Sept. 26, 1950 R. W. HALL 2,524,016

LEATHER SKIVING MACHINE OR SPLITTER

Original Filed July 19, 1947 4 Sheets-Sheet 1

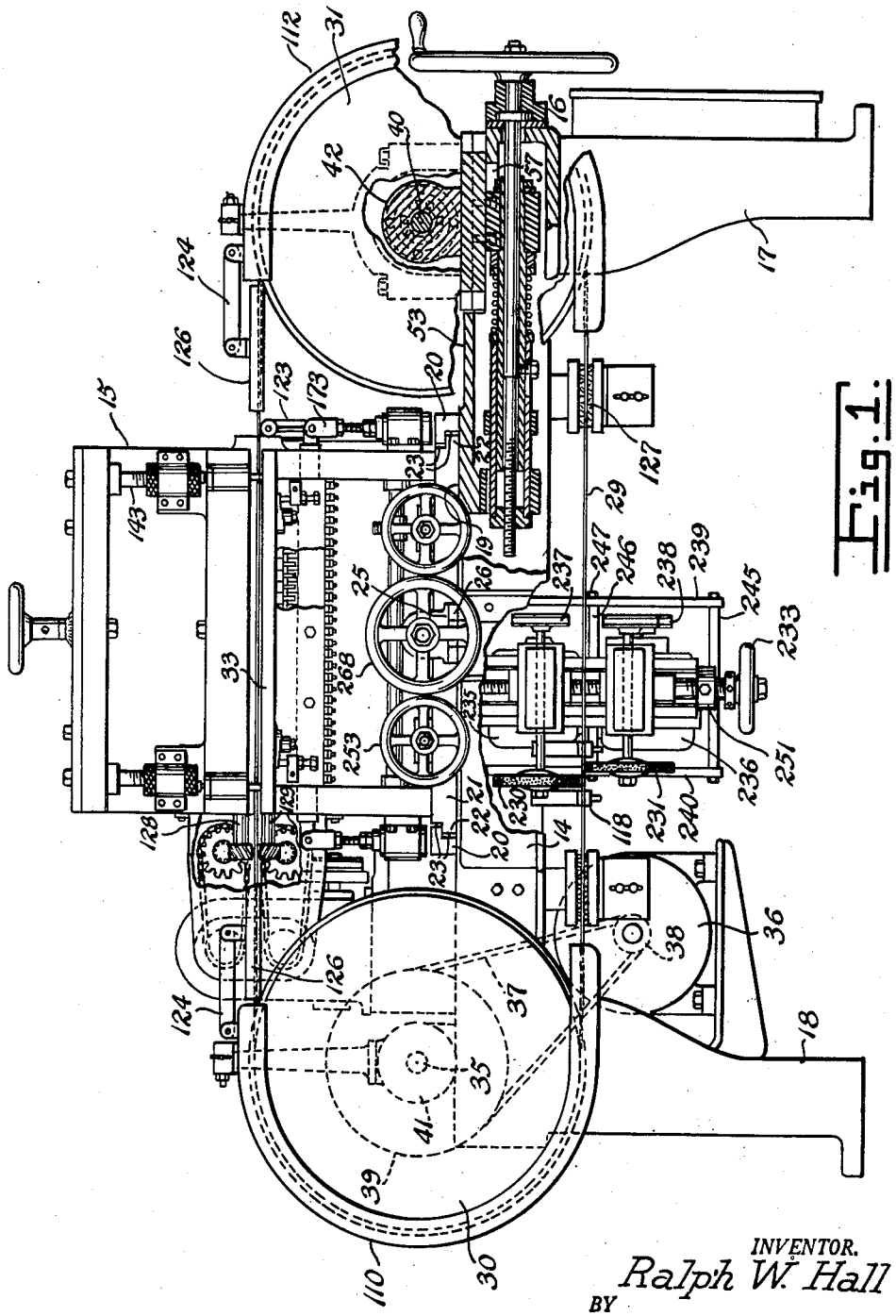


Fig. 1.

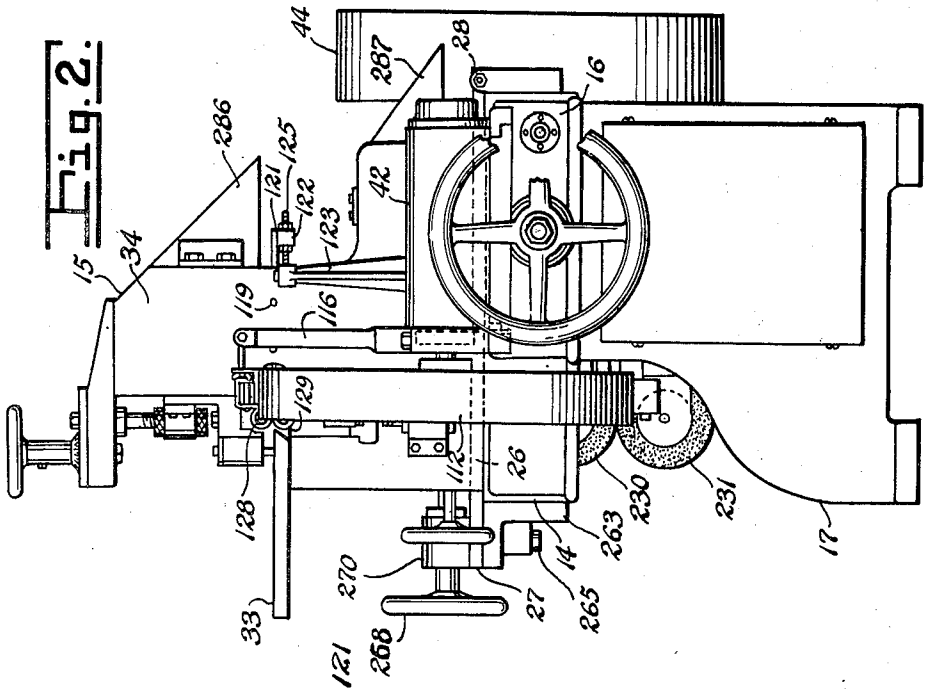
INVENTOR.
Ralph W. Hall
BY
Zugelter & Zugelter
Attys.

