(No Model.)

F. A. SMITH, Jr.

CHUTE FOR BUTTON ATTACHING MACHINES.

No. 372,045. Patented Oct. 25, 1887.

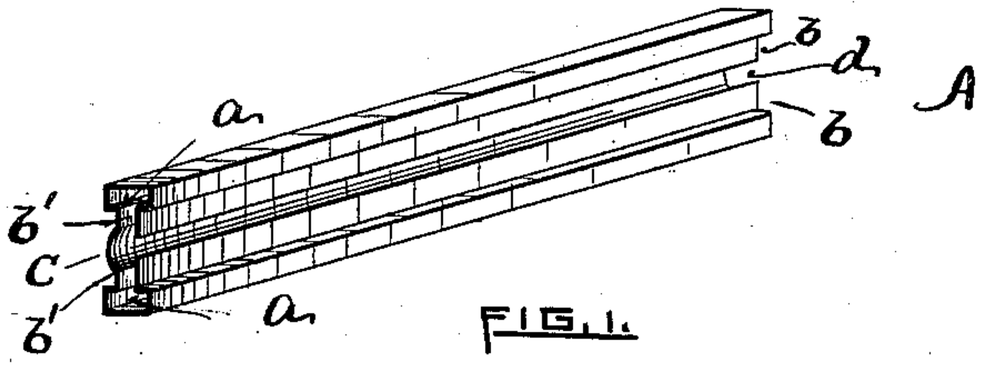

FIG. 1.

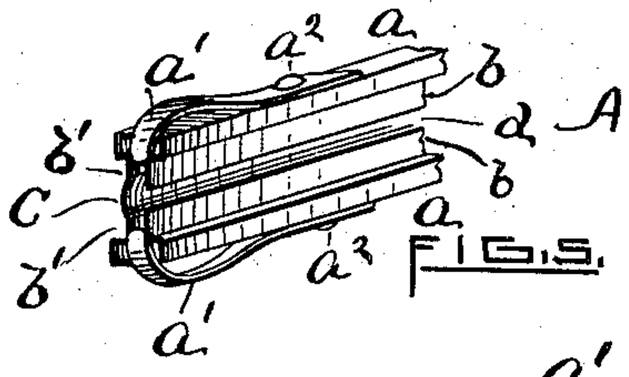

FIG. 5.

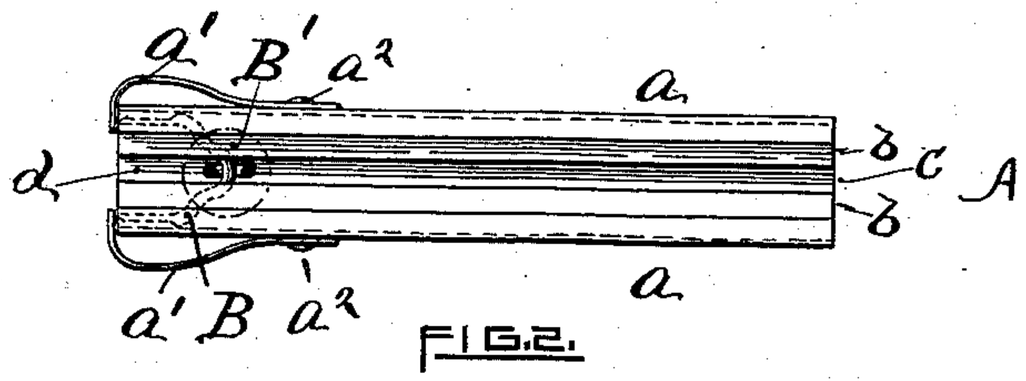

FIG. 2.

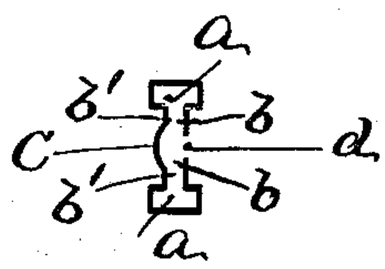

FIG. 3.

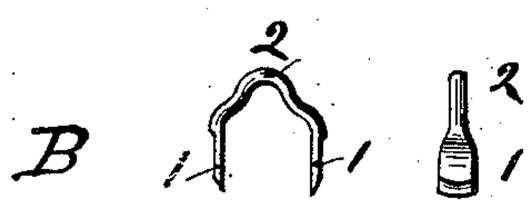

FIG. 4.

WITNESSES,

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FRANKLIN A. SMITH, JR., OF PROVIDENCE, RHODE ISLAND.

CHUTE FOR BUTTON-ATTACHING MACHINES.

SPECIFICATION forming part of Letters Patent No. 372,045, dated October 25, 1887.

Application filed April 23, 1887. Serial No. 235,855. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN A. SMITH, Jr., a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Staple-Fastener-Holding Tubes or Chutes; and I do declare the following to be a full, clear, and exact description of the invention, such as 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 and figures of reference marked thereon, which form a part of this specification.

This invention relates to a new and improved tube or chute designed to receive a number of staple-fasteners having buttons loosely connected with the same and to retain said buttons and fasteners preparatory to being removed therefrom for the purpose of being secured to a boot, shoe, or other article, and to serve as a guide or raceway through which the said fasteners may be fed into position in a machine to be thus secured.

My improvement is particularly adapted to be employed in connection with the button-fastening staple patented February 15, 1887, No. 357,626, to which reference may be had. The staple described therein consists of a crown or arch and two broadened spade-shaped prongs, the cutting edges or faces of which are at right angles to the length of the staple. The crown or arch of the staple is formed central with the broadened prongs.

