

J. L. WALKER.
GRINDING OR HONING DEVICE.
APPLICATION FILED DEC. 23, 1910.

1,012,771.

Patented Dec. 26, 1911.

3 SHEETS—SHEET 1.

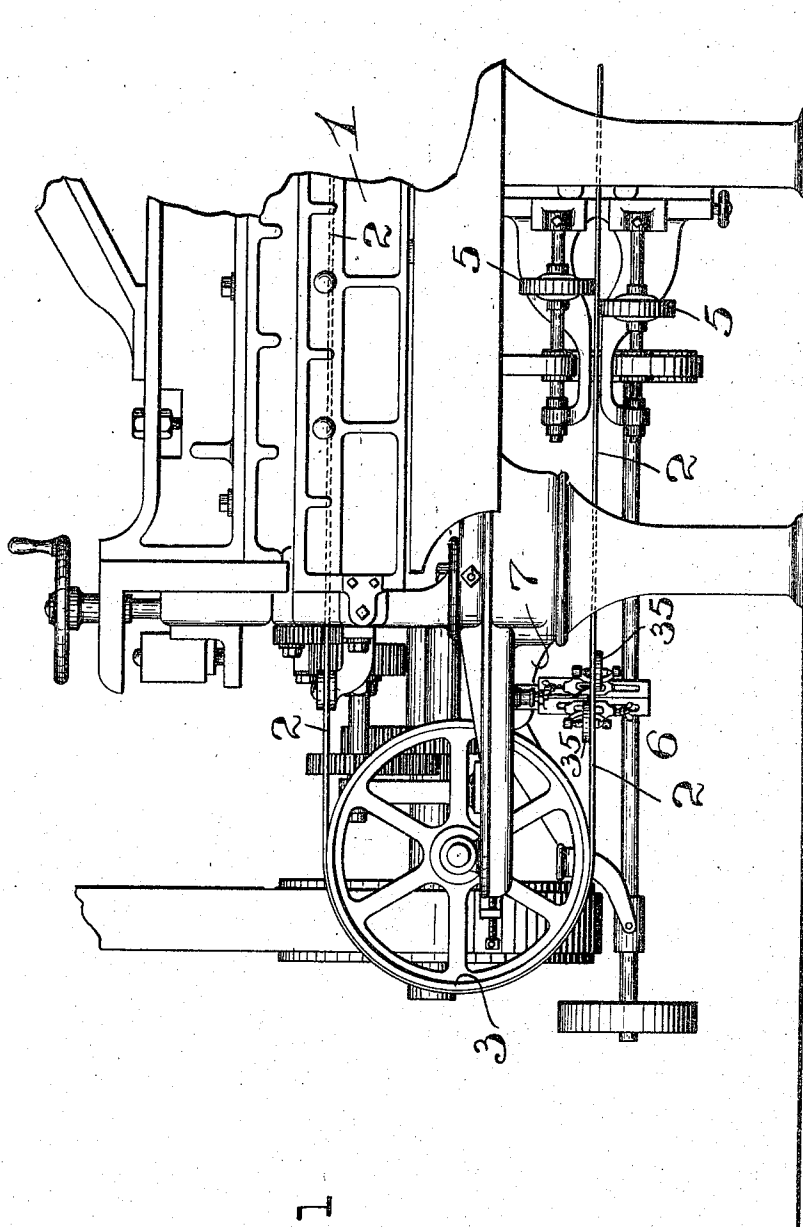


Fig. 1

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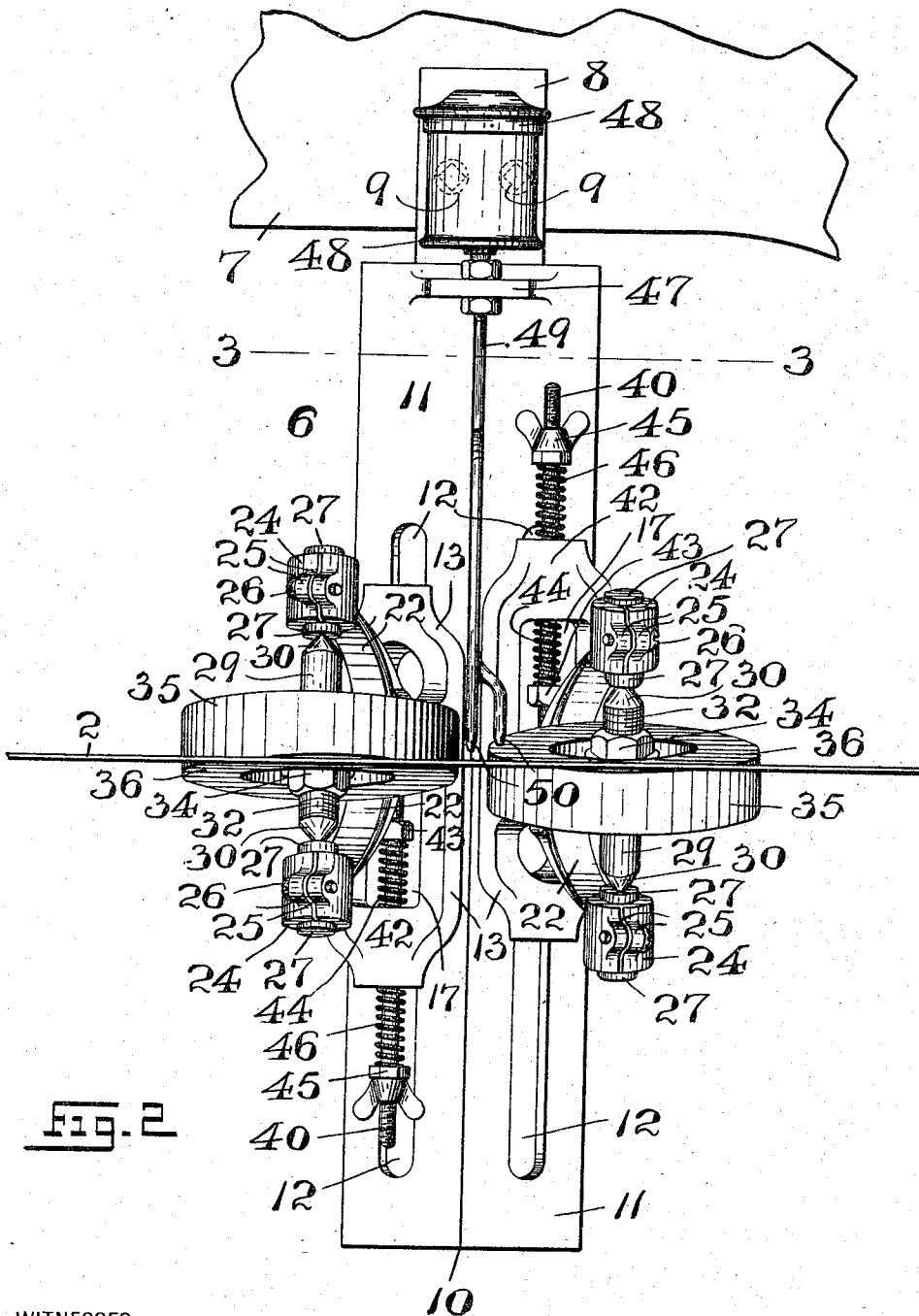


FIG. 2

WITNESSES:

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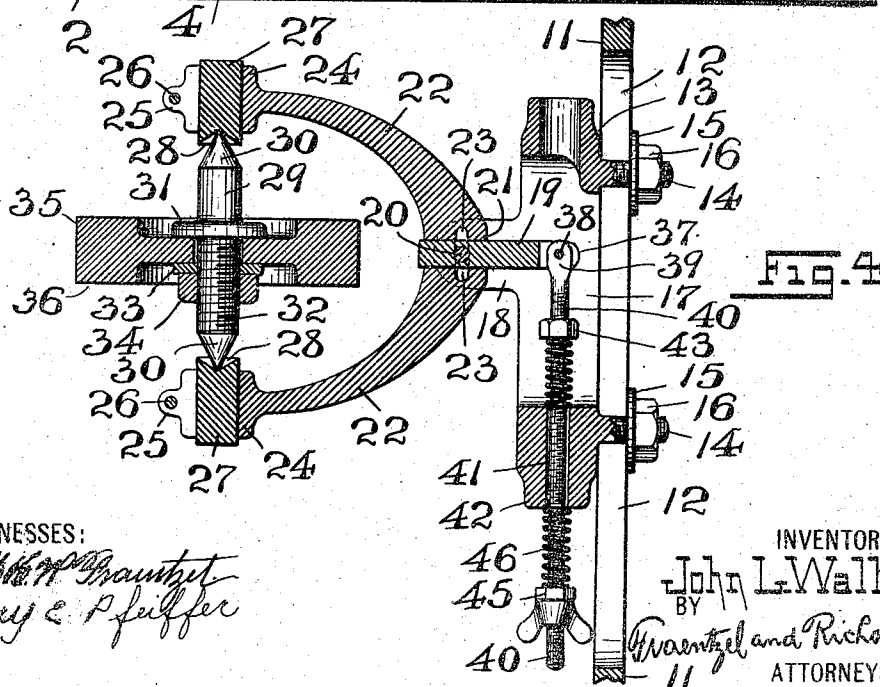
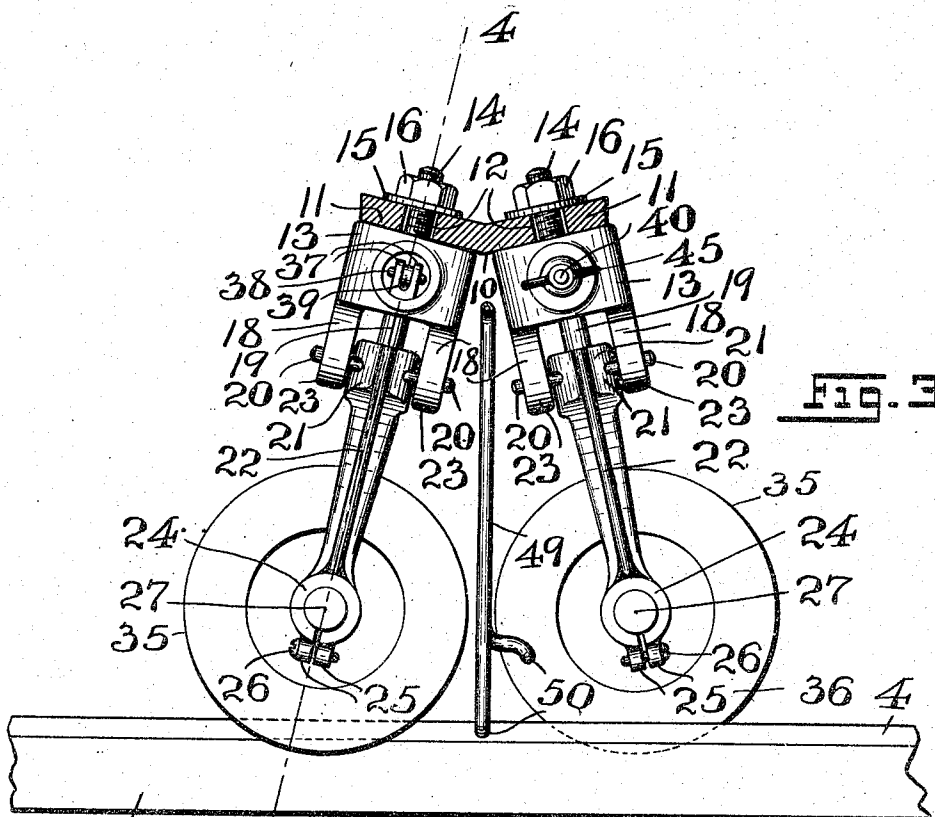
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3 SHEETS—SHEET 3.



WITNESSES:
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UNITED STATES PATENT OFFICE.

JOHN L. WALKER, OF NEWARK, NEW JERSEY.

GRINDING OR HONING DEVICE.

1,012,771.

Specification of Letters Patent.

Patented Dec. 26, 1911.

