F. M. COURSER.

MACHINE FOR SKIVING LEATHER.

APPLICATION FILED NOV. 23, 1905.

985,401.

Patented Feb. 28, 1911.

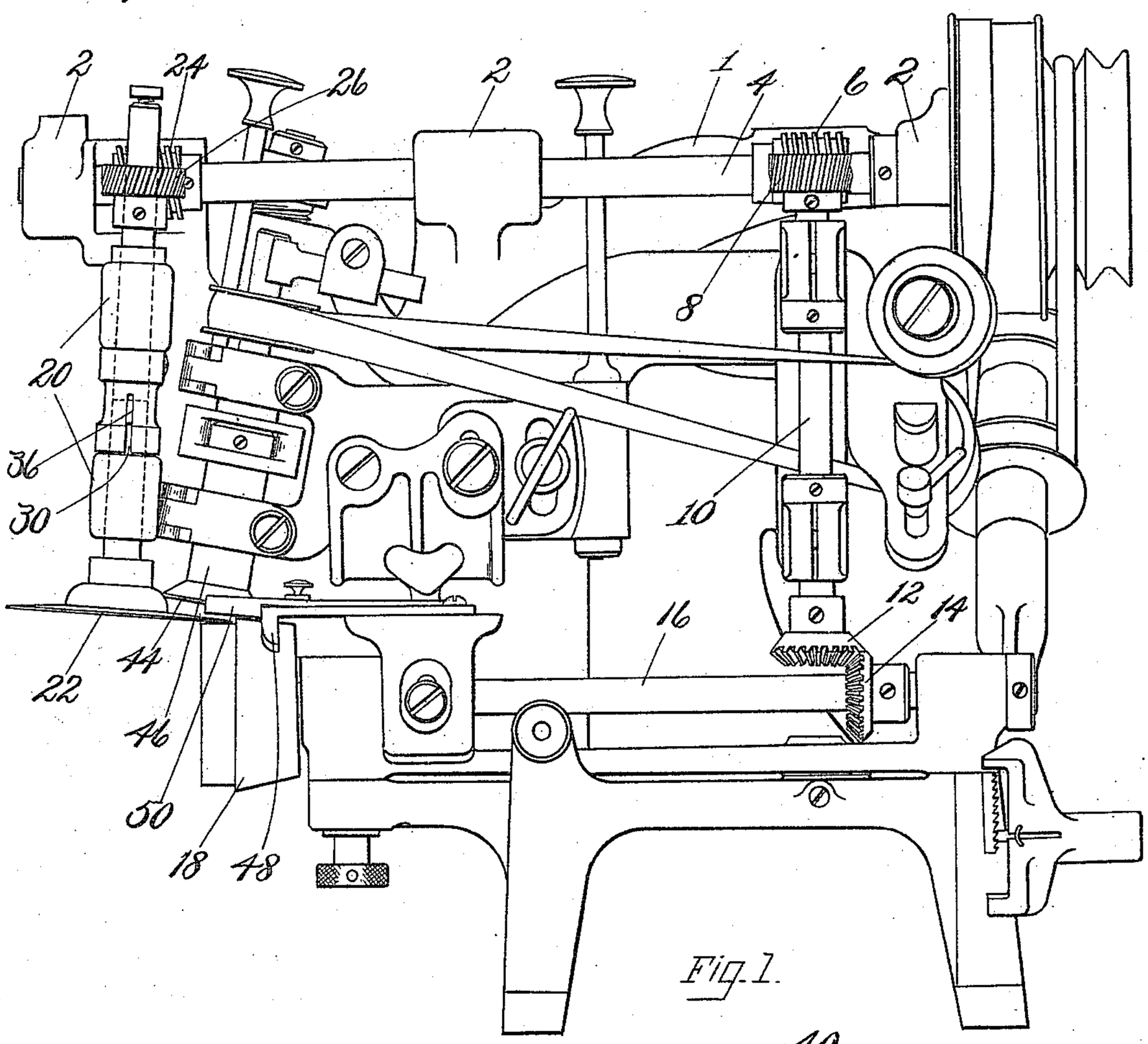

Fig. 1.

