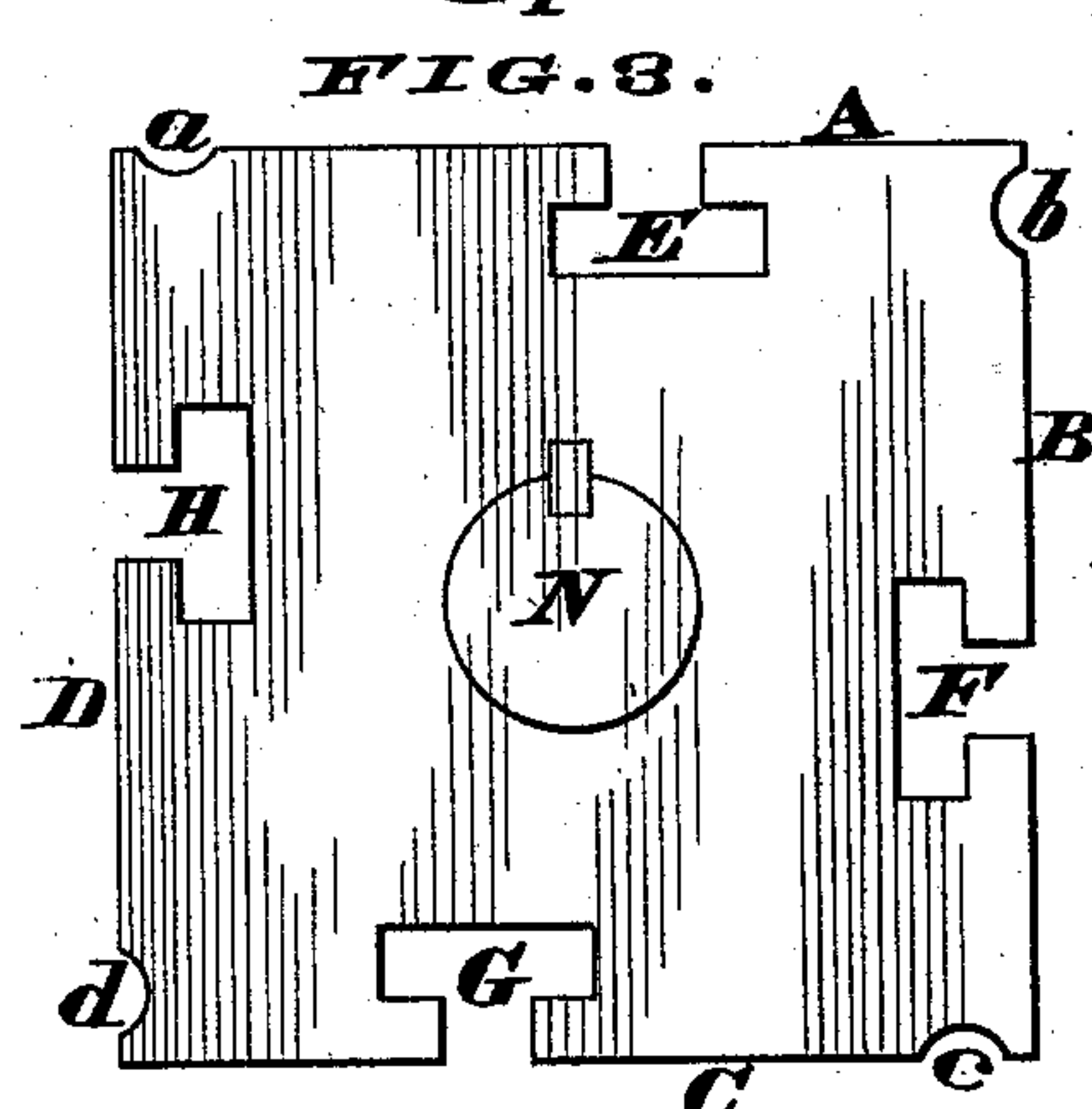
