No. 875,528. PATENTED DEC. 31, 1907.

A. HIRTH.

FEED ROLL FOR LEATHER SKIVING MACHINES.

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Fig. 1.

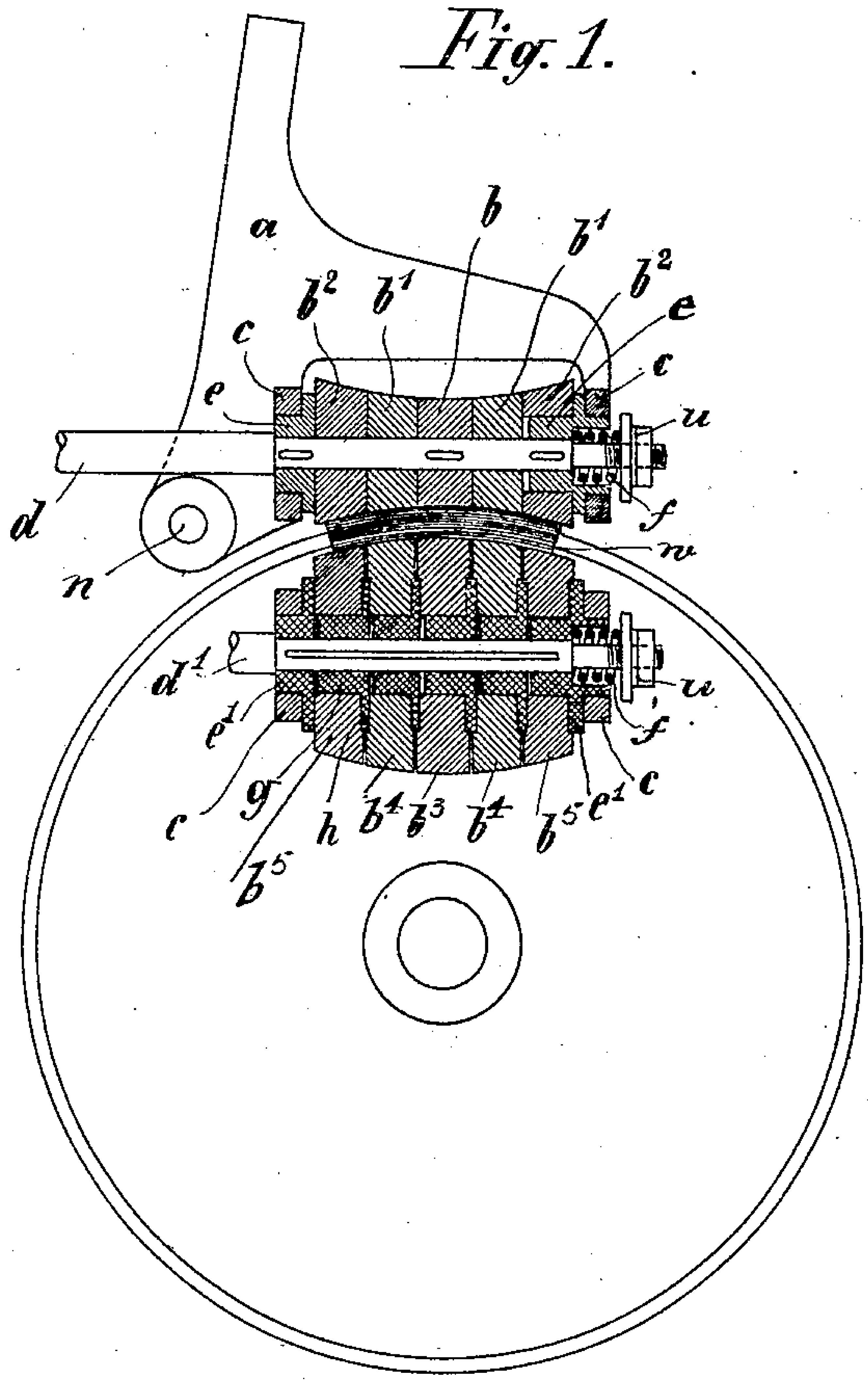
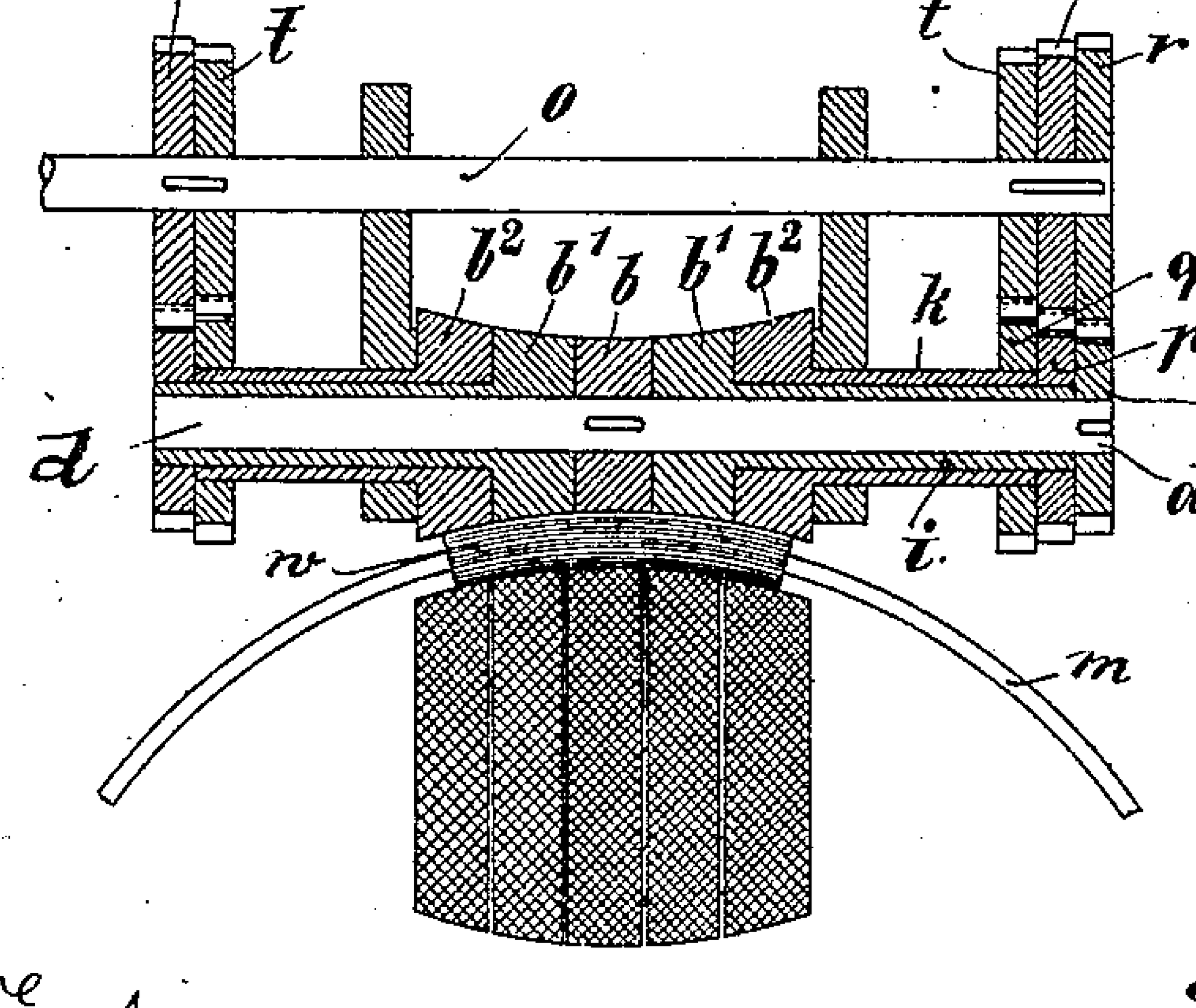


