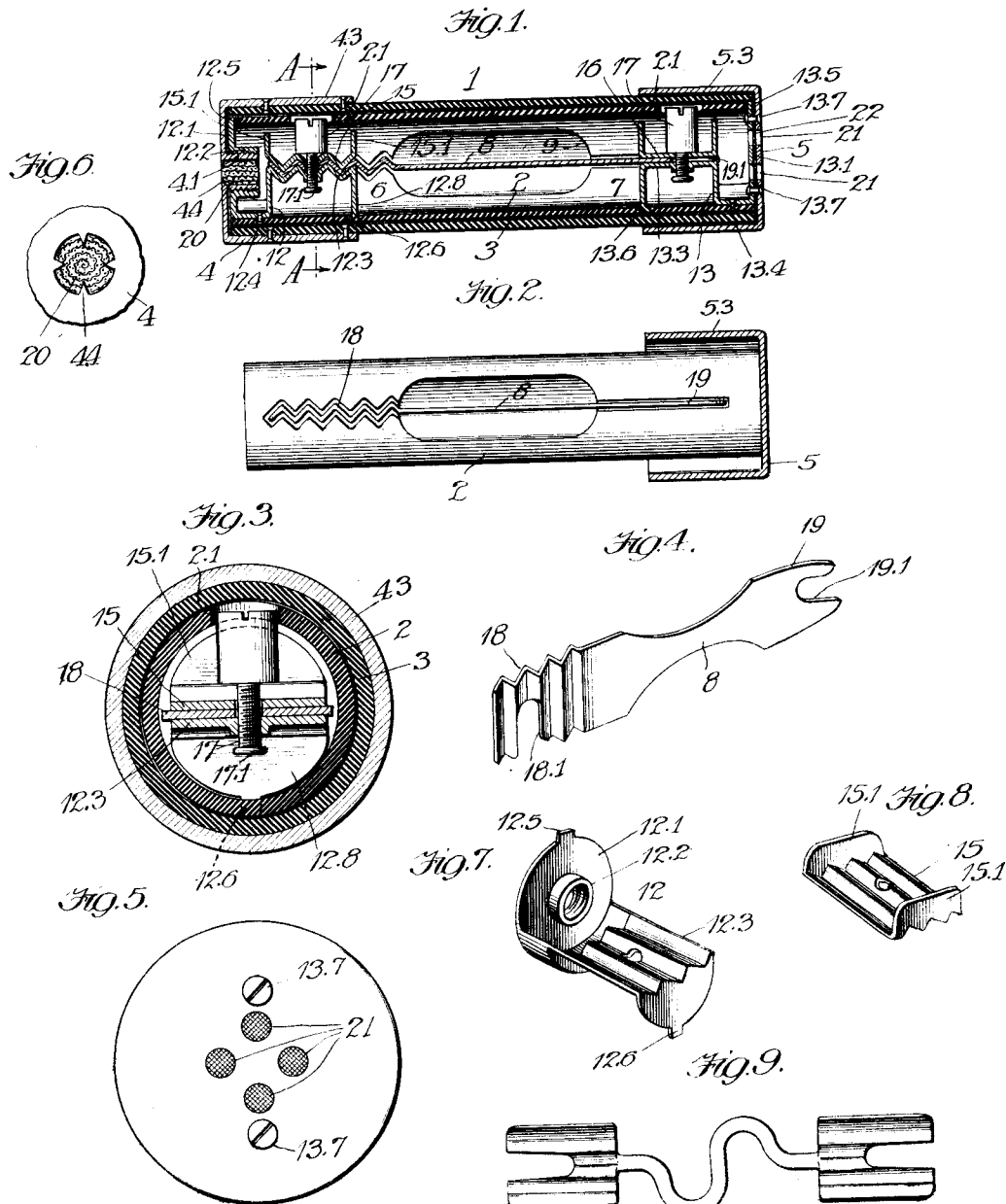


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FUSE HOLDER.
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2 SHEETS-SHEET 1.

