Dec. 18, 1934. E. THOMAS 1,984,710

ELECTRICAL SWITCH

Filed Nov. 14, 1932 3 Sheets-Sheet 1

Fig. 1.

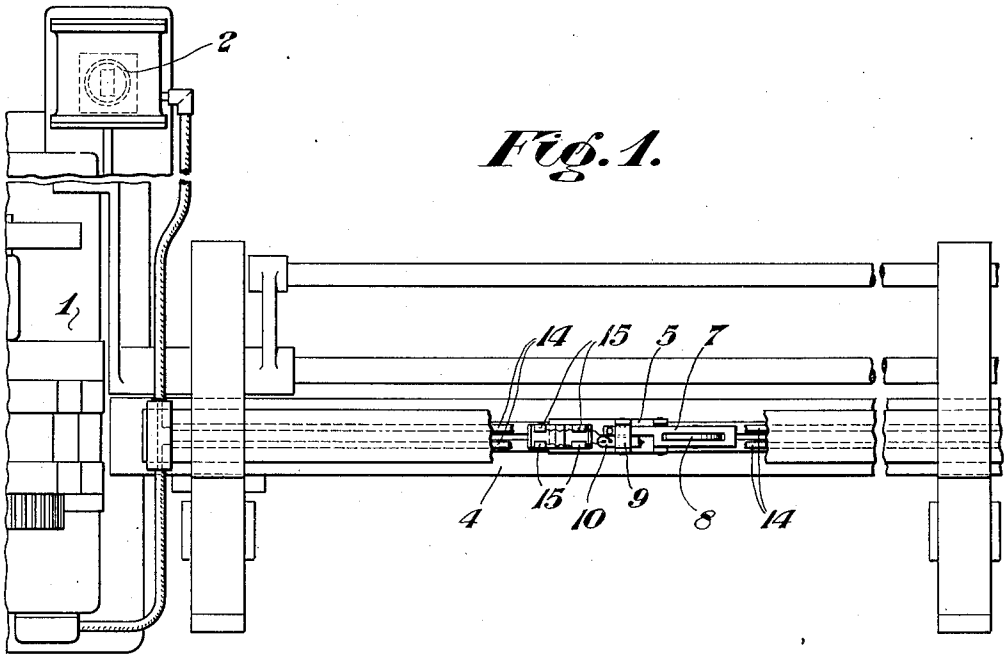
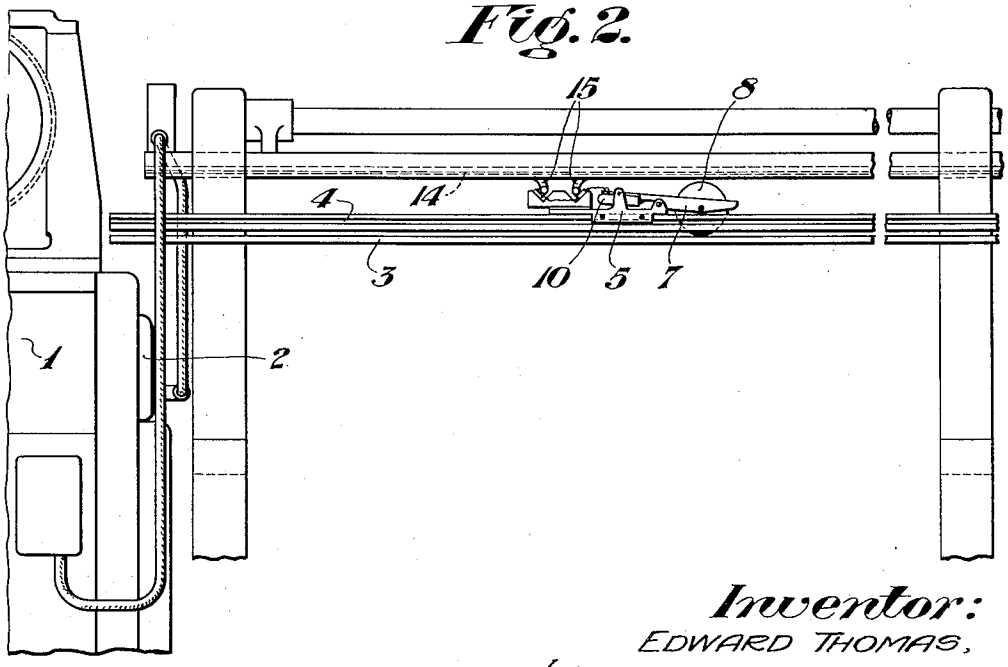


Fig. 2.



