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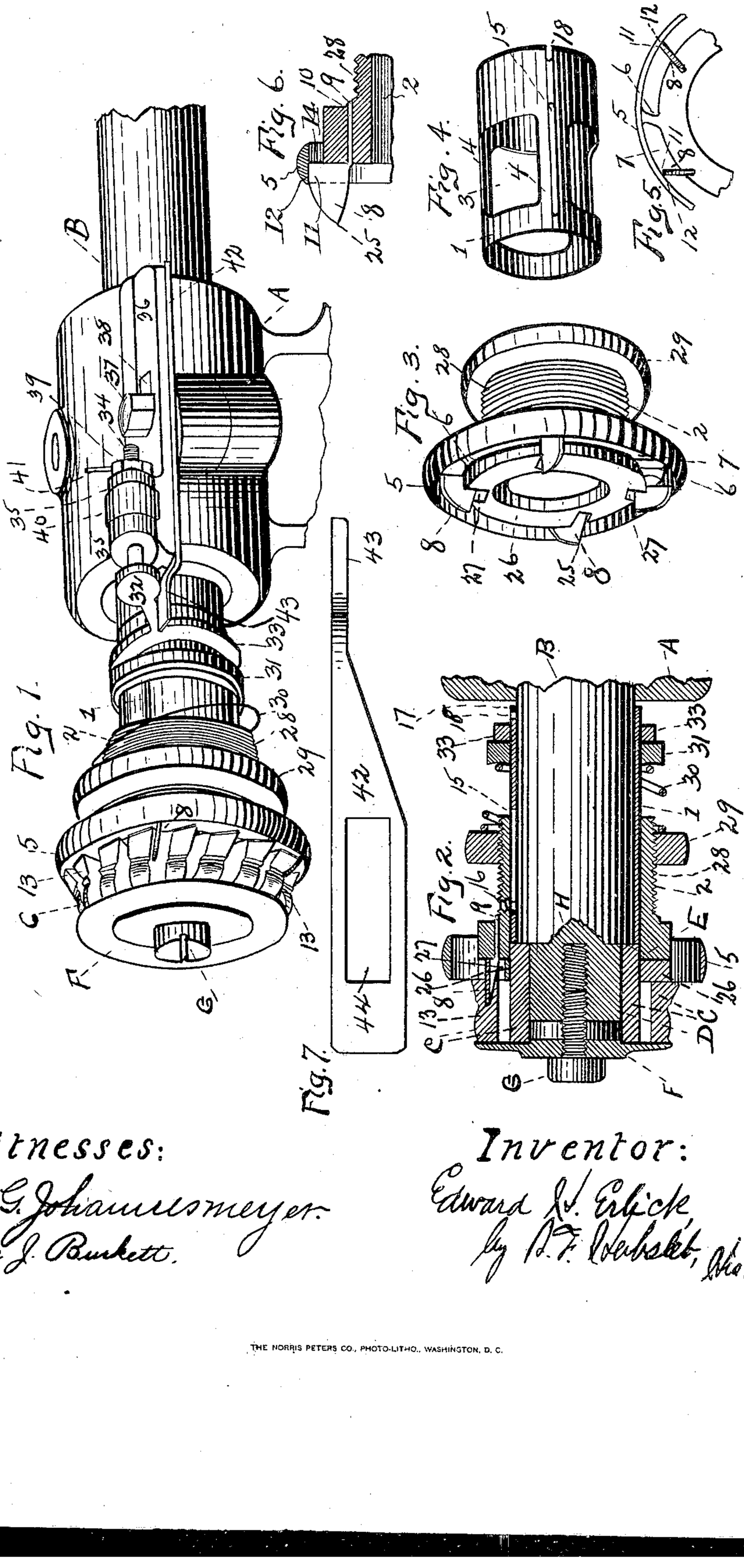
Patented June 25, 1901.

E. H. ERLICK.

SOLE EDGE TRIMMER.

(Application filed Feb. 11, 1901.)

(No Model.)



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UNITED STATES PATENT OFFICE.

EDWARD H. ERLICK, OF CINCINNATI, OHIO.

SOLE-EDGE TRIMMER.

SPECIFICATION forming part of Letters Patent No. 676,880, dated June 25, 1901.

Application filed February 11, 1901. Serial No. 46,857. (No model.)

To all whom it may concern:

Be it known that I, EDWARD H. ERLICK, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Sole-Edge Trimmers, of which the following is a specification.

