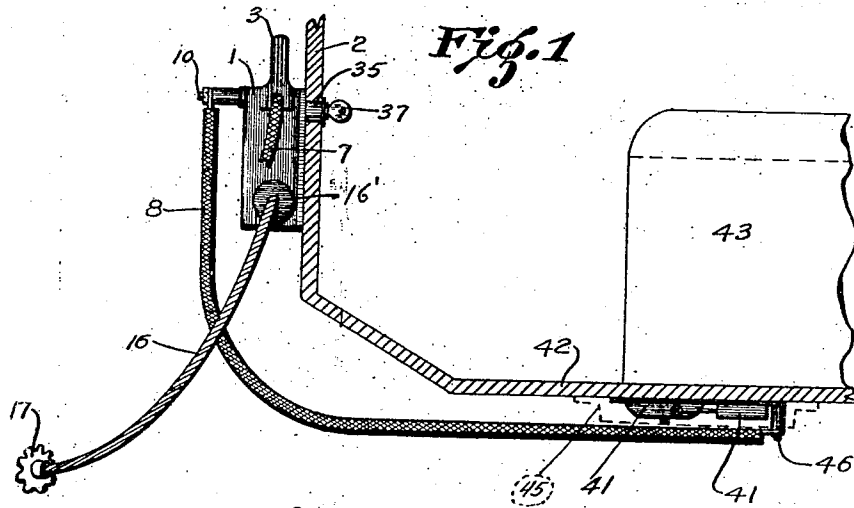
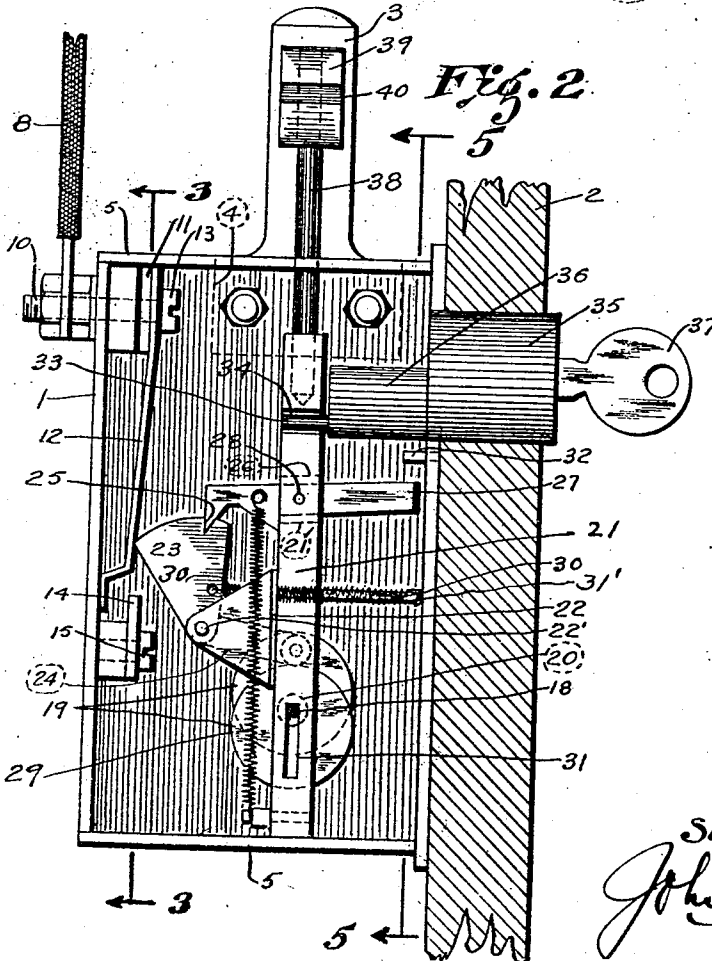
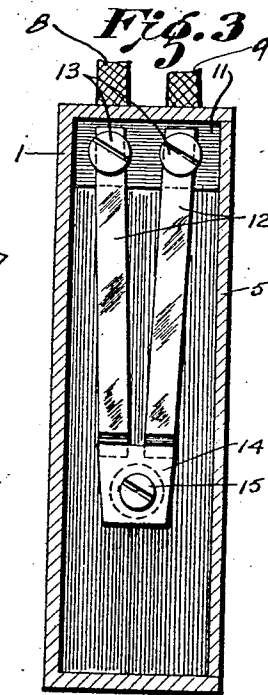


