

A. ANNANDALE, Jr.

Modes of Repairing the Slits of Knotter Plates.

No. 148,643.

Patented March 17, 1874.

Fig. 1.

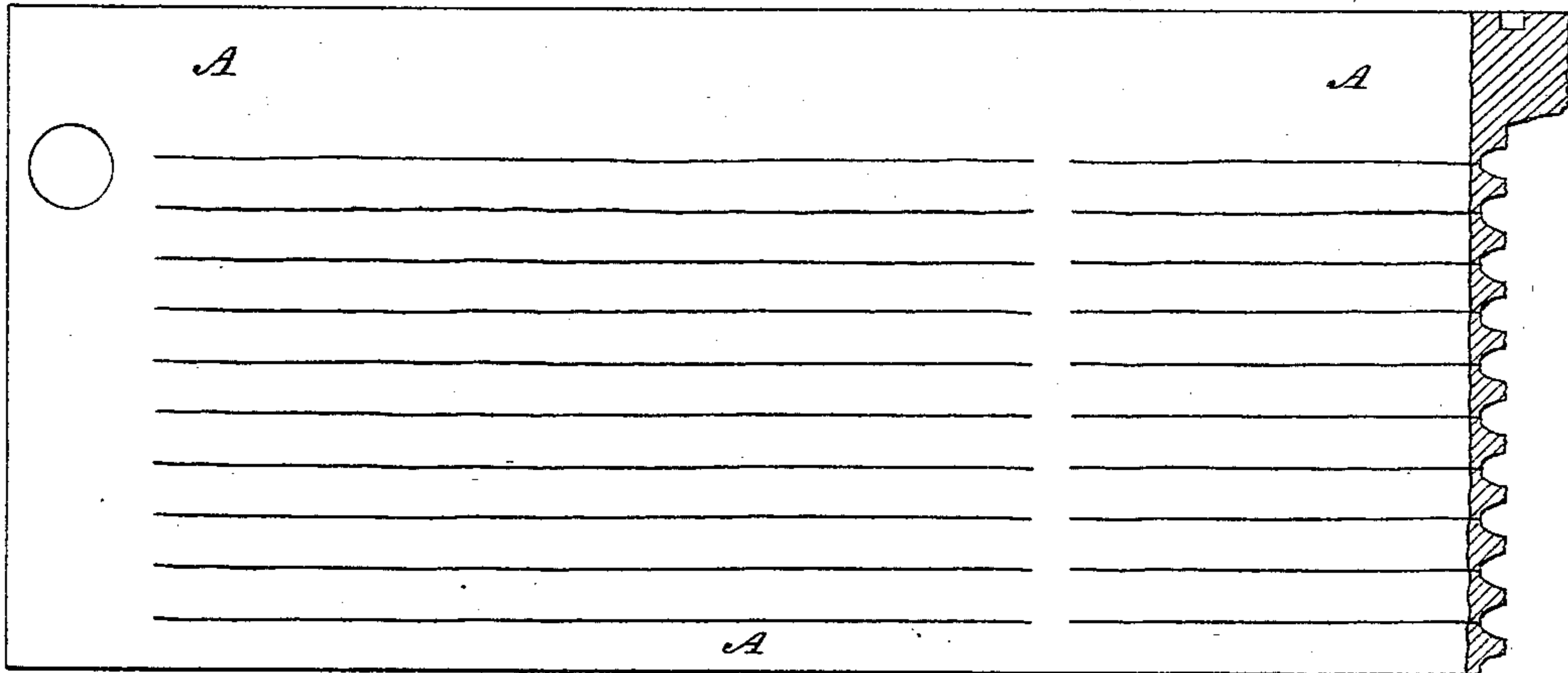


Fig. 3.



Fig. 2.

