(No Model.)

C. H. BAYLEY.

LEATHER SKIVING MACHINE.

No. 479,583. Patented July 26, 1892.

Fig: 1.

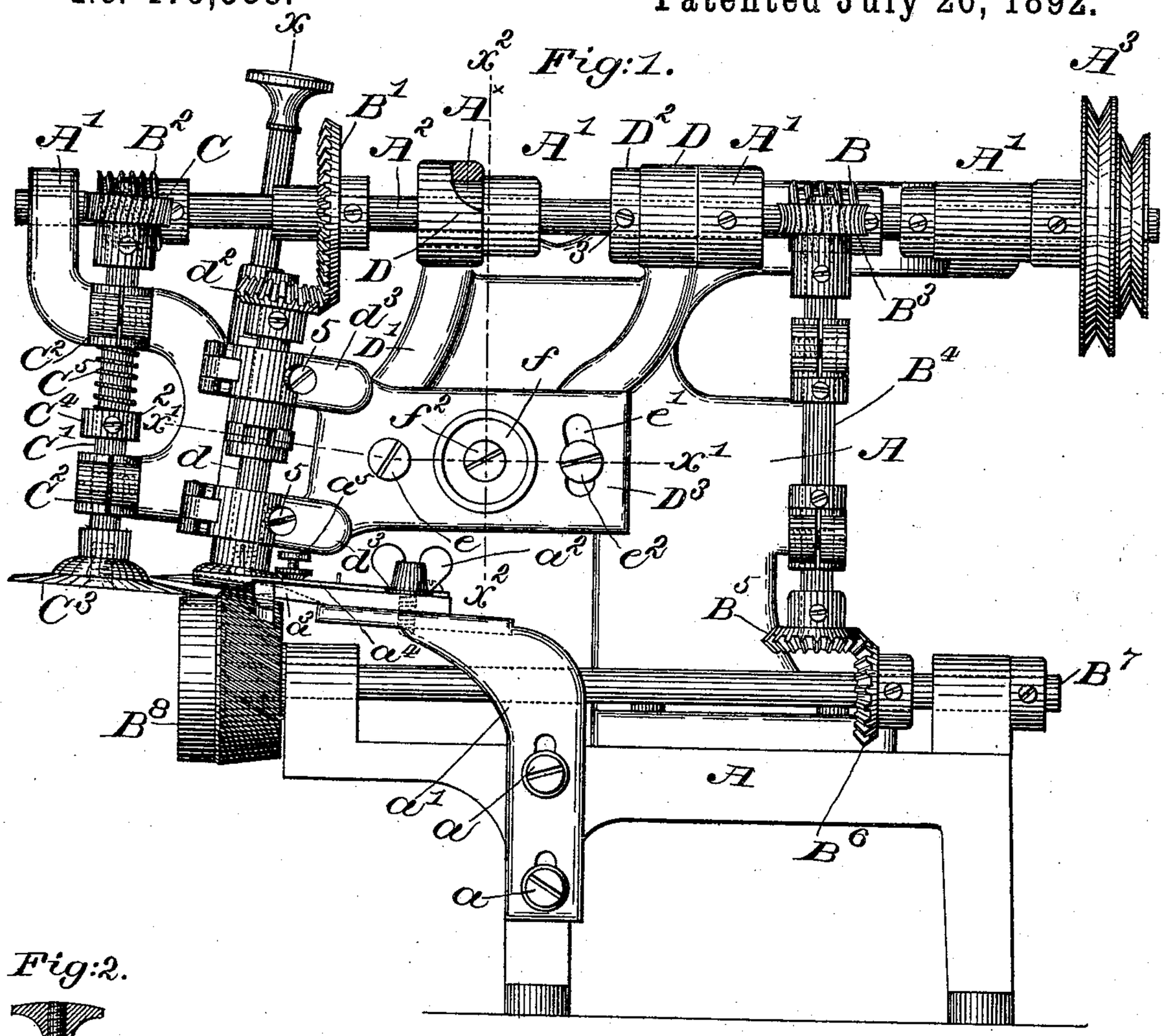


Fig: 2.

