This invention relates, generally categorized, to a gun having a magazine provided with a cartridge inlet and loading port and, more particularly, to a new and improved cartridge carrying, sheathing and ejecting clip which lends itself to practical and reliable performance when lined up and oriented with said port.

Persons conversant with the art to which this invention relates are aware that many and varied styles and forms of cartridge carrying and dispensing clips have been devised and offered for use with a view toward expeditiously loading the receiver portion of the gun's magazine by way of the usual side positioned loading port. The fact that it is desirable in this line of endeavor to orient and coordinate the delivery end of the clip with the magazine port by hand makes it difficult to accomplish the desired result without perplexing the user of the clip and, as a matter of fact, wasting valuable time. Having recognized the above generally stated difficulty and having taken into account, other disconcerting difficulties has posed a problem, one which gave rise to the instant invention. It follows that it is an objective in the instant matter to functionally, structurally and in other significant ways improve upon prior art cartridge clips and the manner in which they are used and, in so doing, to appreciably advance the art. Briefly, the disclosed clip utilizes the forces of gravity to feed or deliver the cartridges to the discharge end of the clip either automatically or one at a time and performs the desired ejection step and is adaptable to various types of loading ports. To the ends desired it is essential that the ejection end of the clip be mitered in the manner shown so that the clip assumes the desired sloping gravity feeding angle, that is, when the magazine is held in an approximately vertical position. With the gun held vertically the cartridges are permitted to gravitate into the tubular receiver of the magazine by way of the inlet port out of the way of the incoming cartridge. It will be evident therefore that the improved clip assures effective smooth-working jam-free automatic loading. Experience has shown that the gravity feed principle also works smoothly and with jamming making it possible to use the clip with nominally different loading ports found in different makes of guns.

It will be evident from the foregoing that the utilization of the gravity feed principle does away with the use of mechanical devices and forces applied thereby. Accordingly, the improved adaptation herein employed functions to overcome complications caused by mechanical forces such as the incoming cartridge being forced against the one preceding it and holding it against the opposed wall of the bore or receiver of the tubular magazine and preventing it from being fully released and falling down into the receiver quickly, as is desired.

In carrying out the principles of the present invention a clip is provided which lends itself to the incorporation therein of significant features which are herein being relied upon for successful end results. The angular construction and arrangement and the use of the gravity feed makes it possible to construct and use the same clip successfully to automatically (alternatively singly) discharge cartridges into a magazine. Then too, the angular construction of the clip allows for the gun to be handled in a vertical position so that the full benefit of the gravity force is obtained to quickly move cartridges away from the loading port to avoid jamming. This can be and is accomplished by using forces of gravity in an angularly sloping clip to gravitate and discharge cartridges with virtual certainty and to clear the way for the feeding and depositing of each succeeding cartridge.

As will be hereinafter clarified the novel clip is such in design and construction that it must be positioned at an approximate acute angle to the loading port and with this end in view the ejection end of the clip is expressly designed and structurally adapted to not only bear against the surfaces of the magazine but coordinate in alignment with the port, this being done to incorporate and successfully use gravity force to move the cartridges to the ejection end of the clip and into the tubular receiver of the magazine.

More particularly, novelty is predicated on an ejection end wherein one side wall of the body part of the clip is fashioned into a resiliently slanted plane which is responsive and spread when it is forced endwise against the convex surface of the hollow cylindrical magazine. This tongue is coordinated and cooperates with an opposed stationary flange-like member which is fashioned into an abutment, the surfaces of said abutment being cooperatively engageable with the surfaces of the magazine whereby to thus orient the tongue and abutment with respect to each other and the cartridge intake port.

Then, too, novelty is predicated on the construction and arrangement briefly recited and wherein, in addition, the wall of the clip which is provided with the abutment is also provided with a manually actuated ejector, more explicitly, a resilient mechanical finger which is normally sprung to an out-of-the-way position but which can be pressed by the thumb of the user to a cartridge engaging and releasing position. To this end, the free end of the finger is provided with a lateral terminal one surface of which is beveled to provide a cam and the other surface of which constitutes a retainer.

