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L. G. BRACKETT

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PENCIL SHARPENER

Filed July 2, 1927

Fig. 1.

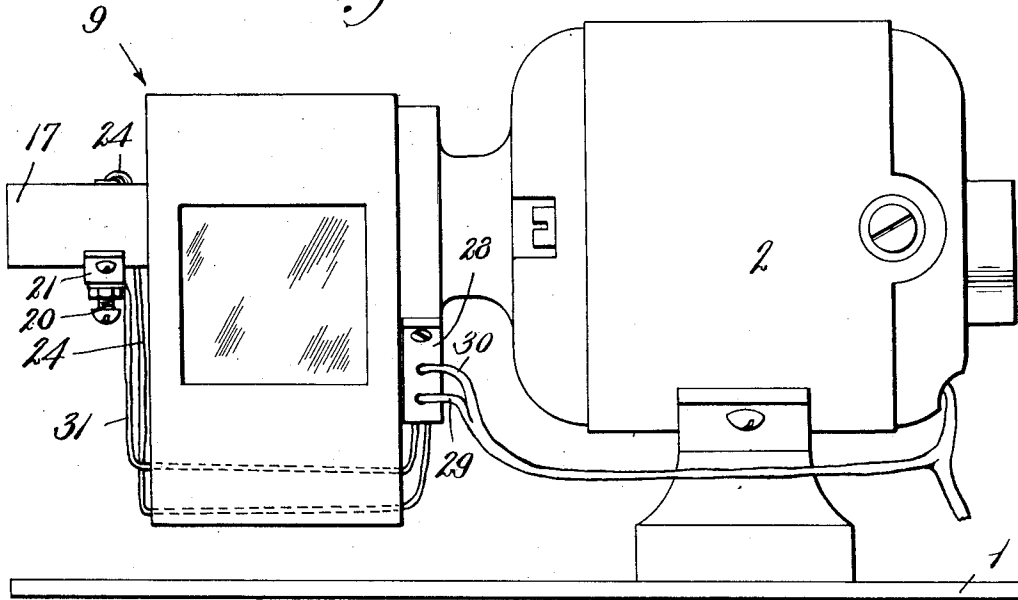


Fig. 2.

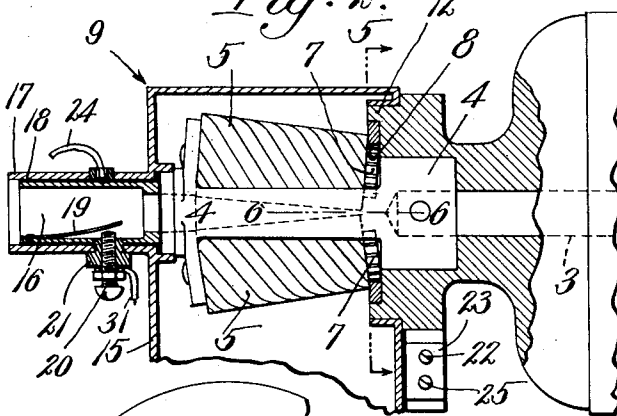


Fig. 6.

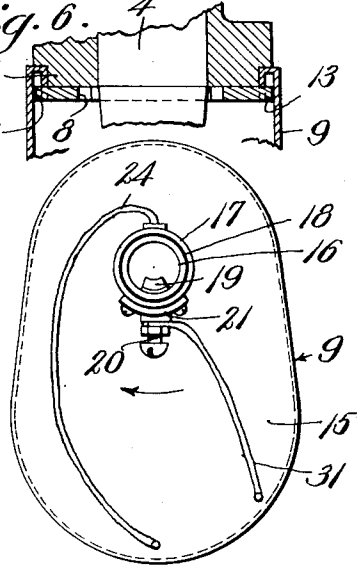


Fig. 3.

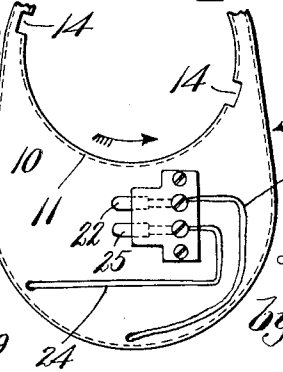


Fig. 5.

