

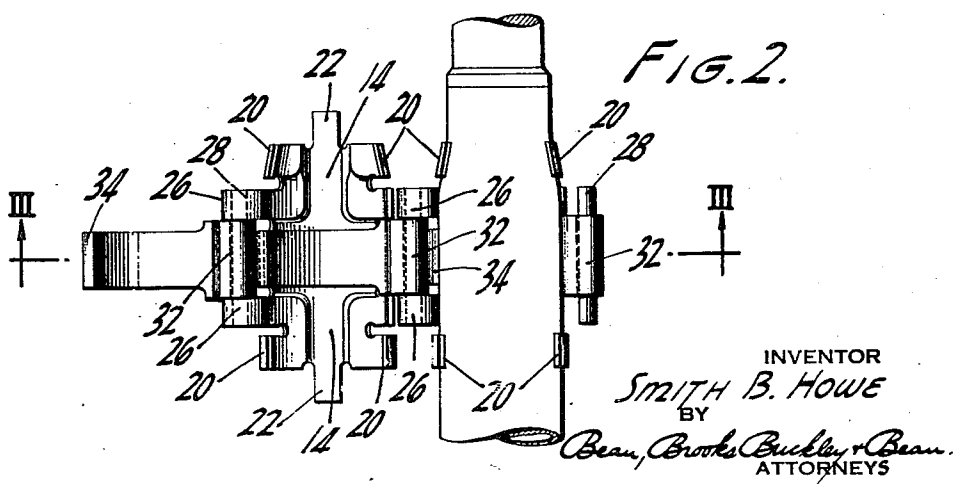
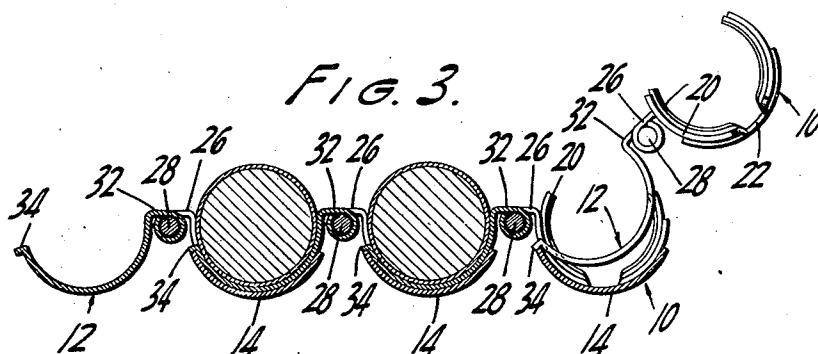
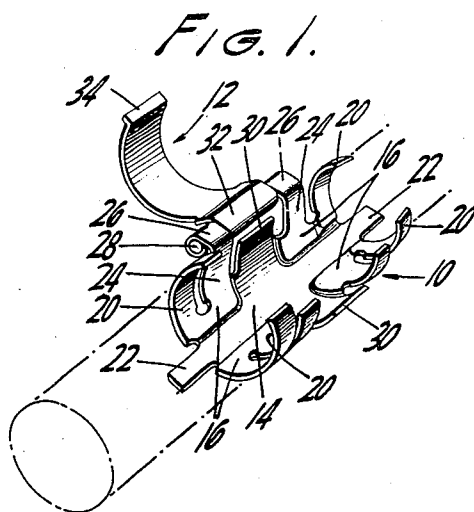
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ORDNANCE

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ORDNANCE

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This invention relates to ordnance, and more particularly to an improved clip for linking ammunition rounds in articulated relation for feeding thereof to ammunition feed mechanisms of automatic guns of the rapid fire type.

The primary object of the present invention is to provide a hinged type clip for the stated purpose which is of simple and rugged construction and adapted to function in an improved manner both with respect to the mode of carrying the ammunition rounds and with respect to the ability of the completed cartridge belt to twist and turn in connection with training thereof at different angles as when moving from a stationary magazine to the ammunition feed mechanism associated with a flexibly mounted machine gun or the like. Another object of the present invention is to provide a novel type clip of the above stated characteristics which when employed in pluralities are adapted to be interconnected with improved facility in conjunction with assembly of an ammunition belt. Another object of the invention is to provide an improved clip device for the purpose stated which is adapted to be employed in pluralities to connect ammunition rounds to provide a linked ammunition belt such as is adapted to be twisted and turned with improved facility in conjunction with the feeding of ammunition, such as from a stationary ammunition magazine to flexibly mounted machine gun, or the like. Another object of the invention is to provide an improved clip for the purpose stated which is adapted to withstand the ammunition weight and intermittent feed acceleration loads in improved manner, while maintaining the ammunition rounds mounted therein against accidental displacement in improved manner. Other objects and advantages of the invention appear from the specification hereinafter.