Application filed December 23, 1910. Serial No. 599,000.

To all whom it may concern:

Be it known that I, JOHN L. WALKER, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Grinding or Honing Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

The present invention has reference, generally, to improvements in grinding or honing devices; and, the present invention refers, more particularly, to a novel grinding or honing device which is particularly adapted for use with leather-splitting machinery for automatically sharpening the running band or endless blade or belt-knife of a splitting knife connected therewith.

The invention has for its principal object to provide a simple and efficient construction of grinding or honing device, so constructed and arranged that it may be easily and quickly attached to any style of leather-splitting machine; but, in fact, the same may be used in connection with other machinery where it is desired to maintain a knife or cutting-edge in a sharpened condition.

The invention has for a further object to provide a self-adjusting grinding or honing device, the members of which are adapted to automatically maintain themselves in their operative relation with the running-blade of a splitting knife on a leather-splitting machine.

Other objects of the present invention not at this time more particularly enumerated, will be clearly understood from the following detailed description of the present invention.

With the various objects of the present invention in view, the said invention consists, primarily, in the novel grinding or honing device, hereinafter set forth; and, furthermore, this invention consists in the several novel arrangements and combinations of the various devices and parts, as well as in the details of the construction thereof; all of which will be hereinafter more fully described and then finally embodied in the

clauses of the claim which are appended to and which form an essential part of this specification.

The invention is clearly illustrated in the accompanying drawings, in which:—

Figure 1 is a front elevation of the end-portion of one style of leather-splitting machine, the same being equipped with a grinding or honing device, showing one embodiment of the principles of my present invention. Fig. 2 is a large front elevation of the novel construction of grinding or honing device in its operative relation with the running blade of a splitting knife on a leather splitting machine. Fig. 3 is a detail horizontal section of the same, said section being taken on line 3—3 in said Fig. 2, looking downwardly. Fig. 4 is a detail vertical longitudinal section of one of the grinding or honing elements and the mounting devices therefor.

Similar characters of reference are employed in all of the hereinabove described views, to indicate corresponding parts:

Referring now to the said drawings, the reference-character 1 indicates any desirable style of leather-splitting-machine which is provided with a splitting-knife comprising a running band or blade 2 mounted upon the driving and supporting band-wheel 3, in the usual manner. The said band or blade 2 runs in the direction of the arrow shown in Fig. 1, of the drawings, and the same is provided with the usual ground cutting edge 4. The leather-splitting machine 1 is usually provided with rough grinding-elements, such as 5, which "rough-grind" said cutting edge 4 before the same passes to the smooth grinding or honing device attached to said leather splitting machine.

The reference-character 6 indicates one form of complete grinding or honing device embodying the principles of the present invention, the same being constructed in such a manner, so that it may be attached in any convenient location to a portion of the frame-work or rigid part of said leather-splitting machine, as for example, the bracket or arm 7. The said grinding or honing device 6 comprises a bracket or clamping element 8 which is secured to said bracket or arm 7 by means of bolts and nuts or set-screws 9; or, it may be secured in position by means of any other suitable fastening means. The said bracket or clamp-

