. 6 to 9, inclusive.

My invention may be embodied in a so-called "buffing-roll"—that is, a cylindrical buffing-roll of considerable length—or it may also be embodied in a buffing-roll which is comparatively narrow. In the drawings I have shown both embodiments.

Referring first to Figs. 1 to 5, wherein a comparatively long buffing-roll is shown, 3

designates a shaft on which the buffing-roll or cylinder is mounted. 4 designates the buffing-pad, and 5 the pad-cover, which is of sandpaper, emery-cloth, or some other suitable abrasive material. The pad is mounted upon the cylindrical body 6, which I will hereinafter refer to as the "pad-holder." My improvements relate to the manner in which the pad and pad-cover are clamped and held to the pad-holder. The pad-holder (shown in Figs. 1 to 5) comprises a cylindrical shell 6, which is sustained at its ends upon heads 7, loosely mounted on the shaft 3. Each head 7 is provided with a clamping-surface 8, which coöperates with another clamping-surface 9 on a clamping member 10, said clamping-faces when opened forming between them an annular groove, which is adapted to receive a tab or tabs 11, projecting inwardly from the interior of the pad-cover 4. Each clamping member 10 may be supported in any suitable way; but in order to economize space and to provide such a construction that the two rolls may be set comparatively closely together on the same shaft I prefer to mount each clamping member upon the hub 14 of the corresponding head 7 and to make each clamping member of the same external diameter as the cylinder 6, so that said members form, in effect, a continuation of the exterior surface of the pad-holder. The means herein shown for giving each clamping member 10 its movement toward and from the corresponding head 7 comprises a collar 15, screw-threaded to the hub 14 and setting within the flange or portion 16 of the clamping member. Suitable means are provided for causing the collar 15 and clamping member 10 to move longitudinally in unison, while permitting the collar to be turned relatively to the clamping member. The means shown in Fig. 2 to accomplish this object comprises a pin or stud 17, projecting inwardly from the flange 16 and engaging an annular groove 18 in the periphery of the collar 15. The clamping member 10 is held from rotation by means of a suitable stud or pin 19, projecting from the head 7 and extending through an aperture in the clamping member. This same clamping means will preferably be used at each end of the cylinder 6, and as the clamping members 10 have the same external diameter as the cylinder 6 the pad 4 may be made to cover over said clamping member. The effective length of the buffing-cylinder, therefore, is the combined length of the cylinder 6 and the clamping members 10, the latter being situated within the limits of the buffing-cylinder. The screw-threaded collars 15 are provided with suitable apertures 20 for the reception of a spanner, which may be used for closing the clamping-faces together or separating them from each other. The shell of the cylinder 6 or pad-holder is provided with the lon-

gitudinally-extending clamping-faces 21, (see Figs. 4 and 5,) from which extend one or more pointed projections 22. The shell 6 is made in two parts, the main portion being rigid with the heads 7 and the portion 23 being movable with relation to the other portion. Said portion 23 is herein shown as mounted on suitable pivoted arms 24, and it has the inwardly-directed longitudinal flange 25, from which extends one or more pointed projections 26. The arms 24 may be pivoted in any suitable way. As herein shown, they are pivoted upon a rod 27, which extends longitudinally of the cylinder and is supported at its ends in the heads 7. Secured to the flange 25 is a clamping member or strip 28, between which and said flange a tab 29 on the pad 4 is adapted to be received. In order to apply the pad or pad-cover to the roll, it is necessary that the movable portion 23 of the pad-holder should be opened away from the fixed portion, as shown in Fig. 5. I have provided means whereby this may be accomplished by turning the pad-holder relatively to the shaft 3, so that a turning movement of the pad-holder relative to the shaft one way or the other will either open the portion 23 away from the fixed portion of the pad-holder or close it against said fixed portion. Referring now to Figs. 4 and 5, it will be seen that the inner end of each arm 24 is provided with a nose 31 and that the shaft 3 has rigid therewith flanges 32, which are shaped to present abutments or shoulders 33 and 34 for acting on the nose 31, thereby to swing the arms 24 into their open or closed position. By turning the pad-holder about the shaft 3 in the direction of the arrow *a*, Fig. 4, the toes 31 of the arms 24 will be brought against the shoulders 33 and said arms thrown into the open position, Fig. 5, while when the pad-holder is turned clockwise with reference to the shaft 3 in Fig. 5 the toes will be brought against the shoulders 34, thereby to throw the arms 24 into the closed position shown in Fig. 4. The flanges 32 are cam-shaped or eccentric to the axis of rotation, and the depth of the shoulders 34 is such that when the pad-holder is turned clockwise the shoulders 34 pass under the toes 31 after the arms are in their closed position, as seen in Fig. 4, and the cam shape of the flanges locks the arms in their position. The pad-holder which is adapted to be used in connection with this roll is shown in Fig. 13. It has a body portion of felt or similar material and is cut longitudinally, so that it can be opened out to be placed on the roll, as usual. Along the edges 35 are the tabs 29, which are adapted to overlap the flanges 21 and 25 of the pad-holder, and at each end is one or more inwardly-directed tabs 11, adapted to be clamped between the clamping-faces 8 and 9. A single tab 11, which extends substantially the full distance around the inside of the pad, or sev-