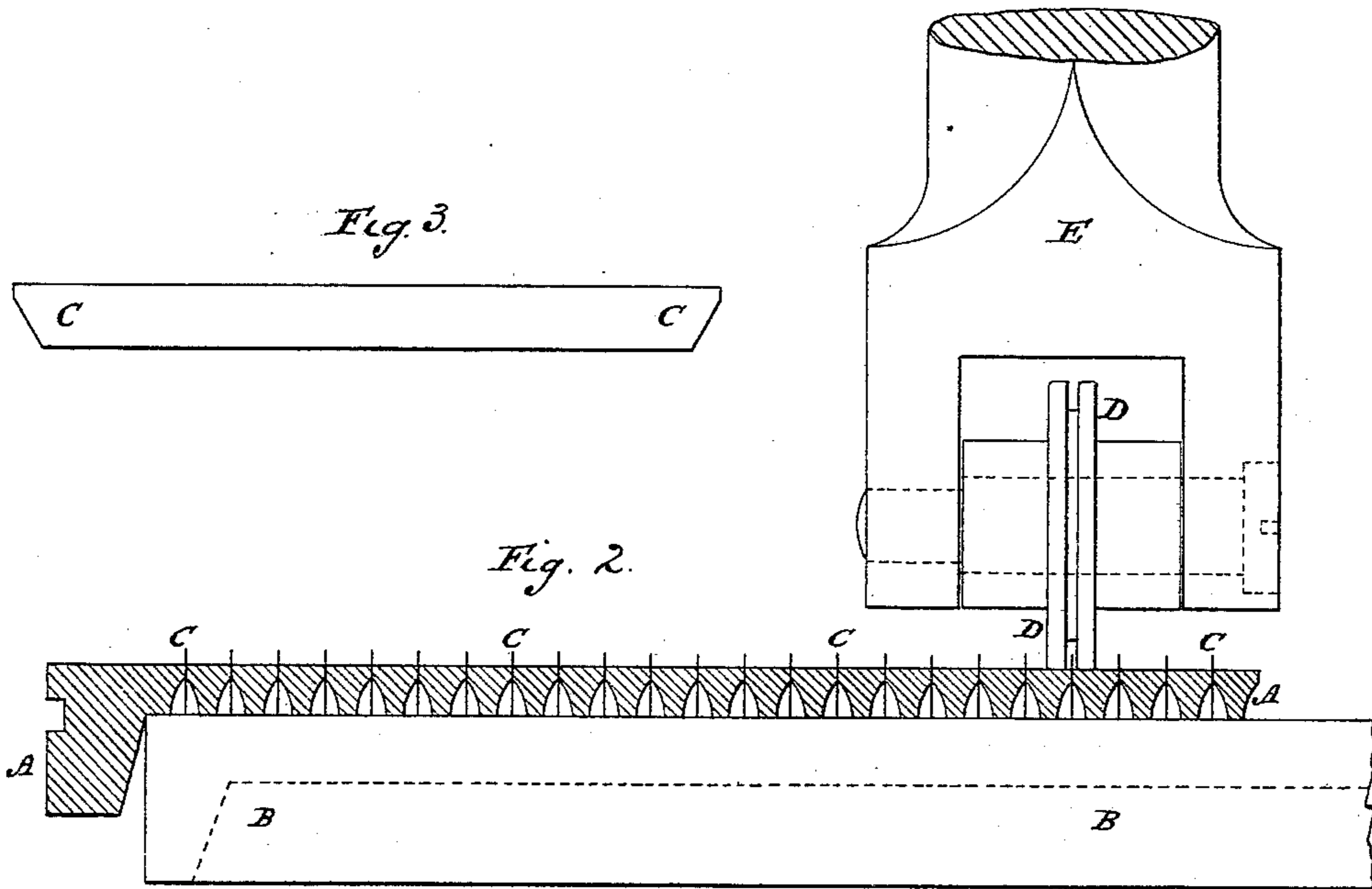
