

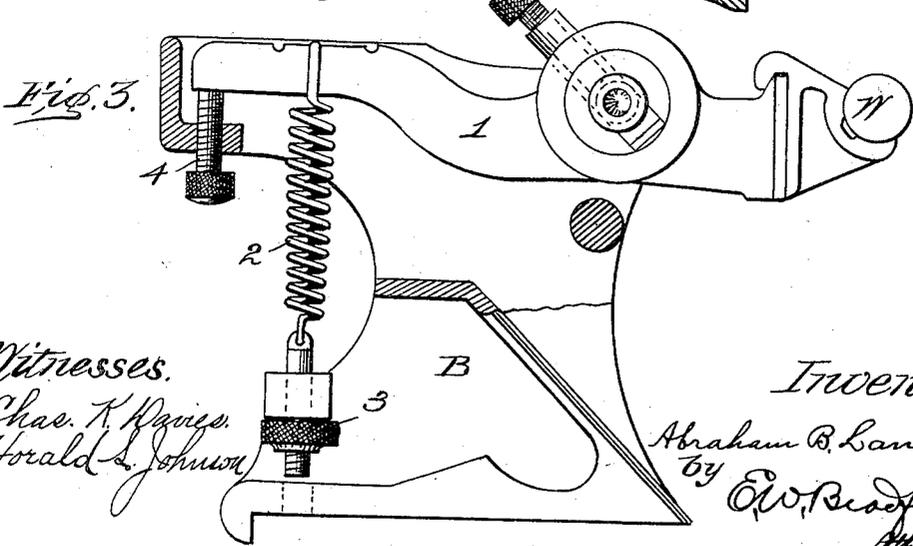
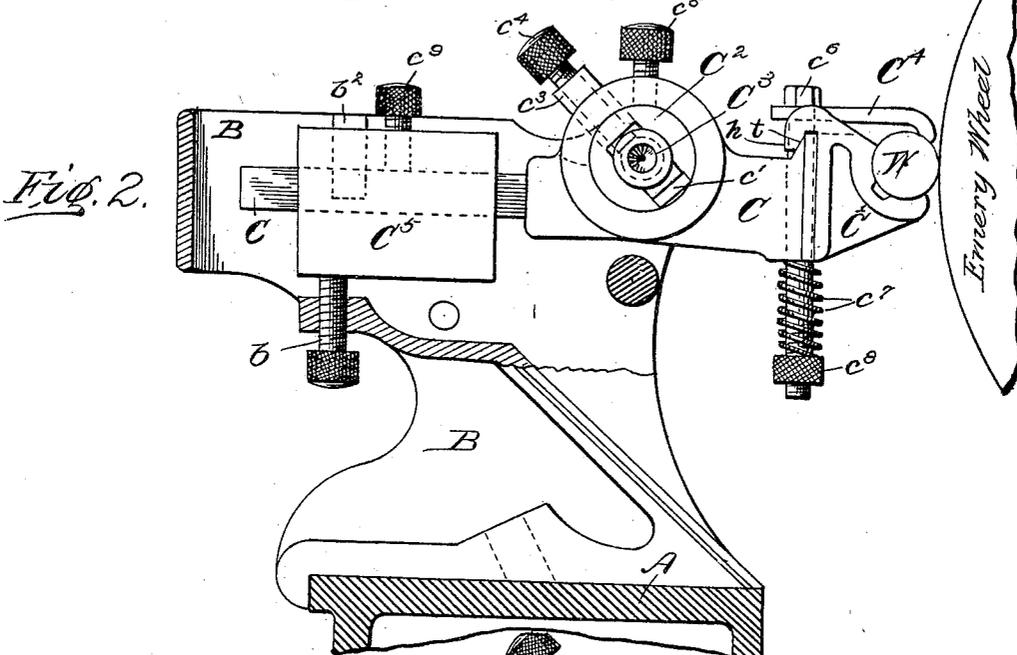
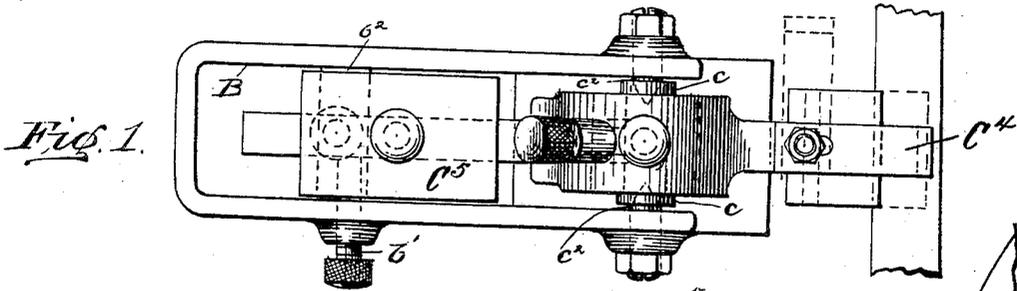
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A. B. LANDIS.
WORK REST FOR GRINDING MACHINES.

