(No Model.)

A. W. ROGERS.

BUFFER.

No. 407,246. Patented July 16, 1889.

Fig. 3.

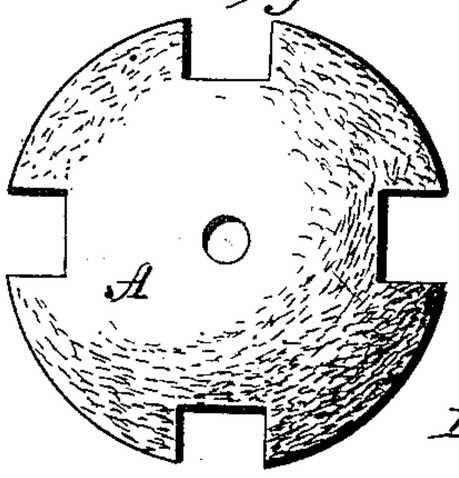


Fig. 1.

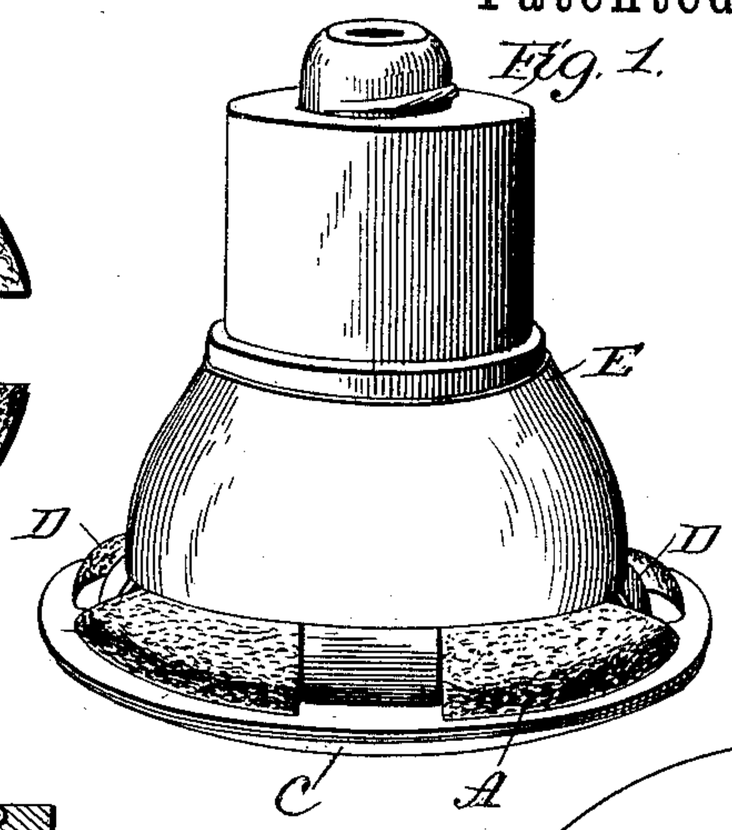


Fig. 4.

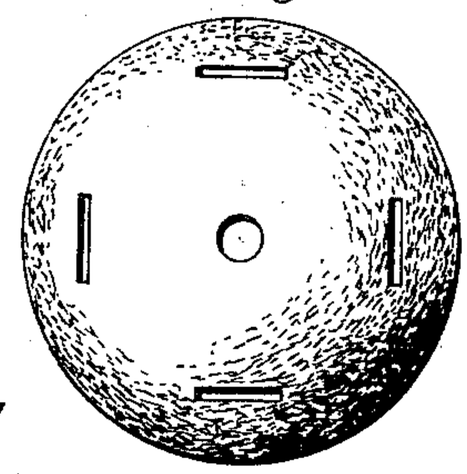


Fig. 2.