ing element is arranged to support and carry a downwardly depending base-plate 10 with which grinding or honing elements are adjustably connected and are supported thereon. Said base-plate 10 is provided with a pair of tapered faces 11, inclining rearwardly from the central longitudinal line of said base-plate 10, and the body-portions of said base-plates 10 which provide said inclined or tapered faces 11 are each provided with longitudinally extending slots or openings 12. Arranged upon each of said supporting block 13, the same being provided with rearwardly extending studs or screw-like shanks 14, which pass through said slots or openings 12, and upon the free end-portions of which are arranged and adapted to receive suitable washers 15 and nuts 16 for securing said supporting block 13 in any desirable and vertically adjusted position upon said base-plate 10, so as to raise or lower the grinding or honing elements which are supported by said supporting block 13, as will be clearly evident. Said supporting blocks 13 are each provided with a transverse opening 17 forming an interior chamber, and extending outwardly from the marginal edges of said openings 17 are a pair of perforated ears or lugs 18, preferably forming an integral part of said supporting block 13. The reference-character 19 indicates a journal pin, the same being provided with a transverse pin or pintle 20, the respective free ends of which are journaled in the perforations of said ears or lugs 18, to pivotally support said journal pin 19, in the manner shown, and whereby the same is capable of a swinging movement in a vertical plane. Loosely mounted upon the outer end of said journal pin 19 is the hub 21 of a yoke-member 22, said hub 21 being provided upon each of its side-portions with an elongated opening or slot 23, through which pass the respective end-portions of said pin or pintle 20, thus providing a means for retaining said hub 21 in its operative relation with said journal pin 19, and at the same time permitting a limited swiveling action of said hub 21 and its yoke-like member 22 upon the end of said journal-pin 19. The free ends of the arms of said yoke-like member 22 are provided with split collars or socketed portions 24 having perforated ears or lugs 25 in which is operatively arranged a binding or tightening screw 26 for drawing the separated portions of said split collars or socketed portions 24 together so as to rigidly secure therein a bearing-block 27, which is provided with a conical depression or bearing-seat 28 in the inner end thereof. Mounted between and in engagement with the bearing blocks 27 thus arranged is a spindle or short shaft 29, the free ends of which are provided with conical journal-portions 30 suitably seated in said conical depressions or bearing-seats 28 of the respective bearing-blocks 27, so that said spindle or short shaft 29 may be capable of a free revolving action. Said spindle or short shaft 29 is further provided with a shoulder or annular flange 31, and that portion of the spindle, which extends beneath said shoulder or annular flange, is provided with screw-threads 32. Mounted upon said screw-threaded portion of said spindle or shaft 29, and rigidly connecting the same therewith by forcing the same against said shoulder or annular flange 31 by means of a washer 33 and a nut 34, is a grinding or honing element 35, said grinding or honing element being circular in form and providing suitable grinding or honing portions 36 at its periphery, of any suitable material. The inner end of said journal pin 19, which projects into the openings 17 of said supporting blocks 13, is provided with a perforate and forked end 37, to which is pivotally secured by means of a pivot or pin 38, the ear 39 of a screw-threaded rod 40. The said rod 40 extends through an opening 41 in the end-portion 42 of said supporting block 13, and, being slidably or movably arranged therein, is adapted to be guided in its movement by said opening 41, as will be clearly understood. A nut 43 is arranged upon said rod 40 above the said end-portion 42 of said supporting block 13, and a coiled spring 44 is mounted upon and encircles the said rod 40 between said end-portion 42 of said supporting block 13 and said nut 43, said nut 43 serving as a means for increasing or decreasing the operative tension of said coiled spring. In like manner, a thumb-nut 45 is arranged upon said rod 40 between its outwardly projecting free end and said end-portion 42 of said supporting block 13. A coiled spring 46 is also mounted upon said rod 40, and encircles the same between the end-portion 42 of said supporting block 13 and said thumb-nut 45, said thumb-nut 45 serving as a means for increasing or decreasing the operative tension of said coiled spring 46. The purpose of the respective springs 44 and 46 is to provide a means for creating a proper adjustment of the bearing-tension of said grinding or honing element 35 as it bears upon the freely running band or blade 2 of the leather-splitting knife, so as to properly hone its cutting edge 4, without burning or otherwise injuring the same. In practice, the said supporting blocks 13 are arranged upon said base-plate 10, the reverse from one another, so that their respective grinding or honing elements 35 are canted in opposite directions, and so that their grinding or honing portions 36 will respectively engage the upper and lower sides of the cutting edge 4 of said band or blade 2. The inclination of the faces 11 of