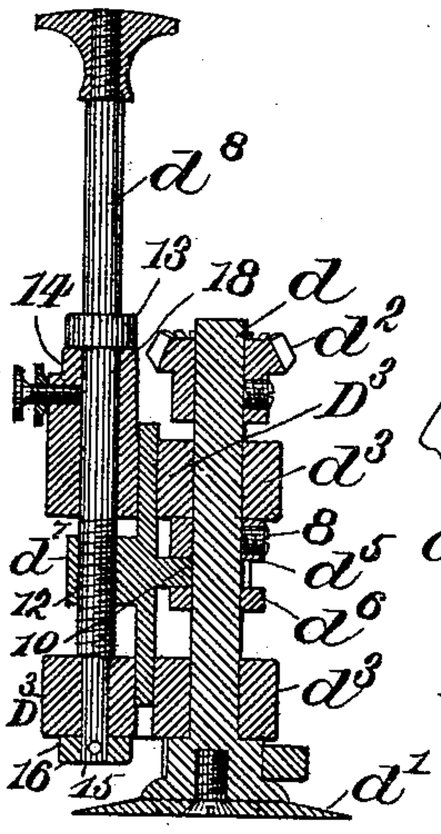


Fig: 3.

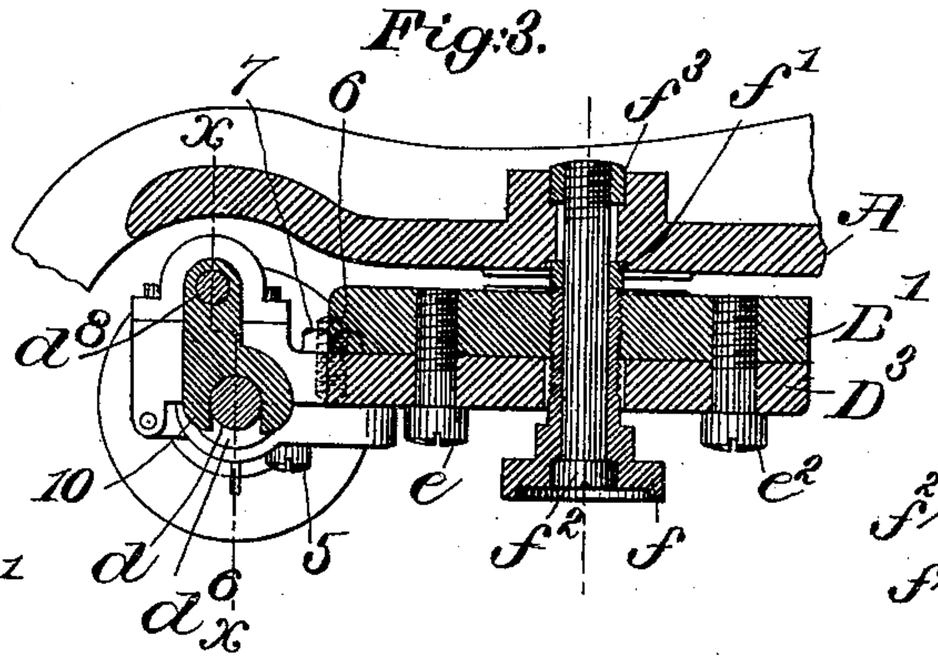
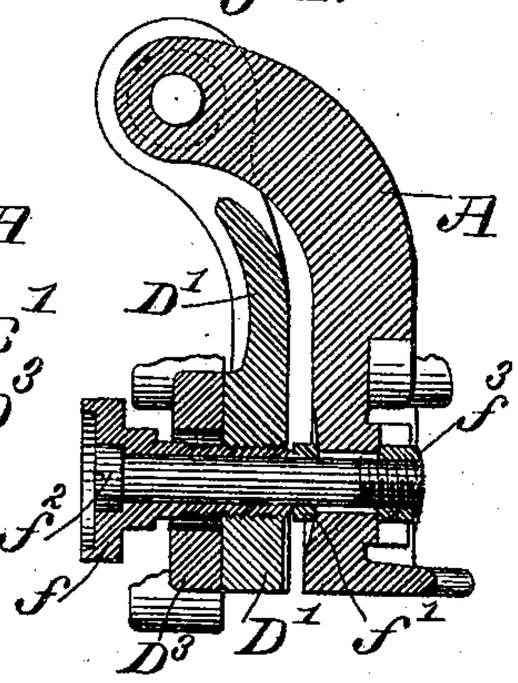


Fig: 4.



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UNITED STATES PATENT OFFICE.

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LEATHER-SKIVING MACHINE.

SPECIFICATION forming part of Letters Patent No. 479,583, dated July 26, 1892.

Application filed March 17, 1892. Serial No. 425,241. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. BAYLEY, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Leather-Skiving Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object to improve and simplify that class of leather-skiving machines having circular or disk knives.