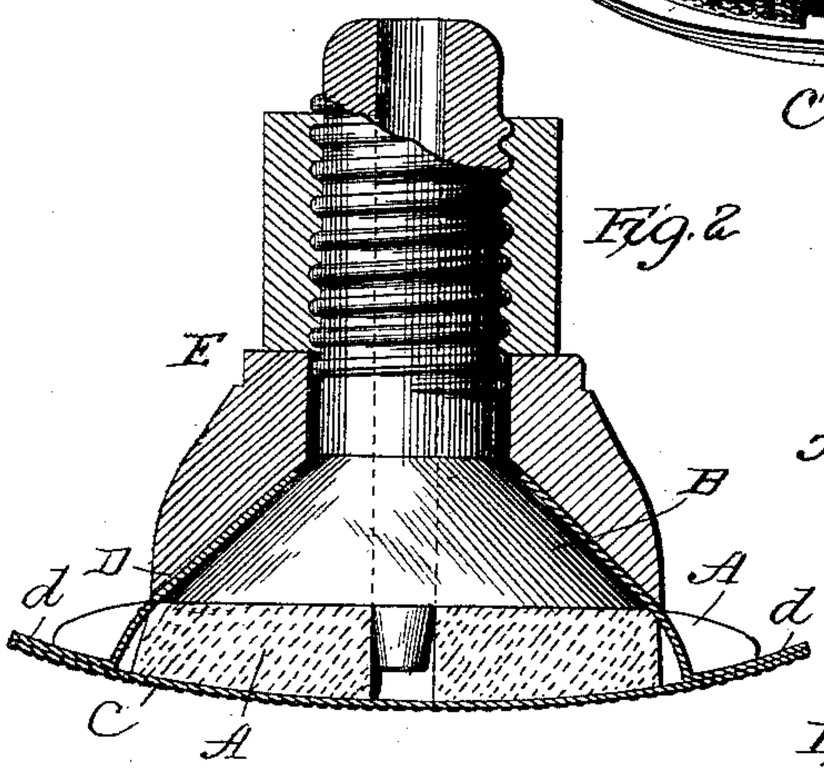


Fig. 5.

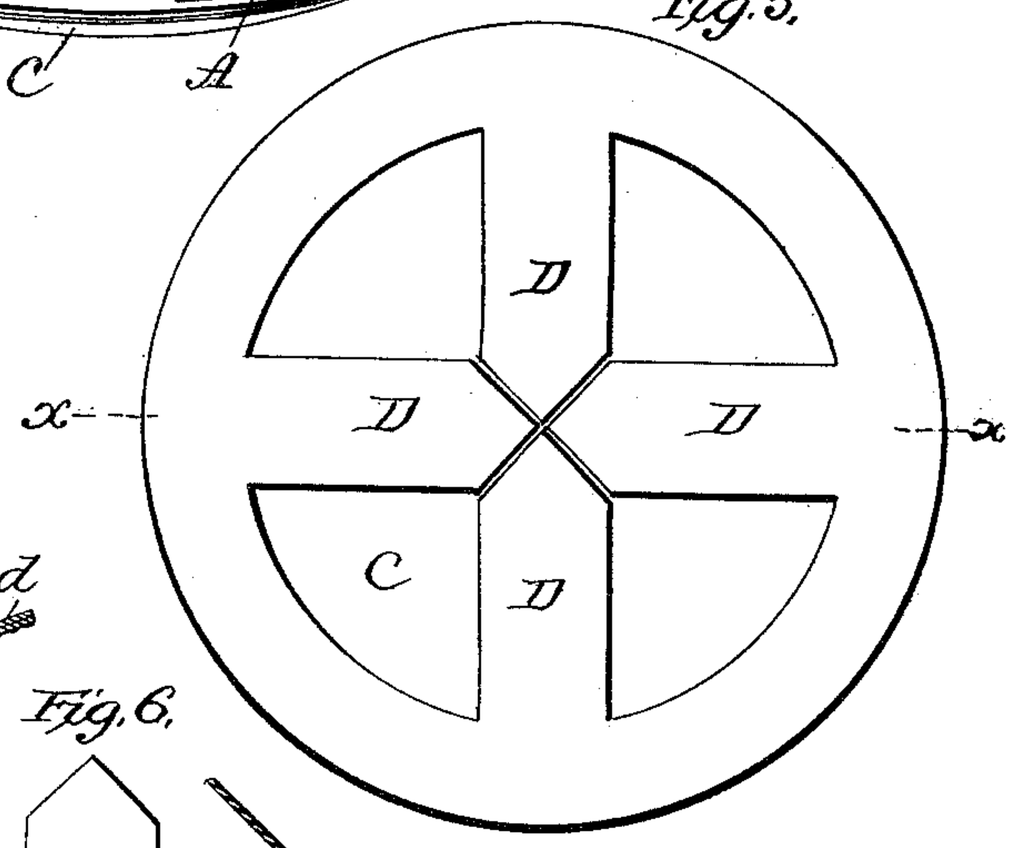


Fig. 6.

