No. 646,346. Patented Mar. 27, 1900.

E. BATTEN.

MACHINE FOR CUTTING TESSERÆ FOR FLOOR CLOTH.

(Application filed Sept. 23, 1899.)

(No Model.)

Fig. 1.

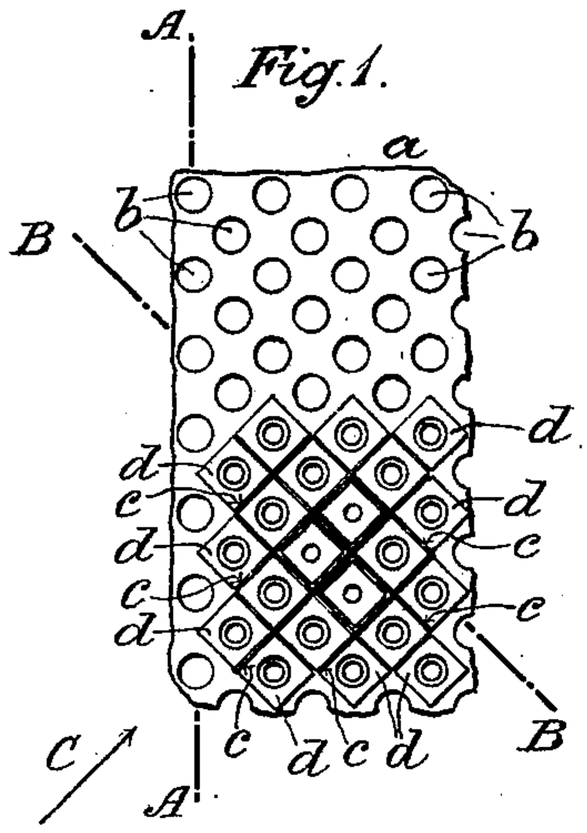


Fig. 2.

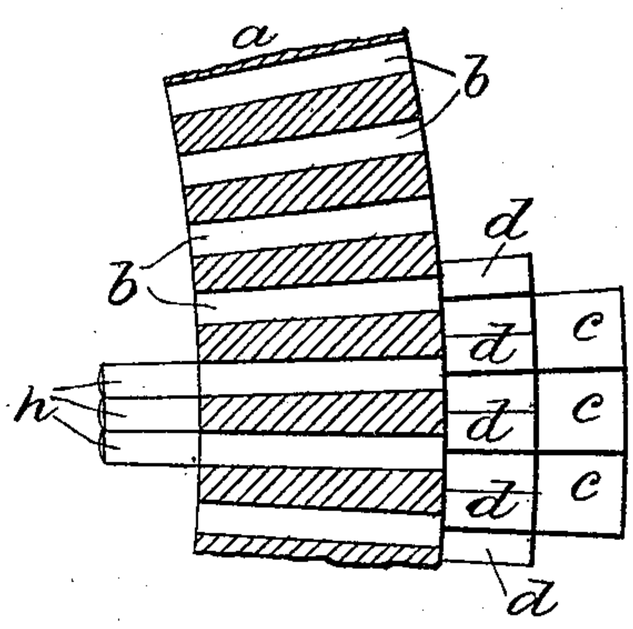


Fig. 3.