In the drawing:

Fig. 1 is a perspective of a clip of the invention;

Fig. 2 is a fragmentary plan of a group of clips of the invention arranged in articulated ammunition carrying relation; and

Fig. 3 is a section through an ammunition belt comprising articulated clips of the invention, as along line III—III of Fig. 2, and showing an additional clip being coupled into ammunition carrying relation in connection with other previously coupled clips.

Each clip unit of the present invention includes a master clip part and an accompanying tongue part which is hingedly connected to the master

clip part by means of a pintle pin connection device. Each master clip part is formed with spring finger devices adapted to receive therebetween a round of ammunition in cradled relation upon the clip part so as to be releasably locked thereto by the spring finger members and retained thereby against accidental displacement from the clip so as to be readily detachable therefrom by the breech charging mechanism of the associated gun. Each master clip part also comprises a depressed cradle portion adapted to receive the tongue part of the next adjacent clip unit in lapped relation therein; and the master and tongue clip parts are so proportioned and arranged that when master and tongue parts of adjacent clip devices are so disposed, they are adapted to be locked in articulated relation by means of an ammunition round when the latter is cradled within the spring finger devices aforementioned.

Referring more specifically to the drawing, a complete clip unit of the invention is illustrated in solid lines in Fig. 1 as comprising a master clip element indicated generally at 10 and a tongue element indicated generally at 12; and it will be appreciated that both parts of the clip device may be readily manufactured by pressing from sheet metal stock or other suitable material, or may be molded or stamped or otherwise fabricated through use of any other suitable and simple manufacturing processes. The master clip portion 10 comprises a cylindrically shaped central body portion 14 which is margined by inwardly extending or raised shoulder portions 16 at the four corners of the central body portion. The shoulders 16 are also of generally cylindrically curved form to complement the shape of the ammunition round to be carried by the clip. Thus, the shoulder portions 16 of the master clip element are adapted to receive a corresponding ammunition round in cradled relation thereon and a cylindrically curved spring finger portion 20 is formed to extend from each shoulder portion 16 to be adapted to partially encircle the mounted ammunition round by means of resilient clamp devices. Hence, the ammunition round will normally be retained in cradled relation within the clip by means of the spring finger devices but may be plucked laterally therefrom through the spaces between the free end portions of the spring fingers by the breech charging mechanism of the gun into which the ammunition belt is fed.

Since the ammunition rounds to be carried by the clips are usually of longitudinally tapering form (Fig. 2), the spring finger devices of the clip

which are designed to engage different sections of the ammunition round will be differently dimensioned and shaped so as to complement the shape of the ammunition round at the sections thereof engaged. The central body portion 14 of each master clip element is elongated in both directions longitudinally of the ammunition round to be carried so as to extend as at 22 for sliding engagement with slide guide means of the gun to be serviced such as are usually disposed at the ammunition feedway portion of the conventional automatic gun mechanism. Thus, as the ammunition belt trains into the gun the opposite end portions 22—22 of each master clip element slides into a guiding groove portion of the gun feed mechanism which firmly supports the clip assembly at a predetermined elevation relative to the gun as it passes through the gun ammunition feedway and while the ammunition rounds are plucked successively from the clip assembly by the feed pawl mechanism of the gun for charging of the breech mechanism thereof.

At one side portion of each master clip element, a pair of arm portions 24—24 are formed to extend from the corresponding shoulder portions 16—16 in a direction upwardly and about the ammunition round to be cradled by the clip to an elevation approximately midway of the diameter of the ammunition round at which position they are turned to form corresponding eye portions 26—26 for carrying therebetween a pintle pin 28. The pintle pin 28 is preferably so dimensioned as to be wedged tightly into the eye portions 26—26, or it may be otherwise fixed firmly thereto, as may be preferred. The central body portion 14 of each master clip element is also formed with a cylindrically shaped side wall 30 at each side of the clip between the positions of the pintle arms 24—24 thereof; and the side wall portions 30—30 terminate short of the positions of the corresponding pintle pin when the clips are assembled in ammunition belt forming relation, for a purpose which will be explained more fully hereinafter.

