

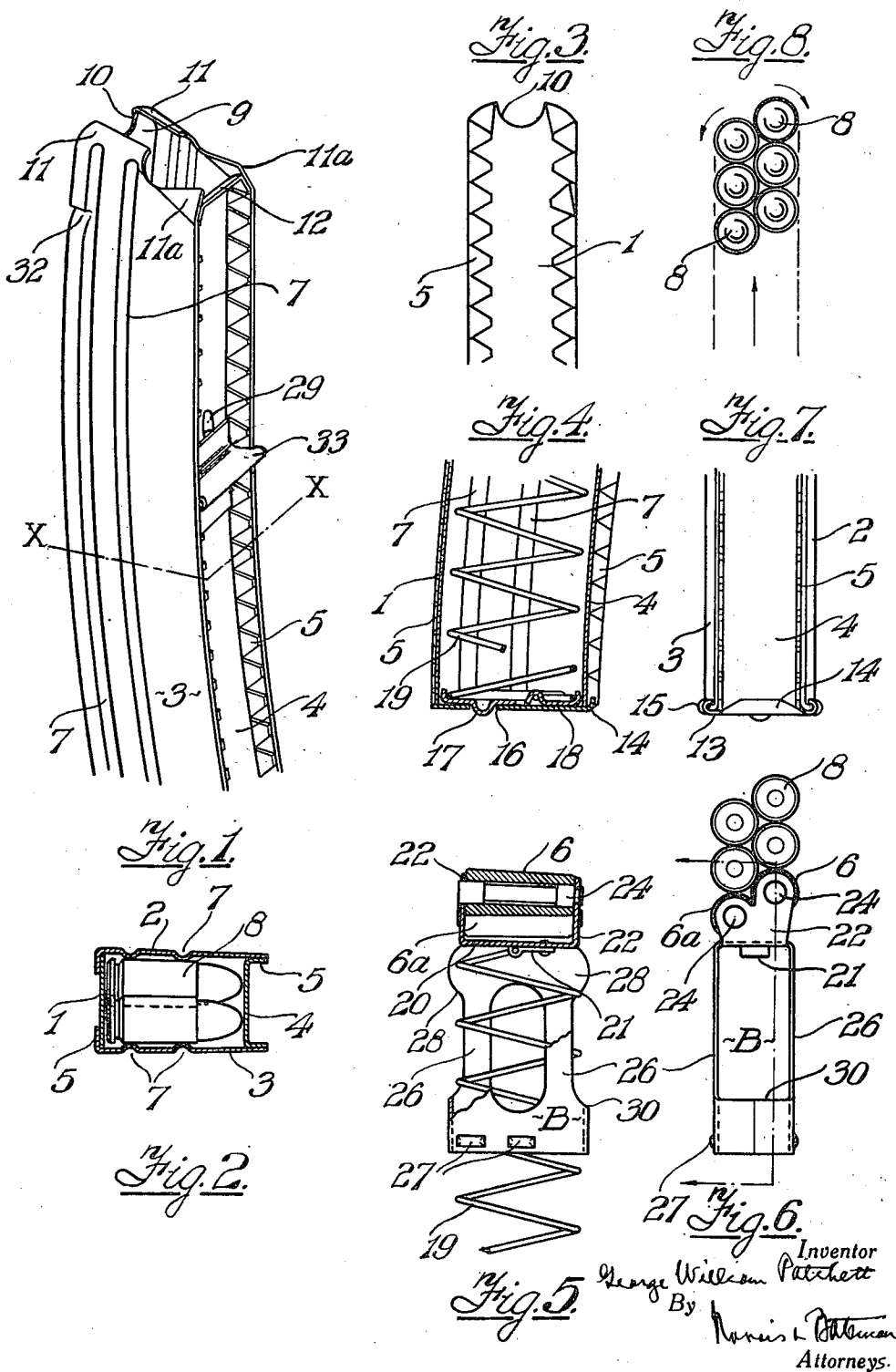
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CARTRIDGE MAGAZINE FOR AUTOMATIC FIREARMS

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CARTRIDGE MAGAZINE FOR AUTOMATIC FIREARMS

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1

This invention relates to an improved cartridge magazine for automatic firearms and has for its objects, inter alia, means for providing greater ammunition carrying capacity with the same or less weight than magazines now in use wherein the feed to the gun will function under bad dust or grit conditions, the said magazine being capable of filling by hand and is designed for repeat manufacture out of pressed metal parts, that are jig assembled, welded and ready for use without machining operations.