It is one of the desiderata of a sole-edge trimmer to have the inner guard of the cutter or the buffer-blades pressed outwardly toward the cutter with just sufficient pressure for the work being done at the time. In practice the pressure desired varies according to the work being done, and a different pressure is sometimes desired during the course of the trimming of the same lot of soles.

My invention consists in providing simple, effective, and durable means for accomplishing this purpose; further, in the improved means for securing the buffer-blades to their sleeve; further, in the parts and in the construction, arrangement, and combinations of parts hereinafter more fully described and claimed.

In the drawings, Figure 1 is a perspective view of my improved device, shown in connection with so much of its head or frame as may be necessary to illustrate my invention. Fig. 2 is a central vertical longitudinal section of the same, taken on the central longitudinal line of the shaft. Fig. 3 is a perspective view of the buffer-sleeve and washer. Fig. 4 is a perspective view of the inner sleeve. Fig. 5 is a detail in end elevation of part of the buffer-sleeve. Fig. 6 is a detail in section showing the buffer-blade construction. Fig. 7 is a plan view of the finger-plate.

A represents the frame of the machine, B the shaft, and C the cutter. The shaft has a reduced end D, forming a shoulder E. An outer guard F is provided for the cutter, and the cutter and guard are secured to the shaft by means of a screw G, taking into an internally-threaded aperture H in shaft B. A suitable driving-pulley may be placed on the shaft B. An inner sleeve 1 takes about the shaft, and a buffer-blade sleeve 2 takes about the inner sleeve, the sleeve 2 in operation sliding longitudinally of the shaft. I construct the inner sleeve preferably with openings 3, leaving sections of the periphery 4 upon which the buffer-sleeve may slide. The sections may take the form of ridges extending beyond the periphery of the sleeve, upon which ridges the buffer-sleeve may slide. The sections afford but slight resting-place for dust or dirt caused by the trimming, and consequently leave the sections comparatively free from the same.

A protecting-guard 5 is provided, which I prefer to connect with the buffer-sleeve by means of webs 6, leaving openings 7 for clearance of the buffers and knives. Buffer-blades 8 are provided, insertible and removable in an improved manner. Each has a shank 9, insertible into an opening 10 in the buffer-sleeve, with the heel 11 of the buffer-blade taking against the protecting-guard, as at 12, thereby forming a stop to prevent turning of the buffer-blade, in such manner as to give the buffer-blade its proper angle for effective work and to form an abutment to prevent the buffer-blade being forced by the work to swing upon its shank. The buffer-blades take between the cutting-wings 13 of the cutter. The rear end 14 of the buffer-blade takes against the sleeve. My improved form of construction of buffer-blade and manner of inserting the same permit the ready removal or exchange of the same and insure firmness in position while operating, the pressure exerted by the work being in a direction toward the rear end of the buffer-blade, where it strikes the sleeve, and against the protecting-guard. I have shown four of these buffer-blades in illustrating my improved device; but it is obvious that any desired number may be employed.

I prefer to provide the inner sleeve 1 with one or more slots 15, into which a pin or pins 16 may take through the buffer-sleeve to prevent turning of the buffer-sleeve with relation to the inner sleeve, and the shaft B may have a pin 17 taking into a recess 18 in the inner sleeve to prevent turning of the latter with relation to the shaft, the object of this being to permit the cutter to be so set on its shaft that its blades will clear or be free from contact with the buffer-blades and permit the latter to reciprocate without frictional contact therewith.

In operating various widths of cutters for doing different styles of work are employed. The object of the buffing-blades is to take off

the bur left at the outer edge of the sole by the cutters, and the buffer-blades are yieldingly pressed outwardly toward the outer end of the cutter. If a narrow cutter is employed, the outer nose 25 of the buffer-blade strikes the outer guard F, and thus limits the outward thrust of the buffer-blades; but when a wide cutter is employed the buffer-plates are liable to and do extend for a greater distance between the cutting-wings, toward the outer end of the cutter, than is advisable for speedy and effective work, thereby causing loss of time and preventing proper presentation of the edge of the sole to the cutter. To overcome this objection, I provide washers 26, which may be of suitable thickness, according to the width of face of cutter employed, for limiting the outward thrust of the buffer-blades. The washer takes between the cutter and the sleeve, and thereby limits the outward movements of the sleeve. The washers have suitable recesses 27 for accommodating the buffer-blades.

