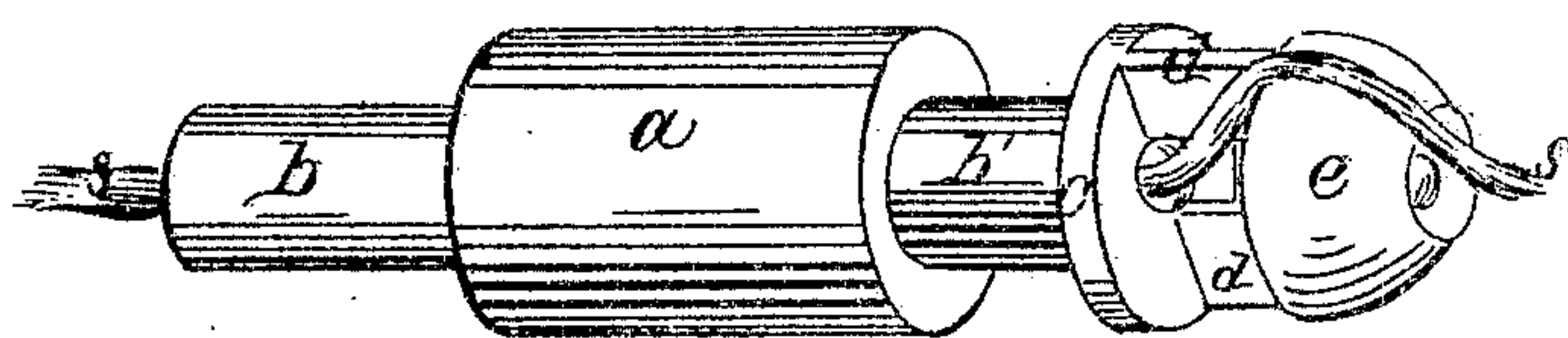


No. 69,205.

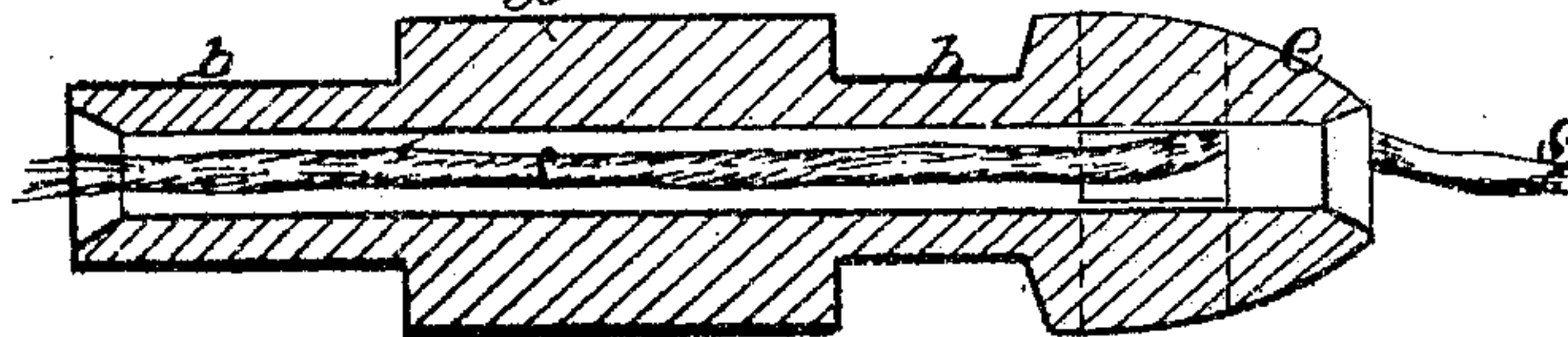
PATENTED SEPT. 24, 1867.

W. GERMAIN.  
CONDENSING TUBE FOR CARDING MACHINES.

*Fig. 1.*



*Fig. 2.*



Witnesses:  
Edw. Adams  
David. Kellerer

Inventor:  
Wm. Germain.  
by J. H. Adams  
Att'y

# United States Patent Office.

WILLIAM GERMAIN, OF ROCKBOTTOM, MASSACHUSETTS.

*Letters Patent No. 69,205, dated September 24, 1867.*

## IMPROVEMENT IN CONDENSING-TUBES FOR CARDING MACHINES.

*The Schedule referred to in these Letters Patent and making part of the same.*

Be it known that I, WILLIAM GERMAIN, of Rockbottom, in the county of Middlesex, and State of Massachusetts, have invented a new and useful Improvement in Condensing-Tubes for Wool-Carding Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a perspective view of a condensing-tube showing my improvement, and

Figure 2 is a longitudinal section of the same.

The object of my invention is to prevent the strand of wool, as it passes from the condensing-tube, from breaking or becoming roughened on its edges, and also to make the tube more durable and efficient in operation than those now in common use; and the invention consists in constructing the head of the tube of a conoidal or cup-shaped form, the same being attached to the body of the tube by means of connecting pieces or arms, so that the whole may be cast in one piece.

The head of the condensing-tube, as commonly made, consists of a bail made somewhat in a U form, with a bar across its central portion, over which the strand passes from the main body of the tube. In its passage over the edges of the said bar the strand is liable to be broken or cut upon its sides into small "twists," thereby imparting an imperfect finish to the yarn when spun. The bail is made separate from the body of the tube, and riveted or otherwise fastened thereto. It is thus liable to become loosened, and frequently breaks when brought suddenly and violently in contact with the rolls which take the strand from the tube.

Fig. 1 in the drawings represents a condensing-tube constructed mainly in the ordinary manner. *a* is the portion that takes the belt or band by which the tube is rotated. *b b'* are the journals of the tube, which rest in suitable bearings. The outer or condensing portion of the tube is formed of a circular disk or shoulder, *c*, with two arms or connecting pieces *d*, and a conoidal or cup-shaped head, *e*, all as shown in the drawing. The whole may be cast in one piece, thus rendering it very substantial, and not liable to break by coming in forcible contact with the rolls. The tube may be made of wood, metal, or other suitable material. The strand *s* passes through the main body of the tube, out by the shoulder *c*, and thence over the curved head *e* to the rolls. The conoidal or curved shape of the head *e* allows the strand to pass over a smooth surface, so that it will not be liable to break or be cut on its edges into small twists, thereby rendering the strand very even as it is passed to the rolls, and insuring a more perfect finish to the yarn when spun.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A condensing-tube in wool-carding machines formed with a conoidal or cup-shaped head, *e*, substantially in the manner and for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM GERMAIN.

Witnesses:

J. H. ADAMS,

EDW'D F. ADAMS.