S. L. MATHEWS.
ELECTRIC LOCK AND ALARM FOR AUTOMOBILES.
APPLICATION FILED FEB. 26, 1919.

1,429,247.

Patented Sept. 19, 1922.
2 SHEETS—SHEET 1.



INVENTOR,

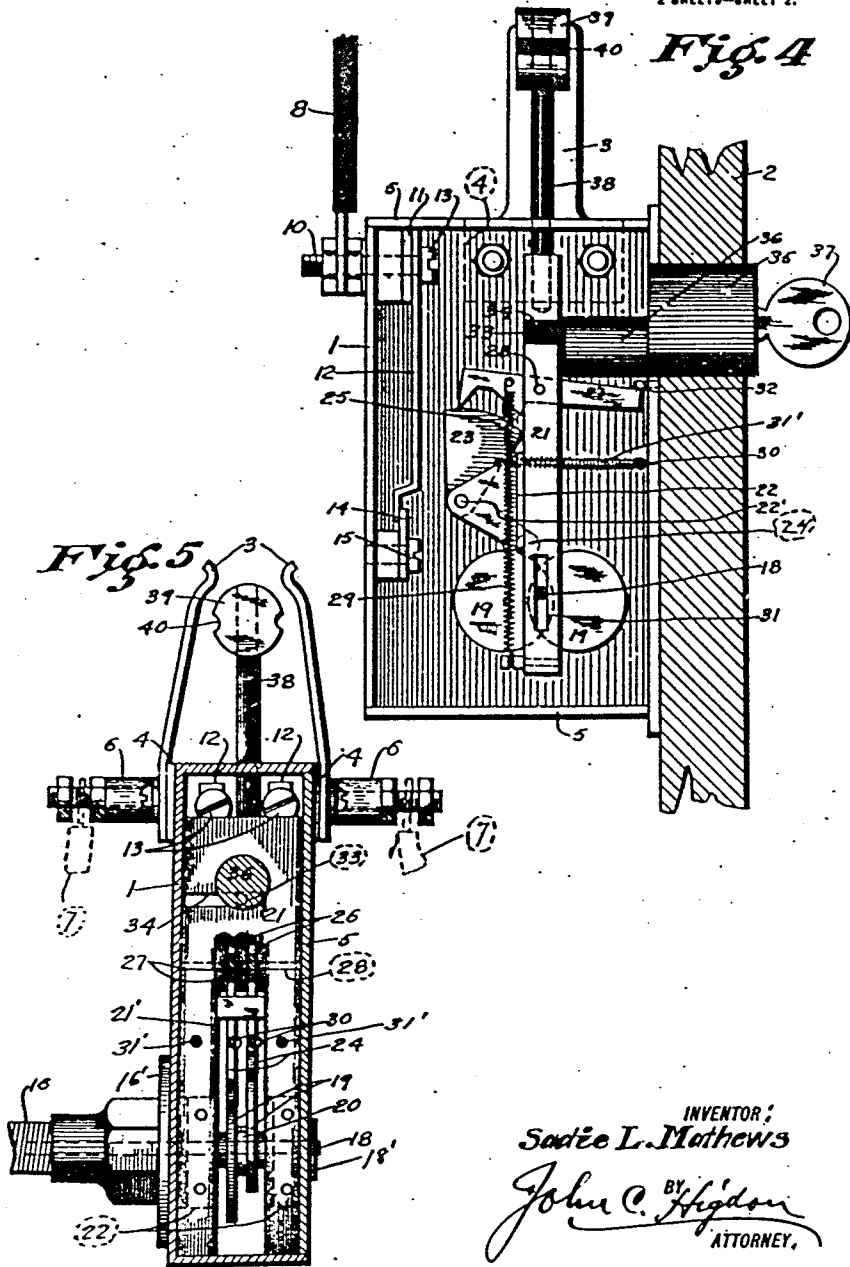
Sadie L. Mathews

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UNITED STATES PATENT OFFICE.

SADIE L. MATHEWS, OF ST. LOUIS, MISSOURI.

ELECTRIC LOCK AND ALARM FOR AUTOMOBILES.

Application filed February 26, 1919. Serial No. 279,402.

To all whom it may concern:

Be it known that I, SADIE L. MATHEWS, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Electric Locks and Alarms for Automobiles, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to electric theft alarms and locks for automobiles, and it consists in the novel construction and combination of parts hereinafter particularly described and claimed.

The object of my invention is to provide an improved electric lock and alarm for automobiles, which shall be efficient in operation, as well as of low cost, and capable of being easily applied to all makes and styles of motor vehicles, to lock the electric-circuits thereof in an open (or inoperable) condition, to prevent the operation of the automobile motor, and the theft of the vehicle, and to sound an alarm whenever the theft thereof is attempted.

In the drawings,

Fig. 1 is a sectional side-elevation of portions of a common automobile dash, foot-board and seat, having my invention applied thereto.

Fig. 2 is a detail side-elevation of the lock applied to the dash, one of the side-plates of the housing of the lock being removed to show the internal mechanism.

Fig. 3 is a vertical section of the lock-housing, taken on the line 3—3 of Fig. 2.

Fig. 4 is a side-elevation similar to Fig. 2, but showing the parts in a different position, and

Fig. 5 is a vertical section of the lock-mechanism, taken on the line 5—5 of Fig. 2.

