B. M. W. HANSON & F. O. HOAGLAND.
ATTACHMENT FOR REDUCING MACHINES.
APPLICATION FILED MAY 31, 1907.


Fig 1

Fig 2

Fig 3

Fig 4

Witnesses:

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By their Attorney.

[Names and signatures]
ATTACHMENT FOR REDUCING-MACHINES.

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To all whom it may concern:

Be it known that we, BENGT M. W. HANSON and FRANCIS OSCAR HOAGLAND, citizens of Sweden and the United States, respectively, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Attachments for Reducing-Machines, of which the following is a specification.

This invention relates to attachments for reducing machines, and is more especially designed for that class of machines in which the reducing operation is carried out by a grinding-wheel.

Primarily the object of the invention is the provision of improved means, whereby the steady-rest will be caused to unyieldingly engage the work, and to follow up the reduction thereof mechanically and automatically so that said steady-rest will be caused to follow the reduction as it takes place and to sustain the work at all times in a positive manner.

A further object of the invention is the provision of means including a spring or springs and a screw or screws in connection with said springs, whereby the slide or carrier to which the steady-rest is attached may be caused automatically and positively to advance while the work is undergoing the process of reduction.

Other objects of the invention will be hereinafter set forth.

In the accompanying drawings, Figure 1 is a side elevation of our improvement. Fig. 2 is a partial longitudinal section taken on line 2, 2 of Fig. 3. Fig. 3 is an end view of the improvement, and Fig. 4 is also a partial longitudinal section on line 2, 2 of Fig. 3.

Like numerals designate similar parts throughout the several views.

Referring to the drawings, the numeral 1 designates a bed-plate which may be either stationary or adapted to move longitudinally along the work in connection with the traverse thereof by the grinding-wheel (not shown). This carriage having a guard 2 which will prevent the detritus from the grinding-wheel from affecting the bearings of the machine. In this carriage or base 1 is formed a T-slot 3, and in connection with said T-slot and mounted in bearings of an adjustable slide 4 is a shaft 5 having a manipulating handle 6, and bearing at one end against a spring 7. On the shaft is mounted an eccentric 8 for actuating a dog 9 which may be caused to clamp the slide 4 to the extension of base or standard 1, these parts constituting no features of the present invention. Rising from the carriage 4 is a projection 10 in which is pivoted a rod 11 threaded at its upper end at 12, and located at an angle to said carriage is a forked or bifurcated arm 13, the purpose of which will hereinafter be described.

Through the arms 13 is passed a rod 14 upon which is pivoted the hub of an arm 15 projecting from a support 16 having a bore 17 in which is fitted a spring 18 back of a plunger 19. On a way or T-head of support 16 is mounted a slide 19 having at its outer end a plate 20 which depends from said slide, and is in engagement on its inner side 25 with the spring-actuated plunger 18. In this plate is mounted a stop-screw 21 bearing at its inner end against the support 16, and provided with a knurled head 22 by which it may be manipulated. A shoe 23 backed by a spring 24 and screw 25 in a depending portion of the plate 20 locates said stop-screw against accidental displacement when it has been properly adjusted.

Fitted in a bore of the support 16 and rigidly secured by a screw 24 is a threaded rod 26, said rod passing loosely through the depending plate 20 of the slide 19. In engagement with the threaded section of said rod is a nut 26 having a hub 26', and also having a pawl or pin 27, and loosely surrounding the rod is a peripherally-knurled sleeve 28 having ratchet-teeth 29. Attached at one end at 30 to the sleeve 28 is a spring 31, said spring being of the torsion variety, and being engaged at its inner free end 32 with a notch in the depending plate 20.

As will be evident when the barrel 28 is rotated, this spring will be put under tension, and as one end thereof is connected to the plate 20 and the other end to the nut 26, it will be obvious that the tendency or torque of said spring will be to rotate said nut in a direction to cause a feed of the slide 19, the hub of the nut bearing at its inner end against the plate 20 of said slide,—this action continuously forcing under unyielding pressure the steady-rest against the work. At
the forward end of the slide 19 a screw 33 is threaded therein, and surrounding the barrel of said screw is a torsion-spring 34 connected at one extremity 35 to said slide 19, and having a tip 36 bearing against the extension 10 of the carrier 4. An unyielding head 37 is attached to the top of the screw 33, and below said head is a loose sleeve 38, which surrounds the upper part of the torsion-spring.

A pin 39 coacts with ratchet-teeth 40 on the knurled sleeve 38, and as will be obvious when the spring is put under tension its tendency will be automatically to force the support 16 carrying the slide 19 upward and to cause the tip 36 of the screw to bear against the part 10 of the slide 4.

A nose or projection 41 (shown in dotted lines in Fig. 1) is carried by the slide 19, and inclined arms 42 project from said slide, and are provided at their inner ends with rectangular seats 43 in which rest angular projections 44 from a steady-rest 45 having a concave shoe 46, and also having an arm 47 held in place by the depending nose or projection 41 of the slide 19.

From what has been stated it will be seen that as the work 48 diminishes in diameter under the action of the reducing-tool the shoe 46 will be held in constant, rigid contact with said work, and without any yielding action of the steady-rest by the means described.