said base-plate 10 permits the said grinding or honing elements to be compactly arranged side by side, and yet provides a sufficient spread which allows the grinding or honing elements to work freely without any interference one with the other. The said coiled spring 44 is so adjusted that its tension slightly overbalances the tension of the coiled spring 46, the degree of this overbalancing determining the degree of pressure with which the grinding or honing portions of each grinding element bears upon the cutting edge 4 of said running band or blade 2; and, as will be clearly evident, a great delicacy of adjustment in this respect is thereby possible. It will be clearly understood, that the tension of said coiled spring 44, as thus controlled, is transmitted through the rod 40 and journal-pin 19 to the yoke-like member 22, in which said grinding or honing element 35 is mounted. The said grinding or honing elements 35, being mounted so as to revolve freely, are caused to turn by the onward movement of said band-blade 2 as it passes in contact therewith, thus causing the grinding or honing portions to move toward and away from the cutting edge 4 of said band or blade 2, during its forward movement, and thereby produces a peculiarly effective honing movement or action for removing the feather-edge from the previously "rough" ground knife or blade. Said base-plate 10, at its upper portion, is provided with an outwardly projecting arm or bracket 47 upon which is supported, in any suitable manner, an oil-cup or reservoir 48. A tubular pipe or duct 49 leads downwardly from the said oil-cup or reservoir 48, said pipe or duct being provided with outlet-drip or nozzles 50 which will feed oil or other lubricant upon the grinding or honing portions 36 and the band or blade 2, as desired, thus keeping the same always lubricated and materially aiding in the proper smooth grinding or honing of the cutting edge 4 of said band-blade 2. It will thus be seen, that my novel grinding or honing device will effectively accommodate itself to both sides of the cutting edge of a band or blade, and will automatically maintain itself in its proper grinding and honing relation therewith, once it has been properly adjusted.

I am aware that changes may be made in the various arrangements and combinations of the several devices and parts, as well as in the details of the construction thereof, without departing from the scope of my present invention, as set forth in the foregoing specification and as defined in the clauses of the claim which are appended thereto. Hence, I do not limit my invention to the exact arrangements and combinations of the devices and parts as described in the said

specification, nor do I confine myself to the exact details of the construction of the said parts, as illustrated in the accompanying drawings.

I claim:—

1. An attachable grinding or honing device comprising a base-plate provided with laterally inclined portions, each laterally inclined portion being provided with a longitudinally extending slot, means for attaching said base-plate to a machine, supporting blocks provided with rearwardly extending stud-like screws, said stud-like screws of the respective supporting blocks passing through the respective slots of the inclined portions of said base-plate, washers and nuts upon said stud-like screws, to bind said respective supporting blocks in any desirable and vertically adjusted relation with the respective inclined portions of said base-plate, a yoke-like member pivotally connected with each supporting block, a short spindle or shaft mounted so as to revolve between the free ends of said yoke-like member, grinding or honing elements secured upon each of said spindles or shafts, and means for automatically maintaining said grinding or honing elements in contact, respectively, with the upper and lower sides of the cutting edge of a running band or blade with any desirable degree of pressure, substantially as and for the purposes set forth.
2. An attachable grinding or honing device comprising a base-plate having inclined faces, means for adjustably supporting in connection with said base-plate a pair of revolving grinding or honing elements, and means for automatically maintaining said grinding or honing elements in contact, respectively, with the upper and lower sides of the cutting edge of a running band or blade with any desirable degree of pressure, substantially as and for the purposes set forth.
3. An attachable grinding or honing device comprising a base-plate having laterally inclined portions, yoke-like members, means adjustably connected with said laterally inclined portions of said base-plate for pivotally supporting said yoke-like members, revolving grinding or honing elements connected with each yoke-like member, and means for automatically maintaining said grinding or honing elements in contact, respectively, with the upper and lower sides of the cutting edge of a running band or blade with any desirable degree of pressure, substantially as and for the purposes set forth.
4. In an attachable grinding or honing device, the combination with a base-plate, of a pair of supporting blocks adjustably connected therewith, a journal-pin pivotally connected with each supporting block, a

yoke-like member mounted upon the outer end of each journal-pin, each yoke-like member being capable of a limited swiveling action upon its journal-pin, bearing-blocks secured to the free ends of said yoke-like members, a spindle or shaft journaled between said bearing-blocks, a grinding or honing element secured upon each spindle or shaft, means for automatically maintaining said grinding or honing elements in contact, respectively, with the upper and lower sides of the cutting edge of a running band or blade with any desirable degree of pressure, comprising a rod slidably arranged with relation to each supporting block and pivotally connected with the inner end of said journal-pin, a pair of coiled springs for actuating said rod, said springs exerting, respectively, opposite tensional pulls upon said rod, and means for adjusting the tension of said springs to cause the tension of one spring to overbalance the tension of the other spring to any desired degree, substantially as and for the purposes set forth.