It has been found by experiment that in order to prevent the staple from turning around and clogging in the tube, and also to admit the free passage therethrough, the interior of the tube must be made to conform as nearly as possible with the form of the fastener, and in this case it is necessary to provide wide edge openings for the broad prongs of the staple and a correspondingly-reduced portion for the crown or arch of said staple, and to form said reduced portion central in cross-section with said edge openings to obtain the required results.

To this end my improvement consists, essentially, of a tube or chute the interior of which is provided at each edge with a rectangular opening formed longitudinally therethrough its entire length, the middle portion of said tube being formed narrower than said edge openings and formed central therewith, one side of said narrowed or reduced portion being provided with a slot opening into the interior of said reduced portion, the opposite side being provided with a groove or depression located directly opposite said slot and in line therewith, said slot and groove being formed longitudinally the entire length of the tube, the edge openings being adapted to receive and serve as a guide for the broadened prongs of the staple, and also to prevent said staple from turning in the tube, and thereby becoming disconnected from a button loosely engaged therewith, while the narrowed or reduced portion of the tube holds the crown or arch of the staple central with said prongs, the slot and groove acting as a guide to hold the eye-shank of the button and prevent it from turning laterally, and thereby clogging the fastener, all as will be hereinafter more fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of my improved tube or chute. Fig. 2 is a plan view of the same with staple-retaining springs attached, also showing in dotted lines a connected button and staple. Fig. 3 represents a section of Fig. 1. Fig. 4 is a front view and side elevation of the staple designed to be used in connection with my improved tube or chute. Fig. 5 is a perspective view of Fig. 2, the button and staple being omitted.

A represents my improved tube or chute, and B, Fig. 4, the staple designed to be used in connection therewith. The tube or chute is preferably formed from sheet metal. The interior is formed at each edge with end openings, *a a*, rectangular in cross-section and large enough to receive the broad spade-shaped prongs 1 1 of the staple B, the longest dimensions of the edge openings, *a a*, in cross-section being parallel with each other.

The flat sides of the chute are provided on one side with a central longitudinal slot, *d*, and on the other side with a groove, *c*, for the passage of the eye-shank of the button, and narrow ways *b b* and *b' b'* on each side of said slot and groove to support the crown or arch 2 of the staple B, as fully shown in Fig. 3, the rectangular edge openings, *a a*, projecting both above and below the body of the tube or chute

and adapted to receive the broadened prongs 1 1 of the staple, as fully shown in the same figure.

The position of the connected staple and button in the tube is shown in Fig. 2 of the drawings, the same being shown in dotted lines. The broad spade-shaped prongs 1 1 rest in the edge openings, *a a*. The crown or arch 2 of the staple occupies the reduced portion between the surfaces *b* and *b'*, while the eye-shank of the button moves in the slot *d* and groove *c*. The surfaces *b* and *b'* being centrally formed relative to the edge openings, *a a*, and the crown or arch 2 of the staple being also centrally located with the broad prongs 1 1 of said staple, a perfect freedom of movement is thereby attained of the staple in said tube. The rectangular edge openings readily receive the broad prongs of the staple and the reduced portion of the tube prevents said staple from turning over in the tube. The shank-eye of the button loosely connected to said staple moves freely in the slot *d* and groove *c*, the button being outside said tube. Said slot also prevents said button from turning laterally in the tube. A number of buttons and staples can thus be loosely connected together and placed in the tube ready for use when required, and thus obviate the necessity of connecting them one by one when desired to be used for attachment. The tube or chute may be employed independent or in connection with an organized machine as a raceway or guide-chute for the fastener. When desired to be used independent of the button, the slot *d* and groove *c* may be omitted.

For the purpose of retaining the staples in the tube preparatory to being used, one end of the tube is provided with springs *a' a'*, secured at a^2 to said tube, the free end of the springs overhanging the end of the edge openings, *a a*, and thus retain the fasteners in the tube. The springs yield sufficiently when force is applied to allow the staple and button to be removed intermittently from the tube when required. The opposite end of the tube is left open for the ready entrance of the fasteners and buttons therein, as fully shown in Figs. 2 and 5 of the drawings.

I am aware of Patent No. 344,600 of June 29, 1886, granted Samuel Schwab, for improvements in machines for fastening buttons. I do not claim a raceway constructed as therein shown and described.

Having described my invention, I claim—

1. A button and fastening holding tube or chute formed with a central longitudinal slot on one and a groove on the other of its flat sides for the passage of the eye-shank of a button, narrow ways on each side of the slot and groove to support the crown or arch of the staple, and rectangular edge openings projecting both above and below the body of the tube or chute for the broadened prongs of the staple, substantially as specified.

2. A button and fastener holding tube or chute formed with a central longitudinal slot on one side for the passage of the eye of the button, narrow ways on each side of the slot for the passage of the crown or arch of the staple, and rectangular edge openings projecting both above and below the body of the tube or chute for the broadened prongs of the staple, substantially as herein specified.

3. A button and fastener holding tube or chute formed with a central longitudinal slot on one and a groove on the other of its flat sides for the passage of the eye-shank of a button, narrow ways on each side of said slot and groove to support the crown or arch of the staple, and rectangular edge openings projecting both above and below the body of the staple, one end of said tube or chute being provided with a spring on each side overlapping said edge openings to retain a fastener and button in said tube or chute, substantially as set forth.

4. The tube or chute A, herein described, comprising the rectangular edge grooves or ways, *a a*, bearing-surfaces *b* and *b'*, slot *d*, and groove *c*, and the springs *a'* and *a'*, formed as described, and for the purpose specified.

In testimony whereof I affix my signature in the presence of two witnesses.

F. A. SMITH, JR.

Witnesses:
JAS. F. THAYER,
CHARLES GREENE.