In operation the buffer-blades and the sleeve are yieldingly forced toward the outer end of the cutter, preferably by spring-pressure, the operator in presenting his sole edge to the cutter for trimming throwing the buffer-blades inwardly by forcing the sole against the protecting-guard of the buffer-sleeve, the buffer-blades yieldingly taking against the edge of the sole being cut to take off the bur left by the cutters. To do the most speedy and effective work, it is necessary that this outward pressure on the buffer-blades be just sufficient for the work in hand, the pressure desired differing with the work. In order to provide a simple and effective means for adjusting this pressure, I have provided the buffer-sleeve with an externally-threaded shank 28, having a collar 29 adjustable thereon, by which the tension of a spring 30 may be adjusted. The spring is preferably a spiral spring taking about the shank of the buffer-sleeve and between the collar 30 and a collar 31, taking about the inner sleeve 1. To provide further means for adjustment of the tension of the spring, I provide an arm 32, preferably having a fork end 33, for taking against the collar 31 and positioning the collar 31 with relation to the buffer-sleeve. The arm 32 is adjustable to and from the cutter, as by means of a threaded shank 34, adapted to slide in apertures in lugs 35 on a plate 36, secured to the frame, as by means of a bolt 37, taking through a slot 38 in the plate 36. A set-nut 39 may also be provided for securing the shank 34 in place after adjustment. The adjustment may be accomplished by means of a nut 40, taking about the threaded shank and between the lugs. The set-nut 39 may also have a pin 41 extending therefrom to release and fasten the same, acting in the nature of a wrench. I prefer to have the end of the arm 32 taking against the collar 31 so positioned that it will cause minimum friction against the inner sleeve or shaft, and for this purpose employ a plate 42, with a finger 43 so positioned that the arm 32 in its adjustment may slide along the finger and rest thereon, and thereby keep the fork out of substantial engagement with the inner sleeve. The plate 42 may have a slot 44 and take under the plate 36, both plates being secured in place by the same bolt, if desired. By these means a ready and convenient means is provided for attachment to any desirable point on the machine-frame, as by one of the bearing-nuts. An adjustment of the arm 32 toward or from the cutter will cause a corresponding change in the tension of the spring 30, and the adjustment of tension of the spring may be instantly and conveniently made while the machine is running to accommodate any variations in stock to be trimmed. The adjustment of tension of the spring may be accomplished by means of adjusting the position of arm 32 or of collar 29, or of both, the adjustment by the collar being preferably made while the machine is not running, and while running by the arm.

In my improved construction of buffer-sleeve with integral guard and with the buffer-blades removable I provide a means for the grinding or truing up of the blades without affecting the guard. For instance, in some older constructions the buffer-blades were secured to the sleeve, and the guard in turn encircled and was firmly secured to and about the blades by means of solder. In grinding or truing up the blades in the usual way, by grinding, the blades soon became worn or ground to the line of the guard, when further grinding ground not only the blades, but the guard also, until the latter was worn to a thin ring, too thin to safely act as a guard or provide sufficient strength for retaining the knives in place when the blades and guard had to be discarded. If, also, in the meantime blades become loose or required replacing, the removing of the old and securing of the new blades in place was accompanied by considerable trouble and loss of time. In my improved construction, however, the blades are readily removable and can be replaced by simple insertion of their shanks in the apertures provided for them. They can be removed for the purpose of grinding or truing up, and being readily removable are easily replaced by new ones when ground to a point near the guard, which was impractical under the old construction mentioned, because the removal of the blades practically meant making a new buffer-tool, whereas in my construction it means simply the insertion of new blades without affecting any other part of the tool. In the old construction, also, a machinist was required to make the repair or replacing, whereas in my improved construction the operator of the machine may readily

attend to this. In my improved construction, also, the buffer-blades may be highly tempered and inserted into the tool without having the temper affected, whereas in the older construction the temper was detrimentally affected by the soldering necessary to affix the blade, resulting in much longer life for the buffer-blades of my improved device.

My improved device is durable, cheap in construction, and economical in operation, is capable of exceedingly quick and accurate adjustments, and has its buffer-blades so constructed and arranged that they may be easily reground or replaced by the operator of the machine without affecting the sleeve or guard.