5. In an attachable grinding or honing device, the combination with a base-plate, of a pair of supporting blocks adjustably connected therewith, a journal-pin pivotally connected with each supporting block, a yoke-like member mounted upon the outer end of each journal-pin, each yoke-like member being capable of a limited swiveling action upon its journal-pin, bearing-blocks secured to the free ends of said yoke-like members, a spindle or shaft journaled between said bearing-blocks, a grinding or honing element secured upon each spindle or shaft, means for automatically maintaining said grinding or honing elements in contact, respectively, with the upper and lower sides of the cutting edge of a running band or blade with any desirable degree of pressure, comprising a rod slidably arranged with relation to each supporting block and pivotally connected with the inner end of said journal-pin, a pair of coiled springs for actuating said rod, said springs exerting, respectively, opposite tensional pulls upon said rod, means for adjusting the tension of said springs to cause the tension of one spring to overbalance the tension of the other spring to any desired degree, comprising screw-threads arranged upon said rod, and nuts engaging said screw-threads and said coiled springs, substantially as and for the purposes set forth.

6. In an attachable grinding or honing device, the combination with a base-plate provided with laterally inclined portions, each laterally inclined portion being provided with a longitudinally extending slot, of means for attaching said base-plate to a machine, supporting blocks provided with rearwardly extending stud-like screws, said

stud-like screws of the respective supporting blocks passing through the respective slots of said inclined portions of the base-plate, washers and nuts connected with said stud-like screws to bind said respective supporting blocks in any desirable and vertically adjusted relation with said respective inclined portions of the base-plate, a journal pin pivotally connected with each supporting block, a yoke-like member mounted upon the outer end of each journal pin, said yoke-like members being capable of a limited swiveling action upon said journal pins, bearing-blocks secured to the free ends of said yoke-like members, a spindle or shaft journaled between said bearing-blocks, a grinding or honing element secured upon each of said spindles or shafts so as to revolve therewith, and means for automatically maintaining said grinding or honing elements in contact, respectively, with the upper and lower sides of the cutting edge of a running band or blade with any desirable degree of pressure, substantially as and for the purposes set forth.

7. In an attachable grinding or honing device, the combination with a base-plate provided with laterally inclined portions, each laterally inclined portion being provided with a longitudinally extending slot, of means for attaching said base-plate to a machine, supporting-blocks provided with rearwardly extending stud-like screws, said stud-like screws of the respective supporting-blocks passing through the respective slots of said inclined portions of the base-plates, washers and nuts connected with said stud-like screws to bind said respective supporting-blocks in any desirable and vertically adjusted relation with said respective inclined portions of the base-plate, a journal-pin pivotally connected with each supporting block, a yoke-like member mounted upon the outer end of each journal pin, said yoke-like members being capable of a limited swiveling action upon said journal pins, bearing-blocks secured to the free ends of said yoke-like members, a spindle or shaft journaled between said bearing-blocks, a grinding or honing element secured upon each of said spindles or shafts so as to revolve therewith, means for automatically maintaining said grinding or honing elements in contact, respectively, with the upper and lower sides of the cutting edge of a running band or blade with any desirable degree of pressure, comprising a rod slidably arranged with relation to each supporting block and pivotally connected with the inner end of said journal-pin, a pair of coiled springs for actuating said rod, said springs exerting, respectively, opposite tensional pulls upon said rod, means for adjusting the tension of said springs to cause the tension of one spring

to overbalance the tension of the other spring
to any desired degree, comprising screw-
threads arranged upon said rod and nuts
engaging said screw-threads, and said
5 coiled springs, substantially as and for the
purposes set forth.

In testimony, that I claim the invention

set forth above I have hereunto set my hand
this 21st day of Dec. 1910.

JOHN L. WALKER.

Witnesses:

FREDK. C. FRAENTZEL,

FREDK. H. W. FRAENTZEL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."