In order that the pressed steel magazine, though fabricated from metal of light section, shall remain free from later distortion due to inherent stress engendered by pressing, the right angled flanging is accomplished by serrating the edges of the plates prior to folding, and according to a preferred construction the said magazine is substantially rectangular in cross section with slightly sloping inward sides from back to front, the back plate being merely a curved strip against which the cartridge rims contact, and the front plate a serrated flanged plate, said flanges engaging the side plates on their inner faces whilst the rear serrated flange of each side plate engages the outer edge surfaces of the back plate, the said serrations, when the plate parts are jig assembled, being spot welded to the part contacted.

The side plates have pressed in corrugations which besides imparting strength to the assembly as a whole provide internally rolling rails along which the cartridges contact in their progression towards the breech, leaving space for grit and dust to be negligent factors if present and capable of discharge.

The invention consists of an improved cartridge magazine for automatic firearms wherein the contour of said magazine is segmentally arcuate from a centre whose radii align with the tapering sides of the cartridges, said magazine being wholly fabricated from pressed metal parts welded together, the flanges of the said parts being serrated to eliminate strains and distortion after welding.

The invention further provides for a cartridge magazine as above wherein the cross section of said magazines permits of staggered piling of the said cartridges against a spring impelled platform, and transfer of said ammunition from the magazine to the firearm in alternating succession by either the left or right hand feeder of the reciprocating bolt, the mount of the magazine comprising slightly tapering in curved throat sides, each side in succession retaining a car-

2

tridge under resilient pressure prior to feed, the lips of said magazine mouth being formed to constitute guides to lift and centralise the cartridge to enter the breech under urge of one or other of the bolt feeders, the forward underlip of the magazine throat having a final semi-circular cartridge guide whose centre line is coaxial to that of the said breech.

In order that the invention shall be better understood reference is made to the accompanying drawing wherein:

Fig. 1 is a perspective elevation of the upper part of the magazine.

Fig. 2 is a sectional plan of Fig. 1 on line X—X.

Fig. 3 is a rear elevation of the upper part of the magazine.

Fig. 4 is a fragmentary side sectional elevation of the lower part of the magazine.

Fig. 5 shows detail in part section of the platform and spring.

Fig. 6 shows a back elevation of the platform shown in Fig. 5 with the spring removed.

Fig. 7 shows a fragmentary front elevation of Fig. 4.

Fig. 8 shows method of piling ammunition within the magazine.

Referring to the drawings and Figs. 1 and 2 the magazine as illustrated has a contour that is segmentally arcuate from a centre whose radii align with the tapering sides of the cartridges, equally as will be gathered from the cross section shown in Fig. 2 the interior of the magazine tapers slightly from the rear to the front to conform in the other plane with the cartridge taper.

The magazine has four walls and is substantially rectangular in cross-section, the back wall 1 being made from a plain metal sheet bent to required radius. The sides 2 and 3 respectively are flanged over at right angles, as is also the front plate 4, but the metal of each flange prior to bending is serrated as at 5, the incision commencing from the point of bending. The object of incising the flanges is to prevent pucker or stretching which would ensue as a result of bending over on a curve or radius, the surplus metal otherwise tending to set up internal stress in the material which in time would cause distortion and lead to faulty fitting of the magazine to the firearm or mis-firing. The side parts 1, 2, 3 and 4 are, after pressing chromium plated on their inner faces or otherwise finished before welding. The fact that the internal faces of the magazine sides are polished or burnished adds greatly to the frictionless travel of the platform, and the welding spots that occur on the serrations do not effect the in-

3

ternal plating finish where the cartridges contact the magazine walls. The said wall parts 1, 2, 3 and 4 after pressing and plating are jig assembled and welded together.