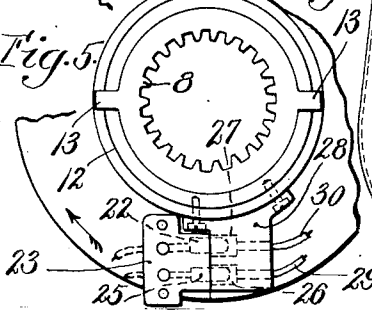


Fig. 4.

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PENCIL SHARPENER.

Application filed July 2, 1927. Serial No. 203,246.

My invention relates to mechanisms for sharpening pencils, and it has for its object to provide an improved mechanism of this class.

To these ends I have provided an improved sharpening mechanism having the peculiar features of construction and mode of operation set forth in the following description, the novel features of the invention being particularly pointed out and defined in the claims at the close thereof.

In the accompanying drawings:

Figure 1 is a side elevation of a pencil sharpening mechanism constructed in accordance with my invention.

Figure 2 is a central, vertical, longitudinal sectional view of a portion of the machine shown in Fig. 1.

Figure 3 is an elevation of a portion of the rear or inner end of the receptacle hereinafter referred to.

Figure 4 is an elevation of the front or outer end of the receptacle hereinafter referred to.

Figure 5 is a partial section on line 5—5 of Fig. 2.

Figure 6 is a partial sectional detail on line 6—6 of Fig. 2.

Having reference to the drawings, 1 represents a base or pedestal upon which is fixedly mounted a motor 2 whose armature shaft 3 has fastened to it a cutter head 4 carrying two rotatable cutters 5, 5. These cutters 5, 5 have their axes disposed oblique with relation to each other so that the inner end portions of said cutters are nearer together than their outer end portions. Each cutter 5 is provided at its inner end with a spur gear 7 and these two spur gears 7 are in mesh with an internal gear 8 rigidly fastened to the frame of the motor 2. It will be clear, therefore, that when the motor is in operation the cutter head 4 with its cutters 5 is rapidly rotated and that a pencil or the like introduced endwise between the cutters and held against rotating itself will be trimmed down to a point, the cutters 5 not only travelling bodily around the pencil but also rotating on their own axes so as to operate upon the latter. This particular form of cutter head is old and well known.

Inclosing the cutter head 4 and cutters 5 is a boss or receptacle 9 which not only serves as a guard to prevent injury to the hand by the cutters 5 but also as a receptacle for the shavings, the material removed from the pencil or the like by the cutters falling into the lower

part of said receptacle 9. The rear side wall 10 of the receptacle 9, Figs. 2 and 3, is made with an approximately circular hole or aperture 11 to receive within it a circular boss 12 provided on the frame of the motor. At opposite sides thereof the boss 12 is provided with outstanding lugs 13 which occupy positions within the receptacle 9 and behind or opposite the rear wall 10 of the receptacle, thus locking the latter to the frame of the motor. In order to provide for removal of the receptacle 9 when it becomes necessary to empty out accumulated shavings, the rear wall 10 is formed with two diametrically opposite notches or ways 14, 14 opening into the hole 11, said notches 14 being out of register with the lugs 13 when the receptacle occupies its normal position upon the circular boss 12. Therefore, the receptacle 9 is normally locked on the boss 12 by the lugs 13. By turning the receptacle 9 on the boss 12 in the direction indicated by the arrows in Figs. 3 and 4, the notches 14 can be brought into register with the lugs 13 whereupon the receptacle is free to be removed so that it can be emptied.

My improved sharpening machine is of that type wherein the circuit of the motor 2 includes a normally open controlling switch that is closed to set the motor in operation by the insertion of a pencil into the machine. As herein shown I provide the front or outer wall 15 of the receptacle 9 with a pencil guide and supporting tube 16 that is mounted within, but insulated from, a nipple 17 projecting from front wall 15 and forming part thereof. As herein shown, a tube 18 of insulating material is interposed between the guide tube 16 and the nipple 17. Within the guide tube 16 is secured a leaf spring contact 19 which is disposed longitudinally with relation to the axis of the guide tube 16 and whose free end is co-operatively disposed with relation to, but normally out of contact with, a contact screw 20 mounted in a non-conducting block 21 secured to the nipple 17 and by which said contact screw is insulated from said nipple as well as from the tube 16. As will be clear, when a pencil is shoved endwise through the guide tube 16 into position within the cutter head 4 it serves to press the spring contact 19 against the inner end of the contact screw 20 thereby closing the circuit of the motor 2 and starting the latter in motion.

