

C. T. JAMES.  
Projectile.

No. 34,207.

Patented Jan. 21, 1862.

Fig. 2.

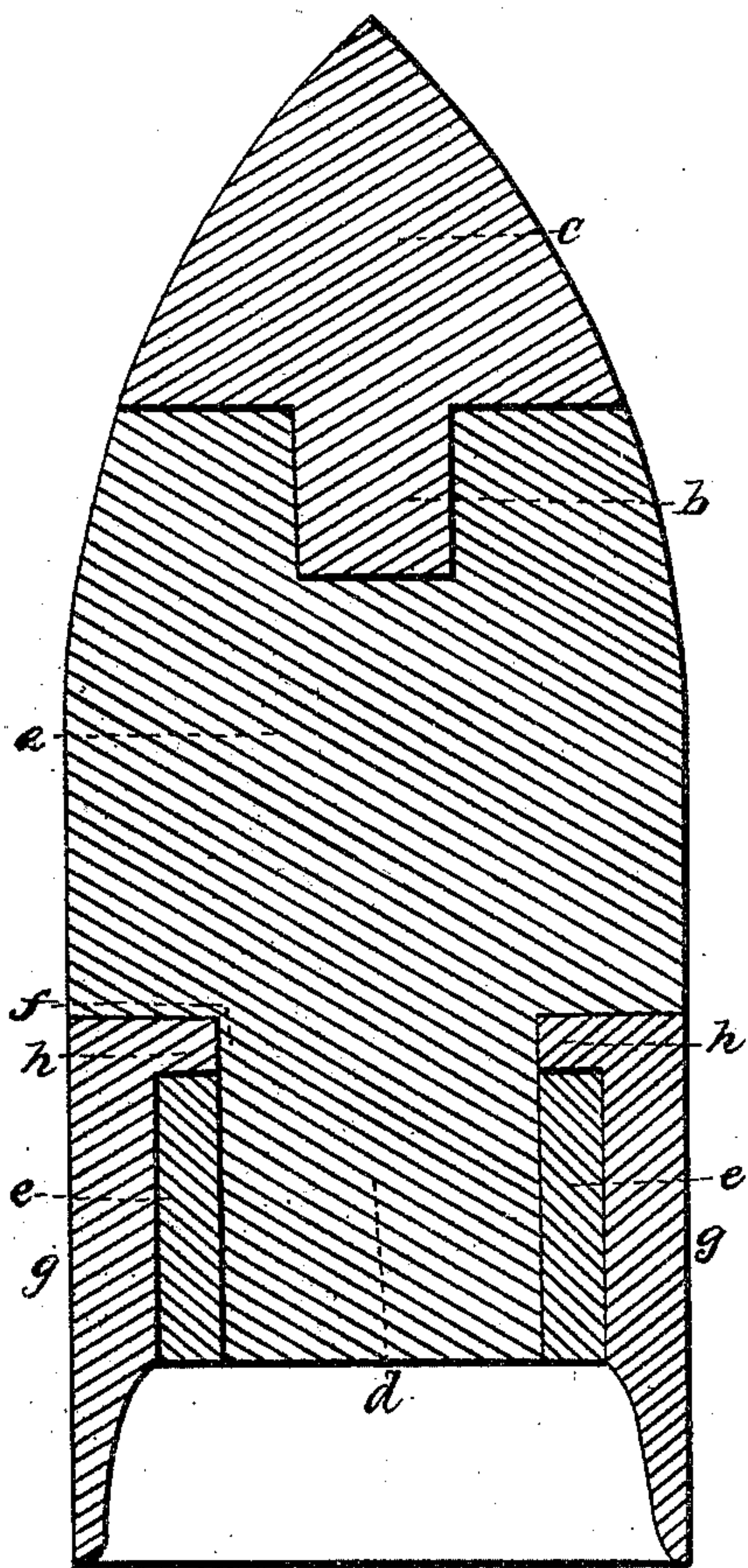


Fig. 1.