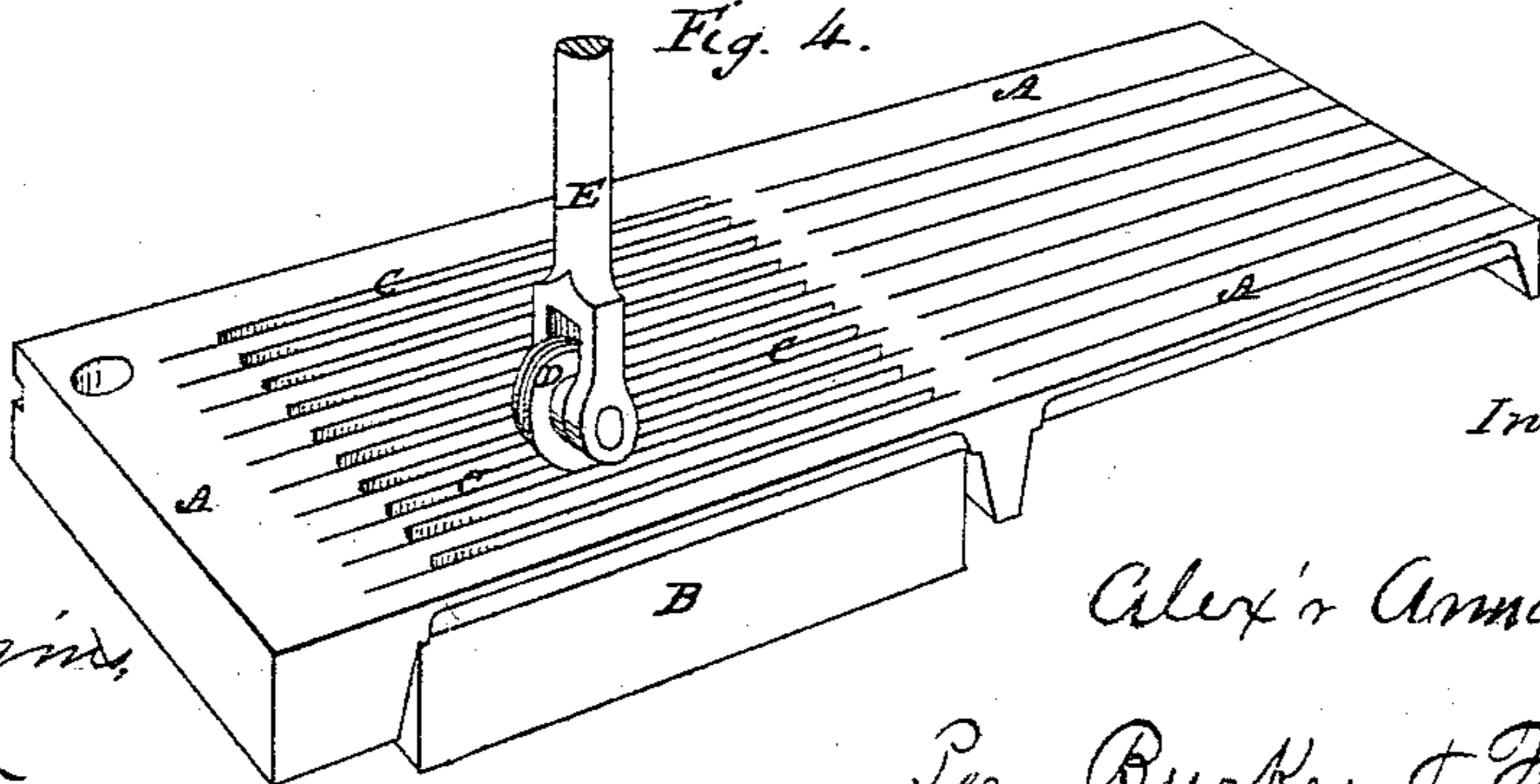