In some automatic pencil sharpeners, as heretofore constructed, the normally open

switch in the motor circuit has been operated to close the circuit of the motor by engagement of the inner end of the lead or graphite with a movable contact, and this was objectionable for the reason that it was possible, when that contact was connected with the positive side of the supply, for the operator or user to receive the current through the lead or graphite of the pencil. With the construction which I have just described the movable spring contact 19 of my switch is engaged by the wooden side of the pencil only and, therefore, it is impossible for the operator or user to receive current through the graphite or lead of the pencil.

The fixed screw contact 20 is connected by a wire 31 with a male contact 22 mounted upon a block 23 of insulating material secured to the rear wall 10 of the receptacle 9 while the movable spring contact 19 is connected through guide tube 16 and a wire 24 with another male contact 25 mounted upon the block 23 of insulating material. The two male contact plugs 22 and 25 normally occupy positions within socket contacts 26 and 27, respectively, mounted within a block 28 of insulating material secured to the frame of the motor 2, said socket contact members 26 and 27 having connected with them, respectively, wires 29 and 30 constituting part of the circuit of the motor 2. When the receptacle 9 is partially rotated in the direction of the arrows in Figs. 3, 4 and 5 to register the notches 14 with the lugs 13, the block of insulating material 23 which is mounted on the receptacle 9 is carried away from the block of insulating material 28 on the frame of the motor thereby withdrawing the male contact plugs 22 and 25 from the contact sockets 26 and 27 leaving the receptacle free to be removed from the machine. So also, it will be clear, that when the receptacle is placed back in position the notches 14 are first registered with the lugs 13 then, after shoving the receptacle on to the boss 12, said receptacle is turned a short distance in a direction opposite to the arrows in Figs. 3, 4 and 5 thus causing the lugs 13 to lock the receptacle on the boss 12 and also carrying the male contact plugs 22 and 25 into the socket contacts 26 and 27. It will therefore be clear that an important feature of my invention consists in providing a double contact connector in the circuit of the motor, said connector comprising two separable parts, one incorporated in the machine in a fixed position and the other mounted upon the removable receptacle, the

parts of said connector being brought into interlocking and circuit establishing engagement by the movement that is given to the receptacle to lock the latter in its normal position and being separated or disengaged one part from the other part by the movement that is imparted to the receptacle to unlock the latter from its support.

What I claim is:—

1. A machine for sharpening pencils comprising a rotatable cutter; a motor for operating said cutter; a circuit for said motor; a removable receptacle inclosing said cutter; a normally open switch in said circuit mounted on said receptacle, said switch including a movable contact member that is operated by direct engagement of the side of the pencil therewith to close said circuit when the pencil is placed in position to be operated upon by said cutter, and a two-part connector in said circuit whereof one part is mounted on said receptacle and connected with said switch and the other part is fixedly supported to separately engage with the first mentioned part when the receptacle occupies its operative position.

2. In a machine for sharpening pencils the combination of a motor; a circuit for said motor, a cutter head mounted on the armature shaft of said motor; rotatable cutters carried by said cutter head provided with pinions; an internal gear on the frame of the motor in mesh with said pinion; a receptacle inclosing said cutter head; a bayonet joint connection between said receptacle and the frame of said motor normally holding said receptacle in operative position with provision for removal; a guide on the receptacle for positioning the pencil with relation to the cutter head; a normally open switch in said circuit adjacent said guide adapted to be operated by the pencil to close the circuit of the motor when said pencil is placed in position to be operated upon by the cutter head, and a two-part connector in said circuit whereof one part is mounted on the frame of said motor and the other part is mounted on said receptacle, said last mentioned part being automatically uncoupled from the other part when the receptacle is operated to free it from the motor frame and automatically coupled to said other part when said receptacle is operated to connect it with said frame.

Signed by me at Boston, county of Suffolk and State of Massachusetts, this 10th day of June, 1927.

LEROY G. BRACKETT.