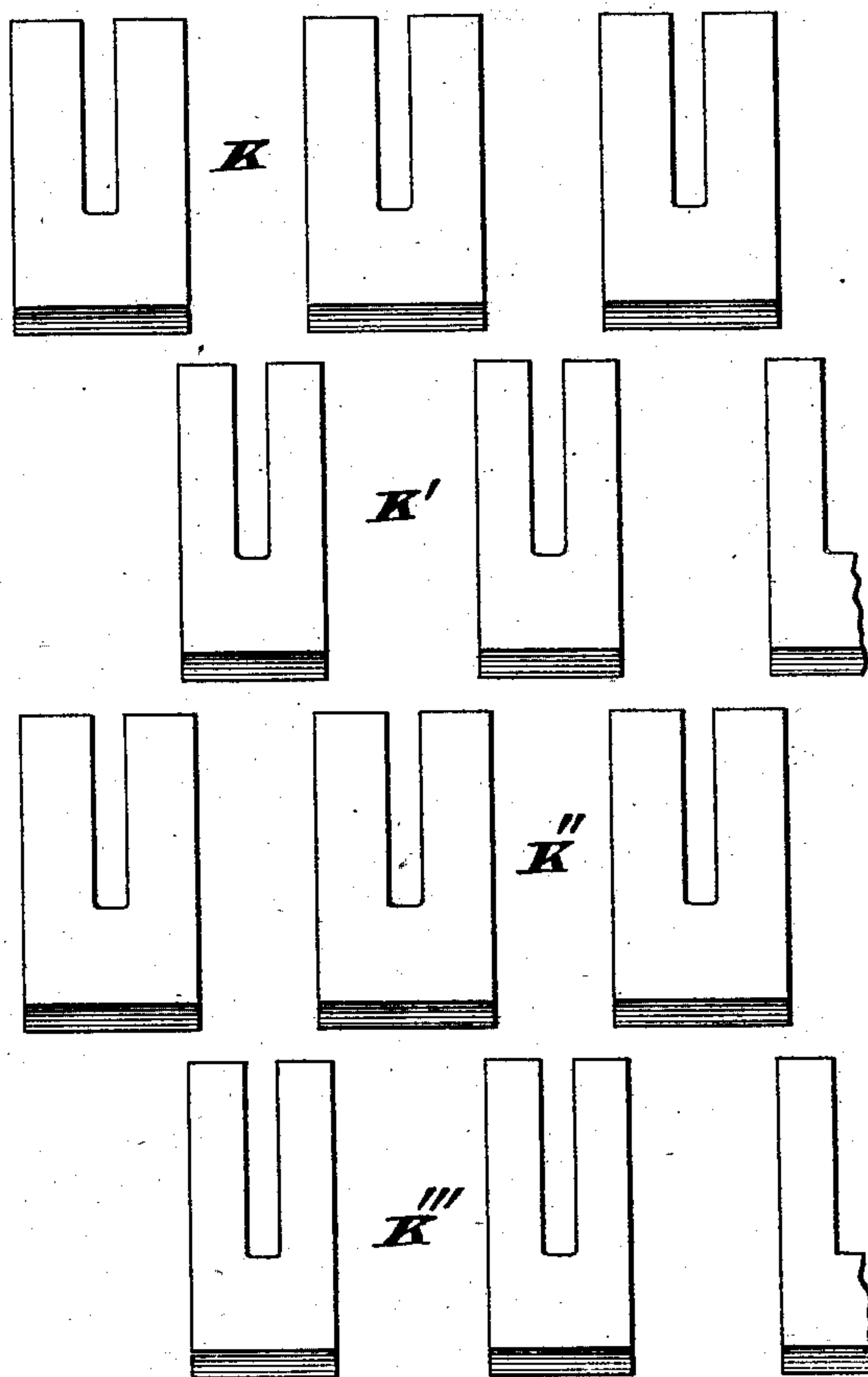
