ADJUSTING DEVICE FOR LUMBER PLANER

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ABSTRACT

An adjusting device for setting knives on wood heads. A housing with arcuate shaped legs rests on the planer drum and a movable electrical contact member mounted on the housing is set to a preselected distance from the surface of the planer drum corresponding to the desired height of the knives. A battery powered light is mounted on the housing and is electrically connected to the contact member and is energized when the blade is moved into contact with the contact member thereby visually indicating the proper height of the cutting blade.

1 Claim, 5 Drawing Figures
ADJUSTING DEVICE FOR LUMBER PLANER

BACKGROUND OF THE INVENTION

This invention relates to a device for setting and adjusting the knives on wood planer heads. The wood planer referred to is a motor-driven machine which planes the edges of wood lumber. Such machines have a drum which is rotated by an electric motor. The drum carries four or more knives which are mounted on the periphery. The knives must be carefully set to an exact radial distance from the axis of rotation of the drum in order to make even contact with the lumber which is being planed.

Present methods of setting the blades are strictly mechanical and require more complicated and expensive tools. Such present methods are most laborious and time consuming.

SUMMARY OF THE INVENTION

The gist of the present invention is the use of a light-emitting device and portable energizing means to energize the light emitter when physical contact is made between the blade to be adjusted and the adjusting contact point of the invention.

An object of the present invention is to provide a device which is relatively inexpensive, extremely accurate, easy to use, and will save considerable time over present methods in adjusting the cutting blades on lumber planers.

Another object is to provide a device as described which can be used to adjust the blades on lumber planers without removing the chip breakers on the planer.

Still another object is to provide a device which is lightweight, rugged, and portable.

A further object is to provide a device which can be used by lumber mills and carpentry shops.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side view of the device set in place on a lumber planer.

FIG. 2 is an enlarged side view of the device of the present invention with portions cut away for purposes of showing the construction of the device.

FIG. 3 is a top plan view of the device shown in FIG. 2.

FIG. 4 is a side view of the device shown in FIG. 2.

FIG. 5 is a bottom view of the device taken generally along line 5—5 of FIG. 2.

BRIEF DESCRIPTION OF THE PREFERRED EMBODIMENTS OF THE INVENTION

The adjusting device of the present invention consists briefly of a housing 2 having legs 3 and 4 adapted for touching contact with a planer drum 6, an electrical contact member 7 threadably mounted in the housing and adapted for physical and electrical contact with the cutting edge 8 of a knife blade 9, a light emitting bulb 11, energizing means such as a battery 12, a circuit electrically connecting the member 7 with the battery 12, and a contact member 13 biased toward the drum by a spring 14.

The adjusting device is primarily for use in adjusting the blades of a lumber planer to a precise distance from the axis of rotation 16 of drum 6.

A typical planer, as shown in FIG. 1, includes feed rollers 17 and 18 which turn in the direction of arrows 19 and 20 and engage and move a board 21 in the direction of arrow 22. Mounted on the periphery of the drum are a plurality of blades 9, 9a, 9b, and 9c. Each of these blades is set in a socket and can be moved in the direction shown by double arrows 23, 23a, 23b, and 23c. Suitable clamp means is provided in the planer drum to permit adjustment of the blades and for holding the blades securely during operation of the machine. As a safety device, lumber planers have chip breakers 24 and 25 mounted in spaced relation near the upper periphery of the drum. The chippers disintegrate any large chips dislodged from the surface of the board by the knives and which are thrown at high speed against the chippers.

In order for a lumber planer to work properly, the edges 8 of all of the knife blades must be set to the same distance from the access of rotation of the drum 6. The knife edges must be properly set when new or resharpened blades are inserted and they should be periodically checked and adjusted.

The standard adjustment tools all operate on a mechanical principle and either rest on shoulders of the machine, such as surfaces 27 and 28 or they rest on the drum. Previous devices, however, were so large that they required removal of the chip breakers 24 and 25 which further increased the time to check and adjust the knife blades.

Referring to FIG. 2, the member 7 is formed with a sharp point 29 which moves axially of opening 31 formed in the housing. The housing is formed with an indentation 32 so that a knife blade can protrude into the opening for contact with the point of the member. The ends of the legs of the housing are formed with smooth arcuate surfaces 33 and 34 having about the same radius as the planer drum so that the housing can rest solidly thereon. A slot 36 is formed in the upper end 37 of the contact member so that an ordinary screwdriver can be used to rotate the member and move the point into and out of contact with the edge of the knife blade. A locking nut 38 is threadably mounted on the member 7 for engagement with the top surface 39 of the housing for holding the member 7 when the selected adjustment height is decided upon.

The housing is constructed of a non-electrical conducting material such as acrylic plastic or other hard lightweight material. Preferably, the housing is formed with an opening 41 for receiving a battery therein. A bulb holder 42 is connected to the housing as by a threaded end 43 which mates with a threaded opening 44. A nut 46 may be provided for easy insertion and removal. A spring contact member 47 electrically connects a light bulb 11 with battery terminal 48. Spring 14 is compression biased by enlarged head 49 on member 13 and urges the contact point 51 against the surface of drum 6.

The electrical circuit connecting the adjustment member 7 with the battery may consist of a slide shoe 52 which is a conducting metal and presses against the metal member 7. A spring metal member 53 connected to the housing by screw 54 holds the shoe. A wire 56 connects the slide shoe to the bulb holder which is electrically connected to the battery.

To adjust the knife blades, an operator should set the first knife in a temporary stance with the heel 57 of the bevel showing no more than 1/16 inch. Next, the contact member 7 should be screwed down to a position with the point 29 contacting the knife edge 8. The
member should then be firmly locked in position by turning lock nut 38 into engagement with the top surface 39. All of the other knife blades 9a, 9b, and 9c should then be brought up to that point where the knife blade touches point 29 and the light bulb flashes on. If the operator is doubtful whether the adjustment is correct, he may drop the knife down no more than 0.001 of an inch and the light will go out. By raising it again, ever so gently, the light will go on again.

Using the device of the present invention, an operator should be able to adjust the knives in about 20 minutes. Using the prior equipment, the job generally took about two man-hours. Much of the time was spent removing the chip breakers and mounting them back in place. Using the device of the present invention, there is no need to remove the chip breakers.

I claim:

1. An adjusting device for a lumber planer comprising:
   a. a non-electrical conducting housing formed with indent means in the area of the point of said contact member and having a pair of depending legs the ends of which are formed in an arcuate shape adapted for resting upon the surface of a planer drum in a stable stance;
   b. a contact member moveable in infinite increments from a position in physical and electrical contact with a knife blade mounted on the planer drum to a position out of contact with said knife blade;
   c. a light-emitting device mounted on said housing;
   d. power means including a dry cell battery for energizing said light-emitting device;
   e. ground means mounted for reciprocal movement within one of said housing legs and electrically connecting said drum and said energizing means;
   f. an electrical circuit connecting said contact means and said power means;
   g. spring means biasing said ground means into contact with said drum; and
   h. said contact member being threadably engaged by mating threads in an opening in said housing.