I. A. BACH.

PRODUCTION OF BLANKS FOR TABLE KNIVES.

APPLICATION FILED MAY 27, 1909.

965,981.

Patented Aug. 2, 1910.

2 SHEETS—SHEET 1.

Fig. 2.

Fig. 3.

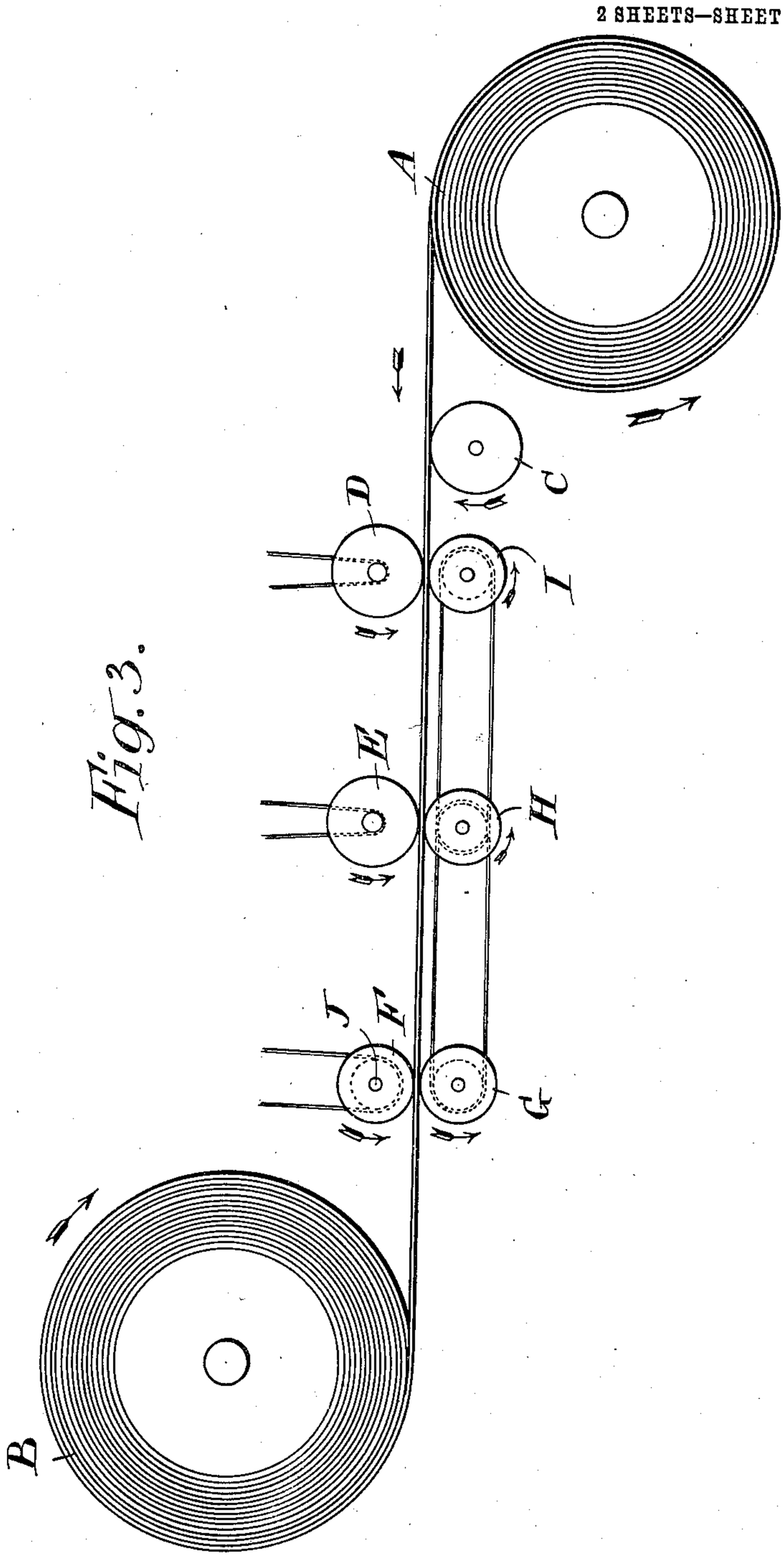

Fig. 1.

Witnesses.

Jesse N. Sutton.

B. Sommers

Inventor.

Ingvald Aasmund Bach

by Henry Orth & Co

Atty.