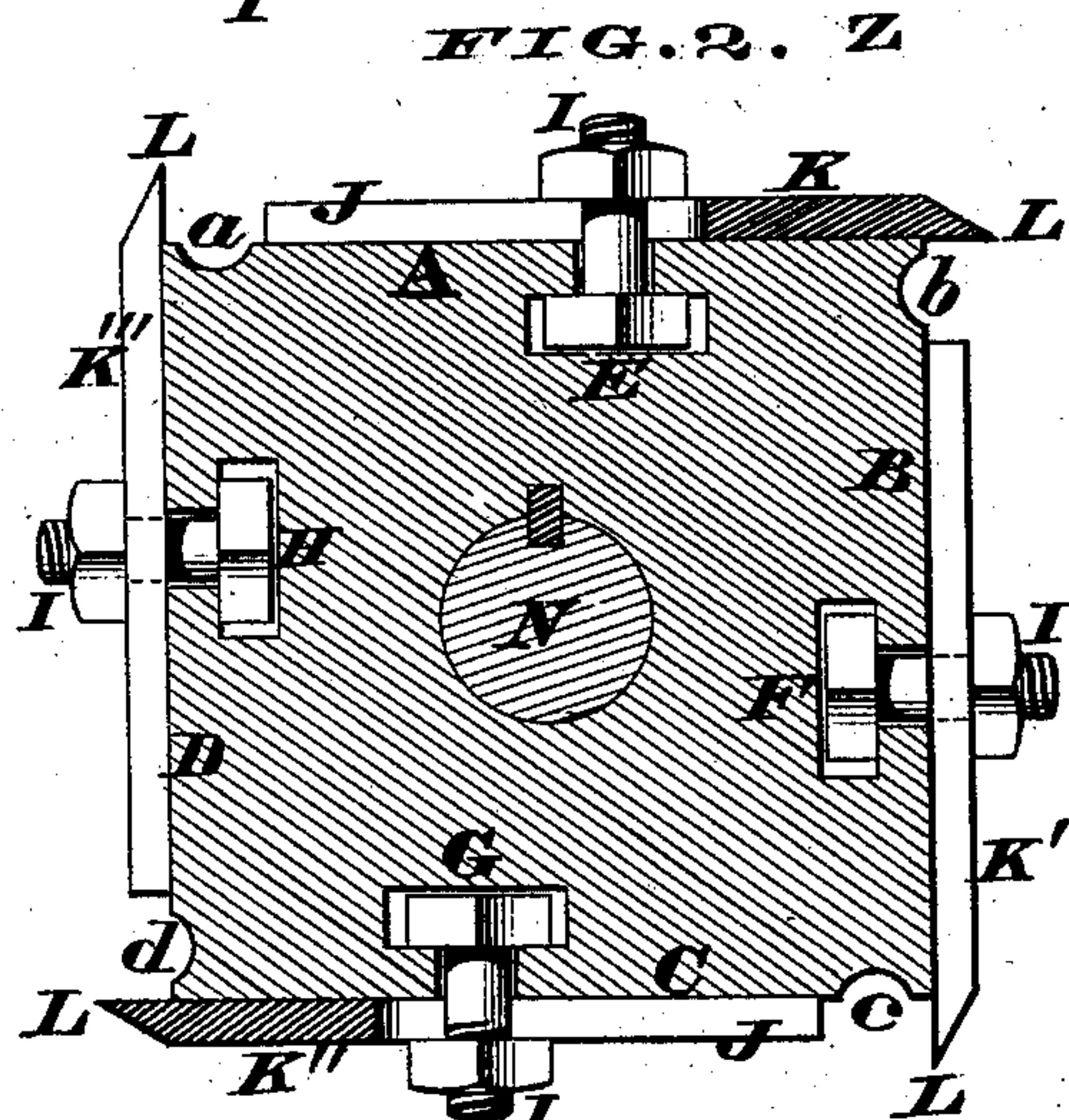