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Fig. 2.



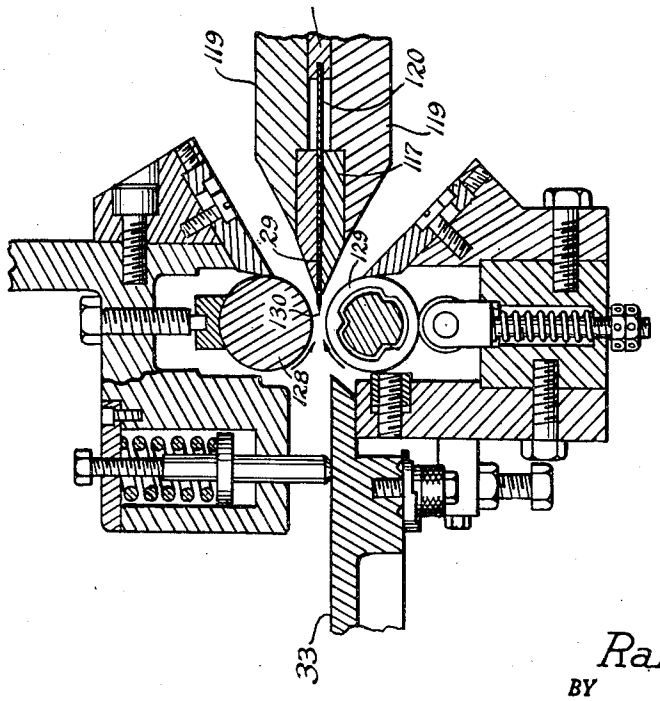


Fig. 4.

INVENTOR.
Ralph W. Hall
BY
Zugelter & Zugelter
Attys.

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Original Filed July 19, 1947 4 Sheets-Sheet 3

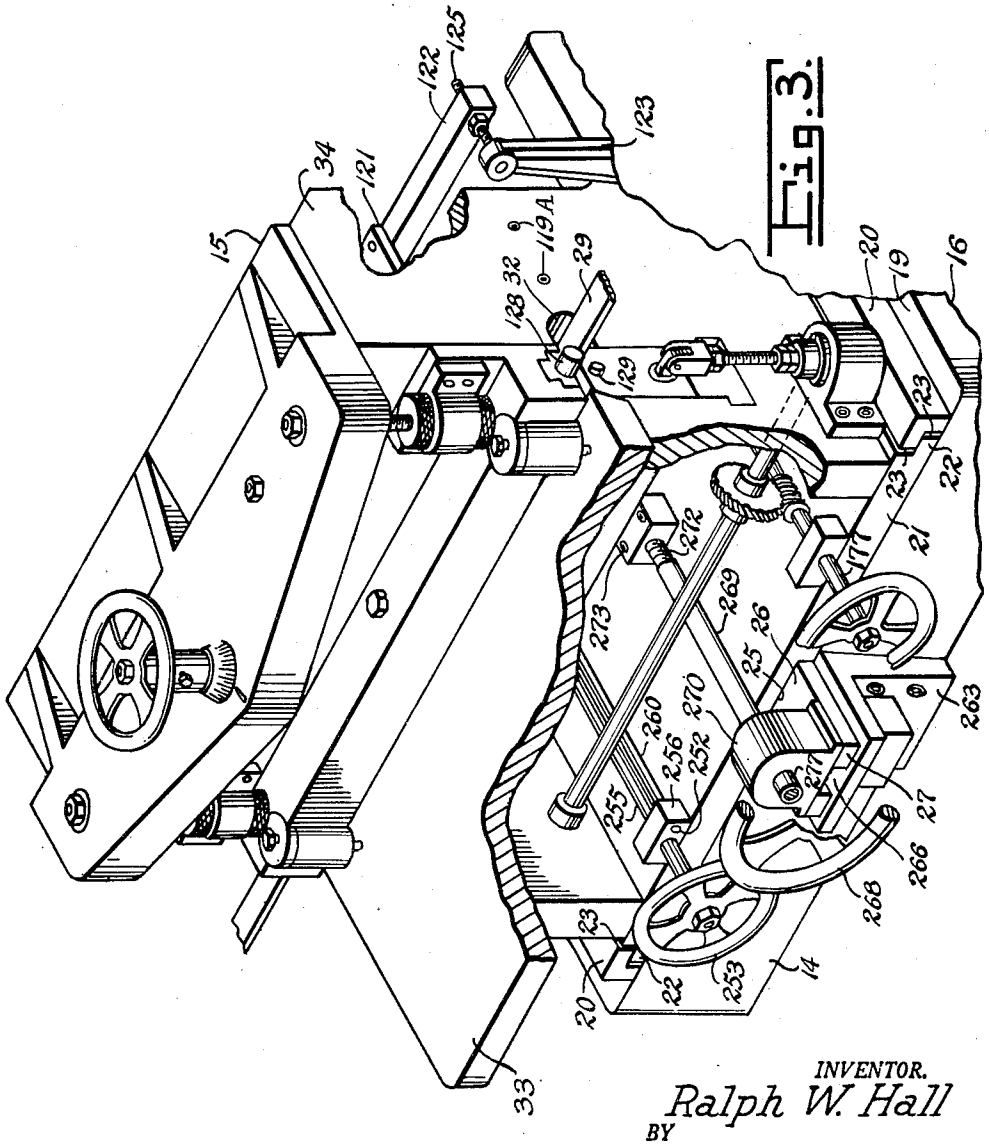


Fig. 3.