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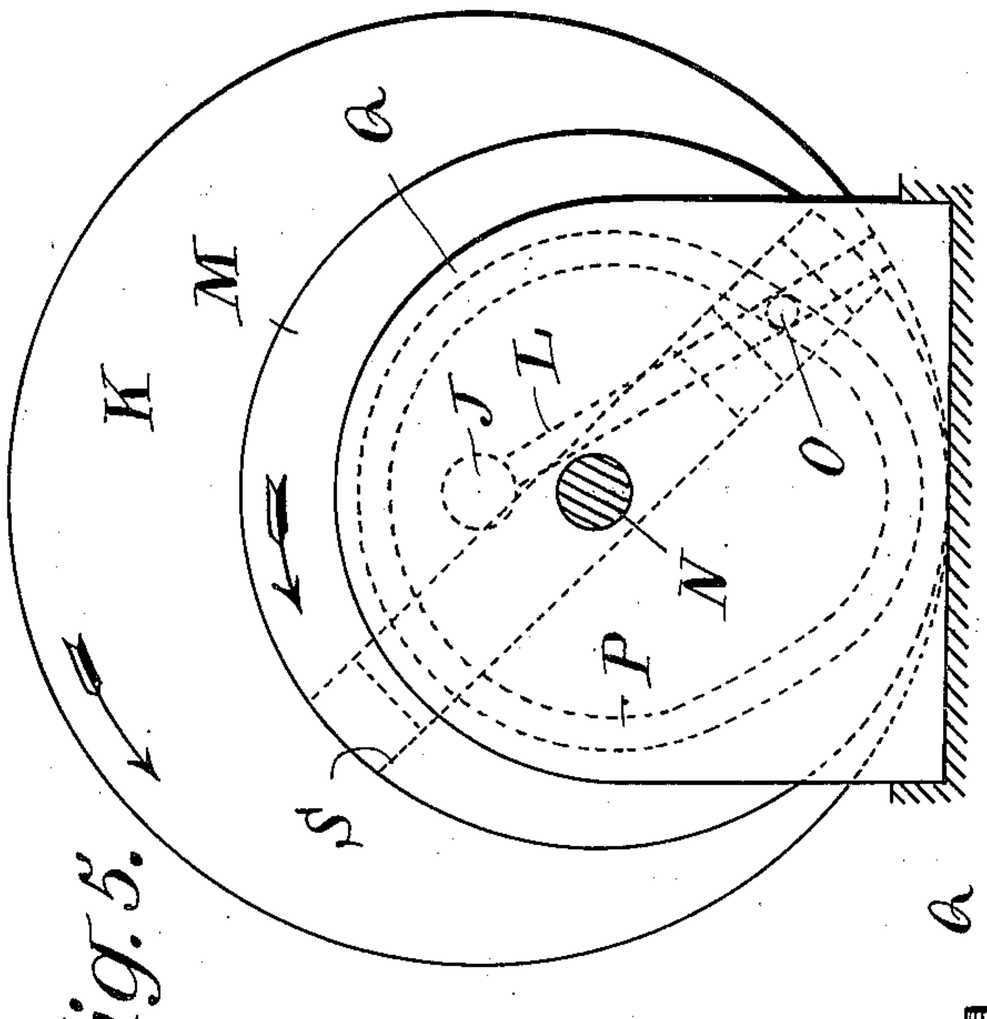

Fig. 5.