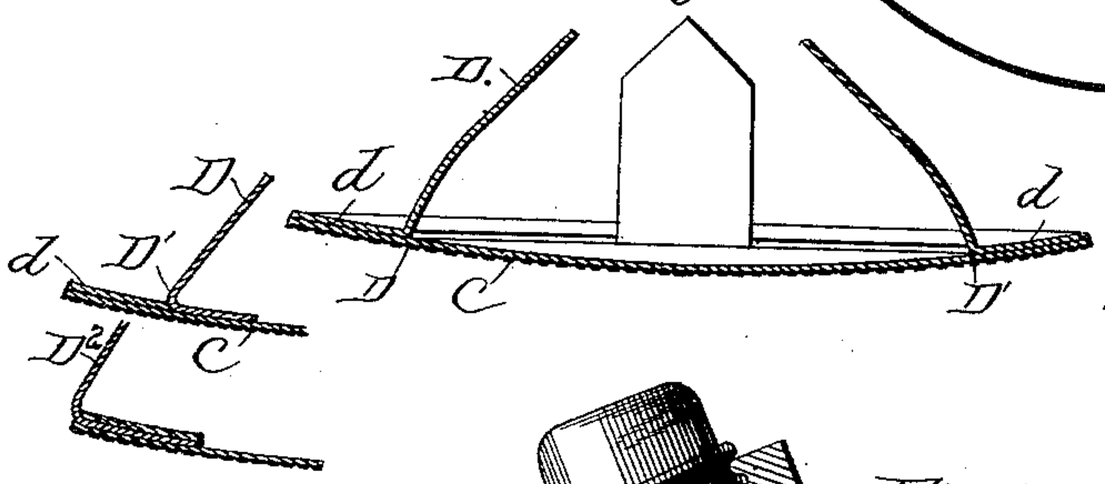
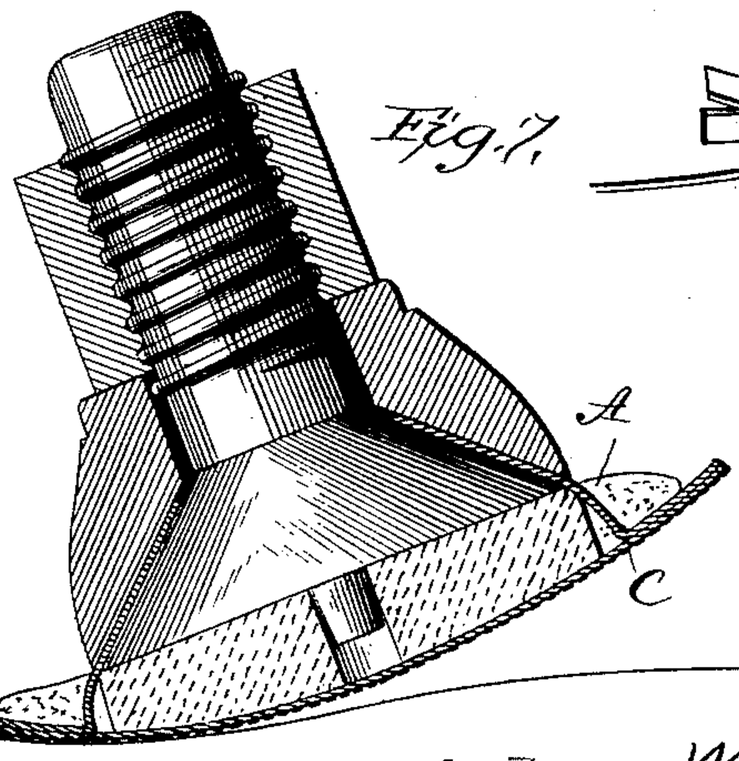


Fig. 6ª.

Fig. 7.



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Walter P. Keene

Inventor
Andrew W. Rogers.
by Ellis Spear
Atty.

UNITED STATES PATENT OFFICE.

ANDREW W. ROGERS, OF BEVERLY, MASSACHUSETTS, ASSIGNOR TO SIDNEY W. WINSLOW, TRUSTEE, OF SAME PLACE.

BUFFER.

SPECIFICATION forming part of Letters Patent No. 407,246, dated July 16, 1889.

Application filed December 7, 1888. Serial No. 292,924. (No model.)

To all whom it may concern:

Be it known that I, ANDREW W. ROGERS, of Beverly, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Buffers for the Soles of Boots or Shoes; and I do hereby declare that the following is a full, clear, and exact description of the same.