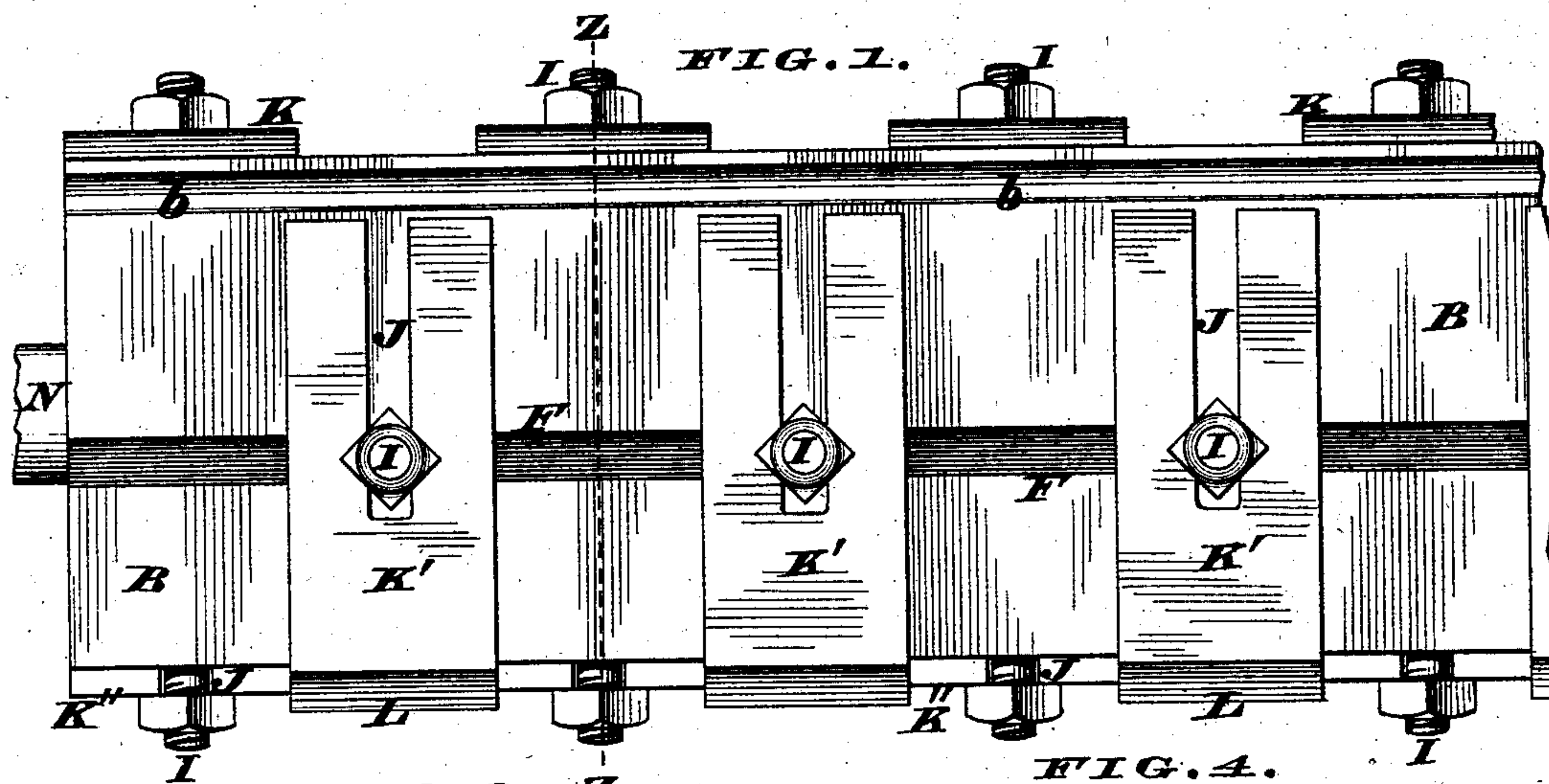


