June 13, 1944. L. W. SCHAAFF 2,351,370

CHUTE

Filed Nov. 30, 1942

Fig. 1

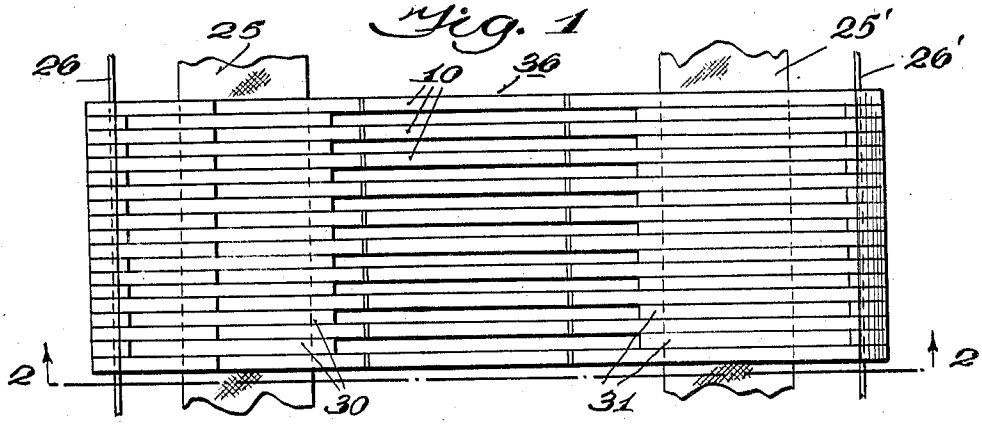


Fig. 2

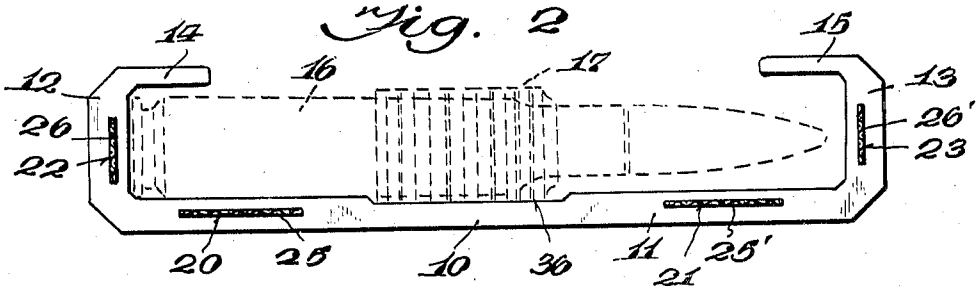


Fig. 3

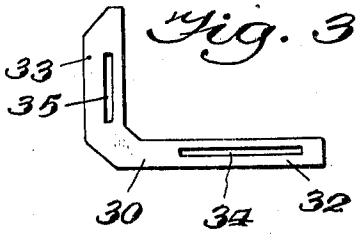


Fig. 4

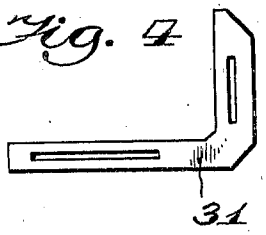
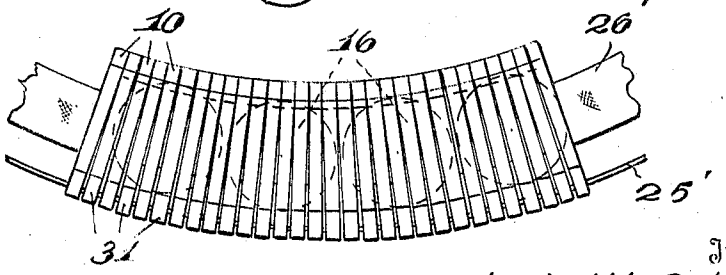


Fig. 5



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CHUTE

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Application November 30, 1942, Serial No. 467,414

7 Claims. (Cl. 193—25)

This invention relates to improvements in chutes of the type employed to guide a cartridge belt from an ammunition container to a weapon, for example, a machine gun.