Fig. 2.



WITNESSES

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FEED-ROLL FOR LEATHER-SKIVING MACHINES.

No. 875,528. Specification of Letters Patent. Patented Dec. 31, 1907.

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To all whom it may concern:

Be it known that I, ALBERT HIRTH, a citizen of the Empire of Germany, residing in Cannstatt, in the Kingdom of Würtemberg, in said Empire, have invented certain new and useful Improvements in Feed-Rolls for Leather-Skiving Machines with Ring-Knives, of which the following is a specification.

This invention relates to improvements in machines for skiving and splitting leather and similar materials by means of a ring-knife, and relates more specifically to the improved feed-roll for the material that is fed to the ring-knife so that the uniform forward feeding of the material over its entire width is obtained; and for this purpose the invention consists of a feed-roll for skiving machines, which is composed of several individual rollers which are rotated independently of each other on their shaft in such a manner that the circumferential velocity of said rollers in contact with the material corresponds to the linear velocity of the same, and the invention consists further of certain details of construction which will be hereinafter described and pointed out in the claim.

In the accompanying drawings, Figure 1 represents a vertical longitudinal section through my improved feed-roll for skiving machines in which the material to be skived may be conducted in any desired arc over the cutting edge of the ring-knife, and Fig. 2 is a similar section of a feed-roll for skiving machines in which the arc of the material to be skived is carried in an arc of definite form or in a straight line parallel with the axis of the ring-knife, over the ring-knife.

Similar letters of reference indicate corresponding parts in the figures of the drawing.

The feed-roll can be arranged at the inside or at the outside of the ring-knife, or at both sides of the same, as shown in Figs. 1 and 2. In the outer feed-roll, shown in Fig. 1, a number of individual rollers b, b^1, b^2 are placed on a common shaft d and retained by friction yieldingly on the same. The smallest roller b, which has to be turned with a greater circumferential speed, is actuated directly from the shaft, but can be shifted on the same. In the same manner, two friction-bearings e, which turn in ring-shaped bearings c of an arm a that swings around a fulcrum n, are held under the frictional influence of a helical spring f, which turns with the shaft d and is retained thereon by a screw-nut u placed on the threaded end of the shaft. The rollers b^1, b^2 can turn on the shaft d when the friction which takes place between the individual rollers and the friction-bearings e is overcome. During the rotation of the shaft d, the circumferential velocity of the middle roller b determines the linear velocity of the material w, and the circumferential velocities of the rollers b^1, b^2, which are moved by friction in the same direction, adapt themselves thereto, whereby these rollers remain correspondingly behind the middle roller. The force that is exerted on the rollers b^1, b^2 by the rotary motion of the shaft can be altered at will by changing the tension of the spring f, which is accomplished by the turning of the screw-nut u or by shifting the shaft d in the longitudinal direction.

In the inner feed-roll, the yielding connection of the rollers with the shaft is carried out in a somewhat different manner than in the outer roll. Besides the friction-bearings e', which are located in the ring-shaped bearings c^1, are arranged the rollers b^3, b^4, b^5 which are clamped together by the pressure of the spring f^1, and in addition thereto friction-boxes g are employed, which are shiftable on the shaft d^1, but which cannot be turned relatively to the same, while the rollers b^3, b^4, b^5 can all be turned relatively to each other and to the shaft d^1 as soon as the friction, which takes place between the rollers and the disk-shaped ribs h of two adjacent friction-boxes g, is overcome. On turning the shaft d, the individual rollers, which are all turned in the same direction, glide towards each other in such a manner that their circumferential velocities correspond to the linear velocity imparted to the material to be operated on. It is immaterial whether the material is conducted in a straight or curved form over the cutting edge of the ring-knife, inasmuch as all the rollers can "give" slightly towards each other. Owing to the driving action imparted to the shaft of the feed-roll which is located above the ring-knife, the middle roller b^3 cannot "give", but notwithstanding this it is possible to conduct the material in an arc as the rollers which are located at one side of the middle roller receive a gradually diminishing motion, while the rollers on the opposite side of the same receive a proportionately increasing motion.

In Fig. 2, the middle roller b is rotated by a shaft d, while the adjacent rollers b^1, b^2 are

rotated by means of connecting-sleeves *i* and *k* which are placed concentrically with each other on the shaft *d*. On the ends of the shaft *d* and the sleeves *i* and *k* are mounted gear-wheels *l*, *p*, *q* which intermesh with gear-wheels *r*, *s*, *t* that are keyed to an auxiliary shaft *o*. The dimensions of the gear-wheels *l*, *p*, *q* and *r*, *s*, *t* are so chosen that the circumferential velocities of the rollers *b*, b^1, b^2 are equal to the feed-motion that is to be imparted to the piece of leather or other material to be operated on. When the circumferential velocity is made equal for all the rollers the work-piece is moved forward in a straight direction, but in an arc when the rollers, commencing at one side, are moved with gradually increasing circumferential velocity. According to the size of gear-wheels, it is therefore possible to conduct the working-piece in an arc of definite but uniform shape over the cutting edge of the ring-knife. This construction of the feed-roll is adapted for use only in such cases in which the work-piece is to be fed either in a uniform arc or in a straight line over the edge of the ring-knife.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

In a skiving machine, the combination, with a ring-knife, of an inner convex feed-roll divided into a number of individual rollers of different diameters, an outer concave feed-roll also subdivided into a number of individual rollers of different diameters, and shafts upon which said feed-rolls are supported.

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

ALBERT HIRTH.

Witnesses:

RUDOLF BRECHT,

ERNST ENTENMANN.