D. WOOD.

Telescopic Gun Sight.

No. 42,983. Patented May 31, 1864.

Fig. 1.

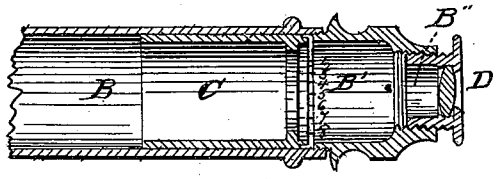


Fig. 2.

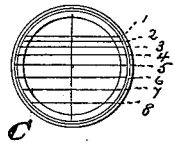
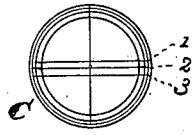


Fig. 3



Witnesses
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UNITED STATES PATENT OFFICE.

DANIEL WOOD, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN TELESCOPIC GUN-SIGHTS.

Specification forming part of Letters Patent No. **42,983**, dated May 31, 1864.

To all whom it may concern:

Be it known that I, DANIEL WOOD, of the city of Rochester, county of Monroe, and State of New York, have invented a new and useful Telescopic Sight to be used in Gunnery; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a longitudinal section of the hair frame or tube C and a portion of the telescopic tube B, with the sections or caps B′ and B″ and the eyeglass D. Fig. 2 is an end view of the hair-frame, showing the relative arrangement of the several hairs. Fig. 3 shows how a less number of hairs may be arranged.

The nature of this invention consists in the arrangement of several horizontal cross hairs or lines in a telescope to be used in gunnery, the spaces between the hairs increasing from the upper one downward in a ratio corresponding with the fall of the ball at different ranges, the several hairs thereby providing fixed and accurate sights for various distances without changing the position of the telescope, and by comparing the vertical distance between the two upper hairs with the known height or vertical length of an object at an unknown distance the gunner, having ascertained what the space measures at ten rods, for instance, is able to measure at once the distance to any object within the range of his gun, or even within the optical power of his telescope. The hairs numbered (1 2 3 4, &c.) are attached to the ordinary hair frame or tube, C, and it is placed within the tube B of the telescope, with the hairs next in front and at or near the focal distance of the eyeglass, as seen in Fig. 1. The points where the several horizontal parallel hairs or lines cross the vertical one are intended to represent the fall of the ball at different distances, and they should be so arranged as to be in exact ratio with and to correspond thereto. The proper locality for these cross-hairs may be determined in the following manner, viz: Arrange the upper hair, No. 1, about as shown in Fig. 2, then sight through it directly at the center of the target, it being placed, say, at ten rods distant, when the ball will be found to have struck below the center, and by turning up the telescope (the gun remaining fixed with said hair sighted on the center of the target) until this hair, No. 1, ranges on the center of the ball-hole, you then have the exact sight for that distance, for by this process the line of sight and trajectile are brought together, which is the point-blank range; or, in case the ball of the first shot should strike above instead of below the center of the target, by reversing this process the same result is attained. Now remove the target to twenty rods and sight at the center by the same hair, No. 1, then at thirty rods, then at forty, and so on up to eighty rods, and the several successive ball-holes will indicate the proper location for the hair representing each successive distance, and, as will be seen, the figure numbering each hair will also be the initial figure of the number of rods that that hair is sighted for. This arrangement of the cross hairs or lines is for short distances; but when long ranges are required, No. 1 hair may be sighted, for instance, at eighty rods, and the relative arrangement of the other hairs ascertained, as above shown. It must be remembered that with the same gun and sight like charges of powder, ball, and patch should always be used, and also that the arrangement of the hairs here described is for a telescope in which the object appears in its natural position, and not inverted; but in using a telescope which inverts objects the order of the arrangement of the hairs, as above shown, should be reversed.

That the gunner may be able to compute the distance to any object he wishes to shoot, he should first ascertain what the exact vertical distance between hairs Nos. 1 and 2 would measure on a target at, for instance, ten rods distant, which we will suppose to be one inch; and, if so, it would be two inches for twenty rods, three for thirty, four for forty, and in that ratio for any other distance. He may also determine at the same time the vertical measurement of the space between hairs Nos. 1, 2, and 3, as seen in Fig. 3, for same distance, the measurement of either of which would be doubled at twenty rods, tripled at thirty, quadrupled at forty, and so on as before, and now, by remembering that the average vertical length of a man's head, for example, is about nine inches, and finding, as we will suppose, that it just fills the space be-

tween hairs Nos. 1 and 2, we will multiply the number of inches by ten, (being the number of rods to the inch,) and the product will be the number of rods to the object, which in this case is ninety rods; but if the said upper space measures one and one-half inches at ten rods, it will be three inches at twenty, four and one-half at thirty, and six at forty, or one and one-half inch for every ten rods of elongated distance; or, if it should measure two inches in ten rods, it would be four in twenty, &c. The gunner has only to make himself acquainted with the average height or vertical range of familiar objects to enable him at once to compute the distances to them, whereby the invention is rendered at once simple, practicable, and effective.

I claim—

The adjustment of several horizontal cross hairs or lines in telescopic sights at unequal distances apart, which distances shall be in ratio and representation of the fall of the ball or projectile at the different distances for which each hair is arranged, substantially in the manner and for the purposes specified.

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Witnesses:

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