

N. WIARD.

Elevating-Screws for Ordnance.

No. 157,052.

Fig. 1.

Patented Nov. 17, 1874.

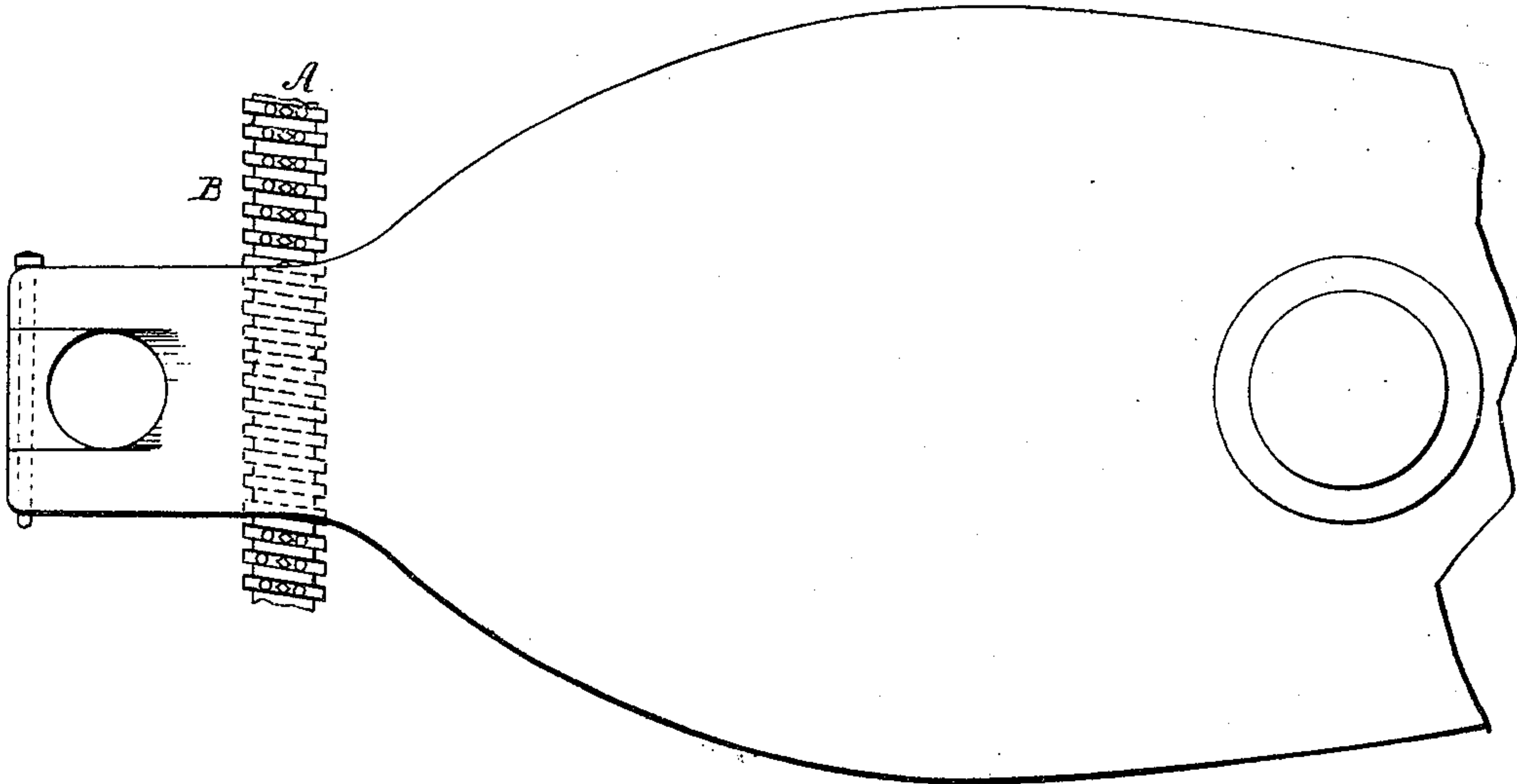
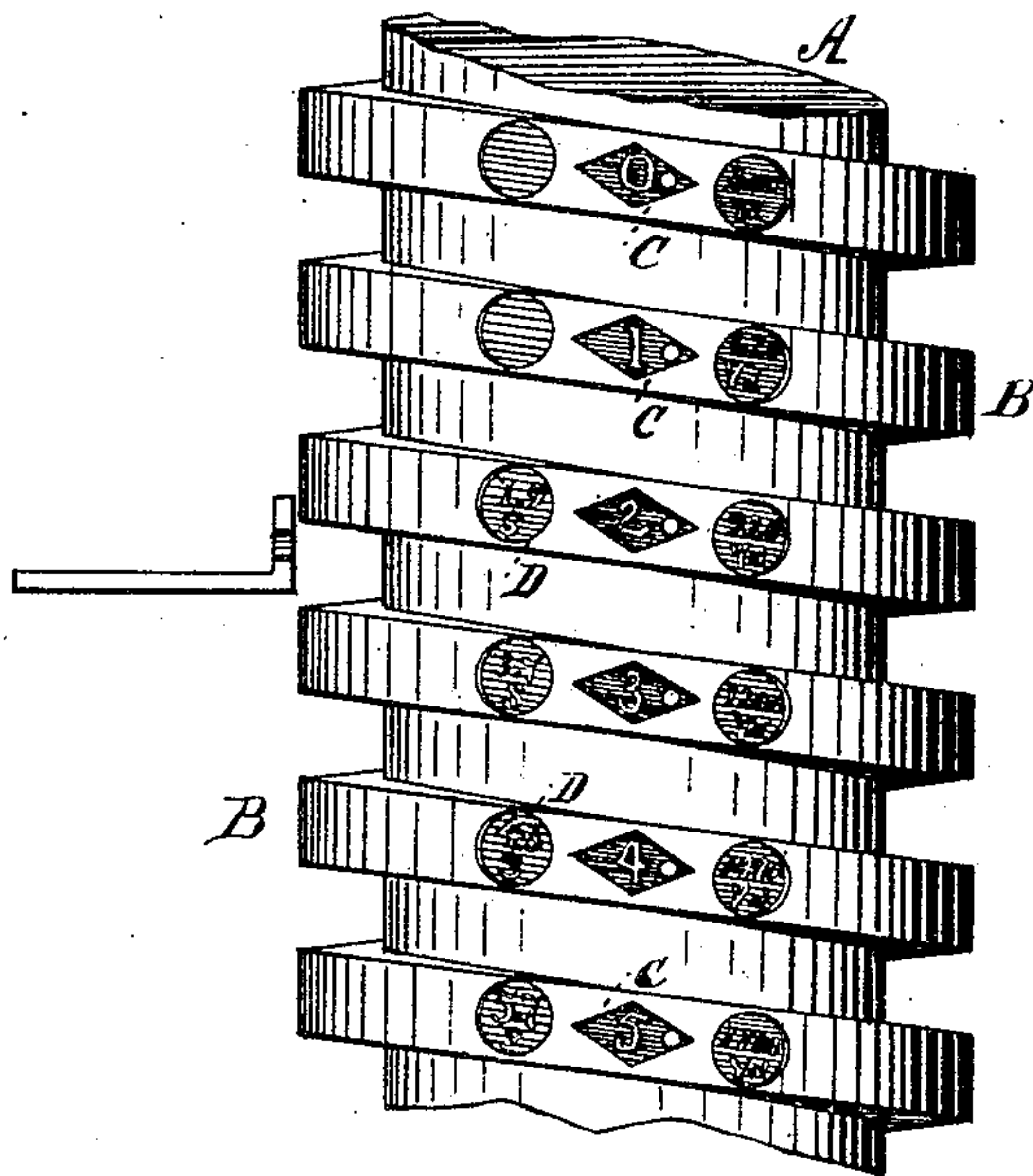