The invention hereinafter described is an improvement in buffers for the soles of boots or shoes, and relates to the class first shown in Letters Patent of the United States granted on the 1st day of May, 1877, and numbered 190,174. In that patent is shown a buffer having the general shape of the frustum of a cone, the lower part of which is of elastic yielding material, such as felt, on the face only of which is a covering of abrading material, such as sand-paper. This, suitably rotated operates to finish the front of the shoe-sole and is also suited to work upon the surface of the sole close to the breast of the heel without abrading the finish of the heel.

A further improvement upon this is shown in Letters Patent of the United States No. 227,839, of 1880, in which the abrading-covering of sand-paper or like material is shown as removable, being attached at its margin to an annular piece of flexible material projecting over the upper margin of the pad and forming what is called a "pouch."

A further improvement has also been devised in respect to the securing of the abrading-covering to the face of the pad shown in Letters Patent of the United States No. 264,688, of 1887, in which a circular pad is reduced in places by the removal of segments, in which places the edge of the sand-paper is turned up to secure the whole to the face of the pad. This leaves also between the parts turned up the edges of the sand-paper, together with parts of the pad or foot, projecting beyond the turned-up portions and adapted to work up closely against the breast of the heel without abrading the surface thereof.

In my invention I have sought to accomplish more effectually and by more economical construction the objects sought in the prior inventions. I have had in mind facility of removal from the face of the pad of the abrading-covering when worn, an economical construction of such covering with its attachments, adaptability to work close to the breast of the heel without injuring the surface thereof, and capacity to work perfectly on all parts of the sole. These are the general objects of my invention, the details of which are explained in connection with the details of construction hereinafter fully set forth.

In general terms my invention may be said to consist, first, of an abrading-covering for the foot of a buffer constructed in relation thereto so that the stiff edge of the covering will extend beyond the margin of the foot. Whatever kind of foot used, whether rigid or yielding, as is the case with felt, the marginal extension of the covering, being sufficiently stiff, is adapted to work up close to the breast of the heel and presents to the surface of the heel, which it touches, only the unsanded and non-abrading edge, while the sanded face finishes perfectly the face of the sole.

Second, my invention consists of this abrading-covering combined with a yielding foot—such as the felt ordinarily used—and extending beyond the edge of the foot, the connection between the covering and the foot being such that the edge of the foot may move loosely upon the covering as the tool is turned or its spindle inclined to work up to the breast of the heel. The bending in this case causes the loose felt to move outward on the covering, the margin leaving room for that purpose without preventing the foot from coming into contact with the breast. At the same time the felt projecting out on the covering supports the edge thereof in its work.

For the best effect in the particular just described I have found it desirable that the yielding foot, when used in connection with the abrading-covering extending beyond its margin, should be made thinner by rounding or beveling on the edge.

My invention is shown in connection with an abrading-covering for the foot of a buffer having projections forming foot-connections attached to its inner face for connecting it to the foot, this being distinguished from the

marginal attachment shown in the pouch form heretofore used by the projection arranged to hook into the struck-up parts of the covering or bolts arranged centrally to hold the covering. This includes a class of connections designed to hold the covering to the foot, which may be greatly varied, but which are distinguished from the methods of attachment heretofore shown by the fact that these projections are attached to or fixed permanently upon the inner face of the covering, so that the covering may be sold as an article of manufacture, as it is, with the projections fixed thereto and ready for application to a buffer. In the buffer to which I have applied my invention the attachment of these projections is to the inner face of the buffer, between the margins and the center, whereby a strong connection is made to resist the tendency to rotary movement of the covering of this foot in working, while the movement on the margin, heretofore referred to, is freely permitted.

The fourth point of the invention consists in combining with the construction described in the preceding paragraph a foot having notches or holes to receive the projections, these notches or holes being advantageously used in connection with some kinds of projections, as hereinafter explained. These valuable features, however, shown in connection with my invention are not of it, but are shown and claimed in an application of Winslow and Winslow, No. 292,932.

The fifth point of my invention consists of details subordinate to those just described—namely, of a flexible projection on the inner face of the covering, within the margin, to be used in connection with the holes or notches in the foot.

The sixth specified point of my invention consists in combining with the abrading-covering a flexible connection, such as straps, on its inner face within the margin, and a yielding foot having notches or holes near its margins, the flexible connections working better in connection with a yielding foot and producing a better result.

Seventh. My invention consists in combining with a covering for the foot of a buffer having a continuous working-face projections on the inner surface, within the margin of the covering, adapted to hold it to the foot.