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ELECTRICAL SWITCH

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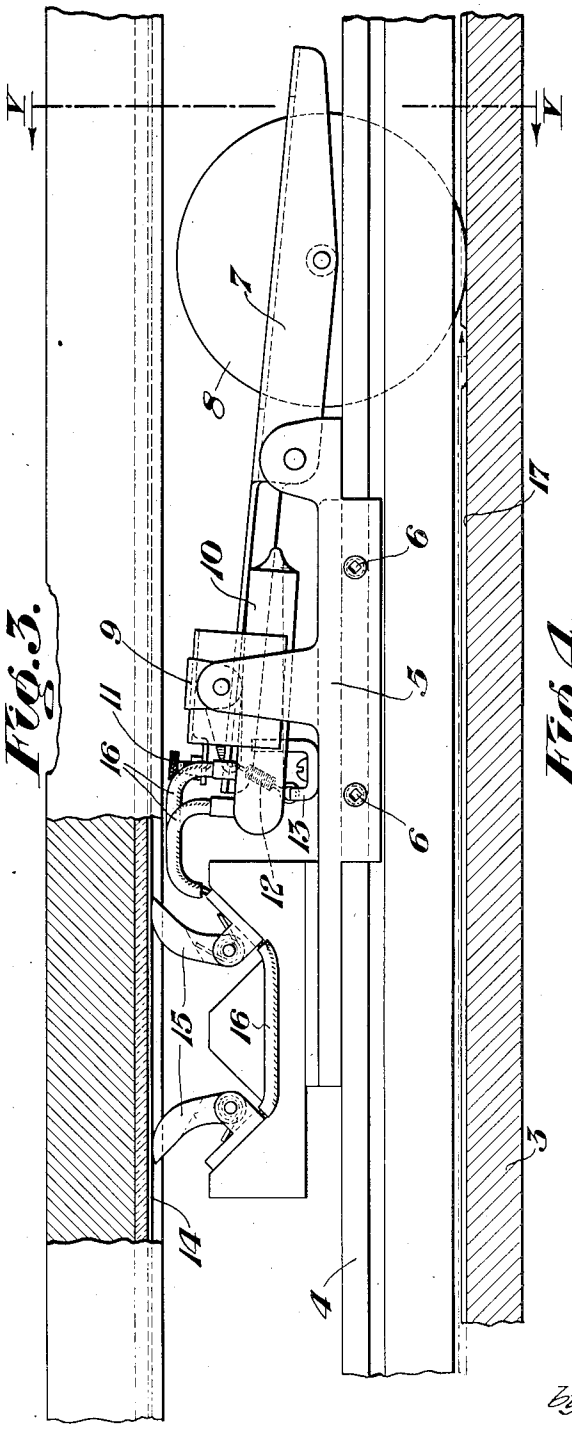


Fig. 3.