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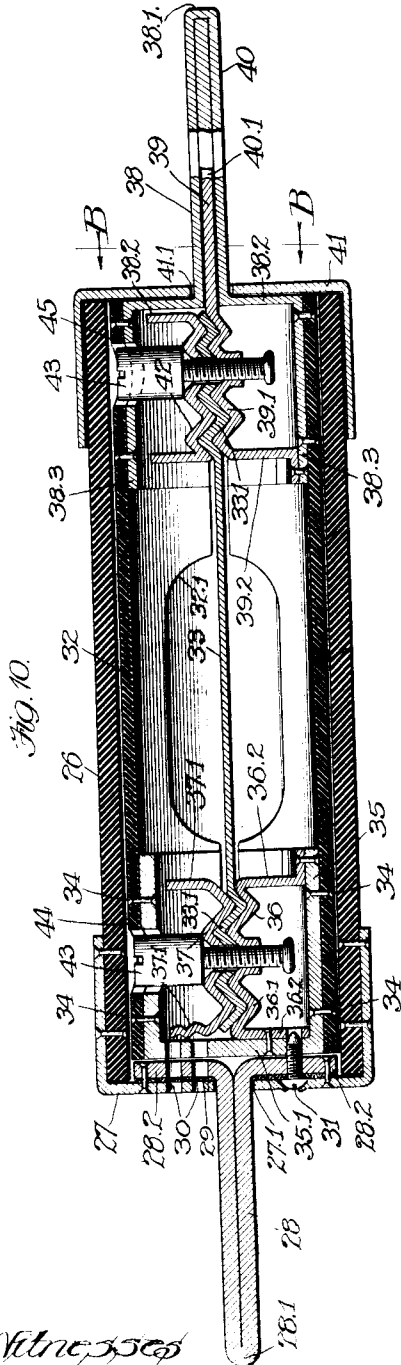


Fig. 10.

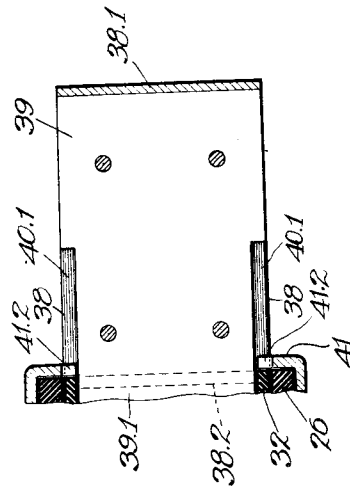
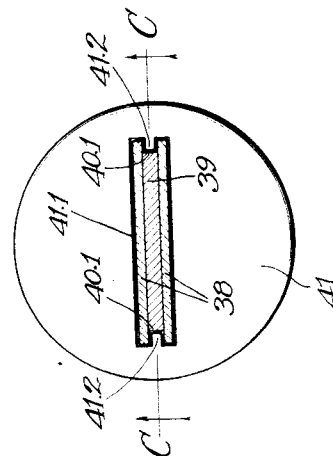


Fig. 11.



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FUSE-HOLDER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HARRY W. YOUNG, a citizen of the United States of America, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Fuse-Holders, of which the following is a specification.

This invention relates to improvements in thermal cut-outs for electric circuits, and more particularly to tubular safety fuses of the refillable type.

The main objects of this invention are to provide an improved form of safety fuse, or refillable holder and fuse element proper therefor; to provide a strong and rigid double walled housing structure or casing for inclosing the fuse element and capable of withstanding the gaseous vapor pressure produced by the sudden blowing of the fuse by short circuiting under normal or any ordinary voltage; to provide a safety fuse which may be separable into not more than two distinct complementary parts or members, each of substantially unitary character, the minor constituent elements of which respectively may be so secured and linked together mechanically that in the process of refilling the fuse the various parts or pieces cannot get away or be mislaid by the operator or in any way become separated or lost; to provide selective or lock-out means adapted to preclude the substitution of an improper fuse element; to provide specially formed fastenings or terminal clamps for the fuse element which shall be adapted to receive only fuses which have been correspondingly formed to fit the clamping contacts; to provide non-removable means, both for locking the fuse element in position and for locking the said complementary members together, and to so construct and arrange the locking members that when they are not engaged or set tightly in their normal locking position it will be impossible to closely assemble the fuse holder or fit the parts snugly enough together to make it enter or fit the corresponding terminals of a cut-out box or other mounting provided therefor in the circuit to be protected.

