

Improved Portable Tent.

Any man who has slept in the open air in a rainy night can appreciate the value of a tent that will keep him dry, and if such a tent can be made of so small bulk that it can be carried on a knapsack, and of less than three pounds in weight, probably every soldier would be willing to carry one for the sake of its shelter. The tent here illustrated was invented by E. C. Williams, of Jersey City, N. J., and is designed to be carried on the back of a soldier, for whose exclusive use it is appropriated.

Its length is 6 feet 4 inches; width at top, 24 inches; width at bottom, 2 feet 9 inches; height at the head, 27 inches; height at the foot, 10 inches; weight, all complete, 2 lbs. 6 oz. to 2 lbs. 8 oz. When rolled up, the size of the roll is 3½ inches in diameter and 16 inches in length.

It can be carried either in or on the knapsack, and can be erected in less than one minute. It will shed rain perfectly, and severe storms will not blow it over.

The braces which support the head are made with joints in the manner of a fish rod, so as to be readily taken apart and rolled up inside of the canvas.

Application for a patent for this light, compact and efficient shelter has been made through the Scientific American Patent Agency, and further information in relation to it may be obtained by addressing the assignee, James Flanagan, No. 474 Broadway, New York.

Oddities of Invention.

A very high appreciation of that which is simply curious in art was universally entertained in former times. We, more practical than our ancestors, attach higher value to that which is really useful, and curious contrivances of mechanical skill are abandoned to conjurers and toy manufacturers. One or two samples of the kind of inventions which were of old particularly esteemed, may not be uninteresting; but, at the same time, it is necessary to premise that these descriptions, being taken from the accounts which have been bequeathed to us by those who knew little either of science or mechanics, it is not unlikely that some of the statements may be exaggerated, and undue importance have been given to things which would now scarcely excite interest.

Petrus Ramus tells us of a wooden eagle and an iron fly, made by Regiomortanus, a famous mathematician of Nuremberg. The eagle was made to spread its wings, fly in the air, and, meeting the Emperor Maximilian some distance from the city gates, salute him, crown him, or something of that sort, and follow him back to his palace. This mechanical eagle—our French neighbors employ a live eagle on similar occasions—is said to have excited great astonishment in all who have witnessed its flight, and a poet has described it:—

Mounting from his fist that framed her,
Flew far to meet the German emperor;
And having met him, with her nimble train
And pliant wings, turning about again,
Followed him close unto the castle gate.
Of Nuremberg, where all their shows of state,
Streets hanged with arras, arches curious built,
Gray-headed Senate, and youths' gallantries,
Grace not so much as only this device.

The same poet describes the iron fly:—

Once, as this artist, merrily with mirth that meat
Feasted some friends whom he esteemed great,
Forth from his hands an iron fly flew out,
Which, having flown a perfect round about,
With weary wings returned unto her master.
And as judicious, on his arm he placed her.
O, wit divine, that in the narrow womb
Of a small fly, could find sufficient room
For all these springs, wheels, counterpoises, chains,
Which stood instead of life, and blood, and veins.

In the twentieth year of Queen Elizabeth, Mark Scalot, a blacksmith, made a lock, consisting of eleven pieces of iron, steel and brass, all of which, together with a pipe key to it, weighed but one grain of gold; he made also a chain of gold, consisting of forty-three links, whereunto, having fastened the lock and key before mentioned, he put the chain about a

flea's neck, which drew them all with ease. This is, perhaps, the earliest specimen of fleas—artificially—industrious on record.

An old writer tells us that Janellus Turrianus, "a great master in the mathematics," amused the leisure of Charles V.—he who was frightened into a monastery by a comet—by exhibiting "miracles of study." Sometimes he sent wooden sparrows into the Emperor's dining room, which flew about there and returned; at other times, he caused little armed men to muster themselves upon the table, and artificially move according to the discipline of war, "which was

The shell, *a a*, is turned down or cast smaller at the rear end, so as to pass through the ring, which is made externally of the same size as the body of the shell. As the powder is fired, the expanding gases, pressing against the lower or rear end of the ring, fold the corrugations together, and force out the exterior portion into the riflings, completely filling them and preventing all windage. This action presses out the grease, *c c*, through the holes, *d d*, made in the metal for this purpose, and completely lubricates the bore of the gun.

Mr. Cochran contends that the expansion of the ring, owing to its corrugated construction, must necessarily be so perfectly equal in every direction that it will lift the rear end of the shot or shell exactly into the middle of the bore; and not only so, but that the powerful toggle-lever purchase, obtained by the closing together of the corrugations, will pry up the forward end of the shot also so that the axis of the shot will precisely coincide with the axis of the bore. He says that the weight of the shot is insignificant when opposed to the tremendous power exerted by the corrugations thus coming together under a pressure of 5 or 10 tons to the square inch.