INVENTOR.
Ralph W. Hall
BY
Zugelter & Zugelter
Attys.

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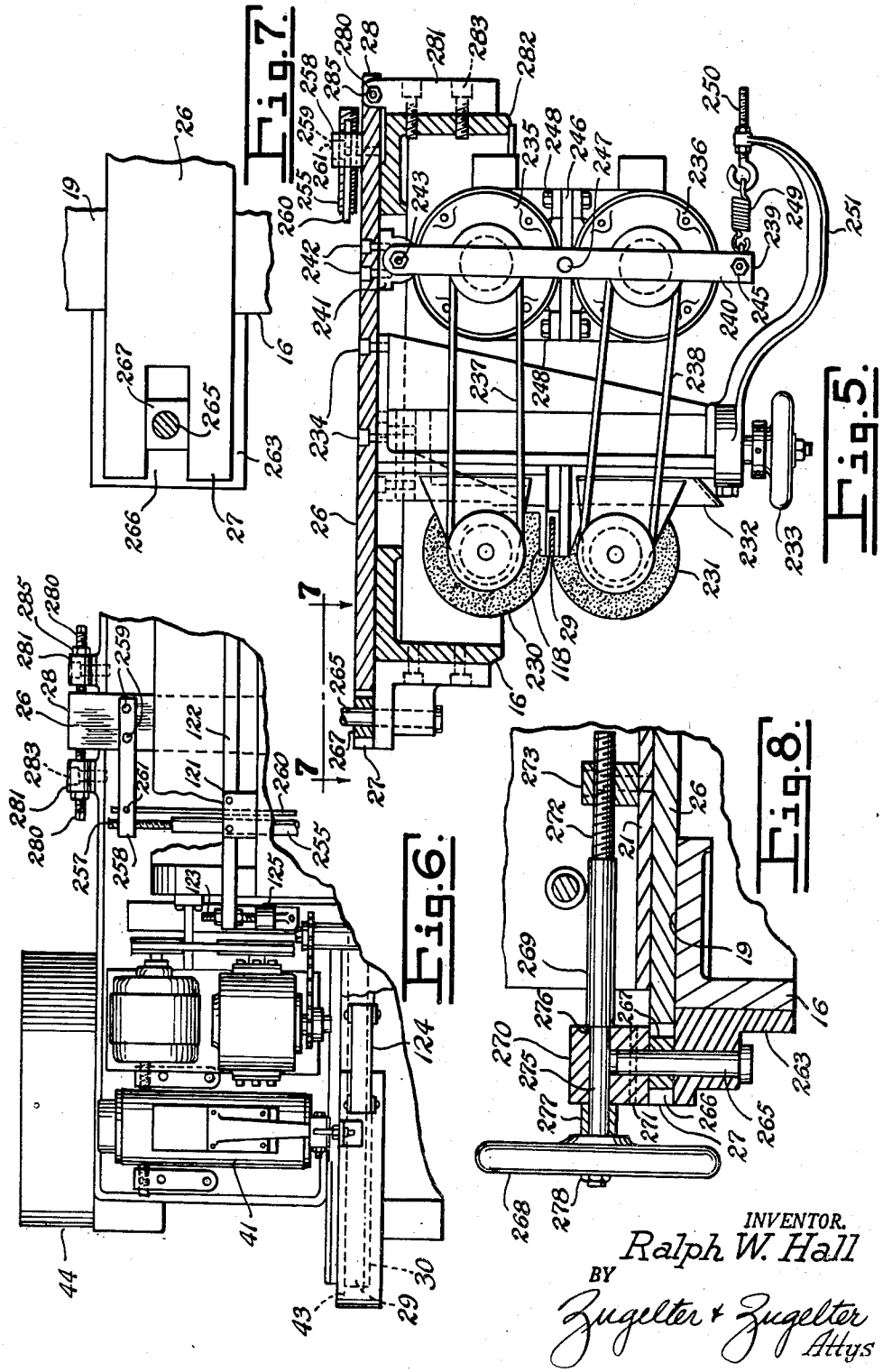


Fig. 7.

Fig. 5.

Fig. 6.

Fig. 8.

INVENTOR.
Ralph W. Hall
BY
Zugelter & Zugelter
Attys

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UNITED STATES PATENT OFFICE

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LEATHER SKIVING MACHINE OR SPLITTER

Ralph W. Hall, Cincinnati, Ohio, assignor to The Randall Company, Cincinnati, Ohio, a corporation of Ohio

Original application July 19, 1947, Serial No. 762,177. Divided and this application September 13, 1948, Serial No. 49,076

14 Claims. (Cl. 69—10)

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This invention relates to improvements in a leather skiving machine, splitter, or the like. This application is a division of my pending application Serial No. 762,177 filed July 19, 1947.

An object of the invention is the provision of an improved motor suspension for motors which drive knife grinders of a leather splitter or the like whereby the belts of a pair of motor pulleys will automatically equalize their tension in driving a continuous grinding apparatus for a band knife of the leather splitter.

Another object is the provision of means, in connection with the grinding wheels, for visually indicating the width of the ground bevel on the cutting edge of the skiving knife blade or band.

Another object of this invention is the provision of means for the adjustment of the grinding wheels to compensate for recession of the band knife cutting edge and for adjusting the relationship of the head of the leather splitting machine to the band knife cutting edge.

These and other objects and advantages are attained by the means described in the following specifications and illustrated upon the accompanying drawings, in which:

Fig. 1 is a front elevational view of the skiving machine embodying the improvements herein described, parts being broken away for clarity of illustration and description.

Fig. 2 is a side elevation of the skiving machine.

Fig. 3 is an enlarged fragmental perspective view of the swivel head, with parts broken away for clarity.

Fig. 4 is a transverse cross-sectional view of the roller assembly and knife support.