Certain specific constructions embodying this invention are illustrated in the accompanying drawings, in which:

Figure 1 is a central longitudinal section of a complete fuse and fuse holder having ferrule type terminals and illustrating one embodiment of this invention. Fig. 2 is a

side elevation of the inner casing member with one of the terminal caps permanently attached thereto, and having a fuse element clamped in place. Fig. 3 is a cross section through one end of the fuse and terminal on the line A—A of Fig. 1. Fig. 4 is a perspective view of a fuse element proper adapted for the form of holder illustrated in Fig. 1. Fig. 5 is a right end elevation of the fuse shown in Fig. 1. Fig. 6 is an end elevation of the central portion of the left end of the fuse shown in Fig. 1, and shows how the wire gauze is held in the vent through the axial locking stud. Fig. 7 is a perspective view of a clamping member, similar to the fixed member, shown at the left end of Fig. 1, but having corrugations disposed longitudinally instead of crosswise. Fig. 8 is a perspective view of a movable complementary locking member adapted to cooperate with the fixed clamping member shown in Fig. 7. Fig. 9 is a modified form of fuse comprising a pair of longitudinally corrugated broad plate terminals connected by a flexible fuse link and adapted for longitudinal insertion between clamping members formed as in Figs. 7 and 8. Fig. 10 is a central longitudinal section of another embodiment of this invention and illustrates a fuse element and casing having "knife blade" terminals. Fig. 11 is a cross-section on the line B—B of Fig. 10. Fig. 12 is a longitudinal section through one of the terminals along the line C—C of Fig. 11.

In the construction shown in Figs. 1, 2, 3, 4, 5 and 6 the fuse as a whole comprises a double walled casing or housing member 1 having concentric walls 2 and 3 of insulating material and provided with suitable outer terminal caps 4 and 5, interior clamping means 6 and 7 adjacent to said caps and electrically connected therewith, and a fusible strip of metal or fuse element proper 8 adapted to be held removably by said clamping means, the fuse terminals and clamps being specially formed to prevent substitution of an improper fuse member.

The double wall of the casing comprises the inner cylindrical frame wall 2 having a longitudinal opening 9 on one side, formed at its ends to correspond with the peculiar formation of the adjacent clamps and adapted for edgewise reception and removal of the fuse element therethrough, and the outer closed covering wall 3 which is adapted to

fit closely about and is telescopically removable from the inner wall. These casing walls may be made of any rigid, tenacious and durable insulating material, preferably fiber. Metal end caps 4 and 5, adapted to serve electrically as exterior or main fuse terminals, are arranged for inclosing the ends of the housing and are carried non-detachably one by each of the said wall members.

Rigid metal frame members 12 and 13, formed each with a transverse end wall or disk portion 12¹ and 13¹ respectively, are securely mounted within the ends of the inner casing member, one of which, illustrated at the left end of Fig. 1, is adapted for direct threaded engagement with the adjacent terminal cap 4, the latter being provided with an inwardly projecting hollow stud 4¹ externally threaded to enter and engage the correspondingly threaded central perforation 12² in the wall portion 12¹. The said rigid end member 12 is also formed with an inwardly projecting portion 12³ terminating in a transversely disposed spacing brace 12⁴ adapted to serve as a fixed clamp member and mounting brace for the frame, which as a whole is permanently attached, as by rivet 12⁴ and the integral tips 12⁵ and 12⁶ to the inner casing 2. The tip 12⁵ projects radially from the perimeter of the end wall 12¹ at its upper edge and interlocks with the casing 2 to prevent relative rotation. The tip 12⁶ projects outwardly from the inner end of the frame 12 through the casing 2 and is clenched to lock therewith. The adjacent terminal cap 4 is in similar manner permanently and rigidly attached to the outer casing 3, as by rivets in the ferrule portion 4³. The rigidly connected cap 4 and outer casing 3 constitute substantially the outer of the said complementary housing members. The coacting hub 12² and hollow stud 4¹ may be formed integrally on the inner and outer end wall members respectively by a stamping or spinning process, or both combined, after which the stud 4¹ is threaded by means of a suitable hollow die and the barrel or hub 12² is internally threaded to correspond therewith.