In the present form of my invention, the numeral 1 designates a casing or housing for the lock-mechanism, attached in the present illustration of my invention to the front side of the dash 2 of the automobile by means of common screws or bolts (not shown), so it will be under the hood.

Said housing 1 is to be made of strong steel, so as to thoroughly protect the lock-

mechanism from tampering, and it is rectangular in form and carries at its upper end two opposite contact-springs 3, the upper ends of which are free and separated a distance, while the lower ends of said springs are insulated from said housing 1 by means of common fibre or other insulating material 4.

One side of the said housing 1 is movable or detachable, to form a cover or door, for affording access to the mechanism upon the interior of said housing, by any person in authority, and said cover is designated by the numeral 5.

Each of the said contact-springs 3 is provided with a ordinary binding-post 6, and ordinary metal-encased flexible conductors 7 are connected to said binding-posts, and to the usual electric-starter, coil-box, magneto, and battery, (not shown) to include said contact-springs in circuit with said devices, and thereby prevent the starting of the automobile motor (if it is a combustion engine) until the contact-head hereinafter mentioned has been interposed between the free ends of said springs, and a circuit has been completed between the latter.

In Fig. 4 the said "head" is shown in the contact position just described, while in Figs. 2 and 5 said head is shown out of contact with the springs 3, in a "locked" or "safe" position.

In other words, Fig. 4 shows the parts in a "running" position, ready to permit the current to flow through the said contact-springs 3 by way of the said "head", to operate the starter and motor of the vehicle; while the opposite is true of the showing of Figs. 2 and 5, as will be further explained hereinafter.