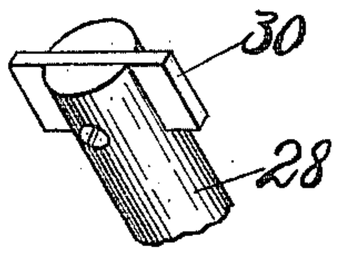

Fig. 3.

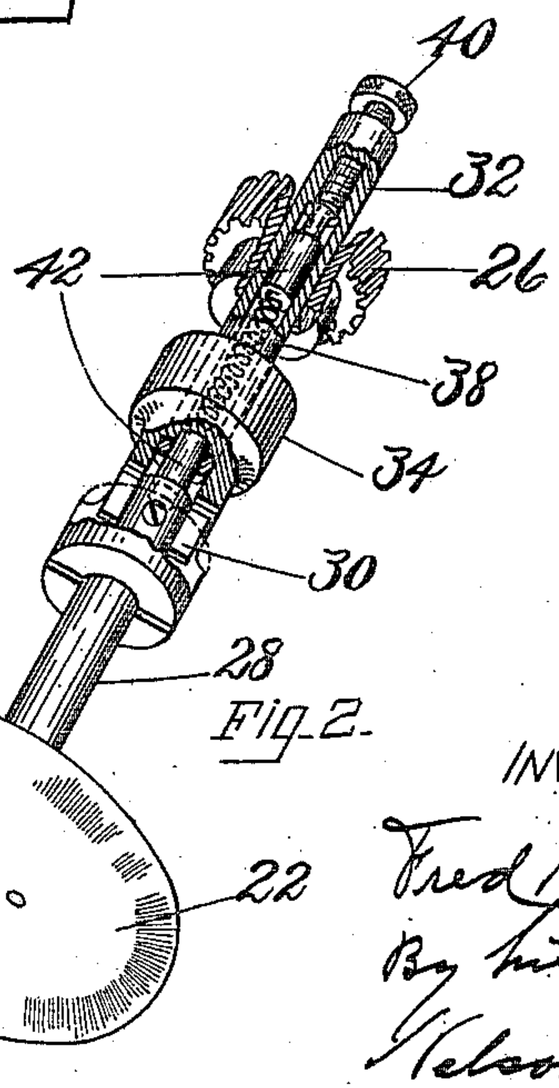

Fig. 2.

WITNESSES.

Bertha M. Hutchinson.

Elizabeth C. Coupe

INVENTOR.

Fred M. Courser

By his Attorney,

Nelson H. Howard

UNITED STATES PATENT OFFICE.

FRED M. COURSER, OF HAVERHILL, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

MACHINE FOR SKIVING LEATHER.

985,401. Specification of Letters Patent. Patented Feb. 28, 1911.

Application filed November 23, 1905. Serial No. 288,822.

To all whom it may concern:

Be it known that I, FRED M. COURSER, a citizen of the United States, residing at Haverhill, in the county of Essex and Commonwealth of Massachusetts, have invented certain Improvements in Machines for Skiving Leather, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to machines for skiving leather and more particularly to those machines in which the stock to be skived is advanced by means of feeding devices against a rotating disk knife.

I have shown the invention herein embodied in a machine of the class shown in United States Letters Patent No. 518,774 to Charles H. Bayley.

In the use of machines of this class the speed with which the work is advanced against the knife is determined by the operator and is dependent upon certain varying characteristics in the work, such as its form or quality. For example, in feeding work having irregular edges it is necessary for the operator to give increased attention to the manipulation of the work to insure that the irregular edge be kept against the usual edge guide and the speed with which such work is advanced is dependent upon the skill with which the operator is able to manipulate it and is less than where work having regular edges is to be skived. In the practical use of machines of the form shown in said Letters Patent, where it has been desired to advance the work at a reduced speed the work has been held back by the operator and prevented from being drawn into the machine at its full speed. It has been found, however, that when the work is thus manually retarded the work-feeding mechanism has been rendered irregular in operation,—at times even to such an extent that control over the work has been lost by the operator, it being drawn from his hands through the machine.