As stated above, each clip unit includes a master clip element and a tongue clip element; and as illustrated herein the tongue clip element 12 comprises a generally semi-cylindrical part formed of sheet metal, or the like, which is looped at one end portion thereof to form an eye designated at 32 for hinging engagement about the corresponding pintle pin 28. The body of the tongue clip 12 is so dimensioned and arranged as to be adapted to nest against the central body portion 14 and side wall portions 30—30 of the next adjacent master clip element when the clip units are arranged in ammunition belt forming relation. Thus, each tongue element is adapted to repose against the body portion of the next adjacent master clip element and in the depressed central portion thereof formed by the upstanding shoulder portions 16, and to complement the latter for further cradling support of the ammunition round disposed therein. The tongue terminates at the end thereof opposite to the hinged end thereof in a reversely bent ledge portion 34 which is adapted to overhang the upper end portion of the corresponding side wall 30 of the next adjacent master clip element. Thus, as illustrated at the right hand end portion of Fig. 3, the ammunition belt employing the clips of the invention may be readily assembled by initially resting the ledge portion 34 of a tongue clip element upon the upper end of the side wall 30 next adjacent the hinge pin of another master clip ele-

ment, and then lowering the tongue clip element into the depressed portion of the next adjacent master clip element into complementing nested position, and then forcing an ammunition round into the spring finger devices 20 of the master clip element so as to cradle the round upon the clip and to simultaneously lock together the master clip and tongue elements of the two adjacent clip units. Thus, it will be appreciated that by reason of the novel formation and organization of the parts of the clip devices referred to, assembly of an ammunition belt is thereby greatly facilitated; and that the assembled belt is of such form as to readily disintegrate without hitching or other interferences upon removal of the ammunition rounds therefrom.

As a particular feature of the clip of the invention, the eye portion 32 of the tongue clip is purposely made to fit upon the corresponding pintle pin 28 in such manner as to permit substantial sidewise and twisting movements of the tongue relative to its master clip element. Thus, although the pintle pin 28 is firmly held by the arms 24—24 against accidental displacement from the clip unit, each tongue element is universally movable to an appreciable degree relative to its corresponding master clip element; whereby an ammunition belt comprising a plurality of ammunition rounds connected by means of clips of the invention may be readily twisted and turned to substantial degrees such as is often required in connection with the feeding of ammunition to a flexibly mounted gun from a stationary magazine, without interfering with the smooth feeding of the ammunition belt and the strength of the clip connections between successive ammunition rounds.

It will also be appreciated that an ammunition belt comprising a plurality of clips of the invention will be adapted to withstand in improved manner the loads incidental to handling of the relatively heavy caliber type ammunitions. This is because of the fact that the weight lifting and acceleration loads incidental to intermittent gun firing operations are transmitted directly through the central body and pin carrying arm portions 24—24 of the clips without imposing such loads upon the ammunition retaining spring finger portions 20 of the clips. Consequently, irrespective of the magnitude of the pull upon the cartridge belt incidental to feeding the associated gun, there is no tendency thereby to open the spring finger devices 20 which retain the ammunition rounds in cradled relation within the clips. Also, it will be appreciated that although each tongue element is firmly seated and locked within the next adjacent master clip element by the corresponding ammunition round when the parts are in ammunition belt assembly relation, the freedom of movement provided for at the hinge connection between each tongue clip element and its master clip element gives to the entire ammunition belt assembly an ability to twist and turn with utmost facility, such as is most essential in connection with the feeding of flexibly mounted guns or the like.

Although only one specific form of the invention has been shown and described in detail, it will be apparent to those skilled in the art that the invention is not so limited, but that various changes may be made therein without departing from the spirit of the invention or the scope of the appended claims.

I claim:

1. A cartridge connecting clip unit comprising

a master clip element of generally semi-cylindrical form adapted to receive in cradled relation therein a cartridge, said master clip element having a relatively depressed central body portion terminating at opposite sides of said clip in opposite upstanding abutment wall portions, a pair of arms extending from said master clip element at opposite sides of one of said abutment wall portions, a hinge pin carried by said arm portions to extend therebetween and in spaced relation with respect to said one of said abutment wall portions, spring finger devices extending from said master clip element at opposite ends thereof adapted to partially embrace and resiliently clamp an ammunition round in cradled relation within said clip device, and a clip tongue element of generally semi-cylindrical form hingedly connected at one of its ends to said hinge pin and adapted to nest within the depressed central body portion of another like one of said master clip elements and to be locked therein by means of an ammunition round when pressed into clamping engagement between the spring finger elements thereof, said clip tongue element having a laterally bent end ledge portion adapted to engage over the abutment wall portion of the next adjacent of said master clip elements for fixing said elements against relative rotational movement when engaging a cartridge.

