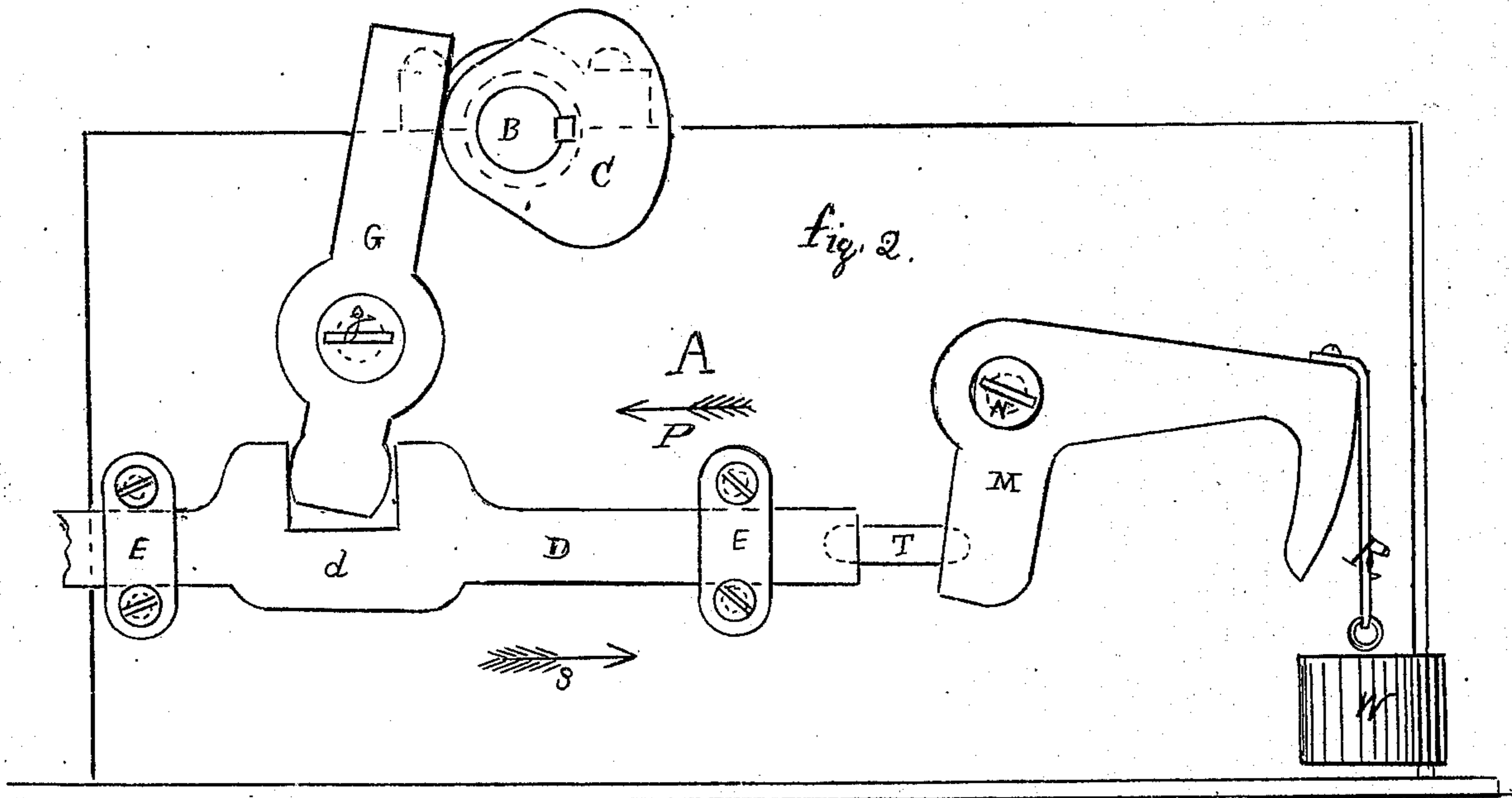
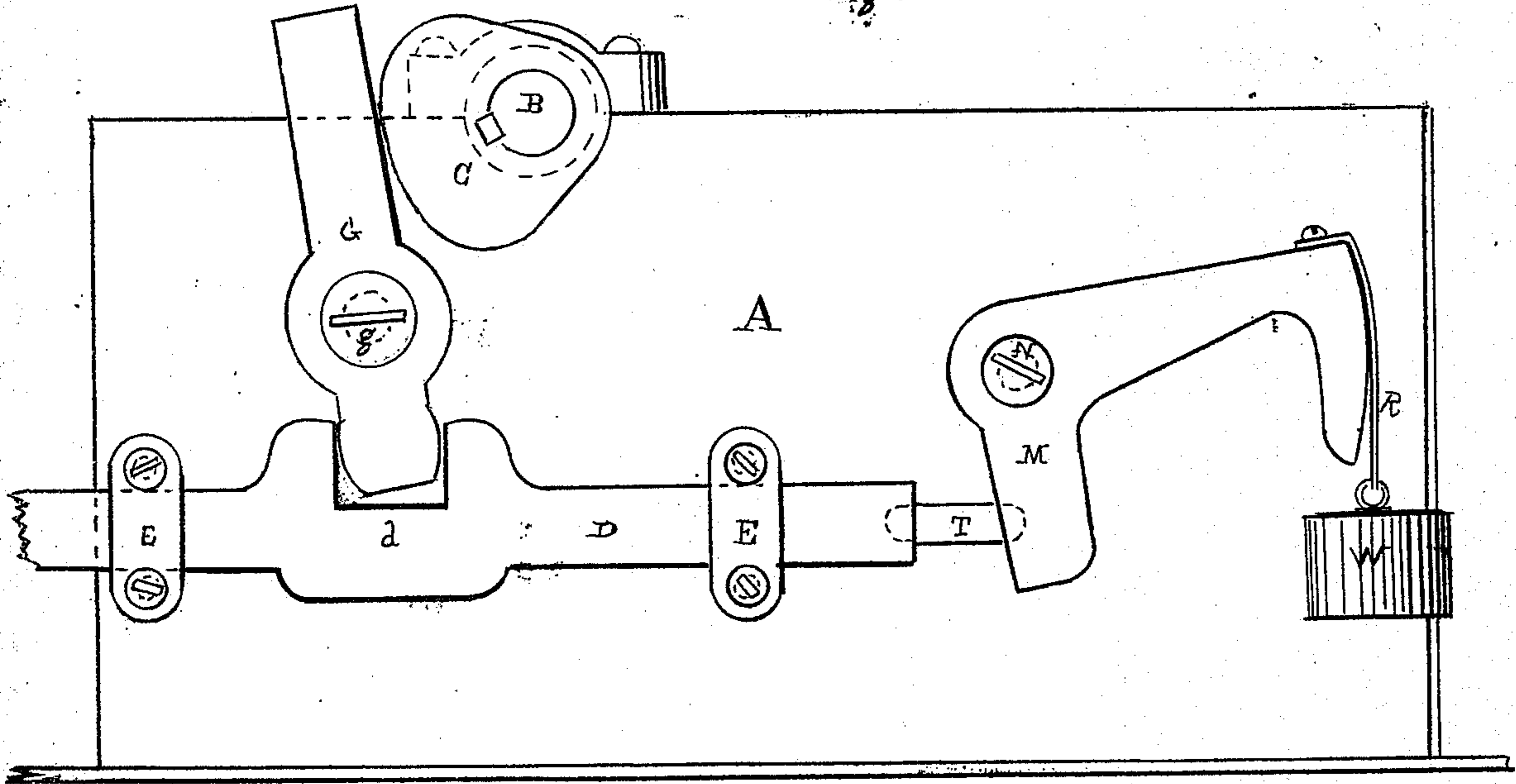