The invention contemplates and has for a principal object the provision of an improved chute for cartridge belts which has the required flexibility to adjust itself both to differences in height and in relative lateral position between the outlet of the cartridge belt container and the feed or grip mechanism of the gun, without impairment of its faculty to guide a cartridge belt being fed therealong both smoothly and without jamming. More specifically, the invention aims to provide an effective chute for cartridge belts having the required flexibility as aforesaid, which is of rugged and durable construction and which can be manufactured at minimum cost from readily available sheet materials, particularly non-metallic materials such as vulcanized fiber.

According to my invention, a chute for cartridge belts in accordance with the foregoing is built up from a plurality of individual sheet-form elements of generally U or channel shape which are interconnected by flexible strips, for example, tapes, cords, wire, or the like. The elements are arranged on a corresponding edge and are so shaped that when interconnected in side-by-side relationship they form a channel which is substantially uninterrupted and which, due to the more or less loose connection between the elements, is flexible both horizontally and vertically as well as twistable in lengthwise direction. Accordingly, a so formed chute can adjust itself along its length to differences in height and in lateral position between the cartridge belt container and the inlet of the machine gun. By forming the elements from sheet material of appreciable thickness, the relatively upper edges of the elements provide adequate bearing surface for the cartridges and links of the belt moving along the so formed chute.

Furthermore, as the single elements from which the chute is built have flat or sheet form, they can be readily stamped out in a single one-stroke stamping operation from sheet material and preferably from non-metallic sheet material such as vulcanized fiber. To add to the flexibility of the chute without adding substantially to the amount of such material required in the production thereof, spacers adapted and shaped for insertion between the adjacent elements of the interconnected series thereof may be employed, the spacers being preferably arranged to space the adjacent elements at both ends thereof. These spacers, which are, for example, of right-angled shape, can also be readily stamped out of non-metallic sheet material in a simple stamping operation.

Other objects will be in part obvious and in part hereinafter pointed out in connection with the following analysis of this invention wherein is illustrated an embodiment of the invention in detail.

Fig. 1 is a plan view of a portion of the chute in accordance with the invention;

Fig. 2 is a section taken along line 2—2 of Fig. 1, illustrating the preferred shape of an individual element from a plurality of which the chute is built up, and the relative dimensioning of the elements and the cartridges of a belt thereof;

Figs. 3 and 4 are, respectively, elevations of left- and right-hand spacers for insertion between the ends of the adjacent elements forming the chute; and

Fig. 5 is an end view of a portion of the belt illustrating its flexibility out of a horizontal plane.

Referring to the drawing, wherein like reference characters designate like parts throughout the several views, the chute according to the invention is built up from a plurality of individual elements generally indicated at 10, Fig. 2, and which can be stamped out in a single-stroke stamping operation from sheet material and preferably from a non-metallic sheet material such as vulcanized fiber. As shown, each element is formed with a horizontal leg 11, uprights 12 and 13 extending upwardly from the ends thereof, and inwardly directed retaining flanges 14, 15 extending inwardly from the upper ends of the uprights. It will be observed from Fig. 2 that each element is substantially U-shaped to provide an upwardly opening channel section having width which is somewhat greater than the length of the cartridges 16 arranged in belt form by means of interconnecting links 17, and depth which is somewhat greater than the diameter of the cartridges.

Each element leg 11 adjacent its end is slotted as at 20, 21 and the uprights 12, 13 may be correspondingly slotted as at 22, 23, to provide slots or apertures through which suitable securing means may be threaded.

A plurality of elements as described are assembled into chute-forming relation by disposing the elements on edge and in side-by-side relationship and thereupon threading through the slots 20, 21, and also through the upright slots 22, 23, if such are provided, corresponding flex-

ible strips in the nature of fabric tapes. Obviously, thin metal bands or wires may be employed in place of the fabric tapes under conditions requiring greater strength. By reason of the more or less loose interconnection of the assembled elements, by which the elements are permitted to move relatively to each other, the chute is flexible in horizontal and vertical planes and is also twistable about its longitudinal axis.