My invention is concerned more particularly with the provision of feeding mechanism applicable to machines of the class referred to, which shall be free from objections such as that mentioned.

The machine disclosed in the Letters Patent above referred to comprises a horizontal rotary feed roll for supporting the work and a feed disk mounted to rotate about an approximately vertical axis and arranged above and in front of the feed roll with its peripheral portion overlapping the edge of the feed roll, the work being inserted between the adjacent portions of roll and disk and the roll and disk being simultaneously rotated to feed the work. A rotary disk knife is arranged beyond the roll and the feed disk in the path of the work. The feed disk is driven from a horizontal driving shaft, motion being transmitted from said shaft to the feed disk by means of intermeshing worm and gear, the feed disk being positively rotated. The feed disk is held yieldingly toward the feed roll so that the work is grasped by said disk and roll and fed against the skiving knife. In the application of my invention to a machine of this form an important feature consists in arranging the feed disk to bear with uniform pressure upon the work regardless of variations in the rate of feed. In the construction shown the feed disk is mounted upon a shaft which is free to yield vertically without producing change in the relative position of the driving worm and the driven gear, arranged respectively upon the driving shaft and the feed disk shaft. The gear upon the feed disk shaft is sustained by the machine frame in such a manner that any vertical thrust of the worm is taken up by the frame and is not transmitted to the feed disk. Heretofore in machines of this class in which downward thrust of the worm has been transmitted to the feed disk, in the event of this thrust being suddenly increased—for example, in case of increased resistance to the turning of the feed disk, such as would be produced by manually retarding the work,—the feed disk and roll have cooperated to grasp the work more firmly and advance it with suddenly increased speed.

Other features of the invention will be hereinafter described and defined in the claims.

In the drawings:—Figure 1 shows in side elevation a machine forming one embodiment of the invention; Fig. 2 is a perspective view showing in detail the construction of the feed disk shaft in this machine; Fig. 3 is a view in perspective of a detail.

In the machine shown herein I have illustrated my invention applied to a machine

of the type shown in Letters Patent above referred to. The machine comprises a frame 1 adapted to rest upon a table or other base and supports in bearings 2 a rotary driving shaft 4 which may be actuated from any suitable source of power. The driving shaft 4 is provided with a worm 6 which engages a worm gear 8 upon a vertical shaft 10. The vertical shaft 10 is provided with a bevel gear 12 meshing with a similar gear 14 upon a horizontal shaft 16. The shaft 16 carries the work support or feed roll 18. The frame 1 is provided with approximately vertical bearings 20 arranged in front of and above the roll 18. A feed disk 22 is mounted to rotate in the bearings 20. The driving shaft 4 is provided with a worm 24 meshing with a worm gear 26 operatively connected to the disk 22. The feed disk 22 is removably secured to a shaft 28 and said shaft 28 is provided with a spline 30 detachably secured to its upper end in any convenient way. A hollow shaft 32 is provided with a hollow hub 34 which is preferably removably secured to said shaft 32 and is provided with a slot 36 at its lower end. The end of the feed disk shaft 28 is received in the hub 34, the spline 30 entering the slot 36, the shaft 28 thus being free to move longitudinally in said hub and being also arranged to be positively rotated with said hub. In the assembled position of the parts the hub 34 lies between the bearings 20 and the shafts 28 and 32 are mounted in lower and upper bearings 20 respectively. The worm gear 26 is secured in adjustable position upon the shaft 32 so that it may be positioned upon said shaft to mesh properly with the worm 24. In the machine shown the worm 24 is rotated in a direction to cause that part of its periphery in engagement with the worm gear 26 to move downwardly or toward the work. The feed disk 22 is pressed down upon the work by a spring 38 arranged in the interior of the shaft 32. A thumb screw 40 is mounted in the end of the shaft 32 and the tension of the spring 38 may be varied by adjustment of said thumb screw. If desired, cylindrical blocks 42 may be arranged in the interior of the shaft 32 on either side of the spring 38. The worm 24 and the worm gear 26 constitute transmission means for transmitting rotary motion of the driving shaft to the driven shaft which consists of the two parts 28 and 32.