In addition to the above the concept features an elongated rectangular or box-like case having opposed side walls and top and bottom walls and wherein cooperating interior surfaces of the walls, for example, the side walls and the top wall, are shaped and dimensionally related to cant the rim portions of the cartridges so that the cartridges are thus racked and assumed upstanding positions paralleling each other. This construction and arrangement insures that as each cartridge approaches the intake port it is not only properly located and oriented, but is substantially vertical position parallel to the port in order to pass unobstructedly and without a hitch thereethrough.

Also and as will be hereinafter more clearly understood the invention features a clip having an ejection end of angular design for proper ejection of the cartridges having interior walls featuring guide means for the clip.

At the ejection end on one side there is the abovementioned abutment which is concave and correctly and fittingly applicable to a surface alongside one vertical edge of the intake port. The opposite side wall is provided with a pressure responsive tongue with a projecting terminal end and which is beveled to properly pilot itself into position at the other vertical edge of said port and to thus assist in placing the clip in its prescribed oriented place, the top wall of the clip having an outstanding oblique angled lip and said lip angled and fitting into the upper end of the port whereby the thus constructed and arranged component parts insure piloting, orienting and coordinating the ejection end of the clip with the marginal edges of said intake port.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the ac-
companying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which.

FIG. 1 is a view in side elevation showing the gun and magazine held with one hand in a vertical loading position and showing the improved cartridge clip held in the other hand and also orientated so that its gravity feeding position is amply angled to rely on the forces of gravity in removing the cartridges from the clip into the magazine via the intake port.

FIG. 2 is a view of a fragmentary and sectional character with the cartridges in elevation and showing, with greater particularity, the port and the relationship of the ejection end of the clip thereto.

FIG. 3 is a section on the irregular section line 3—3 of FIG. 2.

FIG. 4 is a fragmentary view similar to FIG. 3 and with a portion appearing in elevation and showing the manner in which the index finger and thumb can be used to press in the trigger-like ejector in a manner to exert cam pressure against the cartridge which is being ejected and at the same time checking the descent of the next and succeeding cartridge.

FIG. 5 is a view in perspective of the cartridge holding and dispensing clip by itself.

FIG. 6 is an enlarged section on the plane of the section line 6—6 of FIG. 5.

FIG. 7 is a fragmentary blown-up section detailing the interlocking wall members.

FIG. 8 is a fragmentary perspective view showing the one-piece plastic blank from which the case is folded.

FIG. 9 is a view in perspective which also shows the complete clip, that is the case thereof, wherein the opposite side walls are separated but are in readiness to be pressed together and snapped into case forming relationship.

With reference to the views of the drawing and particularly to FIGS. 1 to 3 it will be noted that the gun (.22 rifle) is herein denoted by the numeral 10, the same having a barrel 12, stock 14 and elongated tubular cartridge loading magazine 16. The magazine (FIG. 2) is provided on one side with a cartridge intake slot or port, which is of a conventional design, and is denoted by the numeral 18.