To augment the flexibility of the chute, rigid spacers as indicated in Figs. 3 and 4 may be inserted between the adjacent elements 10. Such spacers are of identical construction, being formed as squares from sheet material of the elements. Thus, the spacer 32 shown in Fig. 3 is adapted for insertion between the left-hand edges of adjacent elements and the identically formed spacer 33 shown in Fig. 4 is adapted for insertion between the right-hand edges of the elements. As shown, each spacer is of angled shape, having a horizontal leg 33 and an upright leg 33. The horizontal legs of the spacers are each provided with a slot 34 adapted to register with the slots 20 or 21 of the elements 10, and the upright legs are each provided with slots 35 positioned to register with the slots 22 or 23 of the upright edges of the elements. It will be understood that the flexible securing strips 24, 25 and similarly the flexible strips 26, 27 if such are employed, secure the spacers between the adjacent elements in the manner illustrated in Figs. 1 and 5, the more or less loose connection of the adjacent elements and spacers permitting the interconnected elements and spacers to move relatively to each other as required.

While the elements and spacers are made from sheet material, such as vulcanized fibre, and having appreciable thickness, it will be observed that the elements and spacers when arranged in edge to edge or side-by-side relationship in accordance with the invention provide a chute which is substantially uninterrupted along its length, on which a cartridge belt is guided smoothly and without jamming. Due to the appreciable thickness of the elements, the upper edges of the transverse edges 11 thereof provide adequate bearing surface for the moving cartridge belt and its contact with the chute. Preferably, the upper edges of the elements are recessed as at 36 to accommodate the belt links 37. Accordingly, the cartridges are supported for movement along the chute by the links which connect the cartridges, and also along the line of contact between the bottoms of the cartridges and the elements. The element recesses 36 also function to prevent any substantial sidewise movement of the belt across the chute. It will be also observed that the retaining flanges 14, 15 of the interconnected elements serve to retain the moving cartridge belt within the lateral margins thereof, thus preventing the belt from being displaced therefrom.

As will be appreciated from the above description, a chute in accordance with the invention may be simply and readily manufactured with equipment consisting of only a punch and dies necessary for punching out the elements 10 and the interfitting spacers 32, 33. By employing non-metallic sheet materials such as vulcanized fibre for the elements and spacers, the chute may be formed from readily available materials and its total weight is a relatively small fraction of the weight of a chute constructed from ordinary metals. Moreover, by reason of the more or less loose connection of the elements and spacers and the inherent flexibility of vulcanized fibre material, the overall flexibility of the chute and its capability of twisting and bending as required without diminishing the uninterrupted channel for the cartridge belt is surprisingly high.

As many changes could be made in carrying out the above construction without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. A cartridge belt chute comprising a plurality of individual sheet-form elements of channel shape arranged edge to edge, the elements being provided with apertures, and flexible means threaded through said apertures and securing the elements in side-by-side relationship.

2. A cartridge belt chute comprising a plurality of individual sheet-form elements of channel shape arranged edge to edge and provided with apertures, spacers disposed between adjacent elements having apertures in alignment with the element apertures, and flexible means threaded through said apertures and securing said elements and spacers in side-by-side relationship.

3. A cartridge belt chute as set forth in claim 2, wherein the spacers are disposed between the ends of adjacent elements and have right-angular shape.

4. A cartridge belt chute as set forth in claim 1, wherein the transverse edges of the elements are each provided with apertures through which the flexible securing means are threaded.

5. A cartridge belt chute as set forth in claim 1, wherein both the transverse edges and the upright sides of the elements are each provided with the apertures through which the flexible securing means are threaded.

6. A cartridge belt chute as set forth in claim 1, wherein the elements are fabricated from vulcanized fibre.

7. A cartridge belt chute as set forth in claim 2, wherein the elements and spacers are fabricated from vulcanized fibre.

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