In order to provide for the smooth running of the cartridges and their platform B with its rollers 6 and 6a, the side plates 2 and 3 are provided with indented lands or pressed in corrugations 7 which latter provide internally rolling rails upon which the cartridges 8 and their platform 7 can revolve and slide respectively. The said corrugations materially strengthen the construction as a whole and impart an inherent rigidity to the magazine even when the latter is fabricated from thin sheet material. The mouth 9 of the magazine is formed with a bolt feeding notch 10 in the rear side 1 and the sides 2 and 3 have incurved cheeks 11 and 11a respectively which also taper towards the radial centre referred to above. The front plate 4 is provided with a curved and outwardly flared lip 12. The sides 2 and 3 at the base are flanged outwardly as at 13, adapted to receive a base plate 14 having channel sides 15 adapted to embrace and slide upon the flanges 13. The said base plate has a perforation 16 adapted to receive a ball headed projection 17 formed on the spring lower abutment plate 18. The plate 18 is fast with the rectangularly coiled spring 19 whose end remote from the plate 18 is fast with a platform plate 20 by its end passing into clip 21 riveted to plate 20.

The platform B is a pressed up metal sheet entity formed as shown in Figs. 5 and 6, the flanged side members 22 carrying slightly tapering rollers 6 and 6a loose on spindles 24.

The rollers 6 and 6a constitute the platform proper for the cartridges 8, which are filled into the magazine by hand at the mouth 9, in a manner that produces the arrangement shewn in Figs. 6 and 8 against the resilient spring 19. The platform B is a hollow entity and its side walls 26 carry uppressed lands 27 adapted to contact and move upon the rails 7 of the magazine. The roller 6a is at a lower level to that numbered 6 to give a staggered pile of cartridges within the magazine. The rollers 6 and 6a are of substantially equal diameters to the diameter of the cartridge and taper as shown.

Further, the platform B is provided with round shoulders 28 adapted to point contact the back or front plate 1 or 4, should there be any tendency for the platform to tilt in its descent when loading or its ascent when feeding cartridge to the breech of the gun.

To prevent the platform travelling too far upward in the magazine and to prevent any possibility of the bolt striking the roller 6 and indent 29 in the front plate engages the top edge of the skirt 30 on the platform B. The magazine is in the known manner provided with a locating catch 32 for engagement with the fire-arm magazine retaining plate and a stop plate 33 for engagement with an abutment (not shown) in the magazine carrier of the firearm.

The operation of the invention is as follows: The magazine in its assembled condition has its base plate 14 removed and the platform B with its spring 19 and abutment plate 18 inserted, the platform is pushed home with the rollers 6 uppermost until the indent 29 in front plate 4 engages the platform skirting edge 30. In this position the platform is just below the level of the firearm bolt entrance cartridge feeding notch 10 in the top of the rear plate 1. The operator now pushes the spring lower abutment plate upwards into

4

the magazine and retains it there whilst the base plate 14 is first positioned to slide on the magazine flanges 13, and then as the operator removes his finger or thumb pushed home to its closed position as shown in Figs. 4 and 7. The spring now is under slight compression and the ammunition 8 is now inserted round by round through the mouth 9 of the magazine the said rounds automatically taking up the zigzag assembly as indicated in Figs. 6 and 8. This operation follows closely upon the normal method of cartridge loading except that it is done with greater ease and speed due to the fact that the cartridge rounds rotate easily upon the rollers 6 and the platform B with its raised lands 27 and rounds 8 only contact the sides of the magazine where their surfaces meet the indented rails 7. Hence friction is reduced to a minimum.

Having filled the magazine the latter is inserted in the firearm and the bolt having two feeder pushers of a known type alternately contacts either a right or lefthanded cartridge, which latter is moved forward under guidance of the inturned cheeks 11 and 11a to centralise itself and emerge into the gun breech over the magazine lip 12. During the period of firing the platform B moves upward under influence of spring 19, the rollers 6 and cartridges 8 being free to rotate individually in such movement. Rotation is induced by the outer surface of each round contacting the rails 7 so that movement upward in the direction of the arrows shewn in Fig. 8 causes adjoining layers to have complementary contact rolling motion as though meshing. The magazine feeds from bolt movement to the last round, since the first round entered in filling rests in the space above the lower roller 6a and the back part of this round projects well above the top of the higher roller 6 which latter is restrained as set out above from projecting into the path race of the reciprocating bolt.

It will be observed that the platform B is hollow and the space below free of any obstruction other than the spring 19. Hence dust, sand, grit or like adventitious matter that not infrequently enters these magazines in transport or use is enabled to fall to the base and remain out of the way during any period of firing.