(Application filed Sept. 7, 1901.)

(No Model.)



Witnesses.
Chas. K. Davis.
Harold S. Johnson

Inventor
Abraham B. Landis,
by E. W. Bradford
Att'y.

UNITED STATES PATENT OFFICE.

ABRAHAM B. LANDIS, OF WAYNESBORO, PENNSYLVANIA.

WORK-REST FOR GRINDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 697,852, dated April 15, 1902.

Application filed September 7, 1901. Serial No. 74,619. (No model.)

To all whom it may concern:

Be it known that I, ABRAHAM B. LANDIS, a citizen of the United States, residing at Waynesboro, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Work-Rests for Grinding-Machines, of which the following is a specification.

My said invention consists in an improved construction of work-rests for grinding-machines of that general character shown in various patents heretofore granted to me, whereby the work may be held to the grinding-wheel under a yielding pressure adjusted to suit the work being done or against a fixed rest, as desired, as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings, which are made a part hereof and on which similar reference characters indicate similar parts, Figure 1 is a top or plan view of a work-rest of my improved construction; Fig. 2, a side elevation, the frame being partly broken away to show the parts more clearly; and Fig. 3, a similar view to Fig. 2, illustrating modifications in the construction.

In said drawings the portions marked A represent the bed of the machine, B the frame of the rest, and C the pivoted bar carrying the rest proper.

The machine-bed A, on which the rest is mounted, may be the bed of any machine of the character mentioned or with which such a rest may be used.

The frame B is of appropriate form to support the parts and is mounted on the bed in any approved manner. It is hollow, and its upper portion has parallel sides united at the rear and open at the end adjacent to the work.

The bar C is of any appropriate form, that shown being preferred, consisting of a substantially central portion of considerable cross-sectional area and reduced in size each side thereof, the front end being formed to support the rest-block C' and the rear portion to support a weight C⁵, mounted to slide thereon. Its central portion is bored out transversely and has a cylindrical plug C² therein, which plug is formed with a slot extending diagonally from the top near the rear toward the bottom and front, its parallel sides forming oblique surfaces. In said slot, just

fitting between said parallel surfaces, is mounted a roller C³, formed with flanges c on its ends, which engage the outer ends of said plug and hold the two parts in fixed relation longitudinally. Said roller is inserted through the open lower side of the slot, which is then closed by a fillet c' before the plug is put in place. Cone-shaped depressions are formed in the ends of said roller, in which cone-pointed bearings c², adjustably mounted in the sides of the frame, engage. A sleeve c³ is mounted in a screw-threaded perforation in plug C², the lower end extending into the oblique slot, and the outer end projecting through a segmental slot in bar C. Said sleeve is interiorly screw-threaded, and a set-screw c⁴ is mounted therein, the end of which is adapted to project through to bear against the surface of roller C³ when desired, as will be presently described. A set-screw c⁵ projects through a screw-threaded perforation in bar C to impinge against the surface of plug C² and lock these parts in the desired relative positions, which can be secured by turning said plug through the medium of sleeve c³. The object of turning or adjusting this plug is to vary the obliquity of the slot or surface moving on said pivot-roller for the purpose of changing the forward pressure of the rest without changing the upward pressure, which is done by sliding the weight on the bar. The forward end of bar C is preferably formed with a plane face, with a flange having a tapered rear face t at the top. A separate block C', forming the rest-face, is preferably mounted (for convenience of changing sizes) on this end by means of a hook h, which is adapted to hook over said flange. On the top of said block C' is mounted a spring clip or finger C⁴, consisting of a short flat bar, the point of which is adapted to rest on the top of the work and the rear portion of which rests in a notch in said block. A bolt c⁶ extends through the perforation in the front end of bar C, projecting below said bar, and has a coiled spring c⁷ thereon, interposed between said bar and a thumb-nut c⁸ on the screw-threaded lower end of said bolt. By this means the force with which said finger is held to the work may be regulated, as will be readily seen, while said finger may be lifted out of the notch in block C' and swung