Additional ordinary metal-encased flexible wires or conductors 8 and 9 (two of them being used in the present instance) have one end connected to one of two binding-posts 10 at the upper end of said housing 1, and the opposite end of one of said conductors, the one marked 8, is connected to the terminal of an alarm-bell hereinafter referred to, while the opposite end of the other conductor, the one designated by the numeral 9, is connected to a common battery or other source of electricity (not

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shown), so that whenever a circuit is closed through the said two binding-posts 10 and the conductors attached thereto, an alarm will be sounded by the said bell. Any common or well-known electric-horn, or other sound-producing device may, of course, be used in place of the said bell.

The numeral 11 designates common insulation at the upper ends of two vertical flat contact-springs 12 that are mounted within said housing and fixed in position by the inner slotted heads 13 of said binding-posts 10, so that said springs will normally have their lower ends in contact with a body of insulating material 14, which forms a back-stop for them, and is fixed to the vertical wall of said housing by means of a cap-screw 15. By this construction the lower free ends of said springs 12 are normally insulated and held (by their inherent spring-power) out of contact with the said wall of said housing, so that no current can pass them.

A common flexible-shaft casing 16 has one of its ends connected or attached to the exterior side-wall of said housing 1 at a point near the lower end thereof by means of the usual flanged attaching-means 16', and a pinion 17 is mounted (by common means now used in mounting speedometer pinions) to mesh with a gear-wheel (not shown) mounted on or carried by the front wheel, or some other part of the automobile that necessarily moves whenever the vehicle is driven, pulled, or pushed, along the road.

Said pinion 17 is fixed on the outer end of a common flexible-shaft 18, at the outer end of the said flexible-shaft casing 16, and said flexible-shaft extends through said casing, through said flanged attaching means 16', and through aligned openings in the opposite vertical side walls of said housing, and revolves in common bearings such as 18' carried by the latter. (See Fig. 5.)

The portion of said flexible-shaft 18 which extends through said housing 1, also extends through vertical slots 31 formed in the two parallel legs of what I may term a "lock slide" 21, which has such a width that it fits loosely between, and is guided by, the cover 5 and the opposite wall of said housing, and the lower portion of said slide is bifurcated by a large vertical slot 21', to form the said legs.

Fixed upon said flexible-shaft 18 in the said large vertical slot 21' of said slide 21, are two oppositely-set eccentric-disks 19 which are spaced apart on said shaft by a washer 20.

Two horizontally-aligned brackets 22 are attached to and project from one side of the said legs of said lock-slide 21, between which brackets are mounted two segmental "tumblers" 23, having at their lower ends arms 24 which extend from the rear edge of said tumblers almost at a right-angle to their

rear edges, and are normally held in contact with the periphery of said eccentric-disks 19 by springs hereinafter mentioned.

The pivot rod or pin of the said tumblers, is designated by 22'. 70

In the upper edge or periphery of the said segmental tumblers are locking-recesses or slots 25.

Formed in the body of said lock-slide 21, at a point above the upper end of said large slot 21', are a pair of smaller vertical slots 26, in which holding and releasing dogs 27 for said tumblers are pivotally mounted, upon a pin or other form of pivot 28.

Said holding and releasing dogs may also be termed "trip-levers," as they trip the said tumblers under the circumstances hereinafter mentioned. 80

The front ends of said trip-levers 27 are provided with downwardly-extending pointed-portions or teeth which enter the locking-recesses 25 of said tumblers, and hold them in "alarm"-producing position under the circumstances hereinafter mentioned. 85

Common coiled springs 29 have their upper ends attached to the said trip-levers 27, while the lower ends of said springs are fixed to some part of said slide 21 in the manner shown in Figs. 2 and 4, whereby the said pointed portions of said trip-levers will be at all times urged into contact with said tumblers 23, and will pass into the said locking-recesses 25 when said tumblers are thrown outwardly, or forwardly, to an "alarm" position. 90