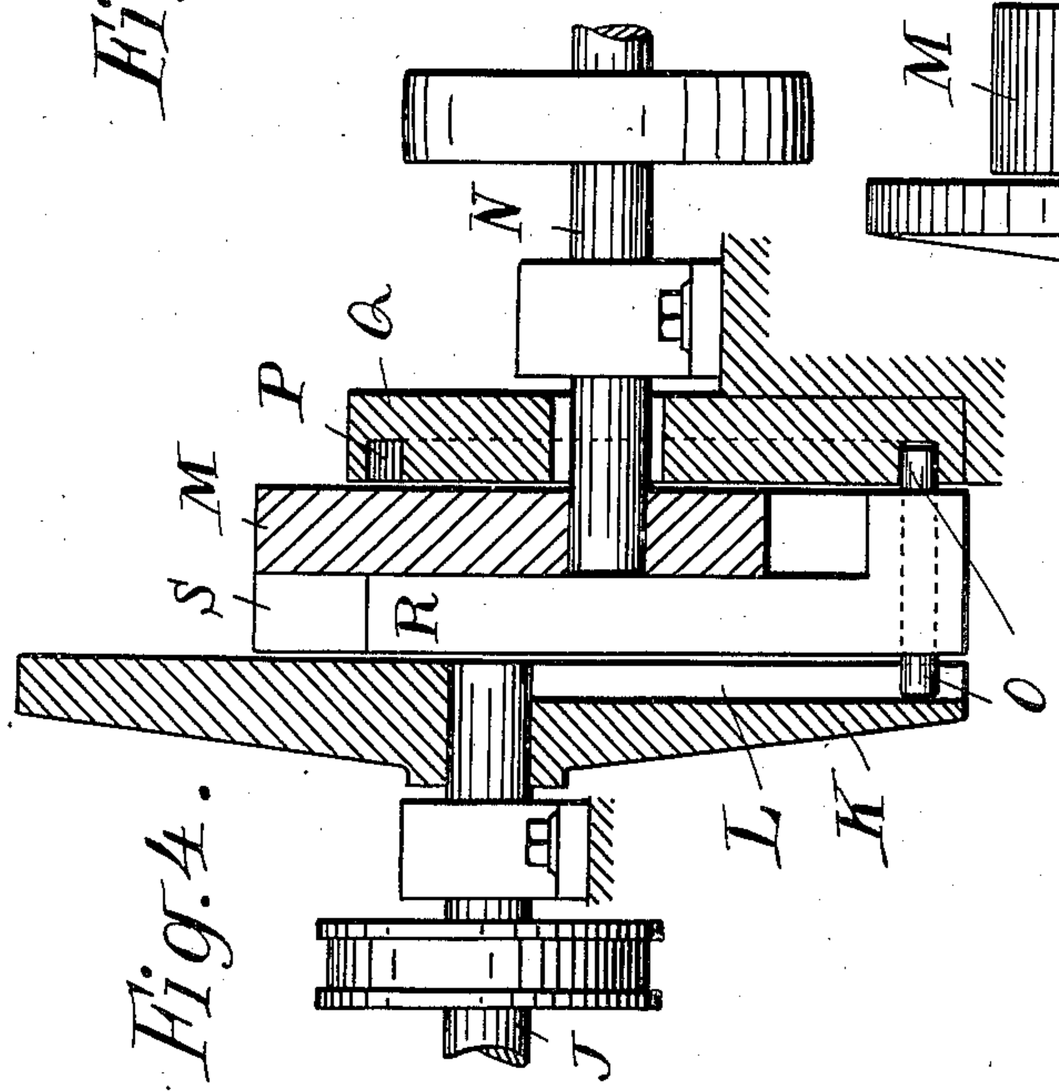

Fig. 4.