Our invention is not limited to the precise details or mechanical features of the structure shown for changes may be made in the various details thereof without departure from the invention and equivalents may be employed in connection with the means for positively holding the support for the steady-rest in unyielding engagement with the work.

Having thus described our invention what we claim is:

1. The combination, with a swinging support, of a slide mounted thereon; a steady-rest mounted for unyielding movement on said slide; and means for unyieldingly advancing the slide, and for holding the steady-rest against the work under unyielding pressure.

2. The combination, with a support mounted for swinging movement, and with a slide on said support, of a steady-rest removably mounted on said slide; means for rigidly holding the steady-rest in position against the work, and for preventing detachment of said steady-rest from the slide; means for advancing the slide under unyielding pressure; and means for forcing said steady-rest against the work also under unyielding pressure.

3. The combination, with a support mounted for swinging movement, and with a movable carrier on said support, of a steady-rest removably and rigidly mounted on said carrier; means applied to the carrier for holding the steady-rest in position against the work; means for preventing detachment of said steady-rest from the slide; and means for also forcing said steady-rest in a substantially vertical plane against the work under unyielding pressure.

4. The combination, with a support, and with a carrier on said support, of a steady-rest mounted on the carrier; means including screw devices for advancing the carrier; and a torsion spring, the torque of which causes the carrier, through said screw devices, to be advanced with unyielding pressure against the work.

5. The combination, with a carrier having angular bearings, of a steady-rest having projections fitted and conforming to said bearings; and a device mounted on the carrier, and engaging a part of the steady-rest for preventing said steady-rest from being forced out of position when in engagement with the work.

6. The combination, with a carrier having angular bearings, of a steady-rest having lateral projections conforming to said bearings; an arm projecting from said steady-rest; a device on the carrier for engaging said arm; and means for forcing the carrier and the steady-rest against the work under unyielding pressure, and for causing it to follow up the reduction of the work.

7. The combination, with a carrier having angular bearings, of a steady-rest having lateral projections conforming to said bearings; an arm projecting from said steady-rest; a device on the carrier for engaging said arm; means for forcing the carrier and the steady-rest against the work under unyielding pressure, and for causing it to follow up the reduction of the work; and means acting in a vertical plane upon the carrier, and serving to force the steady-rest under unyielding pressure, said means being located at an angle to the means first specified.

8. The combination, with a support, of a screw; means for automatically turning the screw to advance the carrier under unyielding pressure; a steady-rest; a device projecting from the carrier, and having an angular seat for said steady-rest; an angular projection on the steady-rest; and means for preventing displacement of the steady-rest when in engagement with the work.

9. The combination, with a carrier, and with a slide mounted thereon, said slide having angular bearings at its inner end; a steady-rest having angular projections mounted in said bearings, and also having an inwardly projecting arm; means for advancing the slide under unyielding pressure; and means bearing against the support for
causing the slide to move in a substantially vertical plane, said means also bearing against the slide under unyielding pressure.

10. The combination, with a support, of a slide mounted on said support; a screw connected to the support; a torsion-spring; means for winding said spring; means controlled by the torque of said spring for causing the movement of the slide under unyielding pressure; and a steady-rest rigidly connected with the slide.

11. The combination, with a support, of a slide mounted on said support; a screw connected to the support; a torsion-spring; means for winding said spring; means controlled by the torque of said spring for causing movement of the slide under unyielding pressure; a steady-rest rigidly connected with the slide; and means for preventing said steady-rest from displacement when in engagement with the work.

12. The combination, with a pivoted support, and with a device carried thereby, having bearings, of a steady-rest having projections mounted in said bearings, and incapable of rotation therein; a screw connected with the support; a torsion spring surrounding the screw; and means actuated by said torsion-spring for holding the steady-rest against the work under unyielding pressure.

13. The combination, with a pivoted support, and with a slide mounted for movement thereon, of a screw connected to said support; a torsion-spring also connected to said support; means for actuating the screw, and to which the torsion-spring is attached; a steady-rest carried by the slide, and automatically held against the work by the torque of said spring.

14. The combination, with a carriage, of a support pivoted thereto, a slide movable upon said support; a screw connected to said support; a torsion-spring attached at one part to the support, and at another point to an element of the screw; a steady-rest rigidly mounted on the support; and means for preventing the movement of said steady-rest when in engagement with the work.

15. The combination, with a pivoted support, of a slide mounted thereon; mechanism involving a screw and a torsion-spring for producing a forward movement of the slide under unyielding pressure; a base; a screw threaded into said base; a torsion spring on said screw; mechanism for controlling the tension of said torsion-spring; a steady-rest unyieldingly mounted on the slide; and means for preventing the displacement of said steady-rest while in contact with the work.

16. The combination of a plurality of moveable members one of which is supported by another, and one of said members constituting a carrier or support for a steady-rest, and means for independently feeding said members to advance the steady rest and for unyieldingly preventing movement of each of them in a direction opposite to their feeding movements.

In testimony whereof we affix our signatures in presence of two witnesses.

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Witnesses:
H. E. BAILEY,
Jos. J. HoRAN.