Common coiled springs 30 are used for returning the said segmental tumblers 23 to their normal positions, (which is that in which they are shown in Fig. 4) the front ends of said springs being connected to the said tumblers, as shown, while their rear ends are attached to the cross-bar of a U-shaped spring-bracket 31, the parallel arms of which are fixed in horizontal holes drilled in the legs of the said slide 21, the said springs extending horizontally through the large vertical slot of said slide, whereby said springs and their bracket 31 will move up and down with the slide and the parts carried by the latter, and a direct "pull" will be exerted at all times on the said tumblers, no matter if the slide be up or down. 105

A stop-pin or lug 32 is fixed in or upon the inner wall of the said housing 1, and projects in the path of the said trip-levers 27, to limit the upward movement of the inner ends of said levers as the said slide 21 moves upwardly. 110

To "lock" the various parts of the automobile, and to set and re-set the lock and alarm mechanism, a pin 33 that is rotated or rocked by a Yale or other common form of key-operated lock, engages the walls of a horizontal transverse slot 34 formed in the said 115

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slide 21 at a point above the said small vertical slots 26, the said pin 33 projecting from some rocking part of said Yale lock, which I have designated by the numeral 35, and have marked its common rocking-element with the numeral 36.

The numeral 37 designates the usual key for said lock 35.

Fixed to or formed integral with the upper end of the said slide 21, and extending vertically therefrom, is a contact-head stem 38, carrying a contact-head 39 having on its opposite sides horizontal grooves or seats 40 to receive the curved upper portions of the said contact-springs 3; the said stem passing through a suitable opening or bearing in the upper end-wall of the said housing 1.

The numeral 41 designates a common electrically-actuated alarm-bell or horn, fixed (in the present illustration of my invention) to the underside of the automobile floor or foot-board 42, and under the driver's seat 43.

Said horn or alarm-bell 41 should be protected against tampering by a steel casing having the usual perforation through which the sound-waves may pass. Such a protective casing I have shown in dotted lines in Fig. 1, and have therein designated it by the numeral 45.

The numeral 46 designates the usual binding-posts of said horn or bell, to one of which the rear end of the said horn or bell-circuit conductor 8 is connected, the other one of said binding-posts being grounded or connected, as usual, to the common battery or other source of electricity used in operating an automobile, and also connected to the other one of the alarm-conductors 9, which forms a part of the circuit for the said contact-springs 12.

The operation.

In Fig. 4 the parts of the mechanism are shown in a "running" adjustment,—that is, in the position which they normally occupy while running, or while in the possession of the owner or other authorized person, the said key 37 having rocked or rotated the barrel or other part 36 of the lock 35 until its pin 33 is moved a sufficient distance to elevate the said lock slide 21 and the parts carried by it to an operative running position, that is with the said contact-head 37 in contact with the said curved free ends of the said pair of contact springs 3, thereby closing (or making ready for closing) the circuit on the starter, spark-coil, magneto, or battery of the automobile.

It will be observed that when the said slide 21 is at the limit of its upward movement the said segmental tumblers 23 are, as shown in Fig. 4, held retracted by their springs 30, out of engagement with the said alarm contact-springs 12, so that the vehicle may freely move along the road, or the mo-

tor may freely run, without sounding an alarm upon the said bell 41. It will be impossible for the alarm circuit to be closed when the slidable member is switched to its elevated position as the dogs are maintained in an inoperative position and can not successively lock the tumblers in their engaging or circuit closing position and cams 19 of the shaft 18 are arranged at 180 degrees so that only one of the springs 12 could be moved at a time into contact with the lock casing as one of the cams would extend downwardly while the other extends upwardly. The successive locking of the springs 12 in contact with the lock casing is necessary to close the alarm circuit.

On the other hand, when the owner of the vehicle leaves it, he places the mechanism in a "locked" position, by using said key 37 to lower the said slide 21 to the "safety" or locked position in which it is shown in Figs. 2 and 5, thereby withdrawing the said contact-head out of engagement with the said pair of contact-springs 3, which will break the circuit on the motor-starter, spark-coil, magneto, or battery, or generator, and make it impossible to start the motor.