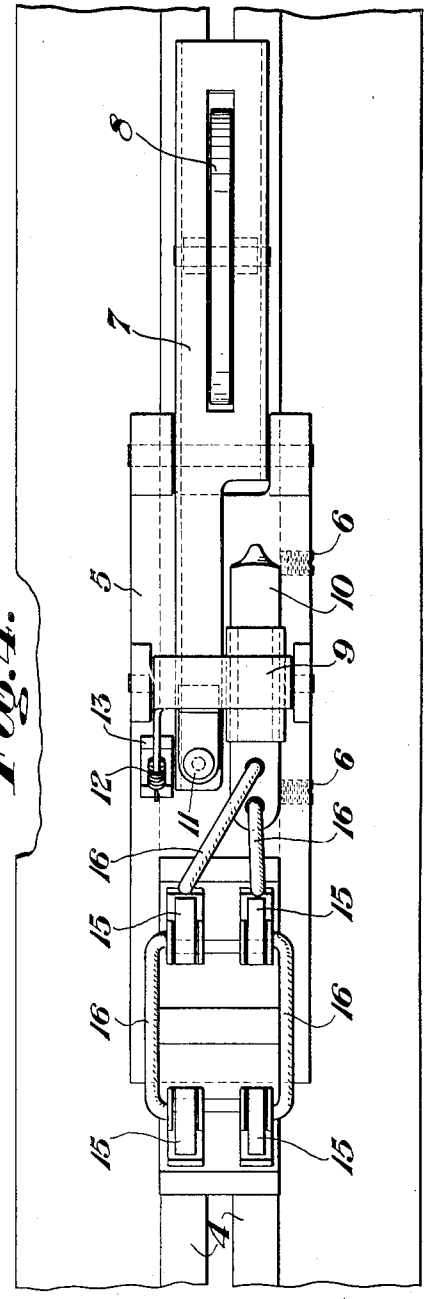


Fig. 4.

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ELECTRICAL SWITCH

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Fig. 6.

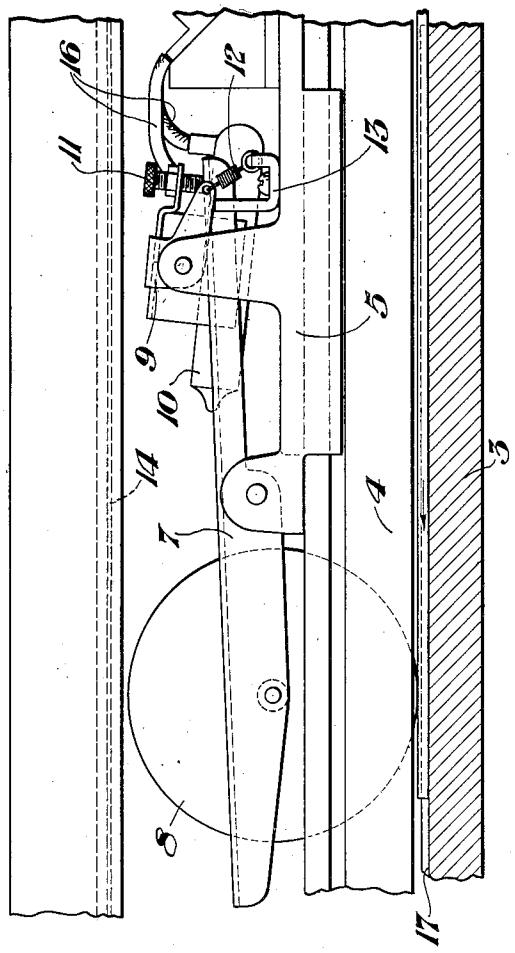


Fig. 5.

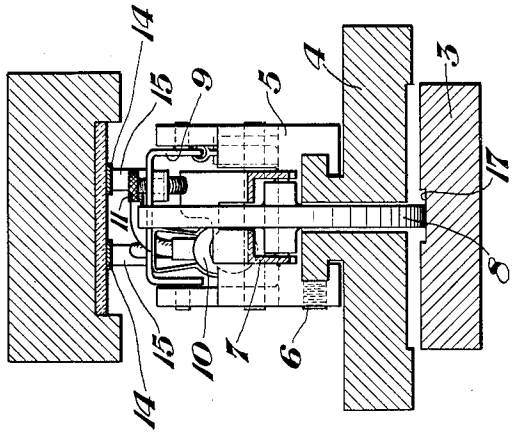


Fig. 8.

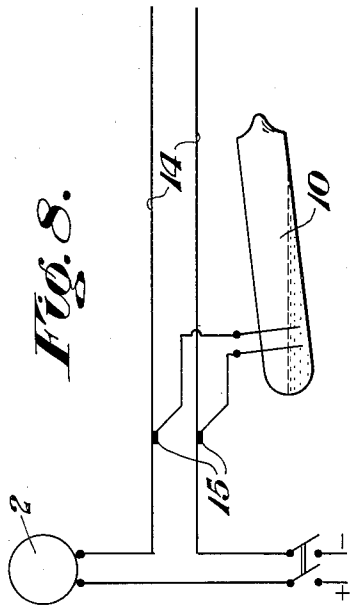
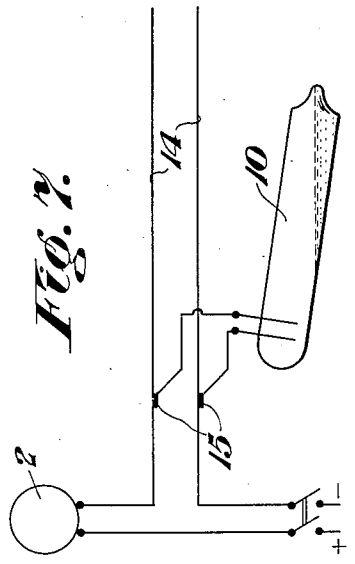