out of the way when it is desired to take out or put in the work, as indicated by dotted lines in Fig. 1. The rear end of said bar C is of suitable form to support the weight C⁵, which is mounted to slide thereon. A set-screw c⁹ in said weight is adapted to impinge against the bar and hold said weight in any adjusted position. A set-screw b in frame B under the weight is adapted to limit its downward movement. Another set-screw b' in the frame adjacent to the work is adapted to clamp said weight rigidly between its point and a rib b² on the inner face of the frame opposite when desired.

The operation is as follows: It being desired to support the work under a yielding pressure, the point of rest is adjusted against the work, the set-screws c⁴ and b being adjusted so that they will not bear against the roller C³ and weight C⁵, respectively. The weight is thus supported against said work, and the degree of pressure may be regulated as desired by adjusting it on the bar C to shorten or lengthen the leverage behind the pivot-points c². It will be seen that the rest is thus forced against the work not only in an upward direction by reason of its motion on pivots c², but also in a horizontal or longitudinal direction by reason of its motion on the oblique surfaces of the slot in plug C², sliding downward over roller C³, and the pressure in the horizontal direction is varied by the change of angle of the oblique slot without changing the weight, as above described. Thus as the work is ground away the rest will feed itself up to it to maintain a uniform pressure at all times and will readily yield to irregularities, adjusting itself to all conditions. When the point of screw c⁴ is brought to rest against the roller C³, the forward motion will be stopped, and when the weight C⁵ reaches the point of screw b the upward motion will be stopped, which with proper adjustment occurs when the work has been ground to the desired size. As the bearing wears it can be adjusted to allow therefor by the screws b and c⁴. By the use of the clamping-screw b' the weight may be clamped at any period of the work and the rest made rigid if for any reason desired. The finger C⁴, as before stated, may be swung to one side out of the way whenever work is to be removed from or placed in the machine or adjusted and serves to steady the work against vibration in a direction away from the rest and toward the wheel or to prevent "chattering," as it is termed.

Fig. 3 shows a modification, in which the bar 1 carrying the rest with its rear end provided with a series of notches, and a spring 2 substituted for the weight, one end of said spring engaging with one of said notches, and the other end connected to a screw-threaded pin which extends through an aperture in a part of the frame and has a thumb-screw 3 on its opposite end, by which it may be secured and the tension of the spring adjusted, as

well as by shifting the opposite end of said spring from one notch to another on the top of bar 1. A set-screw 4 is provided under the end of said bar for limiting its motion; otherwise the construction is the same as shown in the principal views and above described. The operation of the weight, however, is more satisfactory, as owing to its mass vibrations and chattering are impossible in its use as they occur in the use of the spring. These and other modifications in the details of construction may of course be made without departing from my invention as hereinafter pointed out in the claims.

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

1. In a work-rest for grinding-machines, the combination of a base or support, a bar pivoted between its ends at one side of the work provided with a work-engaging bearing on one end thereof and an adjustable weight at its other end.

2. In a work-rest for grinding-machines, the combination of a base or support, a bar pivoted between its ends at one side of the work provided with a work-engaging bearing at one end thereof, and an adjustable stop controlling the elevation of said bearing.