2. A cartridge connecting clip unit comprising a master clip element shaped from sheet metal into cartridge cradling form, said master clip element having an embossed central body portion terminating at one side of said clip in an upstanding abutment wall portion, a pair of arms extending from said master clip element at opposite sides of said abutment wall portion, a hinge pin carried by said arm portions to extend therebetween and in spaced relation with respect to said abutment wall portion, spring finger devices extending from said master clip element at opposite sides of said abutment wall portion adapted to partially embrace and resiliently clamp an ammunition round in cradled relation within said clip device, and a clip tongue element of cylindrically bent form hingedly connected at one of its ends to said hinge pin and adapted to nest within the embossed central body portion of another like one of said master clip elements and to be locked therein by means of an ammunition round when pressed into clamping engagement between the spring finger elements thereof.

3. A cartridge connecting clip unit comprising a master clip element shaped from sheet metal into cartridge cradling form, said master clip element having an embossed central body portion terminating at one side of said clip in an upstanding abutment wall portion, a pair of arms extending from said master clip element at opposite sides of said abutment wall portion, a hinge pin carried by said arm portions to extend therebetween and in spaced relation with respect to said abutment wall portion, spring finger devices extending from said master clip element at opposite sides of said abutment wall portion adapted to partially embrace and resiliently clamp an ammunition round in cradled relation within said clip device, and a clip tongue element of cylindrically bent form hingedly connected at one of its ends to said hinge pine and adapted to nest within the embossed central body portion of another like one of said master clip elements and to be locked therein by means of an ammunition round when pressed into clamping engagement between the spring finger elements thereof, said

clip tongue element having a laterally bent end ledge portion adapted to engage over the abutment wall portion of the next adjacent of said master clip elements for fixing said elements against relative rotational movement when engaging a cartridge.

4. A cartridge connecting clip unit comprising a master clip element shaped from sheet metal into cartridge cradling form, said master clip element having a relatively depressed central body portion terminating at one side of said clip in an upstanding abutment wall portion, a pair of arms extending from said master clip element at opposite sides of said abutment wall portion, a hinge pin carried by said arm portions to extend therebetween and in spaced relation with respect to said abutment wall portion, spring finger devices extending from said master clip element at opposite sides of said abutment wall portion separately therefrom and adapted to partially embrace and resiliently clamp an ammunition round in cradled relation within said clip device, a clip tongue element of generally cylindrically bent form having a bent eye end portion encompassing said hinge pin and adapted to nest within the depressed central body portion of another like one of said master clip elements and to be detachably locked therein by means of an ammunition round when pressed into clamping engagement between the spring finger elements thereof, and clip guide finger portions extending laterally from opposite end portions of said central body portion beyond said spring finger devices.

5. A cartridge connecting clip unit comprising a master clip element of generally semi-cylindrical form adapted to receive in cradled relation therein a cartridge, said master clip element having an embossed central body portion terminating at opposite sides of said clip in upstanding abutment wall portions, a pair of arms extending from said master clip element at opposite sides of one of said abutment wall portions, a hinge pin carried by said arm portions to extend therebetween and in spaced relation with respect to said one of said abutment wall portions, spring finger devices extending from said master clip element at opposite sides of said abutment wall portion and separately therefrom and adapted to partially embrace and resiliently clamp an ammunition round in cradled relation within said clip device, and a clip tongue element of generally semi-cylindrical form hingedly connected at one of its ends to said hinge pin and adapted to nest within the depressed central body portion of another like one of said master clip elements and to be locked therein by means of an ammunition round when pressed into clamping engagement between the spring finger elements thereof.

6. A cartridge connecting clip unit comprising a master clip element shaped by stamping sheet metal into cartridge cradling form, said master clip element having an embossed central body portion terminating at one side of said clip in an upstanding abutment wall portion, a pair of arms extending from said master clip element at opposite sides of said abutment wall portion and therebeyond, a hinge pin carried by said arm portions to extend therebetween and in spaced relation with respect to said abutment wall portion, spring finger devices extending from said master clip element at opposite sides of said abutment wall portion and separately thereof adapted to partially embrace and resiliently clamp an ammunition round in cradled relation within said

clip device, and a clip tongue element of generally semi-cylindrical form hingedly connected at one of its ends to said hinge pin and adapted to nest within the depressed central body portion of another like one of said master clip elements and to be locked therein by means of an ammunition round when pressed into clamping engagement between the spring finger elements thereof, said clip tongue element having a bent end ledge portion adapted to engage over the abutment wall portion of another like one of said master clip elements for fixing said elements against relative rotational movement when engaging a cartridge.