eral separate tabs may be employed. These tabs are conveniently made by means of folds in a fabric lining 36, which is firmly secured in any suitable way to the inner face of the pad, although said tabs may be made in any other way without departing from the invention.

In applying the pad to the pad-holder the swinging arms 24 and the portion 23 are opened, as shown in Fig. 5, and the clamping-strip 28 removed by removing the holding-screws 38. One of the tabs 29 is then placed over the pointed projections 26, against the flange 25, and the clamping-strip 28 replaced, said strip operating to prevent the tab 29 from being disengaged from the projections 26. The pad is then placed around the holder 6 and the other tab 29 forced over the pointed projection 22, as seen in Fig. 5. Before this operation the clamping members 10 are backed off from the heads 7, thereby to leave an annular groove between each pair of clamping-surfaces 8 and 9 sufficient to receive the tabs 11. The pad-cover, of sandpaper or emery-cloth or other suitable material, is then applied to the pad, the edges of said cover being folded over the edges 35 of the pad and being forced over the projections 26 and 22. When the pad and pad-cover are in place, the pad-holder is turned on the shaft, thereby bringing the shoulders 34 against the toes 31 and closing the arms 24 into the position shown in Fig. 4. The collars 15 are then screwed up, thereby clamping the tabs 11 between the clamping-surfaces 8 and 9. Preferably the tabs 11 will extend from the flange 21 around only to a position about opposite the pivotal shaft 27, so that that portion of the pad between said pivotal shaft 27 and the flange 25 is not held by the clamping-surfaces. I employ this construction so that it will be possible to swing the arms 24 into open position without releasing the clamping-surfaces. This makes it possible to apply a pad-cover or remove the same by merely opening the swinging arms 24 and without the necessity of separating the clamping-faces 8 and 9.

In Figs. 6 to 12 I have shown my invention embodied in a buffing roll or wheel having a comparatively narrow buffing-surface. In this embodiment of my invention, 3 designates the shaft, on which is mounted the pad-holder, and 40 designates the pad. The pad-holder is loosely mounted on the shaft, is provided with an annular groove to receive a tab on the pad, said groove being formed between two clamping-surfaces, is provided with means substantially within the limits of the wheel or roll to clamp said surface onto the tab, is provided with means whereby the rotation of the pad-holder relative to the shaft will open the holder for the purpose of removing the pad or pad-cover or replacing

them. The pad-holder, as herein shown, comprises two connected disks or heads 41 and 42, forming between them a groove or space 43, into which the laterally-extending tab 44 of the pad-holder is adapted to be received. The disks 41 42 may be connected in any suitable way. I have herein shown them as connected together by screws 46, which pass through aligned spacing projections 45 integral with the disks. The two heads are cut away or recessed, as at 47, and in said recess is pivotally mounted a clamping-block 48, said block having on its end a pin or projection 49, which coöperates with other pins or projections 50, extending from the end wall of the recess for holding the pad in place, as will be more fully hereinafter described. The block 48 is pivoted to the heads, as at 51, and has a tail or nose 52, which is adapted to be engaged by cams or projections 53 and 54, fast on the shaft, when said pad-holder is rotated relative to the shaft. The head 41 is provided with an annular clamping-surface 55, and coöperating with said surface is a clamping member 56, carried by the disk 42. Said member is shown as a plate having projecting therefrom flanges 57, which operate through slots 58 in the head 42 and coöperate with the clamping-surface 55 to clamp the tab 44 in place, as best seen in Figs. 9 and 12. The plate 56 is mounted on a collar 59, which in turn is screw-threaded on the hub 60 of the head 42, and said collar 59 is connected to the clamping member 56 in some suitable way, so as to permit it to be turned with reference to the clamping member, but to compel the clamping member to move longitudinally of the shaft therewith. In this form of the invention this is accomplished by means of screws or similar projections 61, made fast to the collar 59, the heads of which engage the beveled edge 62 of the central opening in the clamping member 56. Any other suitable way of accomplishing this object may be used, however, without departing from the invention.