At the opposite or plain non-locking end of the housing, the rigidly mounted end member or frame 13 is similar to frame 12 in general form and is permanently attached both to the inner casing 2 and to the end wall of the terminal cap 5, as by a rivet 13⁴ and screws 13⁷ respectively, the rivet 13⁴ being supplemented by integral tips 13⁵ and 13⁶ as on frame 12, thus giving a permanently unitary character to the parts so connected, and with the frame 12 constituting substantially the inner of the said complementary housing members.

The non-locking end of the outer casing 3 is plain and adapted to slide freely into

place longitudinally between the ferrule 5³ of the adjacent cap 5 and the inner casing 2. By this construction the fuse housing may be separated into two distinct complementary parts simply by gripping the two opposite ends of the assembled housing, as at the caps 4 and 5, and turning them oppositely to disengage the screw connection 4¹ at the locking end.

The clamping means provided at the ends of the casing each comprises the inwardly projecting branch or bracket portion 12³ or 13³ respectively of the said end frame members 12 and 13, together with a movable member 15 or 16 respectively formed and adapted for clamping closely against the corresponding adjacent rigid member by means of a screw 17, said members being adapted to receive the terminals 18 and 19 respectively of the fusible element 8 between. The fixed and movable clamp members are perforated in registry, and the perforation in each rigid member is threaded to engage the adjacent clamping screw 17, the hole through the loose member being made plain and formed large enough to clear the threads on the stem of the screw. The threaded portion of the clamp is depressed to form a deeper bearing hub or barrel for the threads. The inner wall 2 is also provided with perforations 2¹ in radial alinement with the clamp perforations, to provide access to the said screws for turning them, and to permit the heads normally to stand substantially flush with the outer surface of the inner wall, and to back out through the same enough to release the fuse terminals 18 and 19 when the outer casing 3 is removed.

The terminal clamps for the fuse element are preferably arranged for a fuse formed as in Fig. 4 with a plain flat terminal 19 on one end and a transversely corrugated terminal 18 on the other end, the flat end being provided with a longitudinal end slot 19¹ adapted to facilitate inserting the flat end longitudinally into place astride the screw 17 between the clamp members 13³ and 16 and then pivotally swinging the corrugated end into place between the opposite terminal clamp members 12³ and 15, the end 18 having a transverse side slot 18¹ to receive the stem of the adjacent clamping screw 17.

A modification of the clamping terminals adapted for longitudinal insertion of the fuse may be provided as illustrated in Figs. 7, 8, and 9, the corrugations running lengthwise instead of crosswise.

The fuse element itself, as illustrated in Figs. 1 and 4, comprises the terminals 18 and 19 and a fusible strip adapted to carry a predetermined current load connected therebetween as in ordinary fuses. The terminals may be modified to correspond with whatever shape of terminal clamping means

is used and the corrugations may extend crosswise as in Figs. 1 and 4, or lengthwise as in Fig. 9, but in any case are adapted to fit the said clamping members for slipping into place when the outer casing is removed and the clamping screws 17 are loosened. Each of the clamping screws 17 is provided with a head of sufficient length to stand substantially flush with the outer surface of the inner casing when the screw is set tightly upon the terminal of the fuse held thereby, thus permitting the outer casing 3 to telescope readily upon the inner casing 2 when the screws 17 are set. This arrangement of the screws serves to prevent assembling the outer casing upon the inner casing before the clamping screws have been tightened and when the heads are projecting beyond the inner casing, thus precluding the possibility of putting the fuse into service without having first secured a proper clamping contact by setting the screws. In order to prevent either of the screws 17 from being entirely removed from the rigid portion of the clamp, and also to prevent removal of the loose clamping members 15 or 16 held in place thereby, the inner ends of the screws are slightly headed or burred as at 17¹ sufficiently to prevent withdrawal from the threaded hub of the clamp members.

The movable corrugated clamping member 15 is formed with outwardly turned ends or spacing members 15¹ standing substantially at right angles to the main body and adapted to reach normally to a point adjacent to but slightly apart from the inner wall of the casing, by which arrangement the said member 15 is prevented from attaining a sufficient degree of separation from the rigid member 12, when the screw is loosened, to permit the insertion or substitution of a nail or any other straight fuse member in place of the regular specially formed fuse 8.