Should a thief or other unauthorized person move the automobile either forward or backward by any means, such as by towing it with another automobile, or by animal power, (even if the starter circuit be completed by unauthorized means through said contact-springs 3 or by means of temporary wiring) the said pinion 17 will rotate the said flexible-shaft 18 and the eccentric-disks 19 carried thereby within said housing 1, thereby causing the peripheries of said disks to engage the said arms 24 of the said segmental tumblers 23, and projecting the latter to the position they are shown in in Fig. 2, wherein they have been thrown into contact with the lower portions of the said flat contact-springs 12, and have pressed same into contact with the metallic wall of said housing 1, and completed the bell-circuit through said wall, and an alarm will be sounded by the said bell 41, which will call attention of the police and other persons to the fact that the automobile is being stolen, or moved by an unauthorized person. As the segmental tumblers 23, the supporting bracket 22 and the slide 21 are all constructed of metal, the bell circuit may be closed through the said tumblers 23 and the bracket 22 and the slide, and this operation will effect a closing of the bell circuit even though one or both of the said springs should not quite touch the lock casing.

And the said alarm-bell will continue to sound an alarm until the owner of the automobile, or some other person, with a key 37 returns the parts of the mechanism to their normal position.

As the said segmental tumblers are

thrown outward during the unauthorized movement of the vehicle, they are locked in a projected position by the sharpened points of the said trip-levers 27 dropping into the said recesses 25 in the peripheries of said tumblers, as shown in Fig. 2, which will cause the bell-circuit to remain closed until said trip-levers are released.

A release of said trip-levers, and a retraction of the said bell-circuit contact-springs 12, is accomplished by the rear ends of the said levers coming in contact with the stop-pins 32, during the upward movement of the slide 21, thereby withdrawing said sharpened portions of said levers from said recesses 25 of said tumblers, and permitting said tumblers to be retracted by the springs 30. (See Fig. 4.)

I claim:—

1. A safety device for automobiles, comprising a casing, a rotary spindle mounted in the casing and having a portion projecting therefrom, a tripper or dog on said spindle, switch mechanism including means mounted in said casing for movement toward the spindle to a position to be operated by said tripper or dog, or away from said spindle into inoperative position, locking means projecting through the casing for moving said means and locking it in operative position.

2. As a new article of manufacture an alarm comprising a casing, a flexible shaft casing attached at one end of said casing and enclosing a flexible shaft, the latter projecting at one end into said first mentioned casing and being there provided with an operating projection and carrying a driving wheel at the other end, switching means inside of said casing, including operating means movable into and out of operative relation to said projection, and locking means projecting through the casing for locking said operating means in operative position.

3. A safety device for automobiles, including a switch casing, a rotary spindle in said casing having an operating projection, a flexible shaft casing carrying a flexible shaft connected at one end with a rotary spindle and having a driving wheel at the other end, switching mechanism in the switch casing engageable by the said projection, and a lock controlling the switching means for locking the same in operative relation with the said projection.

4. As a new article of manufacture an automobile alarm comprising a casing, a flexible shaft casing attached at one end to said casing and enclosing a flexible shaft, the latter projecting at one end into said first mentioned casing and provided with switch operating means and carrying a driving wheel at the other end of the flexible casing, switching means in said first mentioned

casing, including a part movable into and out of engagement with said operating means, and locking means projecting through the said first mentioned casing for setting and locking said part for operation by said switch operating means.

5. A safety device for automobiles, including a switch casing, a lock projecting through said casing, a rotary spindle operating in said casing, a tripper or dog on the rotary spindle, and switching mechanism in the casing having operating means carried by the lock toward and from the spindle and adapted to be locked in one position by said lock for operation by the tripper or dog to close an alarm circuit.