(No Model.)

H. HEYNS.  
CUTTER HEAD.

No. 259,012.

Patented June 6, 1882.



Attest  
Saml. S. Carpenter,  
James Richey

Inventor.  
Henry Heyns  
by James H. Layman  
Attorney



# UNITED STATES PATENT OFFICE.

HENRY HEYNS, OF CINCINNATI, OHIO, ASSIGNOR OF ONE-HALF TO JAMES RICHEY, OF SAME PLACE.

## CUTTER-HEAD.

SPECIFICATION forming part of Letters Patent No. 259,012, dated June 6, 1882.

Application filed January 23, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY HEYNS, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Cutter-Heads for Planing-Machines, &c., of which the following is a specification.

My invention consists in applying to a square cutter-head four distinct gangs of slotted knives, which are constructed and arranged in the following manner: Two of these gangs of cutters are comparatively broad, and are fastened to opposite faces of the square head, while the two remaining gangs of knives are relatively narrower, and are secured to the other opposite faces of said head. Consequently the broad knives on one face are balanced by similar knives on the diametrically-opposite face, while the narrow cutters balance each other in the same manner. Therefore the head runs perfectly true, no matter how rapidly the machine may be driven.

In the annexed drawings, Figure 1 is a face elevation of a portion of my improved cutter-head. Fig. 2 is a transverse section of the same, taken at the line Z Z. Fig. 3 is an end elevation of the drum, cylinder, or cutter-head, the knives being omitted. Fig. 4 is a diagram showing the relative arrangement of the bits on four sides of the drum.

The cutter-head, which is square in transverse section, is of any suitable length and diameter, and may be composed either of steel, brass, or malleable iron. This head is accurately planed, so as to have four flat faces, A, B, C, and D, said faces being provided respectively with longitudinal T-shaped slots E, F, G, and H to receive bolts I, that pass through the slots J of cutters K K' K'' K'''. L are the cutting-edges of these knives or bits. Furthermore, the faces of the drum are respectively grooved or channeled at *a b c d*, which grooves serve as chip-breakers for the planing-machine.

N is the driving-spindle, upon which the drum or head is secured in any approved manner. As the drum or head has four faces, the gang of knives K is applied to the first face of the same, as seen in Fig. 4, a reference to which diagram

will show that a suitable interval or space is left between each of said knives, it being understood that this set of cutters is to extend the entire length of said head. The next gang of knives, K', is applied to the second face of the head, so as to be in line with the spaces between the knives in the first gang, care being taken to have these spaces somewhat less in width than the cutters K'. The next gang of knives, K'', is then adjusted to the third face of the drum, so as to be exactly in line with the first set of cutters, K. Finally, the last gang of knives, K''', is secured to the fourth face of the cylinder, so as to be in line with the cutters K', all of which adjustments can be readily and securely effected by means of the slots and bolts. The various gangs of knives having been thus secured in their proper relative positions, and the cutter-head revolved in the usual manner, it is evident said gangs will act successively on the board or other piece of stuff, and, presuming that the cutters K are the first to come into service, it is apparent they will operate on only a little more than half the width of the board, owing to the intervals or spaces between said knives. Consequently ridges of unplaned stuff will be left between these knives K, which ridges will be removed by the second gang of cutters, K', because the latter are so arranged as to operate in line with the spaces between the first set of knives, K. A still further revolution of the head causes the third set of knives, K'', to travel in the path of the first set, K, while the final gang, K''', follows exactly in line with the second gang, K'.

From the above description it will be seen that no one face of the head acts on the entire width of the board at once, although the board is planed as thoroughly and smoothly as if the knives extended continuously the entire length of said head. As a natural result of this reduction of the cutting-surface of each face of the head, the machine is run with less expenditure of power, and the wear and tear is diminished accordingly. Furthermore, in case either of the cutters should break or be otherwise injured, a new one can be fitted to the head in a few minutes, whereas a break of the same size in one of the ordinary long knives would render it worthless. Again, these nar-

row cutters can be ground much more rapidly and accurately than the long knives, and can be more readily set out to compensate for any wear of the same.

5 By referring to Figs. 2 and 4, it will be seen that the knives K K'', applied to the diametrically-opposite faces of the head, are comparatively broad, while the cutters K' K''', secured to the other diametrically-opposite faces of the  
10 square head, are relatively narrower. Consequently one gang of broad cutters is exactly balanced by the opposite broad gang, and one gang of narrow cutters is balanced by its complementary gang.

15 I claim as my invention—

A square cutter-head having four flat faces, A B C D, slotted respectively at E F G H to receive bolts I, wherewith the slotted knives K K' K'' K''' are secured to said head, the cutters K K'' on two opposite faces of the head 20 being broader relatively than the knives K' K''' on the two other opposite faces thereof, for the purpose stated.

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

HENRY HEYNS.

Witnesses:

JAMES H. LAYMAN,

JAMES RICHEY.