

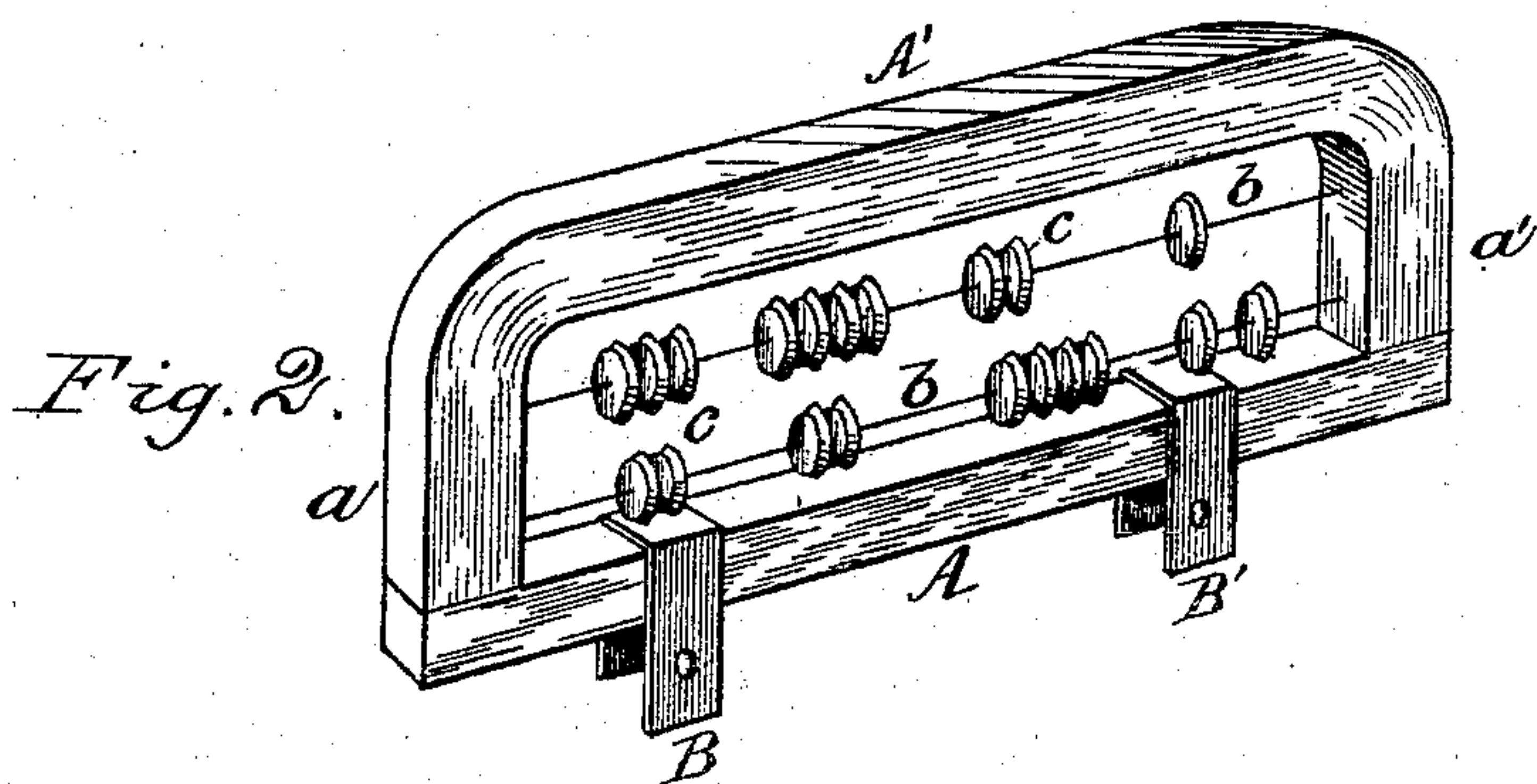