Fig. 5 is a cross-sectional view showing in side elevation the grinding wheel motor suspension.

Fig. 6 is a fragmental top view of the skiving machine, showing the bevel indicator arrangement and the means for adjusting the swivel plate.

Fig. 7 is an enlarged plan view taken on line 7—7 of Fig. 5, showing the construction of the swivel plate, and its relation to the swivel block and swivel pin.

Fig. 8 is a longitudinal cross-sectional view of the head control mounting means.

Machines for skiving leather and kindred materials are in general usage for producing thin sheets employed in the manufacture of bill folds, bags and cases of various types, shoe parts, and many other articles of commerce incorporating thin flexible sheet leather and similar materials. Such machines heretofore have given notoriously

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poor service in the performance of their intended functions, due to their relative inflexibility of operation, their inability to process with equal effectiveness all grades or weights of raw material, and various other limitations most of which result from the varied nature of the materials to be processed. The limitations which impair the usefulness and efficiency of such machines are well known in the trade, and many efforts have been advanced in the past with the purpose of overcoming some of the difficulties, but the market still has been seeking a satisfactorily operative and serviceable machine which is capable of advanced universal usage and productiveness. The machine of the present invention has proven itself greatly superior to others heretofore offered to industry, in its ability to process raw materials varying considerably as to weight, size, hardness, and uniformity of thickness, and in addition, provision has been made for maximum continuity of operation by reason of mechanical improvements, and the incorporation of means permitting a plurality of different skiving operations simultaneously. Various other advantages of merit in the improved machine will become manifest to those skilled in the art, as the description proceeds.

As exemplified in Fig. 1, the head, generally indicated by the character 15, is mounted on the bed 16, which in turn is supported by the legs 17 and 18. The head 15 rests directly upon the upper flat surface 19 of the forwardly extending central portion 14 of bed 16, being universally slidable thereon within defined limits. Clamp rails 20—20 are suitably secured to the upper flat bed surface 19, transversely thereon, one on each side of the head base plate 21. Each of the clamp rails 20 is provided with a rabbet, as shown, to slidably engage the tongues 22 of corresponding rabbets provided on the outer ends of the head base plate 21. The clamp rails serve to prevent vertical displacement of the head 15 from the bed 16 and to limit the swiveling movement of the head. The clamp rails 20—20 are set a sufficient distance from the head base plate 21 to provide spaces 23 therebetween, in order to permit limited swiveling or lateral movement of the head.

The lower face of the head base plate 21 is provided with a transverse groove 25 substantially on the median line of the base plate, into which is slidably disposed the swivel plate 26. This swivel plate, like the head base plate 21, also takes its bearing on the upper flat surface 19 of the bed 16, the swivel plate ends 27 and 28 ex-

tending substantially beyond the front and rear respectively, of the head base plate 21, as shown in Figs. 3 and 5. The swivel plate 26 is also slidable upon the upper flat surface 19 of the bed, means being provided for sliding the swivel plate independently of the head 15, as requirements demand in the operation and adjustment of the machine. The manner of swiveling the head and moving the head forwardly and rearwardly upon the bed will be hereinafter fully disclosed.

An endless band knife 29 (Fig. 1) tracks upon a pair of horizontally aligned coplanar rotating drums 30 and 31, mounted at opposite ends of the bed 16. The knife, on its upper run, passes through openings 32 (Fig. 3) provided in the head uprights 34 substantially centrally thereof, then passes under the forwardly extending central portion 14 of the bed 16 on its lower run. The knife 29 performs a splitting or skiving action on leather or other material as said material is fed into the machine from the feeding table 33. Drum 30, mounted on drum shaft 35, is driven by the motor 36 by means of the pulley belt 37 and pulleys 38 and 39. Drum 31, mounted on shaft 40, is free running, and is rotated by means of frictional engagement of the knife blade 29 with the two drums as drum 30 is rotated by the motor 36. Drum shafts 35 and 40 are mounted for rotation in substantially parallel drum shaft housings 41 and 42 respectively, said shaft housings being swivel mounted upon the bed 16 adjacent the outer ends thereof. The pulley belt 37 and pulleys 38 and 39 may be protected by means of the belt guard 44.

Means may be provided for adjusting the knife blade 29 to track true upon the drums and against the drum flanges 43.

As a protective measure, guards may be provided for the drums, such as indicated at 110 and 112 (Fig. 1).

The machine is provided with two sets of knife guides, one directly behind the feed rolls, as shown at 117 in Fig. 4, and the other at the grinding station, as indicated at 118 in Fig. 1. The knife guides 117 (Fig. 4) are mounted upon the knife guide supports 119, which in turn are supported between the head uprights 34 (Fig. 3) and held against displacement by means of the screws 119A. In order to preclude displacement and distortion of the knife when leather or the like is being fed to the said knife, a backing blade 120 is provided, which is supported by the plate 121 mounted upon an adjustable back bar 122, shown in Figs. 2, 3, and 6. The back bar is mounted on back bar supports 123 by means of adjusting screws 125. The knife guides 118 are mounted in suitable brackets depending from the bed 16 (Fig. 1).

Oil-moistened pads bear upon the upper run of the knife at each side of the head 15, as at 126 (Fig. 1) while the lower run of the knife passes through oil soaked pads 127, depending from the bed 16 and disposed on each side of the grinding station, the purpose of these pads being to remove dust particles and other extraneous matter which might interfere with efficient operation of the machine. The oil pads 126 are mounted on the drum guards by means of pivoted links 124.

A pair of vertically aligned parallel feed rolls 128 and 129 are horizontallyy mounted in the head 15 (Fig. 4) and driven in opposite directions of rotation toward the beveled forward edge 130 of the knife 29.