In case the fuse blows out it may be replaced by a new fuse as follows:—The complementary casing members are separated by releasing the screw connection 4¹ at the locking end. The terminal set screws 17 may then be loosened sufficiently to permit removal of the fuse terminals, whereupon the new fuse may be slipped into place and the screws tightened so as to give a rigid and thorough bearing contact, after which the casing members may be telescoped and locked at 4¹ and the safety fuse as a whole placed back in the circuit.

Ample vent is provided for escape of the gaseous and vaporous products of fuse blowing, screened openings being provided at the ends of the housing. For this purpose the said hollow axial stud 4¹ is provided with a roll 20 of gauze or screen longitudinally disposed in the perforation where it is permanently locked in place by forming an in-

wardly turned bur or a series of burs 4⁴ at the outer and inner ends of the opening. At the opposite end of the housing are provided in the end wall one or more vent holes 21 preferably a group, arranged symmetrically about the center. A flat gauze or screen element 22 is held securely clamped between the end wall elements 13¹ and 5. The holes 21 are preferably numerous and small so as to obtain the greatest strength for a given area of vent and to prevent the gauze from being ruptured by the explosive force of a blow-out. Gauze of copper wire is preferred for screening the vents as being the most efficient flame extinguisher.

In order to provide a fuse embodying the main features of this invention adapted for knife blade type of terminals, a somewhat modified construction is provided, as illustrated in Figs. 10, 11, and 12, in which the terminal blades and ferrule caps are assembled, either substantially integrally, or are non-separably interconnected for partial disconnection. In this construction the outer casing 26 is permanently riveted to the end cap 27, said cap being of a cylindrical or ferrule shape with an end wall having a transverse central slot or opening 27¹ of rectangular shape, through which projects the knife blade terminal 28. The said terminal consists of a sheet metal strip or stamping doubled back on itself at its middle point 28¹, and with its inner ends or arms 28² turned divergently outward perpendicular to the main body of the terminal and adapted to fit closely against the inner face of the cap 27 with one or more layers of gauze 29 between, in which position the said arms 28² are riveted securely in place against the end wall of the cap. Vent holes 30, screened by the member 29, are provided in the end wall members 27 and 28² at one side of the terminal blade 28.

A longitudinally positioned locking screw 31 is provided at one side of and adjacent to the blade 28, opposite from the said vents 30, for attaching the above described substantially integral portion of the housing to the complementary portion adapted to fit therein, said screw being of the round head type with its stem projecting through and fitting loosely in the adjacent outwardly turned arm 28² of the knife terminal and with the inner shoulder of its head abutting against the outer side thereof, the end wall of the cap 27 being perforated to receive the head of said screw, and the edges or lips of the wall perforation being spun outwardly somewhat or otherwise formed so as to slightly overlap the head and securely hold the screw against removal from the end cap 27.

The inner casing 32 has a longitudinal opening 32¹ on one side to receive the fuse element 33, said slot being adapted for in-

section and removal of the fuse element. In the end of the casing 32, adjacent the terminal 28, is rigidly mounted and fastened by rivets 34, a frame or bracket member 35 of U-shape, the transverse portion 35¹ of which is disposed across the end of the casing 32 substantially closing same. The lateral arms of the bracket 35 are formed to fit closely against the interior of the inner casing where held by the said rivets 34.

The adjacent clamp 36—37 for the fuse element 23 comprises a rigidly mounted bracket member 36, and a movable complementary member 37, adapted to coact therewith, the rigid member being of U-shape with its middle part 36¹ transversely corrugated, longitudinally disposed centrally of the housing and its ends 36² turned transversely, one being riveted to the transverse end member 35¹ and the other secured to the adjacent end portion of the bracket 35. The movable member 37 is also U-shaped with its middle part corrugated to correspond with the coacting rigid member, and with its ends 37¹ turned outwardly adjacent to the opposite side of the bracket 35 to prevent sufficient separation of the clamp members 36 and 37 to permit insertion of a straight body. The clamp end 37¹ adjacent the end wall is roughened or corrugated so as not to close in any case the vent holes 30.

The end wall portion 35¹ of the clamp supporting bracket 35 is provided with a threaded perforation in registry with and adapted to engage the casing lock screw 31 for detachably fastening the casing members together in telescoped relation.