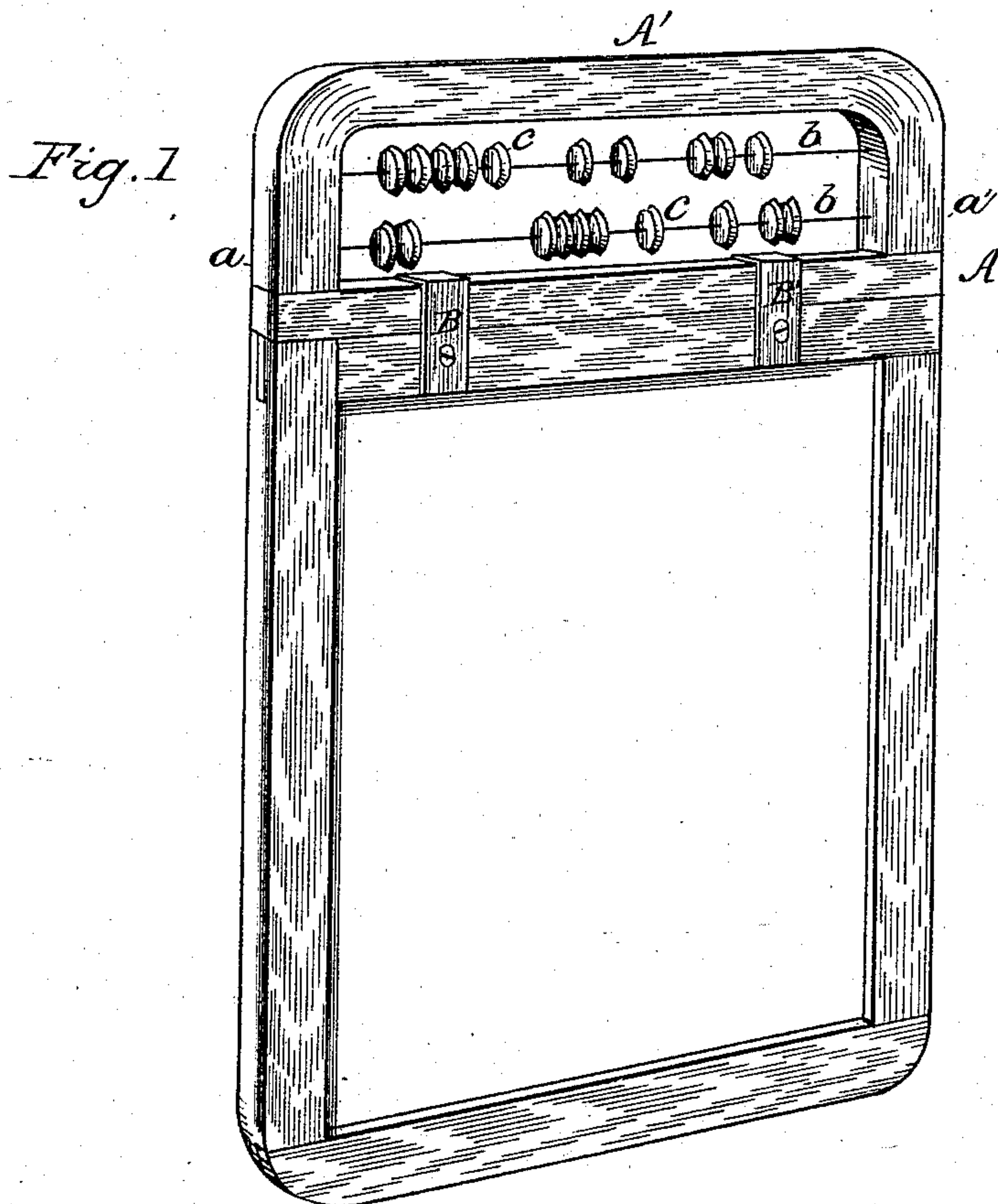
(No Model.)