Fig. 7.



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Patented Dec. 18, 1934 1,984,710

UNITED STATES PATENT OFFICE

1,984,710

ELECTRICAL SWITCH

Edward Thomas, Cleveland, Ohio, assignor to The American Steel and Wire Company of New Jersey, a corporation of New Jersey

Application November 14, 1932, Serial No. 642,661

1 Claim. (Cl. 164—59)

This invention is intended to control an electrical circuit when traveling work reaches determined points. It is disclosed in use with an electrically controlled strip shear where it functions to cut lengths determined by the arrival of the strip end at predetermined points.

Referring to the drawings:

Figure 1 is a top plan.

Figure 2 is a side elevation.

Figure 3 is an enlargement from Figure 2.

Figure 4 is a top plan of Figure 3.

Figure 5 is a cross-section from the line V—V in Figure 3.

Figure 6 is a side elevation taken opposite that of Figure 3.

Figures 7 and 8 are wiring diagrams, respectively showing the switching element open and closed.

A strip shear 1 is electrically controlled by a solenoid 2. This shear and its control may be of any conventional type. An elongated work-guide 3 leads from this shear. A longitudinally slotted elongated work-guide 4 is parallel to the guide 3 and sufficiently spaced therefrom to permit the passage of work between the two. When the shear is operated the cut work lengths are sidewisedly ejected from these guides.

The slotted guide 4 slidably mounts a carriage 5 which a screw 6 serves to secure at selected points. This carriage pivotally mounts a two-arm lever 7. One end of this lever carries a wheel 8 which projects through the slotted guide 4 to form a work contacting element.

The carriage 5 pivotally mounts a rocker arm 9 carrying a mercury switch 10 of any suitable commercial type. This rocker arm has a knurl-headed screw 11 which contacts the end of the lever 7 remote from the work contacting element 8. The rocker arm 9 is urged towards the end of the lever 7 by a spring 12. This spring is secured to the rocker arm and to a stop 13 constructed and arranged to limit the motion of the rocker arm 9.

Two elongated conductors 14 are insulatingly mounted above and parallel to the guide 4. Electrical contactors 15 are mounted on the carriage 5 to bear against these conductors. Preferably the contactors comprise pivoted brush elements spring urged to their operating positions. Flexible electrical leads 16 interconnect the terminals of the mercury switch 10 and the contactors 15.

The conductors 14 are arranged in circuit with the shear's controlling solenoid 2. In the wiring diagrams they are illustrated as being in series with the solenoid.

In operation, the ends of strip leaving the shear 1 raise the wheel 8 so that the lever 7 moves to allow operation of the rocker arm 9. This causes operation of the mercury switch 10 and consequent energization of the solenoid. The shear then operates to cut the strip lengths determined by the setting of the carriage 5 along the guide 4. The operation of shears of the general character being discussed is so well known as not to need further discussion.

The lower work-guide 3 may be provided with a longitudinal channel 17 which receives the operating element 8. This provides a larger movement of the various operating parts when this gage strip is being sheared.

Although a specific form of this invention is disclosed in accordance with the patent statutes, it is not intended to thereby limit its scope, except as defined by the following claim.

I claim:

An electrical switch including the combination of a two-arm lever arranged so that one of its ends is moved by the passage of moving work, a rocker arm arranged to rock into contact with the other end of said lever, a spring arranged to urge said rocker arm into contact with said other end so that it follows the same, a stop arranged to limit the rocking of said rocker arm so that it can only follow said other end a limited distance and a mercury switch mounted by said rocker arm.

EDWARD THOMAS.