The attachable and detachable cartridge containing, sheathing, protecting and dispensing clip is denoted by the numeral 20. It is of elongated hollow box-like form and preferably but not necessarily comprises a one-piece plastic case, that is a rectangular adaptation characterized by a top wall 22, bottom wall 24, a first longitudinal side wall 26 and a second complementary side wall 28. When made from a single piece of moldable plastic the junctional corner portion 30 provides a connecting web and the coating portions are provided with ribs or tongues 32 and 34 which are fitted into grooves and accordingly interlocked with each other as shown at the upper end of FIG. 6. The bottom lengthwise edge portion 36 is provided with aligned longitudinally spaced slots 38 which are connectably engaged with assembling detents 40 cooperating with other or coating detents 42. Thus, the wall 28 can be hinged into place and the interlocking detents snapped together to maintain the four walls in the form of a hollow open-ended case. The open straight across cartridge loading end of the case is denoted generally at 44 (FIG. 5) and the inwardly disposed marginal surfaces are beveled as at 46 (FIG. 2), to permit the upper to readily insert the cartridges 48. To facilitate accomplishment of this result the end portion 50 of the second-named sidewall 28 is slotted to provide an intervening resilient pressure-responsive cartridge loading tongue 54 which can be forcibly spread outwardly to permit passing the cartridges one-by-one beyond the interior rib-like retaining bead 56. This end portion 44 is at right angles to the lengthwise axis of the over-all case. It should be noted in FIG. 2 that the interior of the top wall 58 is dimensionally coordinated with the interior surface 60 of the bottom wall so that the cross-section of the hollow portion or chamber is such that the relatively long cartridge portion 52 in the chamber assumes a cant relationship, that is, the cartridges are at an oblique angle to the lengthwise axis of the chamber but assume vertical uptaking positions when in the loading position shown in FIGURE 2 where they are not only parallel to each other but are parallel to the port 18. To further achieve this oriented and cooperating gravity feed relationship the upper end tips of the bullets 62 slightly contact the surface 58. The flanged rim portions 64 at the bottom of the shell portion 66 cooperate fittingly in the slideways provided by the opposed channels 68 and 70 to say the rim portions are canted in the channels. Consequently, the cartridges 48 are properly lined up for gravity dispensing in the manner shown.

The ejection end of the case is highly significant in that it is mitered so that the mitered end is at an approximate 60° angle.

With further reference to the wall 28 (FIG. 5) it will be noted that the ejection end of the case is provided with a second dual slitted wall defining an end thrust pressure responsive retractable and projectile tongue denoted by the numeral 70, said tongue when fully retracted and flush with the wall but yieldable and capable of being spread out to assume the clip orienting and dispensing position shown in FIG. 3 when it is forcibly pressed against the exterior surface of the magazine. It follows that the free end portion is bevelled at 72 as depicted, or is fashioned into a piloting tongue or finger 74 which comes itself into the position illustrated. The interior surface of this tongue is provided with a limit stop rib or bead 76. This tongue 74 is opposed to a companion flange-like terminal abutment 78 which has a blunt leading edge 80, has a concave surface 82, and a rib 84 opposite to (approximately so) the limit stop bead 76. This rigid abutment 78 cooperates with the yieldable tongue 74 in that it assumes the stationary clip locating and holding position illustrated in FIG. 3 and also cooperates with an outstanding oblique angled catch 86 which projects from the ejection end of the top wall 22 and which in practice cooperates with the upper end of the intake port and also the terminal beveled end of the bottom wall as denoted at 88 (FIG. 2). Consequently, when the bevel 88 contacts the magazine and the catch 86 is fitted into the upper end of the loading port and with the abutment 78 and tongue 74 in place the ejection end of the clip is then lined up with said port so that the gravity fed cartridges 48 slide down and outwardly from the chute-like chamber where they line up over the loading port and enter the receiver portion of the magazine 16 in a self-evident manner.

There is also a trigger-like latch finger provided as shown in FIG. 4 and this is denoted by the numeral 90. The shank portion 92 is joined with the cooperating side wall 26 and the springing or yieldable end portion operates in a slot provided therefor and terminates in a rib which has a beveled surface 94 which constitutes a cam and a right angular surface 96 which constitutes a tripless catch. This trigger-like lever can be manually pressed in as shown in FIG. 4 wherein the cam surface 94 comes into play to eject the then coating cartridge and whereupon the catch 96 checks against and prevents release of the next-to-be-discharged cartridge.