Fig. 4.



Witnesses:

Chas. M. Higgins,

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UNITED STATES PATENT OFFICE.

ALEXANDER ANNANDALE, JR., OF BELTONFORD PAPER WORKS, DUNBAR,
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IMPROVEMENT IN MODES OF REPAIRING THE SLITS OF KNOTTER-PLATES.

Specification forming part of Letters Patent No. **148,643**, dated March 17, 1874; application filed
September 8, 1873.

To all whom it may concern:

Be it known that I, ALEXANDER ANNANDALE, the younger, of the Beltonford Paper Works, Dunbar, North Britain, have invented certain new and useful Apparatus for Renewing the Slits of Knotter or Strainer Plates used in the manufacture of paper; and I hereby declare that the following is a full, true, and exact description thereof.

This invention consists in the mode of renewing the slits of damaged or worn-out knotter or strainer plates by means of the insertion of strips of metal having accurately-formed and parallel sides into the worn slots, and subjecting the plate, at each side of the slot, to pressure, causing the metal of the plate to be compressed or swaged against the metal strips, and causing the slots to assume a regularity of form by conforming to the shape of the said inserted metal strips; and also in the means employed for effecting such compression, by a moving recessed roller or a moving bed and stationary roller, as herein-after described. Between each slit of the knotter-plate I place a strip of metal, or between as many slits only as require reclosing, and I then roll the top surface of the knotter-plate close to and between each strip by a roller, which is caused to bear upon the surface at a pressure sufficient to swage the metal into contact with the strips, the pressure being obtained from above upon the roller, or from below by bringing the table on which the knotter-plate is temporarily secured up to the roller. Either the roller—that is, if only one is employed—can be caused to traverse the lengths of the slits under pressure in one direction only, or in both directions—that is, to and fro—or the knotter-plate on its bed-plate or table may travel in like manner under pressure.

In the accompanying drawings, A, Figure 1, shows a portion of a knotter-plate with slits, which require renewing. This plate is laid upon a support, B, as in Fig. 2, and thin metal strips C, of the shape shown in Fig. 3, (preferably of tempered steel,) are placed in the slits and caused to bear upon the bed, with

the top edges above the level of the plate A. The roller D is then put over one of the strips and pressed, by levers and weights, sufficient to cause a swaging of the metal to the strip to gripe it. The bed or support B, with the knotter-plate A upon it, is then caused to traverse to and fro like the bed-plate of a planing-machine, and the pressing action of the roller causes the two edges of the slit to gripe the strip evenly from one end to the other, and so that the slit is renewed with parallel edges in the direction of its length. The roller is mounted in or to a stock, E, and the bearing-surface is formed with an annular recess of sufficient depth as not to touch the strip over which it passes.

I propose to fit the roller-stock to a nut, which can be caused to travel across the machine, by turning a screw, to any position, but neither that nor the traveling bed forms any part of my invention.

In lieu of using a narrow roller, with one annular recess in its periphery, the roller may be wide and have as many annular recesses as required in it, or a series of rollers may be upon the same axle, according to the number of slits to be operated upon, or a fixed tool or swager may be employed.

Fig. 4 is a perspective view of a knotter or strainer plate, with strips of steel between the slits of one-half of the plate, and a roller acting upon the two surfaces outside one of the strips, as before explained, the other slits having been operated upon and made parallel, and the strips of steel removed. In this manner, the slits in each half of the plate A are renewed separately; but, by increasing the amount of travel of the bed-plate, and removing the pressure while passing the intermediate rib, the roller can be caused to act upon both halves of the knotter-plate in the to-and-fro movement.

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

The mode herein described of renewing knotter-plates, the same consisting in inserting the metallic strips within the slits of the plate, and swaging the metal of the plate

thereto by subjecting the same to the action of a grooved pressure-roller, which is made to rotate over the surface of the plate, guided by the strips within the slits, as herein set forth.

In witness whereof I, the said ALEXANDER ANNANDALE, the younger, have hereunto set

my hand this thirtieth day of June, one thousand eight hundred and seventy-three.

ALEX. ANNANDALE, JR.

Witnesses:

H. GARDNER,

E. EDMONDS,

166 Fleet street, London.