Fig. 2.



WITNESSES

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# UNITED STATES PATENT OFFICE.

NORMAN WIARD, OF WASHINGTON, DISTRICT OF COLUMBIA.

## IMPROVEMENT IN ELEVATING-SCREWS FOR ORDNANCE.

Specification forming part of Letters Patent No. **157,052**, dated November 17, 1874; application filed August 18, 1874.

*To all whom it may concern:*

Be it known that I, NORMAN WIARD, of Washington, in the District of Columbia, have invented certain new and useful Improvements in Elevating-Screws for Guns, of which the following is a specification:

My invention relates to a new and improved elevating-screw for guns, to determine the angle of the same for the gunner; and its object is to dispense with the expensive quadrants, sextants, and other instruments heretofore used, and at the same time furnish the gunner with a reliable means of determining and noting the elevation of the gun, for the purpose of correctly aiming the same.

My invention consists of a certain improvement in elevating-screws for ordnance; and it consists in constructing upon the periphery of the screw-thread of such screws suitable figures or characters at certain determinate intervals, for indicating or ascertaining the elevation of the gun.

It is preferable to place the numbers, figures, or characters on the periphery of the threads throughout the entire length of the screw, and at such determinate distances apart as to indicate the elevation of the gun at each quarter turn or revolution of the screw.

In the drawing, Figure 1 represents a view of the breech of a gun with my screw applied, and Fig. 2 represents a detached view of the screw.

A represents the screw, and B the threads upon the same. C C represent depressions or cavities, which are marked to indicate the elevation of the gun. These depressions are marked at each quarter of the screw as follows: 0,  $\frac{1}{4}$ ,  $\frac{3}{4}$ , 1,  $1\frac{1}{4}$ , &c., throughout the entire length of the screw, as shown. These cavities and these figures are cast or otherwise formed in the metal of the screw, the figures being flush or on a plane with the surface of

the screw-threads, so that they may be kept bright by the rotation of the screw, in order that they may be readily discernible at all times. The spaces around said letters form receptacles for the oil, and assist lubrication. At each side of the cavities C C, I form similar cavities D D, which I mark with the time of flight of the projectile, and the range or distance to which the gun carries at the different elevations. The depressions or cavities thus marked will indicate, first, the time of flight; second, the elevation of the gun; and, third, the range or distance.

I have described one method of forming the figures, or marking the screw; but it is evident that any method of marking the same, so as to indicate the elevation, or the time of flight, or range of the gun, can be employed.

The figures may be countersunk or depressed in the metal of the screw without surrounding them with the cavities, although I prefer the form above described and set forth.

It is evident that the screw may be marked at other intervals than quarters, if desired, to indicate larger or smaller degrees of elevation, without departing from my invention; and I do not limit myself to the screw marked only at quarters on its periphery; but

I claim broadly—

An elevating-screw for ordnance, guns, &c., having the periphery of its screw-thread provided with figures or characters at certain determinate intervals, for indicating or ascertaining the elevation of the gun, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand.

NORMAN WIARD.

Witnesses:

ALBERT H. NORRIS,  
JAMES L. NORRIS.