When the magazine is inserted in its socket, provided in the firearm, the incurved cheeks 11 throw out the detent catch of the socket automatically, and continued insertion brings the magazine into a fully socketed condition when the back detent enters the notch 32 and the stop 29 engages the front limiting stop.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:

1. A cartridge magazine for firearms composed of pressed metal side walls having curvilinear edges and end walls shaped to conform with the curvilinear edges of the side walls and assembled with the side walls to form a structure of substantially rectangular cross-section, the edges of one end wall being serrated and flanged to engage the side walls adjacent to one end of the structure and the edges of the side walls adjacent to the other end of the structure being serrated and flanged to engage the edges of the other end wall, the serrated flanges being welded to the respective walls which they engage, and a spring actuated platform having a plurality of rollers mounted thereon to rotate freely and to support respectively columns of tapered cartridges in the

magazine, one of said rollers being disposed in a plane lower than another of said rollers to support one column of cartridges in staggered relation with cartridges supported by the other of said rollers, the side walls of the magazine being provided at their inner sides with lands which extend concentrically with the curvilinear edges of the side walls for rolling engagement with the rollers on said platform and with cartridges contained in the magazine, and said rollers being tapered from front to rear in similar degree to the taper of the cartridges and having substantially the same diameter as the cartridges at all points of engagement of the rollers with the cartridges.

2. A cartridge magazine for firearms, comprising a magazine body to contain columns of cartridges, a platform movable within the magazine body and comprising a metal pressing having a basal skirt to slidably engage the inner surfaces of the magazine body and lugs integral with the upper portion of the platform, and cartridge supporting rollers mounted by said lugs to rotate freely.

3. A cartridge magazine as defined in claim 2, wherein said platform comprises a hollow substantially rectangular entity conforming with the cross-section of the magazine body and freely movable therein, and a spring abutment on said platform immediately below said rollers.

4. A cartridge magazine as defined in claim 2, wherein said platform comprises a body formed with front and rear plates having contact shoulders, said shoulders being rounded for point engagement with walls of the magazine body.

5. A cartridge magazine as defined in claim 2, wherein said magazine body is provided at its base with out-turned flanges, and including a closure plate formed with upwardly and inwardly turned flanges slidable engageable with the out-turned flanges of the magazine body, a platform for supporting and advancing cartridges in the magazine body, a spring for advancing the platform and abutting at one end against the platform, and a spring abutment engaging the other end of the spring and having a spherical projection engageable with a perforation in the closure plate when the latter assumes closed position.

6. A platform for a cartridge magazine having a hollow body open at both ends, longitudinal inwardly projecting rails on its side walls, and a closure member at one end, said platform being adapted for movement longitudinally within the magazine, a pair of rollers freely rotatable on and exposed at the upper end of the platform to support cartridges and permit rotation thereof during movement of the platform in the magazine, a skirt integral with the platform and extending downwardly from the rollers to guide and locate the platform in the magazine, lands projecting outwardly from the skirt at one end there-

of to coact with the rails in the magazine, shoulders on the other end of the skirt to coact with the front and rear walls of the magazine, and a spring seated at one end against the closure member and at the other end under the platform to urge the latter resiliently towards the other end of the magazine.

7. A platform for a cartridge magazine as defined in claim 6, wherein said rollers are displaced in height to admit of zigzag loading of cartridges thereon.

8. A platform for a cartridge magazine as defined in claim 6, wherein said rollers are tapered axially to correspond substantially with the taper of the sides of the cartridges to be employed.

9. A platform for a cartridge magazine as defined in claim 6, wherein said platform has a body of greater length than that of two contiguous turns of said spring in its uncompressed condition.

10. A platform for a cartridge magazine as defined in claim 6, wherein said platform comprises a body which constitutes a rectangular entity of greater length than width, and is adapted for movement within a magazine of corresponding section.

11. A platform for a cartridge magazine as defined in claim 6, wherein said platform comprises a hollow body which is perforate on all sides.

12. A cartridge supporting platform for a cartridge magazine, comprising an elongated body having a pair of rollers mounted to rotate freely on its upper end and positioned to rotatably support cartridges resting thereon and to rotatably engage the side walls of the magazine, and having a substantially rectangular skirt at its lower end, the skirt having lands projecting from its opposite sides for slidable engagement with the walls of the magazine engageable by the rollers, and the body of the platform having curved portions projecting from the front and rear edges thereof to slidably engage with point contact the front and rear walls of the magazine.

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