

May 26, 1942.

H. D. MARTIN
SWITCH FOR LATHES
Filed May 27, 1940

2,284,404

Fig. 1.

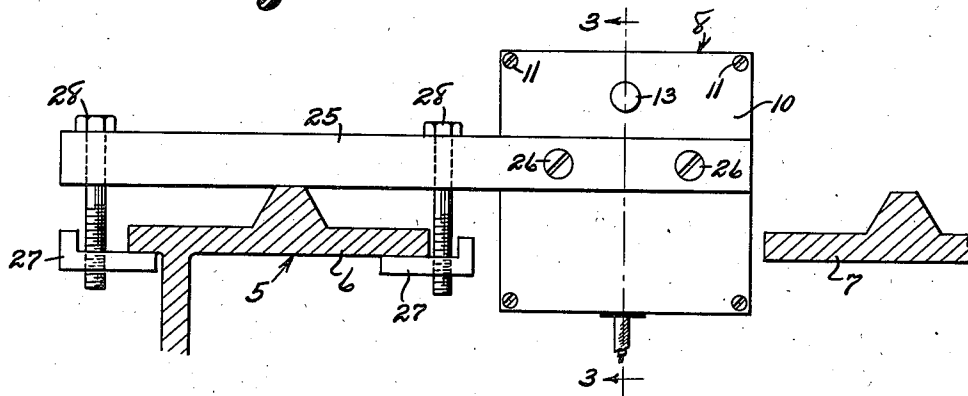


Fig. 2.

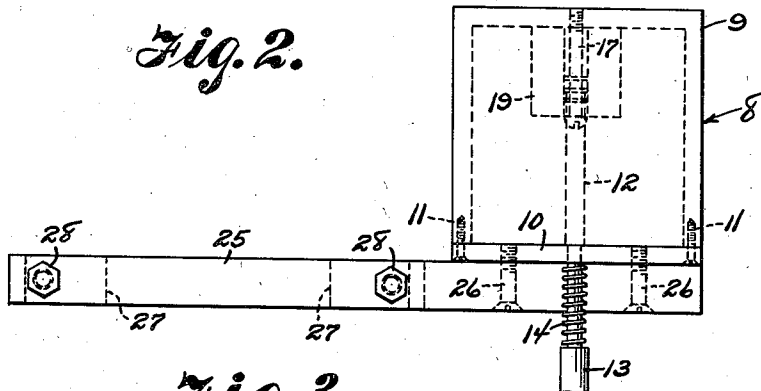
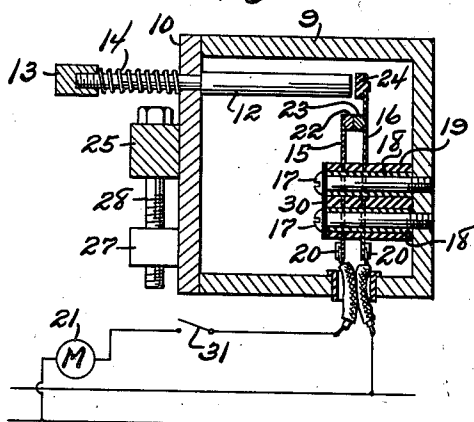


Fig. 3.



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2,284,404

SWITCH FOR LATHES

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Application May 27, 1940, Serial No. 337,524

1 Claim. (Cl. 200—47)

The present invention relates to automatic lathes and more particularly to a novel switch for automatically stopping the lathe.

The primary object of the invention resides in the provision of a motor cut out switch that is adapted to be clamped to the bed of a lathe for stopping said lathe upon the cutting tool reaching a predetermined position thereby precluding the possibility of injury to the tool.

A further object of the invention is to provide a switch that may be attached at any position along the bed of the lathe and which will serve as an automatic power cut off for the motor after the movable cutting tool has completed its travel along the work thereby eliminating constant attention of the operator of the lathe.

A still further object of the invention resides in the provision of an automatic cut out switch having the above characteristics that will substantially eliminate the possibility of ruined stock due to carelessness of the operator.

The invention will be fully and comprehensively understood from a consideration of the following detailed description when read in connection with the accompanying drawing which forms a part of the application.

In the drawing:

Figure 1 is a transverse sectional view through the bed of an automatic lathe and illustrating the present invention applied thereto.

Figure 2 is a top plan view of the device.

Figure 3 is a vertical sectional view taken substantially on line 3—3 of Figure 1.