For best results in leather skiving or splitting, the cutting edge of the band knife 29 must be kept keen at all times. For this purpose, grinding wheels 230 and 231 are provided, said wheels being individually motor driven to act upon the lower run of the rotating band knife, as illustrated in Fig. 5. The grinding wheels 230 and 231 are adjustably mounted in a suitable frame, generally indicated by the symbol 232, said frame being rigidly suspended from the swivel plate 26 and movable therewith. The screws for mounting the grinding wheel frame 232 to the swivel plate 26 are indicated at 234.

The grinding wheels are adjusted by means of the hand wheel 233, adjustments being required as the wheels become worn and for the initial setting of new wheels.

As shown, the grinding wheels are mounted to act on both sides of the blade simultaneously to provide a beveled cutting edge, both bevels being substantially equal to produce the best skiving results. These grinding wheels are always in light contact with the band knife when leather is being fed to the knife in order to maintain a keen edge thereon.

Novel means for mounting the motors and equalizing the tension on their respective driving belts have been provided. The motor 235 belt-drives the grinding wheel 230, while the motor 236 simultaneously drives the grinding wheel 231, their respective belts being shown at 237 and 238. As shown in Fig. 5, the motor mount 239, like the grinding wheel frame 232, is suspended from the swivel plate 26, but instead of being rigidly mounted, is pivotally mounted at 243.

Two substantially vertical bars 240, in spaced parallelism, pivotally depend as a cradle from the motor suspension bracket 241, said bracket being fixed to the swivel plate 26 by means of the screws 242, rearwardly of the grinding wheel frame 232. The pivot pin is indicated at 243, while a horizontal spacer bar, at the lower ends of the vertical bars 240, is shown at 245. Substantially midway of the pivot pin 243 and the spacer bar 245, and pivoted to the vertical bars 240 therebetween, is the substantially horizontal grinder motor mounting plate 246, the pivot thereof being shown at 247. Upstanding on the pivoted motor plate 246 is the motor 235, while in inverted position directly beneath it the companion motor 236 is mounted, the two motors being rigidly fixed to the pivoted motor plate by means of the screws 248. Proper tension on the motor belts 237 and 238 is maintained by means of the tension spring 249, one end of which is attached to the spacer bar 245, while the other end is engaged with the adjustable hook screw 250 disposed in the rearwardly extending tension spring supporting arm 251 fixed to the grinding wheel frame 232 adjacent its lower end.

The need for individual adjustment of the belts 237 and 238 has been eliminated, since tension of the belts is automatically equalized by the swivel action of the motor mounting plate 246. Thus if one belt is shorter than the other, the motor plate 246 will swivel to equalize the tension, the overall tension being achieved through the tension spring 249.

The knife guides 118, one of which is located at each side of the grinding station, support the knife while it is being ground by the grinding wheels 230 and 231, said guides being suitably fixed to the bed 16 in detachable relation to the grinding wheel frame 232.

As hereinbefore recited, the grinding wheels are adjustable to grind a bevel of substantially

equal width on each side of the cutting edge of the knife. Means for indicating a standard bevel has been provided, as shown in Fig. 3, wherein the bevel indicator is depicted by the symbol 252. The width of the knife bevel is controlled by means of the hand wheel 233, which controls the spacing of the grinding wheel centers, and by means of the hand wheel 253. The hand wheel 253 is keyed to a transverse bevel control shaft 255 having its front end rotatably mounted in the bevel indicator bearing block 256 fixed to the upper surface of the head base plate 21. The outer end 257 (Fig. 6) of the bevel control shaft 255 is threaded, and engages a tapped hole in the free end of a cross block 258 fixed to the upper face of the swivel plate 26, transversely thereof, by means of the screws 259.

Rotation of the hand wheel 253, therefore, will move the swivel plate 26 in the head base plate groove 25. Movement of the swivel plate 26, of course, also moves the grinding wheels and motors depending therefrom, but does not move the band knife 29, which travels in a fixed path. Such movement of the grinding wheels accompanied by slight separation thereof incident to manipulation of handwheel 233 affects the length of the bevel on the knife blade. Counterclockwise rotation of the hand wheel 253 accompanied by rotation of the hand wheel 233 to bring the grinding wheel centers toward one another shortens the bevel, while clockwise rotation of the hand wheel 253 accompanied by rotation of the hand wheel 233 to separate the centers of the grinding wheels lengthens the bevel. Experience has proved that a bevel of approximately one-eighth of an inch in length is the most satisfactory for average work.

In order to definitely indicate the length of the bevel at all times, the bevel indicator 252 (Fig. 3) has been added to the bevel control means. This comprises a bevel indicator rod 260 having one end in slidable engagement with an aperture provided in the bevel indicator bearing block 256, and its opposite end adjustably fixed to the cross block 258 (Fig. 6) at the rear of the swivel plate 26, as by means of the set screw 261. As shown in Figs. 3 and 6, the indicator rod 260 is in parallel relation to the bevel control shaft 255.

In setting the bevel indicator, the grinding wheels are adjusted by rotating the bevel control hand wheel 253 to provide the desired bevel on the band knife, the set screw 261 in the cross block 256 being left untightened. When the desired bevel has been attained, the end face of the indicator rod 260 is brought flush with the outer face of the bevel indicator bearing block 256 and the set screw 261 tightened upon the opposite end of the bevel indicator rod in the cross block 258 at the rear of the machine.

Thus the bevel indicator may be set to indicate a bevel of substantially one-eighth inch in length upon the band knife cutting edge when the indicator rod and face is flush with the outer face of the bevel indicator bearing block 256. Thereafter, when the bevel control hand wheel 253 is rotated clockwise accompanied by separation of the grinding wheels by manipulation of hand wheel 233, the bevel indicator rod 260, in fixed relation to the grinding wheels, will recede into the bevel indicator bearing block 256, the depth of the recession equalling the increase in the length of the bevel. Conversely, counter-clockwise rotation of the hand wheel 253 accompanied by adjustment of hand wheel 233 will cause indicator rod 260 to protrude from the bevel indicator bearing block 256, the length of the protrusion indicating the decrease in the length of the bevel.