The opposite end of the inner casing 32 contains the inner end of a knife blade terminal 40 and a clamp constructed somewhat differently from the terminal 28 and clamp 36—37 just described, a relatively thin strip or blade member 38 being bent upon itself at its central point 38¹ and inclosing a relatively thick plate 39, said parts being pressed tightly together and riveted substantially integrally to form the blade terminal 40 projecting outwardly through the slot 41¹ in the cap 41, the ends of the thin strip 38 being bent outwardly to form the end wall 38² of the inner casing with the outermost portions turned longitudinally and formed for riveting to the interior of the cylindrical casing wall 32. The inner end 39¹ of the plate 39 projecting axially within the housing is corrugated for seating the correspondingly corrugated fuse terminal 33¹, and adapted to constitute the rigid or seat member of the terminal clamp at this the inner end of the casing 32. A correspondingly corrugated member 42 is movably mounted adjacent the rigid member. The extreme inner end 39² of the plate 39 is turned perpendicularly against the cylindrical wall of the casing and is securely

fastened, as by riveting, to the adjacent end 38³ of the blade strip 38, thus imparting to the fixed clamp member the nature of a rigid bracket. The said cap 41 on this last described end is adapted to fit closely over the outer casing 26 when the parts are assembled, but is not riveted or otherwise rigidly fastened to any of the adjacent parts. This cap, however, is prevented from complete removal by means of a slot and groove engagement with the knife blade 40. To this end the said plate 39, constituting the central portion or layer of the blade 40 is cut away along its lateral edges between the end 38² of the fuse casing and a point adjacent the outer extremity of the blade, forming grooves 40¹ in the edges of the blade, and the said slot 41¹ in the coacting cap is provided with a tongue 41² at each end, adapted to slide in the guide grooves 40¹ which tongues may be turned horizontally for assembling the cap initially and then bent back into their normal transverse positions within the terminal slots, whereby the cap is permitted to slide outwardly to give access to the adjacent set screw and to permit removing or inserting a fuse, after which it may be slid back in place over the outer casing where it is securely held by friction against any ordinary or accidental force tending to remove it. The terminal clamps and the ends of the fuse elements used in this style of fuse, as in the first described construction, may be formed with the corrugations extending either transversely or longitudinally. The clamping screws 43 are formed substantially like the corresponding screws 17 in the first described structure and operate in the same way. Access to the heads of these screws 43 is provided for by the perforations 44 and 45, respectively, in alignment therewith through the casing 32 and bracket 35 at the locking end of the housing and through the casing 32 and strip 38³ at the opposite end.

In order to replace a fuse, the movable cap 41 is slid back toward the outer end of the blade 40; the longitudinal lock screw 31 on the opposite end is disengaged from the inner end wall 35¹ and the two complementary casing members are drawn apart, whereupon the clamp screws 43 may be loosened and the old fuse may be removed or replaced. The parts may be reassembled by a reverse operation.

In assembling the fuse, the clamping screws 43 must first be set in order for the outer casing to clear the heads. Thus looseness at the clamp contacts when in use is precluded. When the casings are brought together the screw 31 prevents complete telescoping until it is set by screwing into the adjacent end 35¹ of the inner member and drawing the parts closely together. This feature prevents inserting the fuse holder

in circuit without first setting up the screw 31 and thereby securing a good electrical contact between the blade members 28² and the clamp holding bracket 35¹.

5 In the knife blade type of safety fuse the clamps at each end are substantially alike with respect to the fuse gripping surfaces and the terminals of the fuse. Whenever a stiff, heavy fuse for large currents is to be
10 used the corrugations preferably are run crosswise, but when a small, flexible fuse for small currents is to be used, the corrugations preferably are run lengthwise. By this system a safety check is provided
15 against inadvertently inserting a large capacity fuse in a circuit designed for a small current only.

All of the metal parts of a fuse of the character herein set forth, except the screws
20 and rivets, when formed and arranged in accordance with this invention may be manufactured readily in the form of sheet metal stampings, thus assuring absolute uniformity of structure and low cost. Fuse parts
25 made as herein described from sheet metal are preferred to castings because of greater strength for a given weight of metal and greater uniformity in detail and natural finish without special treatment.