3. In a work-rest for grinding-machines, the combination of a base or support, a bar with a work-engaging bearing at one end thereof, said bar pivoted on said base, an adjustable stop controlling the elevation of said bearing and an adjustable weight on the opposite side of the pivot in said bar from said work-engaging bearing.

4. In a work-rest for grinding-machines, the combination of a base or support, and a pivoted bar with a work-engaging bearing at one end thereof, the pivot of said bar engaging an oblique surface.

5. In a work-rest for grinding-machines, the combination of a bar having a work-engaging bearing at one end thereof, an adjustable weight on the other end, and a central pivot engaging an adjustable oblique surface.

6. In a work-rest for grinding-machines, the combination of a bar having a work-engaging bearing, an adjustable weight, a pivot engaging an oblique surface, and an adjustable stop engaging said pivot.

7. In a work-rest for grinding-machines, the combination of a bar having a work-engaging bearing, and a yielding-mounted clip to engage the top of the work.

8. In a work-rest for grinding-machines, the combination of a pivoted bar having a work-engaging bearing, an adjustable weight on said bar, and a clip to engage the top of the work.

9. In a work-rest for grinding-machines, the combination of a bar having a work-engaging bearing, a pivot in said bar, said pivot engaging an oblique surface, and a clip to engage the work.

10. In a work-rest for grinding-machines

the combination of a pivoted bar, and a work-engaging bearing mounted on the end thereof, said bearing having a hook by which it is supported to said bar.

5 11. In a work-rest for grinding-machines, a bar having a work-engaging bearing at one end, a pivot approximately at its center, an adjustable weight on the other end and means for clamping said bar rigidly when required.

10 12. In a work-rest for grinding-machines a base or support having a bar pivoted thereto, said bar having a work-engaging bearing, said pivot engaging an oblique surface, an adjustable stop engaging said pivot, an adjustable weight on said bar and a stop to control the upward position of said work-engaging bearing.

15 13. In a work-rest for grinding-machines, a base or support, having a bar pivoted thereto, said bar having a work-engaging bearing, the pivot of said bar engaging an oblique surface, an adjustable stop engaging said pivot, an adjustable weight on said bar, a stop to control the upward motion of said work-engaging bearing, and a clip to engage the top of the work.

20 14. In a work-rest for grinding-machines, a base or support, having a bar pivoted thereto, said bar having a work-engaging bearing, said pivot engaging an oblique surface, an adjustable weight on said bar, an adjustable stop engaging said pivot, a stop to control the upward motion of said work-engaging bearing and means for locking said bar in a rigid position when required.

25 15. In a work-rest for grinding-machines, a base or support formed like an open box having sides to which a bar is pivoted, said bar having a work-engaging bearing on one end, a weight on the other end of said bar, said parts being contained in said box which thus forms a protection to said bar so that its free action cannot be interfered with.

30 16. In a work-rest for grinding-machines, a base or support, a bar pivoted thereto, said bar having a work-engaging bearing, said pivot engaging an adjustable oblique surface, an adjustable weight on said bar, an adjustable stop engaging said pivot, an adjustable stop to control the upward motion of said work-engaging bearing, a clip to engage the top of the work and means for locking said bar in a rigid position when required.

35 17. In a work-rest for grinding-machines, a pivoted bar, a work-engaging bearing on one end thereof, a roller on said pivot engaging an oblique surface, and means for holding the bearing yieldingly to the work attached to the other end of said bar.

40 18. In a work-rest for grinding-machines, the combination of a base or support, a pivoted bar with a work-engaging bearing at one end thereof, the pivot engaging an oblique surface and an adjustable weight at the other end of said bar.