As hereinbefore recited, the head 15 is swivel mounted, making possible various adjustments heretofore unattainable in former leather skiving devices. Figs. 7 and 8 show the method of mounting the swivel head. Upon the front wall of the bed 16, substantially centrally thereof, is mounted a swivel bracket 263, vertically apertured to receive the swivel pin 265. The upper surface of the swivel bracket 263 is coplanar with the surface 19 of the bed 16 upon which the swivel plate 26 is disposed. As shown in Figs. 7 and 8, the forward end 27 of the swivel plate rests upon the upper surface of the swivel bracket. The forward end of the swivel plate is slotted, as at 266, to slidably engage the pivot block 267, said block being centrally apertured to rotatably receive the swivel pin 265. The pivot block is of substantially the same thickness as the swivel plate 26.

Forward and rearward movement of the head 15 upon the bed 16 is selectively controlled by means of the head control hand wheel 268, keyed to the shaft 269, said shaft being intermediate the shafts 177 and 255, and parallel therewith. The shaft 269, adjacent its outer end, takes a bearing in the head control bearing block 270, which is in fixed relation with the bed 16 by means of the swivel pin 265. As shown, the bearing block 270 is apertured to receive the upper end of the swivel pin 265 which extends upwardly through the swivel bracket 263 and the pivot block 267. The swivel pin 265 may be secured against displacement in the bearing block 270, as by means of the lock pin 271.

The inner end of the head control shaft 269 is threaded, as at 272, for engagement with the internal threads of a pull block 273 in fixed relation with the head 15, said pull blocks being in the form of a nut bolted or otherwise secured to the upper surface of the head base plate 21. Means for precluding the shifting of the shaft 269 in the bearing block 270 have been provided. A counter-turned diameter 275 extends through the transversely apertured bearing block 270, the shoulder 276 on the shaft abutting the rear face of said block. Interposed between the front face of the bearing 270 and the hand wheel 268 upon the diameter 275, is a spacer collar 277, said hand wheel being held in abutment with the outer end face of said collar by means of the nut 278 turned upon the threaded outer end of the shaft 269.

Thus it will be seen that rotation of the hand wheel 268 transmits movement to the head 15 upon the bed surface 19 by reason of the threaded engagement of the shaft 269 with said head. When the head 15 is thus moved, the swivel plate 26 to which the blade sharpening assembly is fastened is also moved in unison, because of the fixed connection of the head 15 and the swivel plate 26 through the bevel control shaft 255. However, rotation of the bevel control hand wheel 253 will transmit motion to the swivel plate 26, but not to the head 15.

When the swivel plate 26 is moved, either independently of the head 15 or in association with the said head, it is guided in its transverse movement by the pivot block 267 which slidably engages the slot 266 in the forward end 27 of said swivel plate, and by the pair of opposed set screws 280, directed at the sides of the swivel plate, at the far end 28 of said swivel plate, as shown in Figs. 5 and 6. These set screws 280 which control the alignment of the head 15, threadedly engage the vertical blocks 281 mounted upon the rear

wall 282 of the bed 16 at opposite sides of the swivel plate 26, the mounting means of which may be screws 283. A slight clearance is maintained between the ends of the set screws 280 and the sides of swivel plate 26 to permit free slidable movement of said swivel plate between said set screws.

The head is swivel mounted to insure that the cutting edge of the band knife 29 is parallel with the center line of the feed rolls 128 and 129 for the full length of the rolls when the machine is set for splitting leather of substantially uniform thickness. Thus the head 15 may be swiveled to the right or left, as the case may be, in aligning the band knife with the feed rolls, by adjusting the set screws 280. After adjustments have been made, the set screws may be locked against rotation by means of the lock nuts 285.

If the operator desires to obtain splits of different thicknesses, the head may be swiveled, by means of the swivel plate adjusting screws 280, to obtain an unparallel or cocked relationship between the cutting edge of the band knife and the center line of the feed rolls. Such an adjustment produces a heavier split at one end of the feed rolls than at the other with the result that individual leather sheets may be fed simultaneously to the knife at both sides of the feeding table 33, making possible the production of several thicknesses of splits with one setting of the machine. Obviously this is an advantage in increasing the production of the operator.

A sheet of leather, on being fed to the machine, is gripped between the feed rolls 128 and 129, and forced against the cutting edge of the knife, being thereby divided into two thinner sheets. The upper or usable sheet, called the split, will be discharged into the top tray 286 (Fig. 2), while the lower or scrap sheet will be discharged into the bottom tray 287, both of said trays being at the rear of the machine, as shown.

As the knife blade 29 becomes worn, the head 15 may be advanced toward the band knife by means of the head control hand wheel 268 to compensate for the knife wear. Once the knife-head, knife-grinder and grinder-head relationship have been properly established, the hand wheel 268 is used to make necessary adjustments of the head with relation to the knife to compensate for knife wear. When the knife blade is replaced with a new one, the head 15 will be brought forward to the original setting by the same means.

The machine constructed as disclosed herein is highly productive and will perform many operations which heretofore had to be assigned to other machines especially adapted for splitting different grades and weights of leather. Repeated handling of the products is thereby avoided, and the machine therefore is kept in continuous operation with a resultant saving of labor and operating expense. Various other advantages have been set forth previously herein, and still others will be evident to those skilled in the art.

It is to be understood that various modifications and changes in the structural details of the machine may be made, within the scope of the appended claims, without departing from the spirit of the invention.