30 It is to be noted that the inner ends of all clamps made in accordance with this invention are formed with transversely disposed radial web or partition members as 12⁸, 15¹, etc., adapted to preclude the lateral
35 insertion of wire or other substitutes which otherwise might be clamped under the heads of the screws 17 and 43.

The extreme simplicity and unitary character of the two complementary parts are
40 to be especially noted, each being so organized and arranged that its several parts though at times loosely connected are inseparable, thus preventing accidental dropping or loss of any of the parts, such as
45 screws, clamping members or caps. It is clear that a fuse constructed in accordance with this invention is proof against the insertion of any but a specially formed fuse member, and that no substitute can be readily
50 formed therefor, and hence the possibility of any improper substitute being used is rendered very remote.

Although the drawings and description are not limited to one embodiment of this
55 invention, it is to be understood that no attempt has been made to illustrate all practical embodiments, and that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention, as defined by the
60 following claims.

I claim:—

1. In a safety fuse of the character described, a casing in combination with terminal clamping members contained in said

casing and adapted to grip the ends of a fuse element, one of said clamping members comprising a pair of coacting jaws correspondingly corrugated in registry on their opposing faces, one of said jaws being rigidly attached to said casing, and the other or movable jaw being formed with a back portion extending adjacent to the opposite side of said casing and adapted to abut radially thereagainst when the jaws are opened, and thereby limit the opening of the jaws, substantially as and for the purpose set forth.

2. In a safety fuse of the character described, a casing in combination with terminal clamping members contained in said casing and adapted to grip the ends of a fuse element, one of said clamping members comprising a pair of coacting jaws correspondingly corrugated in registry on their opposing faces and a clamping screw therefor, said jaws being provided with oppositely and outwardly disposed guard shoulders, one on the inner end of each jaw and extending adjacent to the opposite sides respectively of said casing and adapted thereby to prevent inserting any fuse body between the clamping means and the sides of the casing, substantially as and for the purpose set forth.

3. In a safety fuse of the character described, a cylindrical casing member of insulating material, in combination with a terminal member mounted rigidly in one end of the casing, said terminal member comprising a disk portion fitting closely within the extremity of said casing and an axially disposed clamping jaw member formed integrally with said disk portion, and a movable complementary jaw member adapted to be clamped rigidly to the first said body for holding a fuse end.

4. In a safety fuse of the character described, a cylindrical casing member of insulating material, in combination with a terminal member mounted rigidly in one end of the casing, said terminal member comprising a disk portion fitting closely within the extremity of said casing and an axially disposed clamping jaw member formed integrally with said disk portion, and a movable complementary jaw member adapted to be clamped rigidly to the first said body for holding a fuse end, said terminal parts consisting of sheet metal stampings.

5. In a safety fuse of the character described, a cylindrical casing member of insulating material, in combination with a stamped sheet metal terminal member mounted rigidly in one end of the casing, said terminal member comprising a disk portion fitting closely within the extremity of said casing and an axially disposed clamping jaw member formed integrally with said disk portion, and a movable complementary

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jaw member adapted to be clamped rigidly to the first said body for holding a fuse end, said fixed disk and jaw stamping having radially projecting tips adapted to engage the casing for rigid attachment of said stamping thereto.

6. In a double walled safety fuse of the character described, two complementary housing members each comprising a cylindrical casing tube of rigid insulating material and an end cap rigidly attached thereto, the inner tube having clamping members mounted rigidly in each end adapted for holding the ends of a fuse element, the cap on the outer tube having an inwardly projecting externally threaded axial stud member and the adjacent clamping member being axially perforated and threaded at its outer extremity to receive and rigidly interlock with the said cap stud, substantially as and for the purpose set forth.

7. In a double walled safety fuse of the character described, the combination of a pair of complementary cylindrical housing members, both closed at the same end and adapted to telescope closely one within the other, said members having axial screw threaded engagement at the said closed ends.

8. In a double walled safety fuse of the character described, the combination of a pair of complementary cylindrical housing members, both closed at the same end and adapted to telescope closely one within the other, said members having axial screw threaded engagement at the said closed ends, the threaded part on the outer member being integral with the adjacent exterior fuse terminal contact and the correspondingly threaded part on the inner member being integral with the fuse element holder.

