J. A. McKENZIE.

Muzzle for Shot Gun.

No. 85,949. Patented Jan. 19, 1869.

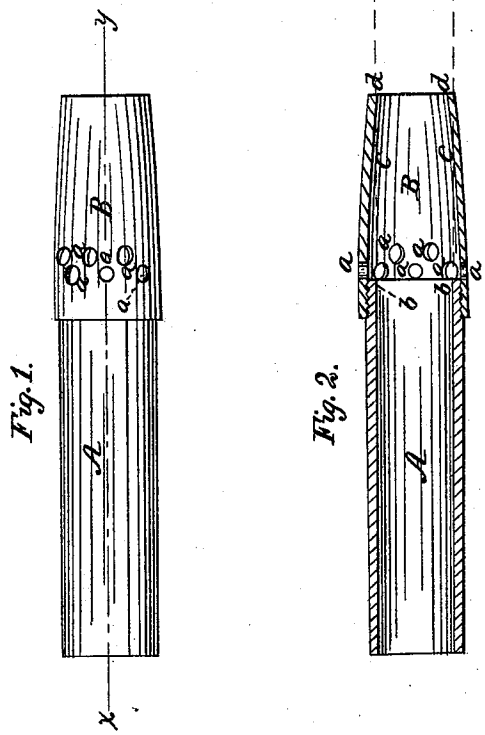


Fig. 1.

Fig. 2.

Witnesses:

Jesse Bright

James E. Fitch

Inventor:

James A. McKenzie per his

Attorney

G. B. Fowler

N. PETERS, Photo-Lithographer, Washington, D. C.

United States Patent Office.

JAMES A. McKENZIE, OF GALESBURG, ILLINOIS.

Letters Patent No. 85,949. *dated January* 19, 1869.

IMPROVEMENT IN MUZZLES FOR SHOT-GUNS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JAMES A. McKENZIE, of the city of Galesburg, in the county of Knox, and State of Illinois, have invented certain new and useful Improvements in Close-Shooting Muzzles for Shot or other Guns; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a view of gun-barrel, showing close-shooting muzzle connected therewith.

Figure 2 is a section of the same, as indicated by the line *x–y* of fig. 1.

Like letters in both figures of the drawings indicate like parts.

My invention consists—

First, of a muzzle, the diameter of which, at the end attached to the barrel, is greater than that of the barrel, by means of which the required inclination to the centre is obtained without contracting the diameter of the other end, and thus avoiding the effects produced by those muzzles having less diameter than the barrel, of retarding the force and lessening the effectiveness of the shot.

Second, the muzzle, provided with a suitable number of holes, so that a large portion of the air in the gun-barrel, and ahead of the shot, may escape through the holes, and thus avoid resistance to the shot.

A represents the gun-barrel;

B, the muzzle, screwed on to the end of the barrel;

a, holes, for the escape of air and gas when the gun is fired.

The muzzle is made to taper or incline angularly toward the end, so that the diameter of the muzzle being larger than that of the barrel at the point of its connection therewith, the diameter at the other end of the muzzle will correspond with that of the barrel, the object being, as the shot diverge more or less when they leave the barrel, and thus scatter too much for effect, to cause them to concentrate by the angular formation of the sides of the muzzle, and thus become more effective at long range.

The great trouble with shot-guns of all kinds is, that when it becomes necessary to shoot at game at long distances, the shot scatter so much that the chance of hitting the game is small, and if they do hit, not enough of them hit; consequently shot-guns have not been very desirable guns for long ranges.

I find, upon experiment, by providing the barrel of the gun with a muzzle, as described, that the range will be nearly doubled, and am satisfied there is no shot-gun that would be a successful rival, even though I were to give the odds of fifteen or twenty yards.

Operation.

When the gun is fired, the shot, as they leave the muzzle of the gun, invariably diverge from each other, in the same manner as water when thrown through a straight tube. This tendency to separate, with water, may be overcome by contracting the tube at a certain gradual angle, but if the muzzle of the gun be thus contracted upon the shot, they will be compressed, and their sphericity thereby destroyed; besides, much force will be lost from various causes.

Now, I propose to first allow the shot to separate a little, and then bring them together again, and, in bringing them together, change their direction and avoid swaging them. When the shot leave the gun, they diverge, taking the direction *b c*. (See fig. 2.) At *c* they come in contact with the contracted sides of the muzzle, and are turned in the new direction *c d*, which direction they would keep were it not for their tendency to separate when no longer restrained by the muzzle. When the shot leave the muzzle, their tendency to scatter gives them a new direction, *d e*, *d e*, along which lines the shot will fly, and these lines will cross, run parallel, or diverge, according as the angle *b c d* is varied.

The number and size of the holes *a* may be varied, and their object is that a large portion of the air in the gun-barrel, and ahead of the shot, may escape through the holes, and thus avoid resistance to the shot. The position of the holes should be in rear of where the shot touch the sides with any great force pressing outwards.

I do not claim a conical or contracted muzzle, where its rear end is of the same diameter and its forward end of a smaller diameter than the bore of the barrel; but

What I do claim, and desire to secure by Letters Patent, is—

1. The removable conical muzzle B, when its rear end is larger in diameter and its forward end of not less diameter than the bore of the barrel.

2. The holes *a* in the removable muzzle B, substantially as and for the purpose described.

J. A. McKENZIE.

Witnesses:

BENJ'N WOODWARD,

B. F. SANFORD.