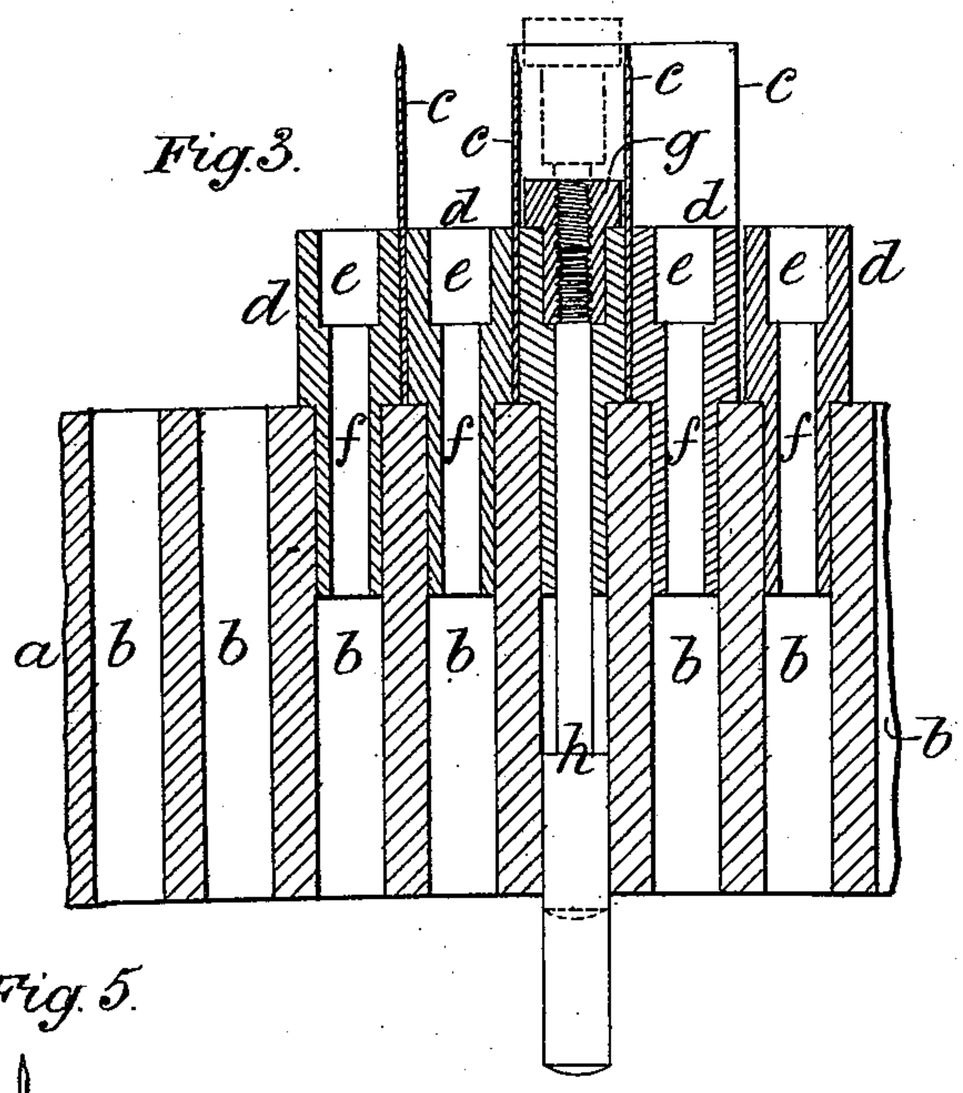


Fig. 4.

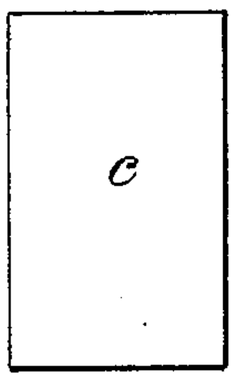


Fig. 5.

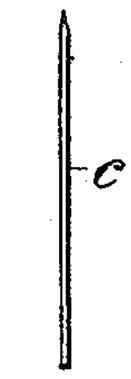


Fig. 6.

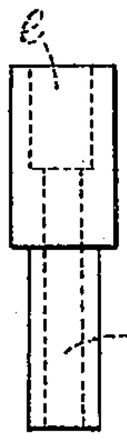


Fig. 7.

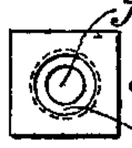


Fig. 8

Fig. 9.

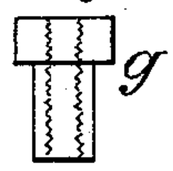
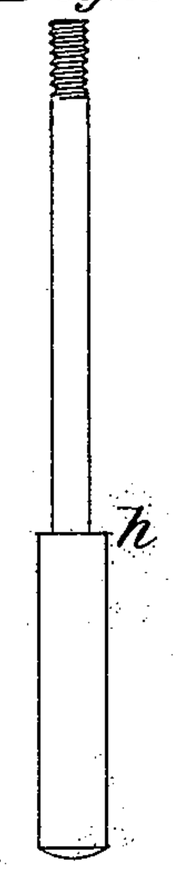


Fig. 10.



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UNITED STATES PATENT OFFICE.

EDWARD BATTEN, OF KIRKCALDY, SCOTLAND.

MACHINE FOR CUTTING TESSERÆ FOR FLOOR-CLOTH.

SPECIFICATION forming part of Letters Patent No. 646,346, dated March 27, 1900.

Application filed September 23, 1899. Serial No. 731,486. (No model.)

To all whom it may concern:

Be it known that I, EDWARD BATTEN, a subject of the Queen of Great Britain, residing at Kirkcaldy, Scotland, have invented new and useful Improvements in Machinery or Apparatus for Cutting Tesseræ in the Manufacture of Mosaic or Inlaid Floor-Cloth, of which the following is a specification.

In the manufacture of Mosaic or inlaid floor-cloth it is a well-recognized desideratum that the tesseræ of which the mosaic is composed be of the smallest size admissible consistently with the required arrangement of the parts of the cutting machinery, which size in the case of square tesseræ has heretofore been but little, if any, less than half an inch from side to side, and in the case of tesseræ of the form of a right-angled triangle the smallest size producible has been such that two placed with their longer sides in contact form a square of the aforesaid size. The reason for this limitation of size of the tesseræ has been that in tesseræ-cutting machines as heretofore constructed it has been found impracticable to place the cutting-blades closer consistently with allowance of the minimum space necessary for the other parts of the mechanism.

My invention consists of the improvements hereinafter described in machinery or apparatus for cutting the said tesseræ, the object of my said improvements being to provide for the cutting of the tesseræ of considerably-smaller sizes than can be cut by machinery or apparatus for the purpose as heretofore constructed.