What is claimed is:

1. In a band knife splitting machine, a longitudinal bed, a head supported upon said bed for bodily movement relative thereto, an elongated plate translatably supported upon said bed including means to guide the head in its movements relative to the bed, a pair of coplanar rotatable drums vertically disposed at the outer ends of the bed, means for rotating said drums, a band knife tracked upon the periphery of the drums and having thereon a beveled cutting edge, a pair of motor driven grinding wheels depending from said elongated plate and translatable therewith, said grinding wheels being disposed to act upon opposed faces of the knife edge in sharpening relation therewith, means for adjusting the distance between centers of said grinding wheels for varying the length of bevel ground on the knife, means for moving said elongated plate to bring its depending grinding wheels toward and away from the band knife, said movement of the elongated plate being independent of the head movements, and means for indicating the degree of bevel being ground upon the cutting edge of the band knife.

2. In a band knife splitting machine, a longitudinal bed, a head supported upon said bed for bodily movement relative thereto, an elongated plate translatably supported upon said bed including means to guide the head in its movements relative to the bed, a pair of coplanar rotatable drums vertically disposed at the outer ends of the bed, means for rotating said drums, a band knife tracked upon the periphery of the drums and having thereon a beveled cutting edge, a pair of motor driven grinding wheels depending from said elongated plate and translatable therewith, said grinding wheels being disposed to act upon opposed faces of the knife edge in sharpening relation therewith, means for adjusting the distance between centers of said grinding wheels for varying the length of the bevel ground on the knife, means for moving said elongated plate to bring its depending grinding wheels toward and away from the band knife, said movement of the elongated plate being independent of the head movements, said means for moving the elongated plate comprising a rotatable shaft having opposite ends, one of which is threaded, a threaded cross block fixed to the elongated plate, the threaded end of said shaft being in engagement with the cross block threads, bearing means on the head for rotatably supporting the opposite end of said shaft against longitudinal shiftability, and means for indicating the degree of bevel being ground upon the cutting edge of the band knife.

3. In a band knife splitting machine, a longitudinal bed, a head supported upon said bed for bodily movement relative thereto, an elongated plate translatably supported upon said bed including means to guide the head in its movements relative to the bed, a pair of coplanar rotatable drums vertically disposed at the outer ends of the bed, means for rotating said drums, a band knife tracked upon the periphery of the drums and having thereon a beveled cutting edge, a pair of motor driven grinding wheels depending from said elongated plate and translatable therewith, said grinding wheels being disposed to act upon opposed faces of the knife edge in sharpening relation therewith, means for adjusting the distance between centers of said grinding wheels for varying the length of the bevel ground on the knife, means for moving said elongated plate to bring its depending grinding wheels toward and away from the band knife, said movement of the elongated plate being independent of the head movements, said means for moving the elongated plate comprising a rotatable shaft having threads at one end, a threaded cross block fixed to the elongated plate, the threaded end of said shaft being in engagement with the cross block threads, a

bearing block on the head for rotatably supporting the opposite end of said shaft against longitudinal shiftability, and means for indicating the degree of bevel being ground upon the cutting edge of the band knife, said indicating means comprising a rod in substantial parallelism with said shaft, one end of said rod being fixed to said cross block, the other end of said rod being slidable relative to said bearing block and adapted to assume a flush relation with one face of the bearing block when a preselected bevel is being ground upon said knife.

4. In a machine of the class described, a bed, a rotating band knife, a pair of grinding wheels co-acting upon opposite sides of said knife to grind a cutting edge thereupon, a pair of motors suspended from said bed, a belt for each motor to transmit rotary motion to each grinding wheel, and means for equalizing the tension on said belts, said means comprising a cradle pivotally mounted on said bed and depending therefrom in spaced parallelism, a motor mounting plate pivotally supported upon the cradle in a substantially horizontal plane at points remote from the pivotal mountings, one motor mounted upon the upper surface of said motor mounting plate, the other motor, in reverse position, depending from the under surface of said motor mounting plate, said motors being in substantial vertical alignment, and means yieldingly urging the cradle in a direction away from the grinding wheels.

5. A band knife splitting machine comprising in combination, a bed, a head supported upon the bed for bodily relative movement, an elongated plate translatably supported upon said bed including means to guide the head in its movements relative to the bed, an endless band knife, driven drum means on the bed supporting the knife, means on the head for advancing work pieces to the knife, depending bracket means fixed to the plate and including bearings spaced apart in substantial parallelism, shafts rotatably supported in said bearings, a grinding wheel on each shaft and adapted to contact opposite faces of the band knife for grinding bevels thereon, a pulley on each shaft, a cradle pivotally suspended from the translatable plate, a motor mounting plate pivoted upon the cradle at a distance from the cradle pivot, a pair of electric motors secured to opposite faces of the motor mounting plate, a pulley on each motor, and a pair of grinding wheel driving belts, each transmitting motion of a motor pulley to a grinding wheel pulley.

6. A band knife splitting machine comprising in combination, a bed, a head supported upon the bed for bodily relative movement, an elongated plate translatably supported upon said bed including means to guide the head in its movements relative to the bed, an endless band knife, driven drum means on the bed supporting the knife, means on the head for advancing work pieces to the knife, depending bracket means fixed to the plate and including bearings spaced apart in substantial parallelism, shafts rotatably supported in said bearings, a grinding wheel on each shaft and adapted to contact opposite faces of the band knife for grinding bevels thereon, a pulley on each shaft, a cradle pivotally suspended from the translatable plate, a motor mounting plate pivoted upon the cradle at a distance from the cradle pivot, a pair of electric motors secured to opposite faces of the motor mounting plate, a pulley on each motor, a pair of grinding wheel driving belts, each transmitting motion of a motor pulley to a grinding wheel pulley, means for adjusting the grinding wheels toward and from the band knife, and means imposing a yielding force upon the cradle to maintain the grinding wheel driving belts in a tensioned condition.