In that class of machines wherein the leather to be skived rests on or is supported by a rotating feed wheel or roll it is customary, in order to provide for wear of the cutters, which are quite expensive, to mount the cutter-shaft in a frame adapted to be turned about a substantially vertical pivot, and to enable this to be done and yet keep the bevel-gear on the cutter-shaft in mesh with the bevel-gear on the driving-shaft it was necessary to locate the center of rotation of the said cutter-shaft a little to one side of the center of rotation of the driving-shaft—in practice about one-eighth of an inch—and as the cutter was reduced in diameter by grinding the frame was adjusted to thus enable the cutting-edge of the cutter to be kept up properly to its work and with its cutting-edge in a plane nearly vertical to the center of rotation of the feed-roll. This plan is by some considered objectionable, and especially when the center of rotation of the cutter-shaft is not radial from the center of rotation of the driving-shaft, which is the case for most of the time, the objections being the loud noise of the gears, they not meshing truly, and the great wear on the said gears and the extra power required. To obviate this objectionable noise and unnecessary wear of the gears and at the same time save power, I have devised a novel swing frame or support for the knife-shaft and have so mounted it that it may be swung about a center substantially parallel to the center of rotation of the feed-roll, as thereby the center of rotation of the cutter-shaft is always radial to the center of rotation of a gear on the driving-shaft, which gear engages a gear on the cutter-shaft. In this way the mesh of the gears is always the same and correct mechanically, and as a result thereof the machine is rendered substantially noiseless.

My invention therefore consists in a machine for skiving leather, it containing the following instrumentalities, viz: a rotary work-support or feed-wheel, a cutter-shaft provided with a disk cutter and a gear, a driving-shaft having a gear to effect the rotation of the cutter-shaft, and a swing-frame containing bearings for the cutter-shaft and bearings for and from which said frame is hung parallel to the center of rotation of said feed-wheel, whereby said frame has its center of rotation substantially parallel to the center of rotation of the said support or feed-wheel.

Figure 1 in side elevation represents a skiving-machine embodying my invention. Fig. 2 is a partial section in the line x of Fig. 3. Fig. 3 is a section in the line x', and Fig. 4 is a section in the line x^2, Fig. 1.

A is the framework containing bearings A′ for the main shaft A^2, provided with a suitable belt-pulley A^3 and having a worm B, a bevel-gear B′, and a worm B^2. The worm B engages the worm-gear B^3 on the vertical shaft B^4, having at its lower end a bevel-gear B^5, which engages the bevel-gear B^6 on the shaft B^7, provided at its opposite end with a work-support or feed-wheel B^8. The worm B^2 engages a worm-gear C fast on the upper end of a shaft C′, adapted to be rotated in suitable bearings C^2, the said shaft being provided at its lower end with a work clamping or presser disk C^3.

The shaft C′ has upon it a collar C^4, and between the collar and one of the bearings C^2 is a spring C^5. This collar may be left loose on the shaft, in which case the spring will not act to force the presser-disk C^3 down upon the work so as to exert a friction thereon beyond the force due to the gravity of the disk and the shaft; but in case extra pressure is desired then the collar may be lifted and the spring compressed more or less and the collar may be secured by a suitable set-screw 2.

The framework has, as represented, attached to it in an adjustable manner by set-screws a a bracket a', upon which is adjustably attached by a clamping-screw a^2 a gage

a^3, having a spring-presser a^4, the force of which upon the work may be regulated by an adjusting-screw a^5.

The two central bearings A′ have extended portions $A^\times$, which receive about them the hubs D of the hanger-bracket D′, one of said hubs being broken away in Fig. 1 to show the extended portion of the bearing about which the hanger turns. The hanger may be kept upon the hub extensions by means of a collar D^2, secured in place by a set-screw 3, said set-screw abutting against a portion of the bearing extension. The hanger D′ has adjustably connected with it a bearing-plate D^3, provided at one end with suitable bearings for the cutter-shaft d, provided at its upper end with a bevel-gear d^2, which is connected and rotated by the bevel-gear B′ before described. The shaft d is kept properly seated in its bearings by means of the hinged caps d^3, made adjustable toward and from the bearings for the shaft by set-screws 5.

To enable me to compensate for wear of the cutter-shaft in its bearings, I have provided the bearing-plate with stop-screws 6, having suitable check-nuts 7 by which to retain them in the position in which they may be put. In practice as the bearing wears the stop-screws will be withdrawn slightly, so as to let the set-screws keep the bearing-caps pressed constantly against the cutter-shaft. When new the bearing-caps stand off from the bearing-plate for about one thirty-second of an inch, more or less.

In order to skive the material at a greater or less bevel, I have mounted the bearing-plate D^3 upon a pivot-screw e, and I have provided the said plate with a slot e', through which is passed a set-screw e^2, the said set-screw being screwed into the hanger D′. By loosening this set-screw the bearing-plate may be turned more or less about the pivot-screw e, the gear B′ being set front or back on its shaft A^2 to accommodate the adjustment, the formation of the teeth of the two gears being such as to permit such slight necessary change in the angle of the two shafts.