6. A safety device for automobiles, including a switch casing, a lock, a rotary spindle operating in said casing, a tripper or dog on the rotary spindle, switching mechanism carried by the lock toward and from the spindle and adapted to be locked in one position to be operated by the tripper or dog, and a flexible shaft casing carrying a flexible shaft connected with the spindle and with a wheel of the automobile whereby the spindle will be rotated when the automobile is moved in either direction.

7. A safety device for automobiles, including a shiftable member, a lock provided with means for actuating the shiftable member and for locking the same, a rotary spindle, a tripper or dog, and switch mechanism having operating means mounted on the shiftable member and movable toward and from the spindle and operable by the tripper or dog for closing a break in a circuit.

8. A safety device for automobiles, including a switch casing, a slide movable back and forth in the casing, a lock provided with means for actuating the slide and for locking the same, a rotary spindle, a tripper or dog on the rotary spindle, and switching mechanism arranged within the said casing and including operating means carried by the slide and movable toward and from the spindle and adapted in one position of the slide to be operated by the tripper or dog for closing a break in a circuit.

9. A safety device for automobiles, including a switch casing, a slide movable longitudinally therein and having a slot extending transversely with relation to the direction of movement of the slide, a lock having an eccentric pin operating in the said slot for actuating and locking the slide, a rotary spindle provided with a tripper or dog, and switching mechanism including means carried by the said slide toward and from the spindle and adapted to be locked in one position of the slide for operation by the said tripper or dog to close a break in a circuit.

10. A safety device for automobiles, in-

cluding a contact, a reciprocating slide having a contact to engage the said contact in one position of the slide, a rotary spindle having a tripper or dog, switch mechanism including means carried by the slide and engageable by the tripper or dog in another position of the said slide for closing a break in a circuit, and a lock having means for actuating the slide and for locking the same in either position thereof.

11. A safety device for automobiles, including contact springs, a casing, a reciprocating slide operating in the casing, a stem carried by the slide and having a contact head arranged to extend between and engage the springs in one position of the slide, a rotary spindle having a tripper or dog within said casing, switch mechanism including means carried by the slide toward and from the spindle and engageable by the tripper or dog thereof in another position of the said slide, and a lock for actuating the slide and for locking the same in the said positions.

12. A safety device for automobiles, including a casing, a slidable member movable back and forth in the casing, a rotary spindle having a plurality of trippers or dogs operating within the casing, switch mechanism including movable members carried toward and from the spindle by the slidable member and adapted to be actuated by the trippers or dogs for successively closing breaks in a circuit, and means for automatically locking the switch members in their engaging positions.

13. A safety device for automobiles, including a slidable member movable back and forth, a rotary spindle having a plurality of trippers or dogs, electrical contacts, switch mechanism including movable switch members carried toward and from the spindle by the said slide and adapted in one position of the slide to be actuated by the trippers or dogs for successively closing breaks in a circuit, means for locking the movable switch members in their engaging positions, and means for automatically releasing the switch members when the slide is moved away from said position.

14. A safety device for automobiles, including a shiftable member movable back and forth, a rotary spindle, oppositely disposed dogs carried by the rotary spindle and consisting of eccentric elements, switch mechanism including pivoted members carried by the slidable member and arranged to be actuated by the eccentric elements in one position of the slide, and contacts adapted to be engaged by the pivoted members for successively closing breaks in a circuit.

15. A safety device for automobiles, including a slidable member movable back and forth, a rotary spindle, oppositely disposed

dogs carried by the rotary spindle and consisting of eccentric elements, switch mechanism including pivoted members carried by the slide and arranged to be actuated by the eccentric elements in one position of the slide, electric contacts adapted to be engaged by the pivoted members for successively closing breaks in a circuit, and dogs for successively locking the pivoted members in their engaging positions.