I will describe my said invention with reference to the accompanying drawings, of which—

Figure 1 is a face view of a portion of the cutting-cylinder of a tesseræ-cutting machine, showing some of the cutting-knives secured thereto according to my invention and furnished with ejectors or means for ejecting the cut tesseræ from the spaces between the knives, which ejectors are constructed and arranged according to my said invention. Fig. 2 is a section of the same, taken on the line A A, Fig. 1; and Fig. 3 is a section of the same, taken on the line B B, Fig. 1, and viewed in the direction indicated by the arrow C. Figs. 4, 5, 6, 7, 8, 9, and 10 illustrate details, Fig. 4 being a face view, and Fig. 5 a side view, of one of the knives or blades by which the tesseræ are cut; Fig. 6 a side view, and Fig. 7 an end view, of one of a series of plugs by which the said knives are secured to the cylinder, the head part being shown foremost in Fig. 7; Fig. 8, a face view of the head part of one of the ejectors; Fig. 9, a side view of the same, and Fig. 10 a side view of the ejector-stem. In order that the arrangement of the said parts and their form may be clearly exhibited, the said Figs. 3, 4, 5, 7, 8, 9, and 10 are drawn to double the scale of Figs. 1 and 2, which are of the actual size.

Referring to Figs. 1, 2, and 3, *a* is a portion of the aforesaid cylinder, which is hollow and is pierced throughout with radial holes *b b*, the distance of which from each other in lines running in the direction of the line B B and at right angles thereto is such that the centers of all the holes are one-quarter of an inch from each other.

c c are the knives or cutting-blades, one of which is shown separately in face and edge views in Figs. 4 and 5, the said knives or cutting-blades being secured in place on the face of the cylinder between the square heads of tubular plugs *d*, the stems of which plugs are cylindrical and are driven into the holes *b b*, which they fit tightly. As will be seen by reference to Figs. 1, 3, 4, 6, and 7 of the drawings, the width of each of the knives or cutting-blades is equal to the width of two of the plugs plus the thickness of the knife. They are therefore interchangeable. Any knife can be removed by pulling it outward from between the heads of the plugs and another one readily and expeditiously inserted in place of the one removed. In order that the knives may be securely held in place between the heads of the plugs, the angles which the side faces of the said heads make with the outer face or top part are such that when the plugs are in place in the cylinder the opposed sides of adjacent plugs are parallel to each other. As shown in Fig. 6 and also in Fig. 3, the hollow *e* at the upper part of the head end of the plug is of larger diameter than the hollow *f* in the lower part of its head and in its stem.

The ejectors, by means of which the tesseræ cut by the knives *c c* are ejected or pushed

out from the hollows or spaces between them, consist of headed rods formed in two parts, the head part being square on its face, as shown in Fig. 8, and of a size to occupy the space between four of the knives *c c*, and the part immediately below being cylindrical and of such diameter as to fit in the hollow *e* of the upper part of the head end of the plug *d* and having a central screw-threaded hole to admit of its connection with the other part, which consists of a cylindrical rod *h*, screw-threaded at one end and enlarged at the other, (see the separate view, Fig. 10,) the smaller part of which rod fits and works in the hollow *f* of the stem part of the plug *d*, and the larger part of which fits and works in the lower part of the hole in the cylinder which it occupies and is of such length as to project within the cylinder *a* sufficiently to admit of the head *g* of the ejector being raised above the tops of the cutting-blades, as indicated in broken lines in Fig. 3, by pressure from within the cylinder for the purpose of ejecting the cut tesseræ from the hollows or spaces between the knives or blades *c c*.

When for any reason removal of any of the ejectors and plugs becomes necessary, a screw-threaded rod furnished with a loop-handle is engaged with that part of the screw-threaded end of the hole in the head *g* of the ejector which is not occupied by the ejector-stem *h*, and the said rod is pulled outward, carrying with it the ejector and the hollow plug *d* in which it is mounted. In this way removal of so many of the ejectors and plugs as may require removal during construction or for repairs is effected.

Although in describing my invention I have referred to the arrangement of the knives or cutting-blades and other parts in connection with a cylinder, I would observe that my aforesaid improvements are applicable to apparatus for cutting tesseræ in which the support of the said cutting knives or blades and other parts consists of a plate or block having a plane surface.

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

1. In an apparatus for cutting tesseræ in the manufacture of Mosaic or inlaid floor-cloth, the combination with a suitable supporting-base having a plurality of openings extending therethrough, of headed plugs each having a socket fitting in said openings, and knives or blades arranged between the heads of the plugs and supported thereby, substantially as described.

2. In an apparatus for cutting tesseræ, the combination with a suitable base having a plurality of equidistant openings therethrough, of a hollow plug fitting in each of said openings in the base, cutting-blades arranged between and supported by the adjacent side faces of said plugs, and ejectors operating in the space between the cutting-blades, substantially as described.

3. In an apparatus for cutting tesseræ, the combination with a cylindrical supporting-base having a plurality of equidistant openings extending therethrough, of a hollow plug fitting in each of said openings, cutting-blades arranged between and supported by the adjacent sides of the plugs, ejectors located in the spaces between the blades, and operating-rods for the ejectors passing through the openings in the base and plugs, substantially as described.

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