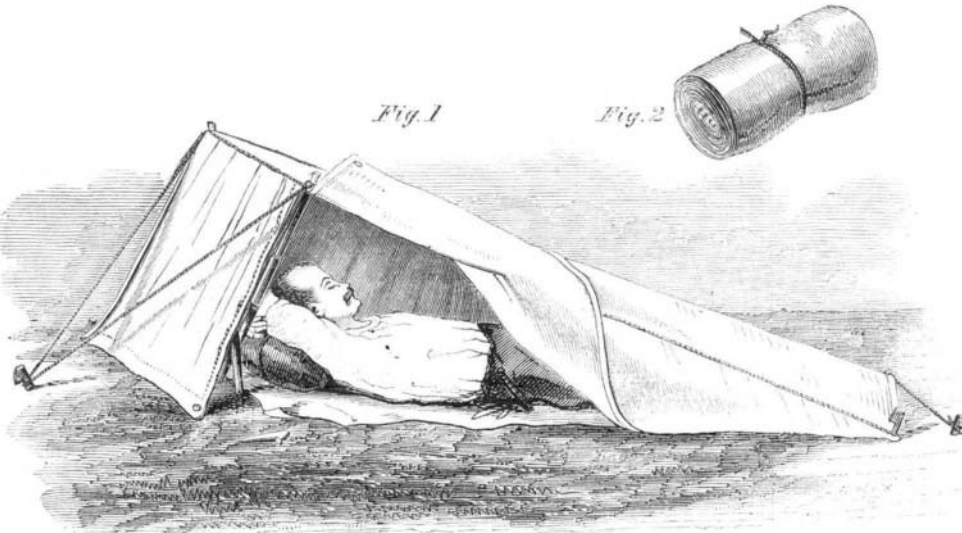
The advantages of this ring are thus stated by the inventor:

"The great advantages in this mode of closing the windage, and of course filling the rifle grooves to a rifled cannon, are obvious. 1st, The forcing forward or closing up the corrugations of the expanding rings, not only perfectly fills the bore of the piece and centers the shot, but firmly grips or attaches itself to the projectile, so that no part of it can leave it in its flight, which is a matter of the first importance. 2d, The inside recesses furnish a very safe and convenient place to deposit the lubricating material, and will always be sure to be forthcoming when the discharge takes place, to lubricate the rifle grooves. Grease should never be applied to the surface of the shot, as it will collect dirt and sand, and is liable to be destroyed by vermin when exposed. 3d, The ring occupies but a very little part of the body of the shot, and therefore leaves nearly the whole space for the bursting charge. As the end of the shot passes through the ring, say a quarter of an inch, which is of the same size as the body, the shot can be packed in boxes on the base end, with the point upwards in the usual way, without injury by jolting or jarring in transporting.

"Any kind of malleable metal may be used for the corrugated ring (wrought iron has been used successfully); soft copper is preferred. By being struck up in dies, the rings can be made very light and strong, and the copper is found to work well. Lead has not been found to answer well, particularly in heavy shot, where it is very likely to get bruised or pressed out of shape in handling and transporting, and will lead or fill up the rifle grooves, particularly in iron guns when rusty. It is so soft that sharp sand will imbed or get jammed into it, and, of course, cut out the lands of the rifle bore. Copper at first cost is quite as cheap as lead, only about one-fourth its weight being required. By the complete closing of the windage about three-fourths of the powder is saved—experiments having shown that one ounce of powder to the pound of shot is sufficient, while the United States service charge is one-quarter of a pound of powder to the pound of shot."

Mr. Cochran has been making numerous experiments with this shot, and he says that, with the same weight of shot and powder, he has made as accurate shooting, with as low an elevation and as great power of penetration, as has ever been made with any breech-loader, under the same conditions of weight and size of gun, weight of charge, &c.

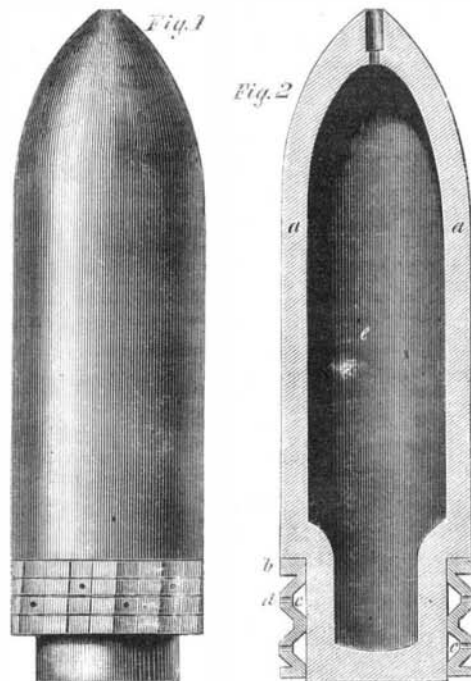
Any further information will be given on application to the inventor, No. 160 Broadway, New York.

**WILLIAMS' IMPROVED PORTABLE TENT.**

done so beyond example that the superior of the religious house of St. Jerome, being ignorant of the mysteries of art, suspected him of witchcraft."

COCHRAN'S CORRUGATED RING OR CUP PROJECTILE.

We here present an illustration of another packing ring for elongated shot, so entirely novel in its character as to attract the attention of all who take an interest in this department of science. It was invented by J. W. Cochran, Esq., the gentleman who took a revolving cannon to Turkey some years ago, and received a gold medal and more substantial acknowledgments of its value from the Sultan. The inventor is a man possessing great talent as an inventor, and one who has, perhaps, given as much attention to rifled ordnance as any person in the country.



The ring or cup here illustrated is made of any malleable metal, though experiments have demonstrated the superiority of copper for the purpose. It is cast as nearly perfect as may be, and then finished by being struck up in a mold with an expanding die.

Fig. 1 is a longitudinal central section of a shell, showing the corrugated ring before firing; and fig. 2 is a perspective view of the shell after being fired.

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