It is necessary at times to adjust the cutter-shaft d longitudinally, and to provide for this the said shaft has fastened upon it by a set-screw (see Fig. 2) a collar d^5, and just below it there is bound in suitable manner to the shaft a second collar d^6, the space between the said collars being entered by a finger 10 of a clutch d^7, having a threaded hole to be entered by the threaded portion 12 of a spindle d^8, said spindle having fast upon it a collar 13, which rests upon a projection 14 of the bearing-plate D^3, the lower end of the spindle having fastened to it by a suitable set-screw 15 a collar 16, the said collar being adjustable on the end of the spindle to compensate for wear to prevent any looseness or shake in the direction of the end of the spindle. The spindle may be clamped as against rotation by means of a suitable set-screw 18.

The hanger, mounted loosely on the bearings referred to, is free to turn about a center substantially parallel to the center of rotation of the rotary support or feed-wheel B^8, the center about which the said hanger turns being the longitudinal center of the main shaft. To provide for swinging this hanger and its attached bearing-plate D^3, constituting, as I shall herein denominate, a swing-frame for the shaft of the cutter-carrier, I have provided an adjusting device, (herein represented as a hollow screw f,) the threaded shank of which is passed loosely through an opening in the bearing-plate D^3 and screwed into a threaded hole in the hanger D′ and through said hanger, the inner end of the screw abutting, as herein shown, against a washer f', resting, as herein shown, against the framework and having preferably a somewhat rounded back (see Fig. 4) where it rests against the framework. This hollow screw receives through it a set-screw f^2, which is extended loosely through the washer f', then loosely through the frame A and screwed into a nut f^3.

To adjust the swing-frame, the operator will loosen the set-screw and then, by turning the adjusting-screw f, will cause the inner end of the latter to project more or less, and it, acting against the washer f', will put the swing-frame in the desired position, so as to enable the cutting-edge of the knife d' to act in a vertical plane substantially in line with the center of rotation of the supporting or feed wheel B^8, and then the set-screw f^2 will be rotated into the nut f^3 to lock the swing-frame in position.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a leather-skiving machine, the following instrumentalities, viz: a rotatable support or feed-wheel, a cutter-shaft provided with a disk cutter, a rotating driving-shaft, gearing between it and the cutter-shaft to rotate the latter, a swing-frame in which the cutter-shaft has its bearings, and bearings for the said swing-frame, parallel to the center of rotation of the said work-support or feed-wheel, the frame being hung from said bearings and about which it is free to be oscillated as a center, as and for the purposes set forth.

2. In a leather-skiving machine, the main shaft, its attached bevel-gear, a swing-frame composed of a hanger and bearings therefor concentric to said main shaft, whereby said hanger is free to be oscillated about the center of rotation of the said main shaft, and of a bearing-plate D^3, pivotally connected therewith, of a work-support, a cutter-shaft mounted in bearings in the said bearing-plate, a disk cutter attached to said cutter-shaft, and a bevel-gear on said cutter-shaft in mesh with the bevel-gear on the driving-shaft, and devices to adjust the said swing-frame about the center of rotation of the main shaft, the center of rotation of the cutter-shaft being al-

ways radial to the center of rotation of the driving-shaft, substantially as and for the purposes set forth.

3. In a leather-skiving machine, the bearing-plate, means to support it, a shaft mounted in bearings on the said bearing-plate, and adjustable caps for the said bearings, and a disk cutter on said shaft, combined with set-screws and adjustable stops for and to act upon said caps, whereby wear on the cutter-shaft may be compensated for, and means for driving the cutter-shaft, substantially as described.

4. In a skiving-machine, the bearing-plate, the hanger upon which it is adjustably mounted, the cutter-shaft having a disk cutter and a bevel-gear, means to rotate the said shaft, a collar on the cutter-shaft, a slide-plate pronged to embrace the cutter-shaft, a threaded spindle to adjust the slide-plate, and devices to compensate for wear between portions of the spindle and the bearing-plate, substantially as described.

5. In a skiving-machine, the hanger, means to support it, and the bearing adjustably mounted thereon and adapted to receive and support the cutter-shaft, and means to rotate said shaft, combined with a hollow screw, and an abutment against which the inner end of the set-screw acts, and a set-screw extended through the said hollow screw, to operate substantially as described.

6. In a skiving-machine, a driving-shaft and bearings therefor, combined with a cutter-shaft, its cutter, and bearings therefor pivotally supported to rotate about the axis of rotation of the driving-shaft, whereby the axis of said cutter-shaft is made to intersect and adapted to be radially adjustable about the axis of the said driving-shaft, and actuating connections between said driving and cutter shafts, substantially as described.

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

CHARLES H. BAYLEY.

Witnesses:

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