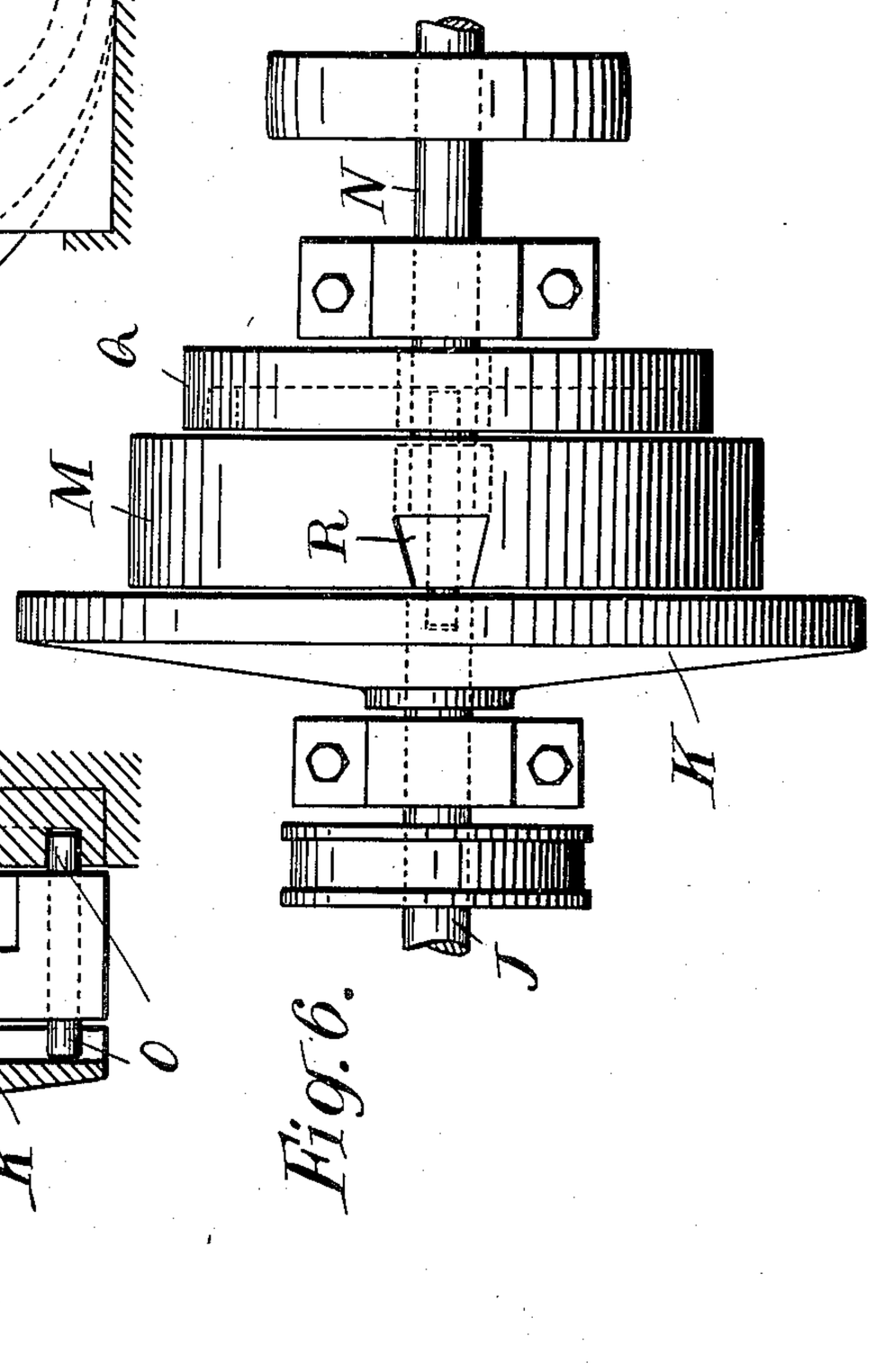

Fig. 6.

Witnesses.

Jesse N. Sutton.

B. Sommers

Inventor.

Ingvald Aasmund Bach

by Henry Orth & Co

Atty.

UNITED STATES PATENT OFFICE.

INGVALD AASMUND BACH, OF TRONDHJEM, NORWAY.

PRODUCTION OF BLANKS FOR TABLE-KNIVES.

965,981. Specification of Letters Patent. Patented Aug. 2, 1910.

Application filed May 27, 1909. Serial No. 498,661.

To all whom it may concern:

Be it known that I, INGVALD AASMUND BACH, a subject of the King of Norway, residing at Trondhjem, Norway, have invented certain new and useful Improvements in the Production of Blanks for Table-Knives and the Like; and I do hereby 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 letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to a method of producing blanks for table knives and the like, and it has for its object to render the manufacture more expeditious, to cheapen the cost and to insure uniformity in the size of the blades.

Blanks for table knife blades are generally made in the form of long rolled steel bands of the width of two knife blades, and thicker in the center than at the edges.

In carrying out my invention I first sever said band at the center, and then feed the severed band into contact with grinding, abrading or milling rollers and vary the speed of the feed of the band and the pressure of the rolls on the band for the purpose of removing more or less of the metal at different points of the band.

It is well known that the slower a piece of metal is fed over an abrading surface the greater is the period of contact, and the greater the period of contact the greater will be the amount of metal removed, and vice versa. The same is true in regard to the pressure; the less the pressure, the less metal removed, therefore, if the speed of the band is increased at certain periods and the pressure diminished at the period of increase of speed, less metal will be removed from the band than when the speed is diminished and the pressure increased.

The feeding devices control the speed of the band, so that said speed varies between a minimum and a maximum and a band is obtained having a series of waves longitudinally thereof, each wave comprising two blade lengths. These blade lengths may be cut apart either at the thick or at the thin portion.

In the accompanying drawing—Figure 1 is a cross section of a rolled steel band commonly employed in the manufacture of knife blades. Fig. 2 is a side view of a band ground in accordance with my improved method. Fig. 3 is a diagrammatic view illustrating the means of carrying out my method. Fig. 4 is a partial vertical section of a preferred form of feeding mechanism; Fig. 5 is an end elevation of the same, and Fig. 6 is a plan view thereof.

The mechanism employed for carrying out my improved method preferably consists of a drum, as A, Fig. 3, on which is stored a steel band made in the usual and of the well known form. B designates a similar drum for receiving the band after it has been ground in the manner herein described.

The band to be operated upon is drawn from the storage drum by means of two rolls or disks, F, G, to be hereinafter described, and which are preferably situated near the receiving drum. As the band leaves said drum its under face passes onto a polishing roll C.