7. A cartridge connecting clip unit comprising a master clip element shaped by stamping sheet metal into cartridge cradling form, said master clip element having an embossed central body portion terminating at one side of said clip in an upstanding abutment wall portion, a pair of arms extending from said master clip element at opposite sides of said abutment wall portion and therebeyond, a hinge pin carried by said arm portions to extend therebetween and in spaced relation with respect to said abutment wall portion, spring finger devices extending from said master clip element at opposite sides of said abutment wall portion and separately thereof adapted to partially embrace and resiliently clamp an ammunition round in cradled relation within said clip device, and a clip tongue element of generally semi-cylindrical form hingedly connected at one of its ends to said hinge pin and adapted to nest within the depressed central body portion of another like one of said master clip elements and to be locked therein by means of an ammunition round when pressed into clamping engagement between the spring finger elements thereof, said clip tongue element having a bent end ledge portion adapted to engage over the abutment wall portion of another like one of said master clip elements for fixing said elements against relative rotational movement when engaging a cartridge, and clip guide finger portions extending laterally from opposite end portions of said central body portion beyond said spring finger devices.

8. A cartridge connecting clip unit comprising a master clip element stamped from sheet metal into generally semi-cylindrical form adapted to receive in cradled relation therein a cartridge, said master clip element having an embossed and relatively depressed central body portion terminating at one side of said clip in an upstanding abutment wall portion, a pair of arms extending from said master clip element at opposite sides of said abutment wall portion, a hinge pin carried by said arm portions to extend therebetween and in spaced relation with respect to said abutment wall portion, spring finger devices extending from said master clip element at opposite sides of said abutment wall portion adapted to partially embrace and resiliently clamp an ammunition round in cradled relation within said clip device, and a clip tongue element of generally semi-cylindrical form hingedly connected at one of its ends to said hinge pin and adapted to nest within the depressed central body portion of another like one of said master clip elements and to be locked therein by means of an ammunition round when

pressed into clamping engagement between the spring finger elements thereof, said clip tongue element having a laterally bent end ledge portion adapted to engage over the abutment wall portion of the next adjacent of said master clip elements for fixing said elements against relative rotational movement when engaging a cartridge.

9. A cartridge connecting clip unit comprising a master clip element stamped from sheet metal into generally semi-cylindrical form adapted to receive in cradled relation therein a cartridge, said master clip element having an embossed and relatively depressed central body portion terminating at one side of said clip in an upstanding abutment wall portion, a pair of arms extending from said master clip element at opposite sides of said abutment wall portion, a hinge pin carried by said arm portions to extend therebetween and in spaced relation with respect to said abutment wall portion, spring finger devices extending from said master clip element at opposite sides of said abutment wall portion adapted to partially embrace and resiliently clamp an ammunition round in cradled relation within said clip device, and a clip tongue element of generally semi-cylindrical form hingedly connected at one of its ends to said hinge pin and adapted to nest within the depressed central body portion of another like one of said master clip elements and to be locked therein by means of an ammunition round when pressed into clamping engagement between the spring finger elements thereof, said clip tongue element having a laterally bent end ledge portion adapted to engage over the abutment wall portion of the next adjacent of said master clip elements for fixing said elements against relative rotational movement when engaging a cartridge, and clip guide finger portions extending laterally from opposite end portions of said central body portion beyond said spring finger devices.

10. A cartridge connecting clip unit comprising a master clip element of generally semi-cylindrical form adapted to receive in cradled relation therein a cartridge, said master clip element having a relatively depressed central body portion terminating at one side of said clip in an upstanding abutment wall portion, a pair of arms extending from said master clip element at opposite sides of said abutment wall portion, a hinge pin carried by said arm portions to extend therebetween and in spaced relation with respect to said abutment wall portion, spring finger devices extending from said master clip element at opposite sides of said abutment wall portion adapted to partially embrace and resiliently clamp an ammunition round in cradled relation within said clip device, and a clip tongue element of generally semi-cylindrical form hingedly connected at one of its ends to said hinge pin and adapted to nest within the depressed central body portion of one of said master clip elements and to be locked therein by means of an ammunition round when pressed into clamping engagement between the spring finger elements thereof.

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