Eighth. My invention consists of an abrading-covering for the foot of a buffer having a continuous working-face and projections on its inner surface, within the margin thereof, adapted to hold it to the foot. As distinguished from such coverings as have been heretofore known having countersunk portions on the working-faces to receive attachments which were fixed to more or less immediate connections to the spindle the class of projections hereinafter shown by me present the great advantage of a continuous face, which gives full effect to the material of the covering and avoids any accumulation of dust in such countersunk portions.

My invention further consists of an annular re-enforcing-strip upon the margin of the abrading-covering, this serving to re-enforce the edge of it where the greatest strain comes in working, near the breast of the heel; and in connection with this the ninth point of my invention consists in forming the projections out of the same material, or, in other words, integral with this re-enforcing-strip, and the tenth point consists in forming the projections or tongues on the inner margin of this re-enforcing-strip, whereby the edge of the abrading-covering is left free to work.

My said invention is illustrated in the accompanying drawings, in which—

Figure 1 represents in perspective the abrading-covering and its foot with the parts by which it is held to the revolving spindle. Fig. 2 shows the same in vertical section. Fig. 3 represents a plan view of the foot; Fig. 4, a like view of a modified form thereof. Fig. 5 shows in plan view the inner face of the abrading-covering with the re-enforcement; Fig. 6, a section of the same on line $x\ x$ of Fig. 5, showing also two modified details. Fig. 6[a] shows a further modification. Fig. 7 shows a section similar to Fig. 2, illustrating the action of the abrading-covering in moving on the foot.

In the drawings, A represents the foot or that part of it to which the abrading-covering is immediately attached. It is shown, preferably, in disk form, the edges of which are either a continuous circle, as in one case, or are cut with notches, as in the other, which latter represent any recesses suitable to the purpose, and are made to receive the attaching projections, which form the connections for the foot in the place of the holes shown in the unmutilated form. I have also represented the foot as flat, this being the convenient form for use in connection with the conically-formed base B of the intermediate connection between the foot and the spindle; but I wish it to be understood that for the purposes of this invention the foot may be so formed as to fill the place of the conically-formed base aforesaid.

My invention is best carried out by using for the foot a felt pad of the described shape; but for some purposes and for performing some useful functions of the invention a rigid material may be used instead of the felt, and as a matter of course (as is well understood) other yielding substances instead may be used as a substitute for the felt for all the purposes of the invention, and the term "felt" is herein used in connection with the pad as a representative term for all that class of materials, including a foot made out of a coiled spring. For its best effect the foot is provided with a slightly-convex lower face, and the upper surface is rounded to an edge, for the purposes hereinafter explained.

The abrading-covering, as indicated by C, is formed of cloth, paper, or a sheet of any material suitable for the purpose having an abrading-surface, cloth being the preferred form. For certain effects of the invention hereinafter explained, and in the form shown, this covering is made larger in surface extent than the pad or foot to which it is applied, and when the pad is made in circular form, as described, the covering is also circular, being of slightly greater diameter than that of the foot. The extension of the covering beyond the margin of the pad may be varied somewhat, depending principally upon the rigidity and strength of the covering; but for the ordinary purposes and for ordinary materials one-eighth of an inch is an approximate extent. Where the face of the foot is convex, as heretofore explained, the abrading-covering is struck up or otherwise formed to correspond thereto. The margin of the covering should be to a certain degree inflexible or stiff, so as not to turn up over the edge of the foot in working. In order to strengthen the margins of the abrading-covering, I glue or otherwise fix thereto an annular re-enforcing piece *d* of stiff paper or some other suitable material, the margin of the annular piece preferably coinciding with the margin of the abrading-covering.