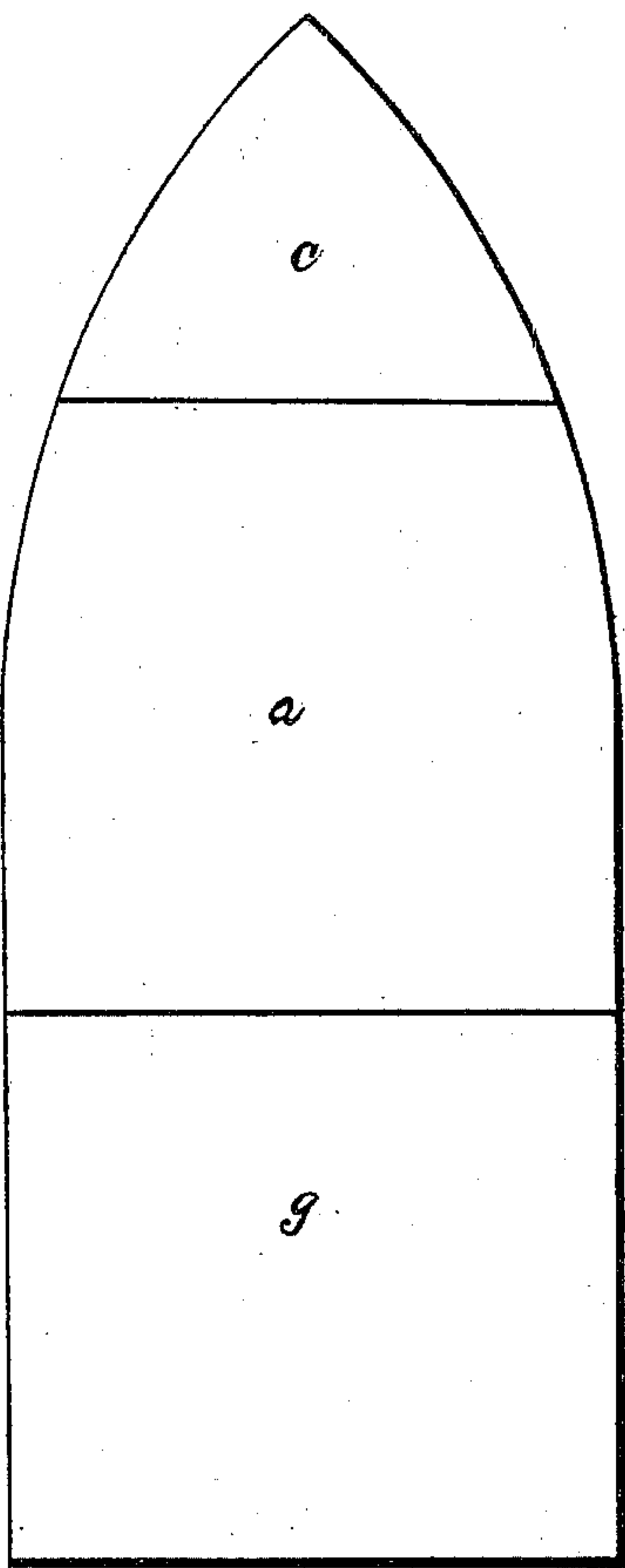
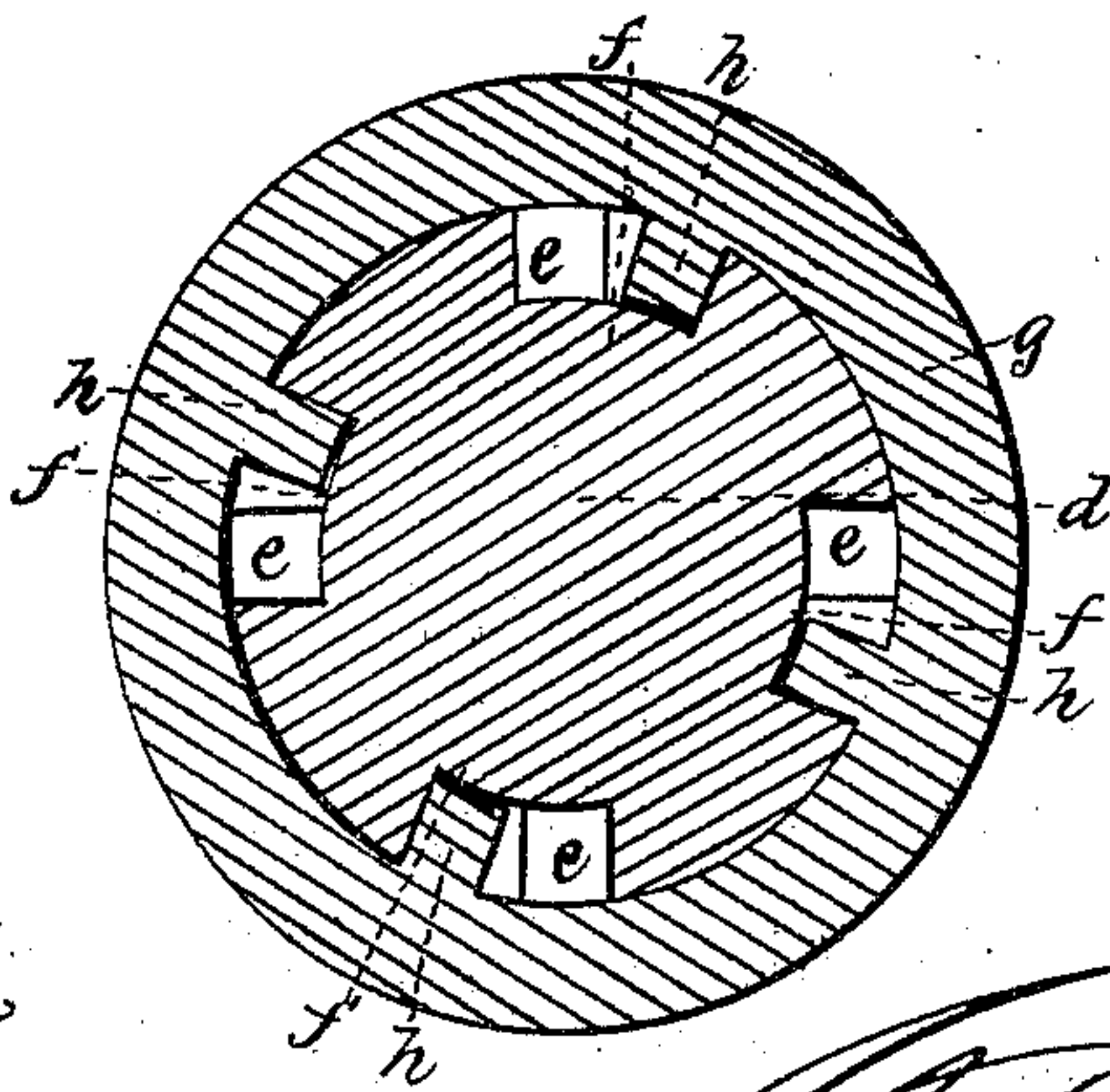