45 19. In a work-rest for grinding-machines

the combination of a base or support, a pivoted bar with a work-engaging bearing at one end thereof, the pivot engaging an adjustable oblique surface, and means for holding said bearing yieldingly in engagement with the work. 70

20. In a work-rest for grinding-machines, the combination of a base or support, a bar with a work-engaging bearing, said bar pivoted on an oblique surface, a stop controlling the upward motion of said bearing, and means for holding said bar yieldingly in engagement with the work. 75

21. In a work-rest for grinding-machines, the combination of a base or support, a bar with a work-engaging bearing, said bar being pivoted on an adjustable oblique surface, a stop controlling the upward motion of said bearing, and means for holding said bearing yieldingly in engagement with the work. 80

22. In a work-rest for grinding-machines, the combination of a base or support, a bar with a work-engaging bearing, said bar pivoted on an oblique surface, an adjustable stop engaging said pivot controlling the forward position of said bearing and means for holding said bearing yieldingly in engagement with the work. 85

23. In a work-rest for grinding-machines, the combination of a bar with a work-engaging bearing, said bar being pivoted on an adjustable oblique surface and adjustable stops engaging said pivot controlling the forward position of said bar, a stop controlling the upward position of said bearing, means for holding said bearing yieldingly in engagement with the work and a clip to engage the top of said work. 90

24. In a work-rest for grinding-machines, a pivot-bar with a work-engaging bearing, a clip engaging the top of the work and a spring for holding said clip yieldingly to said work. 95

25. In a work-rest for grinding-machines, a work-engaging bearing, means for holding said bearing to the work, a clip engaging the top of the work, and a spring holding said clip yieldingly to said work. 100

26. In a work-rest for grinding-machines, a work-engaging bearing arranged with a hook as shown to attach to the end of a bar with means for holding said bearing yieldingly in contact with the work, a clip for engaging the top of the work and also the top of the bearing by which said bearing is held in position. 105

27. A work-rest for grinding-machines comprising a bar having a work-engaging bearing, said bar having a slotted plug, said slot forming an oblique surface which engages with the pivot in the support. 110

28. A work-rest for grinding-machines comprising a bar having a work-engaging bearing, said bar having a slotted plug, said slot forming an oblique surface which engages with the pivot in the support, said plug having a pin by which it is turned to adjust the 115 120 125 130

obliquity as desired, a screw for locking said plug and a screw-stop engaging the pivot passing through the pin.

29. A work-rest for grinding-machines comprising a bar having a work-engaging bearing, said bar having a slotted plug, said slot forming an oblique surface which engages with a pivot formed with a roller, said roller having flanges at each end to hold the bar against side movement.

30. A work-rest for grinding-machines comprising a bar having a work-engaging bearing, said bar having a slotted plug, said slot forming an oblique surface, said surface bearing upon a pivot, said plug being adjustable in a rotary direction whereby the forward tension of the bearing against the work is adjusted, and an adjustable weight whereby the upward tension is adjusted.

31. A work-rest for grinding-machines, comprising a bar having a work-engaging bearing, said bar having a slotted plug, said slot forming an oblique surface, said surface bearing upon a pivot, said plug being adjustable in a rotary direction whereby the forward tension of the bearing against the work is adjusted, and stops for limiting the movement of said bar.

32. A work-rest for grinding-machines, comprising a bar having a work-engaging bearing, said bar having a slotted plug forming an oblique surface, said surface bearing upon a pivot, said plug being adjustable in a rotary direction, whereby the forward tension of the bearing against the work is adjusted,

means by which the upward tension on the work is produced, stops for limiting the movement of said bar and a clamping-screw by which said bar is rigidly locked.

33. A work-rest for grinding-machines, comprising a bar pivoted and mounted to slide on an oblique surface which is adjustable as to pitch, substantially as set forth.

34. A work-rest for grinding-machines comprising a bar pivoted and mounted to slide on an oblique surface under an adjustable pressure, substantially as set forth.

35. A work-rest for grinding-machines comprising a support provided with the work-engaging bearing mounted to both pivot and slide toward the work under adjustable pressure, substantially as set forth.

36. In a work-rest for grinding-machines, the combination of the frame, the pivoted bar mounted therein, means for automatically adjusting said bar toward the work, the work-engaging bearing on said bar, and controlling-stops, substantially as set forth.

37. In a work-rest for grinding-machines, the combination with the work-engaging bearing, of a yieldingly-mounted clip or finger arranged to engage the upper side of the work lightly, substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Waynesboro, Pennsylvania, this 26th day of August, A. D. 1901.

ABRAHAM B. LANDIS. [L. s.]

Witnesses:

RUSSELL MOWEN,
ALF. N. RUSSELL.