9. In a double walled safety fuse of the character described, a pair of telescopically separable casing members, in combination with clamping members carried by the inner casing member at the opposite ends thereof and adapted to rigidly engage the ends of a fusible element, exterior terminal members secured to the inner and outer wall members respectively at the opposite ends of the fuse, said clamping and terminal members being substantially contiguously disposed at each end respectively, one pair being permanently connected, and fastening means adapted and arranged for detachably locking the other pair together.

10. In a double walled safety fuse of the character described, a pair of telescopically separable inner and outer casing members having transversely positioned inner and outer closing members respectively at one end of the fuse, in combination with a longitudinally disposed externally operable screw having its head held rotatably in the outer transverse closing member and said inner closing member having a threaded

perforation adapted to receive said screw in operative engagement for telescopically reciprocating the inner and outer wall members and for locking the said closing members securely together.

11. In a safety fuse casing, an end wall comprising an outer member and an inner member in combination with one or more layers of metal gauze clamped between said end members, said clamping wall members having one or more perforations arranged in registry to give vent through said gauze and wall members to the gaseous vapors generated when a fuse blows.

12. In a safety fuse of the character described, outer and inner casing members adapted to telescope one within the other, said members having transverse closing walls at one end formed and arranged centrally for coaxial threaded engagement one within the other, one wall having a threaded perforation therein and the other an externally threaded stud adapted to engage said perforated member, and the stud carrying member having an axial perforation containing metal gauze and adapted to serve on a vent for the fuse.

13. In a safety fuse of the character described, a sheet metal stamping comprising a bracket having transverse end portions adapted for fastening to one side of the casing and an intermediate longitudinal portion corrugated to receive a correspondingly formed fuse terminal.

14. In a safety fuse of the character described, a casing in combination with a terminal clamp therein comprising a pair of sheet metal stampings having longitudinally disposed opposing faces correspondingly corrugated to mesh together, and means for binding said clamp members together, one of said clamp members being rigidly mounted on one side of the fuse casing and the other being formed with transverse backwardly projecting portions adapted to abut against the opposite side of the fuse casing and thereby limit separation of said clamp members, substantially as and for the purpose set forth.

15. A refillable fuse holder of the character described, comprising an inner casing having corrugated fuse holding means and having a longitudinal side opening correspondingly formed and adapted to admit a fuse corrugated to fit said holding means, in combination with an outer casing telescopically removable and completely surrounding said inner casing.

16. In a two part safety fuse holder, a combined clamp jaw disposed axially in the casing, an end wall disposed transversely and connected at one edge to the outer end of said jaw member, and a casing lock member formed integrally from sheet metal, said lock member comprising an interiorly

threaded inwardly projecting axial flange struck up about a central perforation in said end wall.

17. In a two part safety fuse holder, a combined clamp jaw, end wall, and casing lock member formed integrally from sheet metal and secured to the inner casing, the clamp jaw being disposed longitudinally and having a transverse internally threaded barrel formed thereon and adapted to receive a clamp screw, and the end wall having a longitudinal barrel formed thereon and threaded to engage the complementary outer casing member, said end member at one edge being joined to the outer end of said jaw.

18. In a device of the class described, a sheet metal stamping, comprising a longitudinal axially disposed corrugated jaw member perforated and threaded to engage a clamp screw, in combination with a transverse end wall member axially perforated and threaded to engage a coacting member, said jaw member having on its remote end a transversely disposed support wall terminated by a small locking tip and the said wall member having an oppositely pointing

locking tip, substantially as and for the purpose set forth.

19. In a double walled safety fuse of the character described, a pair of telescoping casing members each having a closing wall across the same end, said walls being adjacent when the casing is assembled, and means adapted for detachably clamping said walls together.

20. In a double walled safety fuse of the character described, a pair of telescoping casing members each having a closing wall across one end, said walls being adjacent when the casing is assembled, one of said end walls having a threaded perforation and the other a threaded projecting member adapted to enter said perforation and engage the threads thereof for clamping said end walls together.

Signed at Chicago this 26th day of April 1913.

HARRY W. YOUNG.

Witnesses:

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