Abram Alexander's improvements in
BOLT MAKING MACHINE. (B.)
 PATENTED

72153

DEC 17 1867 *fig. 1.*



Witnesses { *Jo. Snodden*
Wm. Snodden

Inventor Abram Alexander

United States Patent Office.

ABRAM ALEXANDER, OF PITTSBURG, PENNSYLVANIA.

Letters Patent No. 72,153, dated December 17, 1867.

IMPROVEMENT IN MACHINES FOR MAKING BOLTS.

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, ABRAM ALEXANDER, of the city of Pittsburg, county of Allegheny, and State of Pennsylvania, have invented certain Improvements in Bolt-Making Machine; and I do hereby declare that the following is a full and exact description thereof.

This invention relates to an improvement in that part of a bolt-making machine which is designed to operate on the griping-dies opening and closing machinery; and it consists in the following combination and arrangement of lever, cam, and weight, by which no accidental breaking of the machine can take place from the careless or accidental fouling of the griping-dies by blanks or other obstructions.

A is the frame of the bolt-making machine; B is the shaft, and C is the cam intended to operate the closing and opening machinery of the griping-dies; D is a bolt or sliding bar, working freely in the guides E E. This bar, D, is connected to and operates upon the griping-dies closing and opening machinery of the bolt-making machine in the manner described in my application for patent for the same; and all that is necessary to our present purpose is to know that the bar D, in moving in the direction of the arrow P, will close the dies, and that when it moves in the direction of the arrow S, it will open the dies. G is a lever, pivoted on the bolt g fast to the frame A. The lower part of the lever G is engaged in a notch, d, in the bar D, so that an oscillating motion given to the lever G will cause the bar D to slide in the direction of the arrows P or S. T is a small piece or toggle-pin engaged in proper recesses in the end of the bar D and in the lever M, to connect the same together. The lever M is pivoted on the bolt or pin N, and it has a chain, spring, or belt, R, fastened to its end, and to which is suspended the weight W, as represented in my drawings.

In my improved bolt-machine, for which I have made application for patent, the bolt-piece D (marked in that application P) receives its motion in both directions (arrows P and S) in an immovable, rigid, and limited manner from the action of a cam; in other words, the cam is made to act as well for opening as for closing the dies, and it is evident that if any impediment is placed to the closing of said dies, something has to break in the machine. In my present improvement, the cam C acts only in one direction on the bar D through the lever G, and that in the direction of arrow S, for opening the dies, keeping them open as long as necessary by the full-stroke shape of the cam; but the motion required for closing the dies (i. e., the motion in the direction of the arrow P) is obtained from the weight W acting on the lever M, and through the toggle-pin T on the bar D, so that any fouling of the griping-dies will only prevent the weight from falling, and its position, as in Figure 1, will indicate at once that something is wrong, but no breaking of any parts of the machine can ever occur from the bolt-blank being introduced in an improper manner in the griping-dies.

Claim.

What I claim as my improvement is—

The combination and arrangement of the cam C, levers G and M, bar D, and pin T, with the weight W, or a spring, acting substantially in the same manner, when used and applied to operate the griping-dies closing machinery described in my improved bolt-making machine, or any other, substantially the same.

ABRAM ALEXANDER. [L. s.]

Witnesses:

CH. S. SNOWDEN,
JOS. SNOWDEN.