16. A safety device for automobiles, including a slidable member movable back and forth, a rotary spindle, oppositely disposed dogs carried by the rotary spindle and consisting of eccentric elements, including pivoted members carried by the slidable member and arranged to be actuated by the eccentric elements in one position of the slidable member, contacts adapted to be engaged by the pivoted members for successively closing breaks in a circuit, dogs for successively locking the switch members in their engaging positions, said dogs being carried by the shiftable member, and means arranged in the path of the dogs and adapted to disengage the same from the pivoted members when the shiftable member is moved in one direction.

17. A safety device for automobiles, including a shiftable member, a rotary spindle having trippers or dogs, switch mechanism comprising pivoted tumblers mounted on the shiftable member and having arms arranged to be engaged by the trippers or dogs in one position of the shiftable member, contacts adapted to be engaged by the said tumblers for successively closing breaks in a circuit, dogs for locking the tumblers in engagement with the contacts and fixed means located in the path of the dogs for disengaging the same from the tumblers when the shiftable member is moved away from such position.

18. A safety device for automobiles, including a shiftable member movable back and forth, a rotary spindle having projecting eccentric elements, switch mechanism including pivoted tumblers mounted on the shiftable member and having arms arranged to be engaged by the eccentric elements in one position of said member, springs connected with the tumblers and with the shiftable member for moving the tumblers in one direction, contacts arranged to be engaged by said tumblers, independent movable dogs also carried by the shiftable members for locking the tumblers in engagement with the contacts, and separate springs connected with the dogs for urging the same into engagement with the tumblers.

19. A safety device for automobiles, including a reciprocating slide provided with a slot and having a longitudinal opening intersecting the slot, a spindle extending through the slot and having eccentric ele-

ments operating in the said opening, switch mechanism having pivoted switch members carried by the slide and located adjacent the said opening and arranged to be operated by the eccentric elements in one position of the slide, contacts arranged to be engaged by the switch members for successively closing breaks in a circuit, and a pair of independently movable dogs for locking the pivoted switch members.

20. In an alarm of the class described, a suitable casing, a movable block mounted therein, a switch pivotally secured to said block, a rotatable spindle in the casing, a tripper or dog on the spindle adapted to foul the switch and oscillate the same through a limited arc for one position of the block and to functionally clear the switch for another position of the block, contacts on one of the first two mentioned members for engaging the switch when the latter has been oscillated by the dog, a source of electric energy, an electric circuit, an alarm or signal in the path of said circuit, and suitable electric connections between the switch and contacts aforesaid and said circuit.

21. In an alarm of the character described, a suitable casing, a key operated rectilinear sliding block mounted therein, a switch pivotally secured to the block, a rotatable spindle in the casing, a dog on the spindle adapted to throw the switch in a given direction with the movement of the block toward the spindle and to functionally clear the switch with a movement away from the spindle, contacts on one of the first two mentioned members for engaging the switch when thrown by the dog, an electric cir-

cuit, and means on the casing for engaging the switch when closed and returning the same to normal position out of engagement with the contacts with a movement of the block away from the spindle.

22. A safety device for automobiles, including a casing, a rotary spindle operating in the casing, a tripper or dog on the rotary spindle, a flexible shaft connected with the rotary spindle, gearing connecting the flexible shaft with a wheel of an automobile for rotating the shaft when the automobile is moved in either direction, switch mechanism located within the casing and having means adapted to be operated by the tripper or dog when the automobile is moved, and a lock controlling the switch mechanism.

23. A safety device for automobiles, including a casing, a reciprocating block operating within the casing, a rotary spindle having a tripper or dog, switch mechanism having means carried by the block and adapted to be moved by the tripper or dog in one position of the block for closing a break in a circuit, contacts associated with the switch mechanism, and means for setting the said means and for returning the same to its initial position when the block is moved away from the said position.

In testimony whereof I have signed my name to this specification in presence of two subscribing witnesses.

SADIE L. MATHEWS.

Witnesses:

JULIA INGRAM,
JOHN C. HIGDON.