The clip must be positioned at an acute angle to the loading port when loading a gun because of the angular design used in the ejection end. It was necessary to design the ejection end of the clip at an angle to allow the clip to be held at an upward angle to the tubular magazine. This was done to incorporate and successfully use gravity force to move the cartridges to the ejection end of the clip and be one beyond one.

The cartridges are slanted toward the loading end of the clip so that when the clip is angled up and away from the tubular magazine, the cartridges will be almost vertical. This is necessary so that the cartridges will enter into the
loading port in a vertical position and drop immediately down the tubular magazine of the vertically held gun, thereby preventing jamming in the clip and at the loading port.

The cartridges are held in the clip in a unique angular position to the bottom and top wall of the clip. This prevents binding or tipping of the cartridges in the clip thus assuring a smooth rapid feeding from the clip. Two channels, one on each side of the clip (FIGS. 2 and 6), hold the cartridges by the rims in a canted position in the clip, keeping the cartridges from tipping completely over toward the loading end of the clip. The inside height of the clip is less than the length of the cartridge in which case, the top wall holds the cartridges from falling or tipping toward the ejection end of the clip. When ejecting cartridges in this position, the cartridges are held free from binding in the channels by allowing them to tip only slightly past the direct vertical position towards the gun or the ejection end of the clip. The cartridges move freely and do not bind because each cartridge is in contact with the clip at only two points. One point is on the back side of the rim of the cartridge which causes no binding, only very slight friction easily overcome by the gravity force due to the angle of the clip. The other point of contact is at the very tip of the bullet. This also does not bind the cartridge, and causes very little friction which is also easily overcome by the gravity force used for the movement of the cartridges.

The foregoing is illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A cartridge carrying tubular magazine loading clip comprising an elongated hollow case embodying a cartridge containing chamber defined by interconnected top, bottom and opposed side walls, said case being open at the cartridge loading end and provided in one side wall with a resilient pressure responsive tongue, said cartridge holding tongue being provided on its interior with a retaining bend, said top wall being provided at the magazine abutting cartridge ejection end with an outstanding member constituting an ejection end piloting and position orienting catch, the other side wall being provided with a finger pressure operated ejector embodying a finger provided with a terminal cam and an adjacent cooperating catch, said second-named side wall being further provided with a terminal abutment having a concaved surface adapted to contact a surface portion of the magazine which is to be loaded.

2. The structure defined in claim 1 and wherein the second named side wall is also provided at the ejection end with a resilient case locating tongue, said latter tongue being provided on its interior with a bead.

3. The structure defined in claim 2 and wherein said second-named tongue projects forwardly beyond the terminal of the abutment and is provided with a beveled surface, said beveled surface being adapted to cam itself against a cooperating surface of the aforementioned magazine.

4. The structure defined in claim 1 and wherein said hollow case is linearly straight from end-to-end, the open cartridge leading end being transversely straight across, that is, at right angles to the longitudinal dimension of the case, said杂志 abutting cartridge ejection end being mitered, that is, disposed at an obtuse angle and permitting said clip to be held when in use in an upwardly outwardly inclined angle oblique to the longitudinal axis of the aforementioned magazine and whereby said clip constitutes and provides a delivery chute from which the cartridges are dispensed and unloaded under the influence of the then present forces of gravity.

5. The clip according to claim 4 and wherein said clip is substantially rectangular and accordingly of hollow box-like form, the marginal edges of said top, bottom and side walls being beveled with the coordinating bevels functioning to facilitate loading said chamber, the opposed interior surfaces of said side walls being provided with coextensive coplanar open end channels facing each other, said channels being of predetermined depth and width relative to and in keeping with the diametral size of the rim portions of the shells of the inserable and removable cartridges and providing cartridge canting and gravity descending guides, the cross-sectional dimension of said chamber, including said guides being predetermined and relative to the length of the cartridges and functioning to cant the cartridges into abutting standing but parallel relationship whereby said cartridges are adapted to be delivered in a plane with their axes parallel to the long axis of the receiver portion of the aforementioned magazine.

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