I claim—

1. In a sole-edge trimmer, the combination of a frame, a shaft, a cutter, a buffer-sleeve, with buffer-blades therefor, a threaded shank for the buffer-sleeve, a collar screwing thereon, a second collar, a spring interposed between the two collars, and an arm taking against the second collar, with means for adjusting the position of the arm and thereby shifting the position of the second collar and adjusting the tension of the spring, substantially as described.

2. In a sole-edge trimmer, the combination of a shaft, a cutter, a buffer-sleeve, with buffer-blades therefor, a threaded shank for the buffer-sleeve, with a collar screwable with relation thereto, and a spring taking against the collar and acting to force the buffer-sleeve toward the cutter, and constructed and arranged for adjusting the tension of the spring for varying the resistance of the buffer-blades irrespective of the position of the buffer-blades, substantially as described.

3. In a sole-edge trimmer, the combination of a shaft, a cutter, a buffer-sleeve, with buffer-blades therefor, a collar taking about the shaft, a spring between the collar and buffer-sleeve, an arm for taking against the collar, and means for adjusting the arm, constructed and arranged for forcing the buffer-blades outwardly by means of the spring-pressure and for adjusting that pressure irrespective of the position of the buffer-blades, substantially as described.

4. In a sole-edge trimmer, the combination of a buffer-sleeve, with a guard integral therewith, and a buffer-blade, a socket in said sleeve, a shank for the blade removably insertible into the socket, a stop against which the rear of the blade continuously rests in operation, with the buffer-blade within the guard, and a stop for preventing the turning of the buffer-blade, constructed and arranged for permitting the ready removal of the buffer-blade without disarrangement of the sleeve or guard, and for rigidly securing it with relation to the sleeve during operation, substantially as described.

5. In a sole-edge trimmer, the combination of a buffer-sleeve, with a guard rigidly secured thereto, and a buffer-blade removably insertible in the sleeve and taking against the guard, with a stop for the rear of the blade, constructed and arranged with the blade readily removable without disarrangement of the sleeve or guard, and for having the blade forced firmly and rigidly against the stop and guard by the stock while operating, substantially as described.

6. The combination of a buffer-sleeve, with a guard rigidly connected therewith by webs 6, with openings 7 between the sleeve and guard, a buffer-blade, a shank for the latter, an aperture in the sleeve for the shank, constructed and arranged with the rear of the buffer-blade continuously forced against the sleeve and its outer edge continuously forced against the guard by the stock while operating for rigidly supporting the buffer-blade in operative position, with the blade readily removable without disarrangement of the sleeve or guard, substantially as described.

7. In a sole-edge trimmer, the combination of a shaft, an inner sleeve taking thereabout, a buffer-sleeve taking about the inner sleeve, with the buffer-sleeve slidable longitudinally of the inner sleeve, openings between the inner sleeve and the buffer-sleeve for accommodating the dust caused by the trimming of the soles and thereby easing the sliding of the buffer-sleeve, with a spring for forcing the buffer-sleeve outwardly, and means for adjusting the tension of the spring, substantially as described.

8. In a sole-edge trimmer, the combination of a shaft, a cutter at its outer end, cutter-wings therefor, a buffer-sleeve, buffer-blades therefor, a threaded shank for the buffer-sleeve, a collar screwable with relation thereto, and a spring taking against the collar for forcing the buffer-blades between the wings, and constructed and arranged for adjusting the tension of the spring for varying the resistance of the buffer-blades irrespective of the normal position of the buffer-blades, and a washer taking between the buffer-sleeve and cutter for changing the position of the buffer-blades with relation to the cutter, substantially as described.

9. In a sole-edge trimmer, the combination of a shaft, a cutter, a buffer-sleeve, with buffer-blades therefor, a threaded shank for the buffer-sleeve, with a collar screwable with relation thereto, and a spring taking against the collar and acting to force the buffer-sleeve toward the cutter, and constructed and arranged for adjusting the tension of the spring for varying the resistance of the buffer-blades without changing the normal position of the buffer-blades, with means for varying the limit of the outward movement of the buffer-sleeve, substantially as described.

10. The combination of a buffer-sleeve, with a guard rigidly secured thereto, and a buffer-

blade, a socket in said sleeve for the blade, with a stop for the rear of the blade, and a stop to prevent turning of the blade, constructed and arranged with the blade readily removable without disarrangement of the sleeve or guard, and for having the blade forced firmly against the stops by the stock while operating, substantially as described.

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

EDWARD H. ERLICK.

Witnesses:
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