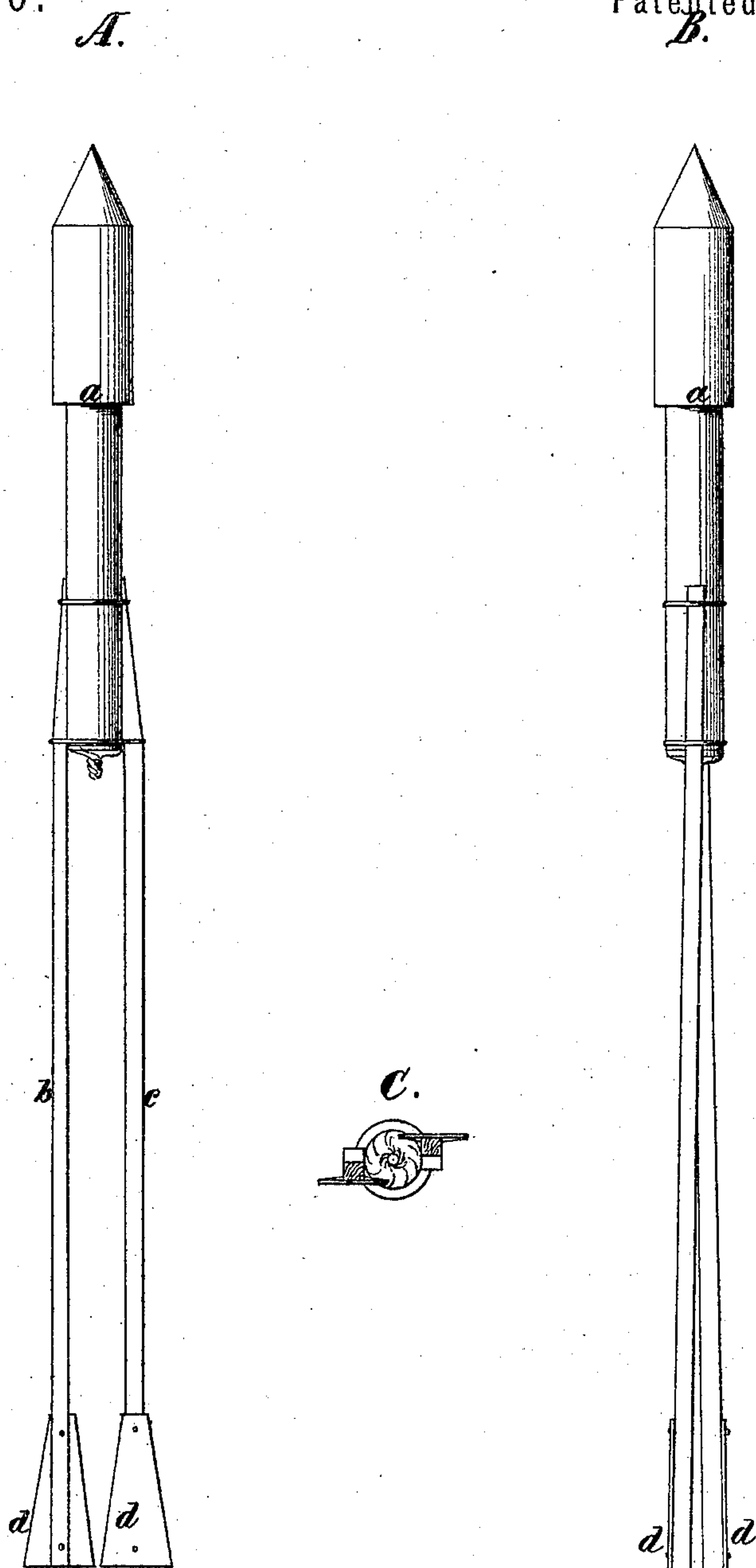


CORNELIUS E. MASTEN.
Improvement in Rockets.

No. 119,630.

Patented Oct. 3, 1871.



Witnesses.

Jas. D. Patton.
D. R. Cowle

Inventor.

C. E. Masten
by his Atty
J. J. Halsted

UNITED STATES PATENT OFFICE.

CORNELIUS E. MASTEN, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN ROCKETS.

Specification forming part of Letters Patent No. 119,630, dated October 3, 1871.

To all whom it may concern:

Be it known that I, CORNELIUS E. MASTEN, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Rocket; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

In the manufacture of rockets it is customary to attach to the composition-containing case a long light wooden rod to guide the rocket in its flight, this rod being attached to one side of the case. It is found, however, in practice, that unless the rod is made very long and thin the flight of the rocket is irregular, while such length and thinness do not insure sufficient strength. The object of my improvement has been to make a rocket which will be short and portable and the flight of which will be free from irregular deviations, and, being thus free, will be much longer than the flight of ordinary rockets having the same amount of explosive or combustible composition. In the rocket devised to attain these results I employ two sticks, one attached to each side of the composition-case, the sticks being made very much shorter than those of ordinary rockets, each stick being fastened to the case so that it stands at a slight angle to the side of the case, and upon the lower end of each stick I fasten a vane or blade, the two vanes causing the rocket to rotate (axially) as it flies, such rotation insuring its flight in a true course, free from irregular deflection. It is this construction that constitutes my improvement.

A and B show the rocket in side elevation. C is an end view of it. *a* denotes the case for

containing the composition, made and charged in the usual manner. *b c* denote the two sticks fastened upon opposite sides of the case *a*, and so that they deflect in opposite directions from an axial plane, as seen at B. The sticks are or may be about the same length as the case *a*, and at the end of each is a small triangular guide-vane or thin blade, *d*, (which may be made of paste-board,) tacked upon the outer side of the sticks, the two vanes standing in or about in parallel planes, as seen at C. The form and position of these vanes cause the rocket, by the resistance of the air against their surfaces, to turn axially in its flight, much the same as the spiral groove in a rifle-barrel causes the projected rifle-ball to turn, and they thus keep the rocket-case in true line or curve. Rockets thus made are not only more accurate in their flight, but are far less fragile than the long-stick rockets, and can be packed in short boxes and packages, rendering them much more portable. On account of their short length they are much more easily fired, and are less liable to be misdirected in starting.

I claim—

1. A rocket having opposite sticks, *b c*, rigidly affixed to the rear of the rocket, and inclined relatively to its axis, substantially as shown and described.

2. In combination with such opposite inclined sticks *b c*, the guiding-vanes or blades *d* on the rear end of the sticks, substantially as shown and described.

CORNELIUS E. MASTEN.

Witnesses:

FRANCIS GOULD,
M. W. FROTHINGHAM.

(33)