The variable grinding of the top surface of the band is effected by the abrading wheels D and E, the abrading surface of the wheel D being coarser than the surface of wheel E, and the distance between these two wheels corresponds with the length of two knife blades. The number of grinding wheels need not be limited to two, as any number it is found expedient to use may be employed. Under each abrading wheel is mounted a guide disk, H, I, respectively, which disks during the feed, guide the band in such way that the proper amount of material is ground off at the desired point of the band. For this purpose the guide disks are given a slight eccentricity corresponding to the difference in thickness between the root of the blade and the point; that is to say, when the thin portion of the blade is being ground that portion of the guide having the greatest radius will be next to the band, and the radii of the disk will gradually decrease as that portion of the band which is to form the root is brought under the grinding disk. These guide disks have the same diameter as the disk G, and are connected with the latter in such way, for instance by a chain, that the guide and feed disks will move synchronously. In addition to the eccentricity, the guide rolls have a conicity to conform to the cross section of the band, which is thicker at the back than at the edge, and said conicity varies so as

to conform with the variation of cross section of the blade from its root to the point.

The disk F is driven by a mechanism capable of imparting a variable speed of rotation, while the disk G is given the same speed by its frictional contact with the band; the periphery of both disks is of a length exactly corresponding to the length of two knife blades.

To secure the desired variable feeding speed any known gearing having automatically varying transmission may be employed. The crank and slot gearing shown in Figs. 4, 5 and 6, however, is especially adapted to the purpose. The known crank and slot gearing in which the crank pin of one disk engages with a radially slotted hole in another disk on a shaft placed eccentrically to the shaft of the former disk, is shown modified in such way that a variation in speed suitable for this purpose is obtained, a speed that may be represented by a curve rising and falling evenly between the highest and lowest points.

In the mechanism shown a crank pin is caused to move radially in two disks, and is connected with a governing device which, according to a certain law, moves the crank pin to and from the center during rotation. A disk K is fixed on the shaft J of the feed disk F and has a radial slot L, and a smaller disk M is fixed on a pulley shaft N, and in a slot S formed in said disk M is mounted a slide R carrying a pin O that takes into the slot L and during the rotation of the disk M carries the disk K with it. The pin O also projects into an endless guide slot P in a stationary disk Q, which guide slot is preferably in the form of a heart, or an egg-shaped curve, in order to obtain the most suitable curve of variation. However, a sufficiently exact result may be attained with a circular, eccentric slot. The pin O is, under the influence of the guide slot P during the rotation, successively moved closer to the center of the disk M.

In order to secure a constant pressure on the grinding disks it is essential that the guiding disks be mounted in resilient bearings which, to a certain degree, give under the pressure exerted against them.

It is important that the material used have an even thickness throughout its length; however, material which in the rolling process has been given a variable thickness, corresponding to the variation in thickness produced by the grinding process above described, may also be used advantageously.

I claim—

1. The method of producing blanks for table knives, which comprises feeding a metal band, of a cross section approximately the cross section of the knife blade, to an abrading surface, and varying the speed of the band to produce a variation in the abrading action.

2. The method of producing blanks for table knives, which comprises grinding one side of a steel band having a cross section approximately the cross section of the knife blade, by feeding the same to an abrading surface, varying the speed of the feed to produce a variation in the grinding and polishing the other side of said band during its feeding movement.

3. The method of producing blanks for table knives, which comprises grinding one side of a steel band having a cross section approximately the cross section of the knife blade, by feeding the same to an abrading surface, varying the speed of the feed to produce a variation in the grinding, polishing the other side of said band, and finally cutting the band into knife lengths.

4. The method of producing blanks for table knives from a continuous strip, which comprises feeding the strip with relation to grinding means, and varying the feeding speed from one end of a blade length to the other end thereof.

5. The method of producing blanks for table knives from a continuous strip, which comprises feeding the strip with relation to grinding means, and varying the feeding speed from one end of a blade length to the other end thereof and vice versa alternately.

6. The method of producing blanks for table knives from a continuous strip, which comprises feeding the strip with relation to the grinding means and gradually increasing the feeding speed from one end of a blade length to the other.

7. The method of producing blanks for table knives from a continuous strip, which comprises feeding the strip with relation to grinding means and gradually increasing the feeding speed from one end of a blade length to the other and vice versa alternately.

In testimony that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

INGVALD AASMUND BACH.

Witnesses:

ADD. I. LATTING,

O. JOH. STEIN.