Referring to the drawing for a more detailed description thereof, the bed of a lathe is generally designated by the reference numeral 5, and as is customary, said bed comprises spaced rails 6 and 7, respectively, which guide the travel of the automatic cutting tool and compound rest, not shown. In accordance with the present invention the motor cut out switch generally designated by the reference numeral 8 is adapted to be attached at any position along the lathe bed so as to be contacted by the compound rest for stopping the lathe motor when the cutting tool has reached the end of the work.

The switch 8 comprises a substantially square-shaped metal case 9, said case having a cover 10 removably attached thereto by screws or other fastening means 11. A push rod 12 is mounted in the cover 10 substantially centrally thereof, said push rod extending within the case as shown in Figure 3 and also projecting exteriorly of the case, the projecting end having attached thereto a bumper 13. A spring 14 is carried on the rod

12, the same being held between the bumper 13 and cover 11 for returning said push rod to normal position upon the release of pressure on the bumper 13.

A pair of switch arms 15 and 16, respectively, are mounted within the casing 8, the same being supported by means of the pair of screws 17. It will be noted that the screws 17 are disposed within insulating sleeves 18 and that insulating washers 19 are provided for maintaining the switch arms 15 and 16 in spaced relation. The switch arms are slidably disposed over the insulating sleeves 18 and the entire assembly is united by means of the washers 30. The lower end of the arms 15 and 16 are connected as indicated at 20 in circuit with the motor 21 of the lathe. Switch points 22 and 23 are mounted on the arms 15 and 16, respectively, and when in contact the circuit to the motor is complete. A bumper washer 24, formed of fiber or the like, is carried by the upper end of the switch arm 16 and is adapted to be contacted by the inner end of the push rod 12 for separating the contacts 22 and 23.

The switch casing 8 is adjustably mounted on the lathe bed 5 through the medium of a bar 25 secured as indicated at 26 to the cover of the casing, said bar being disposed above the bed and being held thereto by means of the clamps 27 and bolts 28.

In use, the switch casing will be adjustably mounted on the lathe bed so as to be contacted by the compound rest as soon as the tool has completed its travel over the work. The compound rest will contact the bumper 13 of the push rod 12 urging said push rod inwardly into contact with the washer 24 effecting disengagement of the switch contacts 22 and 23 breaking the circuit to the lathe motor 21.

As the rest is moved away from the bumper, the spring 14 will return the push rod to normal position thereby bringing the contacts 22 and 23 together permitting further operation of the motor 21.

A manually operable switch 31 is provided which, of course, is normally closed for operating the lathe motor. The switch arms 15 and 16 operate to stop the motor while the switch is in closed position.

It will be readily understood that the switch can be positioned on the lathe bed so as to function without the attention of the operator to stop the lathe as soon as the tool has completed its travel of the work thereby precluding the pos-

sibility of injury to the tool, work or other parts of the lathe.

Also it will be understood, of course, by those skilled in the art that variations in the hereinabove described device involving the substitution of substantial equivalents for the devices described are intended to be comprehended within the spirit of the present invention and that the invention is capable of extended application and is not confined to the exact showing of the drawing nor to the precise construction described and, therefore, such changes and modifications may be made therein as do not affect the spirit of the invention nor exceed the scope thereof as expressed in the appended claim.

What is claimed is:

In automatically operable switch mechanism for lathes, a rectangular shaped casing, a bar secured to the casing and projecting laterally thereof, a pair of clamps carried by the said bar for removably connecting the bar to a lathe, the said casing having a bore through one end thereof, a horizontally disposed push rod slidably extended through the said bore, the said rod having an enlarged portion at its inner end forming a shoulder for limiting the outward movement

of the rod, a bumper element fastened on the outer end of the rod, a spring sleeved about the outer portion of the rod between the casing and the bumper to yieldingly force the rod to an extended inoperative position, an insulated support member secured in the casing, a pair of switch arms supported vertically in the casing on the insulated support, the said arms being disposed in approximately parallel spaced apart relation, means connecting the inner fixed ends of the arm to the terminals of an electric circuit, one of the said arms being formed of resilient material and being substantially longer than the complementary arm so that a free end portion thereof projects vertically beyond the free end of the other arm, the said extended end portion of the resilient arm being in horizontal alignment with the push rod and normally separated therefrom, and a pair of contact elements secured to the respective arms and disposed to assume contacting circuit closing positions when the resilient arm is released and to assume separated circuit opening position when the resilient arm is swung laterally by retraction of the push rod by a movable portion of the lathe.

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