Fig. 3.



Witnesses:

*Wm. H. Bishop*  
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Inventor:

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# UNITED STATES PATENT OFFICE.

CHARLES T. JAMES, OF PROVIDENCE, RHODE ISLAND.

## IMPROVEMENT IN HOT PROJECTILES FOR ORDNANCE.

Specification forming part of Letters Patent No. 34,207, dated January 21, 1862.

*To all whom it may concern:*

Be it known that I, CHARLES T. JAMES, of Providence, in the State of Rhode Island, have invented a new and useful Improvement in Projectiles for Firing Hot Shot; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is an elevation of my improved projectile; Fig. 2, a longitudinal and Fig. 3 a cross section thereof.

The same letters indicate like parts in all the figures.

My said invention consists in making elongated shot with a separate point, which can be readily taken off and put on, so that the body of the shot can be heated and the point put on while cold, thus producing shot which, when fired in the heated state, will possess a penetrating-power equal or nearly equal to shot fired in the cold state.

In the accompanying drawings, *a* represents the body of the shot with a cavity in the forward end to receive a plug, *b*, projecting from the rear end of the separate point *c*. The body *a*, I prefer to make of cast-iron, and the point *c* of steel or chilled cast-iron. After the body of the shot has been heated to a red heat in the usual way, the cold point is put on, and the shot is ready to be put in the cannon and fired, so that in the short time required between the putting on of the point and the discharge the point cannot be heated by conduction to a sufficient degree to materially affect its hardness. In this way I am enabled to combine in one shot the property of hardness required for effectually penetrating objects fired at with the heat required for setting fire to objects fired at. The rear end of the body *a* is formed with a projecting and concentric stem *d* of a cylindrical or nearly cylindrical form with longitudinal grooves *e*, which grooves at the forward end extend for a short distance at right angles, as at *f*. A cylindrical sleeve, *g*, made of wrought-iron or other

malleable metal, and of equal diameter with the cylindrical part of the body of the shot, is fitted loosely on the stem *d*, and provided with projections *h* to fit on the grooves *e*, so that the said sleeve can be put on and fastened in the manner of what is known as a "bayonet-joint." The rear end of this sleeve extends some distance back of the rear end of the stem, and this projecting part is made sufficiently thin to answer the purpose of an expansible packing-ring to be expanded by the force of the explosion of the charge, so as to shut out windage, and take the grooves of the bore of the cannon, if rifled, to give the required rotary motion to the shot.

Any other mode of expanding a part of the projectile to shut out windage and to take the grooves of the bore may be substituted for the one above described, as I do not wish to be understood as limiting my claim of invention in this application to the use of any special mode of packing the shot by the act of firing; and it will be obvious from the foregoing that the separable point to be applied to the body of the shot when heated can be used without any mode of packing the shot, although such a projectile, when used without some suitable means of packing to take the grooves of the bore, would not be very efficient in service.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Making elongated shot with a separable point which can be readily taken off and put on, substantially as and for the purpose specified.

2. Making elongated shot with a separable point, substantially as described, in combination with the separable packing, or the equivalent thereof, to be expanded by the force of the discharge, substantially as and for the purpose specified.

CHAS. T. JAMES.

Witnesses:

WM. H. BISHOP,  
A. DE LACY.