The pad 40 is split, as at 63, Fig. 14, and is provided with the two tabs 64 and also with the radially-extending tabs 65. In applying this pad to the pad-holder the collar 59 is backed off, thereby withdrawing the clamping-flanges 57 from the clamping-surface 55, and the pad-holder is turned on the shaft, thereby to open the clamping-block 48, as shown in dotted lines, Fig. 8. The pad is now applied with the tabs 65 entering the groove 43 and overlying the clamping-surface 55 and with the tabs 64 pierced by the projections 49 and 50. The pad-holder is then turned relative to the shaft, thereby to close the clamping-block 48 into its operative position, as shown in Fig. 7, and the collar 59 is screwed up by a spanner or other suitable tool, thereby closing the tabs 65 against the

clamping-surface 55. The pad-cover is applied in the usual way, the ends being folded over the edges 63 of the pad and being pierced by the projections 49 and 50. The disposition of the tabs 65 is such that the clamping-block 48 may be swung into its open position without unclamping said tabs 65 from the clamping-surfaces 55, and therefore in order to apply a pad-cover it is merely necessary to turn the pad-holder relatively to the shaft to open the block 48 sufficiently to render the projections 50 and 49 accessible.

In both forms of my invention it will be seen that the clamping means is located within the limits of the pad-holder, and therefore the entire mechanism takes up no more room on the shaft than the length or width of the pad itself. This enables me to place two buffing-wheels or buffing-rolls on the same shaft much more closely together than is possible with any other mechanism with which I am familiar.

While I have shown herein two embodiments of my invention, I do not wish to be limited to them, as it will be obvious that the principle of the invention may be embodied in other constructions than those illustrated.

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

1. In a buffing-roll, a shaft, a pad-holder carried thereby, said pad-holder having an annular groove, a pad carried by the pad-holder and having a tab projecting inwardly therefrom to enter the groove, and means to clamp the tab within the groove.

2. In a buffing-roll, a shaft, a pad-holder carried thereby, said pad-holder having an annular groove, a pad carried by said pad-holder and having an inwardly-projecting tab to enter the groove, and means within the limits of the pad to clamp said tab within the groove.

3. In a buffing-roll, a pad-holder having an annular groove, one side of which groove constitutes a clamping-face, a pad encircling said pad-holder, said pad having a tab projecting from its inner surface and adapted to enter the groove, and means to clamp said tab against the clamping-face.

4. In a buffing-roll, a pad-holder having an annular groove, one side of which groove constitutes a clamping-face, a pad encircling said pad-holder and extending beyond the groove, said pad having on its inner face a tab to enter the groove, and means within the limits of the pad to clamp said tab in place.

5. In a buffing-roll, a pad-holder having an annular groove, one side of which groove constitutes a clamping-face, a pad covering the groove and provided on its inner face with a tab to enter said groove, and a clamping member to engage the tab and clamp the latter against the clamping-face.

6. In a buffing-roll, a pad-holder having an annular groove between its ends, a pad extending the full length of the pad-holder and overlying the groove, a tab projecting inwardly from the pad and entering the groove, and means to clamp said tab in the groove.

7. In a buffing-roll, a pad-holder having a circumferential groove between its ends, one side of which groove constitutes a clamping-face, a pad surrounding the pad-holder and extending the full length thereof and covering the groove, a tab projecting inwardly from the inner face of the pad and adapted to enter the groove, and a clamping member to engage the tab and clamp the latter against said clamping-face.

8. In a buffing-roll, a shaft, a pad-holder loosely mounted thereon, said pad-holder having a longitudinal groove or opening, arms pivoted to the pad-holder, a swinging member sustained by said arms and adapted to move into and out of said opening, and collars carried by the shaft each having two opposed shoulders to engage said arms, whereby turning movement of the pad-holder relative to the shaft gives said arms their swinging movement in either direction.

9. In a buffing-roll, a shaft, a pad-holder loosely mounted thereon, said pad-holder having a longitudinal opening, arms pivoted to the pad-holder and each provided with a toe, a swinging member sustained by said arms and adapted to move into and out of the opening, and collars carried by the shaft, each collar having a cam-surface and two opposed shoulders, said shoulders being adapted to engage the toe of the corresponding arm when the pad-holder is turned on the shaft thereby to give the swinging member its movement and the cam-surface coacting with said toe to lock the member in the opening.

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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H. E. PETTENGILL.