It will be understood that the abrading material—such as the ordinary sand-paper surface, for example—is on the working-surface of the covering only, leaving the edge non-abrading, and as the instrument works up to the breast of the heel the covering, having a thin plain smooth edge, abrades the surface of the sole closely to the heel without abrading the face of the heel. In order to attach the abrading-covering to the foot, I have shown projections which are fixed to the inner face of the covering. The general nature of the invention would permit of the use of rigid projections for the foot-connections; but, as shown at D, they may be economically made of strips of any suitable flexible material, and may be attached to the inner face of the covering by gluing or otherwise fixing them thereto, as shown at D′, directly to the inner face of the said paper or cloth, or the ends may be inserted between the re-enforcement, either at its inner or outer edge, as at D^2, and very conveniently these strips also may be cut out integral with the re-enforcements on the outer or inner edge thereof. When on the outer edge, they are stretched snugly over the edge of the foot and secured. When on the inner edge, as in Figs. 5 and 6, they project up through the notches or holes in the foot and are fastened in any convenient manner. In order that they may not interfere with the action of the foot, and particularly that when the yielding foot is used it may perform its particular effect without obstruction, I locate these projections within the margin of the covering and also within the margin of the foot by insertion through the notches or holes. By their flexibility they permit, in either case, the free working of the foot in relation to the covering, especially at the heel, and the best effect arises from the arrangement of the projection within the margin of the covering. This forward movement of the felt operates to strengthen and support the edge of the cover at the moment when the cover is put to doing its hardest work. As shown the projections are arranged to register with the holes or notches in the foot, and the upper ends are clamped over the base by means of a cap E, screwed down thereon; but this method of holding the projections is only one of many which may be used for the purpose. When the projections are located within the margins of the foot and cover, as explained, the flexible foot is free to move when the edge is bent, as it necessarily is in working up to the breast of the heel, as illustrated in Fig. 7. Under such conditions the yielding foot moves outward in respect to the edge of the covering evenly and with uniform pressure upon the margin, but does not overlap the margin of the covering. The uniformity of this motion and the action of the flexible foot in its relation to the covering is in no wise interfered with by reason of the flexibility of the connecting projections, and the flexibility of these projections is also a convenience in using the common fastenings used for the purpose of holding the parts together; but rigid fastenings, as a central bolt with flanged head, or such as pointed tacks having their heads fixed to the annular face of the covering and adapted to enter the yielding material of the foot, may be used instead without impairing the general effect of the main features of the invention.

It will be manifest from the description heretofore given that the abrading-surface, when worn, may be removed and another applied in its place rapidly and easily, and that the whole instrument is equally well fitted to work upon the fore part of the sole, as well as upon the shank, and close to the breast of the heel. In Fig. 6ª I show a portion of an abrading-covering in which the projections are attached to its inner face and extend in the line of rotation of the foot or peripherally thereof. This figure represents a further modification to which my invention may be applied.

In respect to the edge of the covering extending beyond the edge of the foot, it will be understood that this extended edge is designed especially for working up close to the breast of the heel, and should be made of stiff material, so as not to bend in working, and is to be distinguished from the patent of Byers, No. 336,695.

I do not claim, in respect to the invention above explained, the abrading-covering with its intermediately-set connections to the foot, nor any of the invention broadly claimed in the application of Sidney W. and Freeman H. Winslow of even date herewith, Serial No. 292,932.

I claim as my invention—

1. In combination with the foot of a buffer, an abrading-covering for said foot, having a practically stiff margin extending beyond the margin of the said foot and a non-abrading edge, substantially as described.

2. In combination with the foot of a buffer, an abrading-covering for said foot, said covering having a continuous working-face, a practically stiff margin extending beyond the margin of the foot, and a non-abrading edge, substantially as described.

3. In combination with the yielding foot of a buffer, an abrading-covering loosely mounted on the flexible foot and extending beyond the margin of the foot, substantially as described.

4. A detachable abrading-covering for buffers, having its connection to hold it to the foot attached directly to the inner face of said covering, substantially as described.

5. An abrading-covering for the foot of a buffer, combined with connections attached to its inner face, between the margin and the center thereof, for connecting it to the foot, substantially as described.

6. An abrading-cover for buffers, having its flexible connections to hold it to the foot attached directly to the inner face of said covering, substantially as described.

7. In combination with the abrading-covering provided with connections on its inner face, a foot having notches or holes to receive the connections, substantially as described.

8. An abrading-covering for buffers, having a re-enforcement on its inner face and connections for holding it to the foot integral with said re-enforcement, substantially as described.

9. An abrading-covering for buffers, having an annular re-enforcing strip secured upon the inner face at the margin and immediately adjacent thereto, substantially as described.

10. An abrading-covering for buffers, having a marginal re-enforcement on its inner face, with connecting-tongues formed on the inner edge of said re-enforcement, combined with the foot having notches or holes, substantially as described.

11. An abrading-covering for buffers, combined with a buffer-foot and holding-connections between the cover and the foot, the said holding-connections being arranged circumferentially to draw obliquely to the surface of the cover and in line with the rotation of the foot, substantially as described.

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

ANDREW W. ROGERS.

Witnesses:

SIDNEY W. WINSLOW,

FREEMAN H. WINSLOW.