H. STEWART.

ABACUS ATTACHMENT FOR SCHOOL SLATES.

No. 271,749.

Patented Feb. 6, 1883.



Witnesses:

J. W. Reynolds, Jr.  
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per C. C. Coffey  
att'y



# UNITED STATES PATENT OFFICE.

HENRY STEWART, OF ERIE, PENNSYLVANIA.

## ABACUS ATTACHMENT FOR SCHOOL-SLATES.

SPECIFICATION forming part of Letters Patent No. 271,749, dated February 6, 1883.

Application filed November 15, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY STEWART, of Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Abacus Attachments for School-Slates; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention is for an attachment to common school-slates, which I term "Abacus Attachment for Slates;" and it has for its object to assist in imparting to young pupils in schools the elementary principles of arithmetic.

As is well known, an abacus is a calculating-machine used in school-rooms to facilitate arithmetical computation, or, in other words, a machine for expressing the properties and relations of numbers with objects. This method is often used in common schools to aid the "primary" in grasping the first principles of addition, subtraction, &c., but is usually on a large machine that is rolled about the school-room or upon one in the hands of the teacher.

My invention consists in providing a neat and uncumbersome attachment to slates, whereby every scholar can be provided with one, which will add greatly both to the teachers and scholars in accomplishing the result desired.

Referring to the drawings, Figure 1 is a perspective view of my improved attachment as secured to a slate; and Fig. 2 is a perspective view, showing it detached.

A and A' constitute the frame of the abacus attachment, made of any kind of wood or any material, in one or more parts, into any desired shape, either somewhat in the form of an inverted bow, as shown, or otherwise, and of length either of the width of the slate or of its length. Extending between the two arms or shorter sides, *a* and *a'*, of the frame is a wire or wires, *b*, upon which are strung a number of balls or counters, *c*, which are adapted to slide back and forth on the wire. The object

of the balls so strung, as before mentioned, is to help the primary to add, subtract, divide, or multiply. These balls are unnumbered, and have no characters whatever upon them, they being plain, as by the use of balls or counters having numerals or representations upon them the scholar confuses the character on the balls with the number of balls—that is, between the quantity desired to express a number with the symbol which stands for that number. Thus in calculations the presence of characters on the balls is confusing when by a mental effort they have to be disregarded. Children also may acquire the trick of reading the number on the last ball of a series, and thus give a correct answer without at all appreciating the quantity expressed by the numerical character they make use of in their reply, which would not be the case if they could arrive at their conclusions only by counting on unnumbered balls. By these means it will be seen that the use of counters without characters on them is a great improvement in object-teaching. Across the bottom of the two arms *a* and *a'* of the abacus attachment is the piece or portion A, to which are secured, by screws or otherwise, "spring-brass" clips or clamps B and B', by which the attachment is fastened to the slate-frame, and is adapted to be put on and taken off at will.

I am aware that sliding pieces in a slate-frame have been used; but the pieces have either numerals or characters on them; and I am also aware that unnumbered counters in an abacus are not new, and such I do not broadly claim; but it is thought that the idea of an abacus attachment to a school-slate having unnumbered counters is new.

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

1. As an attachment to a school-slate, an abacus or calculating-machine, the frame A A', having strung upon a wire therein one or more series of unnumbered counters, in combination with the fastening devices whereby the abacus may be fastened to the slate, substantially as described.

2. An abacus or calculating device composed of the frame A A', the wire or wires *b*,

having strung upon them the unnumbered counters *c*, and the fastening devices B B', substantially as specified.

3. The combination, with a school-slate, of  
5 an abacus or calculating device, constructed as described, having the devices B B' for attachment to said slate, substantially as and for the purpose described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two 10 witnesses.

HENRY STEWART.

Witnesses:

CLARK OLDS,  
S. M. BRAINERD.