A rotary disk knife 44 is arranged beyond the work-feeding mechanism in the path of the work and is carried by a shaft 46 which is adjustably supported by the machine frame and driven from the driving shaft 4. The detailed arrangement of the disk knife 44 and its shaft-sustaining means and actuating mechanism is not of the present invention and need not be further described. An edge gage 48 and presser 50 are shown and are of a construction commonly employed in machines of this type.

In the operation of the machine shown, the operator presents to the machine the work which is to be skived, inserting its edge beneath the presser 50 and against the edge guide 48, in position to be grasped by the feed disk 22 and feed roll 18, and advanced against the rapidly rotating skiving knife 44, which trims it to a beveled edge. Where the edge to be skived is straight or uniformly curved, but little attention is commonly required to be given by the operator to guiding the work, and the feeding mechanism may be allowed to advance the work, at full speed. When an irregular edge is to be skived, however, and the operator is obliged to turn the work from side to side, in order to keep the edge against the edge guide, the work must be fed more slowly to allow him to manipulate it properly. Also in skiving very thin, or soft, or spongy leather, it may be desired to feed the work at less than full speed. In the machine shown when it is desired to feed the work at less than full speed the operator holds it back manually and retards its progress through the machine, the feed disk and feed roll slipping upon the work to allow it to be drawn into the machine more slowly. The pressure of the feed disk upon the work under these conditions remains the same, however, as where the work is fed at full speed, and is not affected by the consequent increased resistance to rotation of the feed disk. Any downward pressure exerted by the worm 24 upon the worm gear 26 is sustained by the frame of the machine and is prevented from being transmitted to the feed disk and to the work. The pressure of the feed disk upon the work may be fixed as desired by adjusting the tension of the spring 38.

Although for convenience the parts 34 and 32 have been referred to as a hub and a hollow shaft it is evident that said parts may be considered respectively as a collar and a driving member provided with a tubular shank if desired.

Having described my invention, I claim as new and desire to secure by Letters Patent of the United States:—

1. In a skiving machine, the combination with a skiving knife, of means for feeding stock thereto, a driven shaft upon which said feeding means is mounted, a driving shaft, transmission means between said shafts arranged to exert thrusts on said driven shaft in a direction to force said stock feeding means into closer engagement with the work, and means for preventing the thrusts exerted by said transmission means from being imparted to said feeding means.

2. In a skiving machine, the combination with a skiving knife, of a feed disk for feeding stock thereto, a driven shaft upon which said feed disk is mounted, a driving shaft, transmission means between said shafts arranged to exert thrusts on said driven shaft in a direction to force said stock feeding means into closer engagement with the work, and means intermediate the ends of said driven shaft whereby the thrusts exerted by said transmission means are prevented from being imparted to said feeding disk.

3. In a skiving machine the combination with a skiving knife of a feed disk for feeding stock thereto, a two part shaft upon one part of which said feed disk is mounted, a driving shaft, transmission means between said shafts consisting of a worm and gear arranged to exert thrusts on said driven shaft in a direction to force said stock feeding means into closer engagement with the work, and a connection between the parts of said two part shaft whereby the part associated with said feed disk may move longitudinally independently of the other part.

4. In a skiving machine, the combination with a skiving knife, of a feed disk for feeding stock thereto, a two part shaft upon one part of which said feed disk is mounted, a driving shaft, transmission means between the other part of said two part shaft and said driving shaft consisting of a worm and gear arranged to exert thrusts on said driven shaft in a direction to force said stock feeding means into closer engagement with the work, means for preventing the part of said two part shaft associated with said transmission means from moving longitudinally in response to thrusts exerted by said transmission means, and a connection between the parts of said two part shaft whereby the part associated with said feed disk may move longitudinally irrespective of such thrusts.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRED M. COURSER.

Witnesses:

BERNARD BARROWS,

FREDERICK L. EDMONDS.