7. A band knife splitting machine comprising in combination, a bed, a head supported upon the bed for bodily relative movement, an elongated plate translatably supported upon said bed including means to guide the head in its movements relative to the bed, an endless band knife, driven drum means on the bed supporting the knife, means on the head for advancing work pieces to the knife, depending bracket means fixed to the plate and including bearings spaced apart in substantial parallelism, shafts rotatably supported in said bearings, a grinding wheel on each shaft and adapted to contact opposite faces of the band knife for grinding bevels thereon, a pulley on each shaft, a cradle pivotally suspended from the translatable plate, a motor mounting plate pivoted upon the cradle at a distance from the cradle pivot, a pair of electric motors secured to opposite faces of the motor mounting plate, a pulley on each motor, a pair of grinding wheel driving belts, each transmitting motion of a motor pulley to a grinding wheel pulley, means imposing a yielding force upon the motors in a direction to tension the driving belts, and means for altering the belt tension.

8. A band knife splitting machine comprising in combination, a bed, a head supported upon the bed for bodily relative movement, an elongated plate translatably supported upon said bed including means to guide the head in its movements relative to the bed, an endless band knife, driven drum means on the bed supporting the knife, means on the head for advancing work pieces to the knife, depending bracket means fixed to the plate and including bearings spaced apart in substantial parallelism, shafts rotatably supported in said bearings, a grinding wheel on each shaft and adapted to contact opposite faces of the band knife for grinding bevels thereon, a pulley on each shaft, a cradle pivotally suspended from the translatable plate, a motor mounting plate pivoted upon the cradle at a distance from the cradle pivot, a pair of electric motors secured to opposite faces of the motor mounting plate, a pulley on each motor, a pair of grinding wheel driving belts, each transmitting motion of a motor pulley to a grinding wheel pulley, means imposing a yielding force upon the motors in a direction to tension the driving belts, means for altering the belt tension, and means for shifting the elongated plate with relation to the head.

9. A band knife splitting machine comprising in combination, a bed, a head supported upon the bed for bodily relative movement, an elongated plate translatably supported upon said bed including means to guide the head in its movements relative to the bed, an endless band knife, driven drum means on the bed supporting the knife, means on the head for advancing work pieces to the knife, depending bracket means fixed to the plate and including bearings spaced apart in substantial parallelism, shafts rotatably supported in said bearings, a grinding wheel on each shaft and adapted to contact opposite faces of the band knife for grinding bevels thereon, a pulley on each shaft, a cradle pivotally suspended from the translatable plate, a motor mounting plate pivoted upon the cradle at a distance from the cradle pivot, a pair of electric motors secured to opposite faces of the motor mounting plate, a pulley on each motor, a pair of grinding wheel driving

belts, each transmitting motion of a motor pulley to a grinding wheel pulley, means for tensioning the grinding wheel belts, means for selectively shifting the head and the elongated plate relative to the bed, and means to shift the elongated plate with relation to the head.

10. A band knife splitting machine comprising in combination, a bed, a head supported upon the bed for bodily relative movement, an elongated plate translatably supported upon said bed including means to guide the head in its movements relative to the bed, an endless band knife, driven drum means on the bed supporting the knife, means on the head for advancing work pieces to the knife, depending bracket means fixed to the plate and including bearings spaced apart in substantial parallelism, shafts rotatably supported in said bearings, a grinding wheel on each shaft and adapted to contact opposite faces of the band knife for grinding bevels thereon, a pulley on each shaft, a cradle pivotally suspended from the translatable plate, a motor mounting plate pivoted upon the cradle at a distance from the cradle pivot, a pair of electric motors secured to opposite faces of the motor mounting plate, a pulley on each motor, a pair of grinding wheel driving belts, each transmitting motion of a motor pulley to a grinding wheel pulley, means for tensioning the grinding wheel belts, means for moving the head and the elongated plate relative to the bed, means for adjusting the distance between centers of said grinding wheels for varying the length of the bevel ground on the knife, means for moving the elongated plate with relation to the head to bring the grinding wheels toward and away from the band knife, and means responsive to relative movement of the plate and head for indicating the length of the bevel.

11. A self-equalizing power transmission assembly comprising in combination, a supporting plate, a bracket secured transversely to the plate, a pair of bearings on the bracket spaced apart in substantial parallelism, shafts rotatably supported in the bearings, an abrading wheel and a power transmission wheel fixed upon each shaft for rotation therewith, a cradle comprising an elongate frame having one end pivoted to the supporting plate and extending in the general direction of extension of the bracket, yielding means urging the cradle away from the abrading wheels, a motor support plate pivoted for rotation intermediate the ends of the cradle, a pair of motors fixed to opposite faces of the motor support plate, a power transmission wheel associated with each motor, and a pair of flexible endless power transmission elements, each of which is trained over a power transmission wheel of a motor and a power transmission wheel of an abrading wheel.

12. A self-equalizing power transmission assembly comprising in combination, a supporting plate, a bracket secured transversely to the plate, a pair of bearings on the bracket spaced apart in substantial parallelism, shafts rotatably supported in the bearings, an abrading wheel and a power transmission wheel fixed upon each shaft for rotation therewith, a cradle comprising an elongate frame having one end pivoted to the supporting plate and extending in the general direction of extension of the bracket, a motor support plate pivoted for rotation intermediate the ends of the cradle, a pair of motors fixed to opposite faces of the motor support plate, a power transmission wheel associated with each motor, and a pair of flexible endless power transmission elements, each of which is trained over a power transmission wheel of a motor and a power transmission wheel of an abrading wheel.

13. A band knife grinder comprising in combination, a pair of rotary abrading wheels supported at opposite faces of a band knife to shape an edge thereof, power transmission wheels in fixed relation to the abrading wheels for rotation therewith, a pair of electric motors each including a driving shaft and a power transmission wheel driven by the shaft, a pair of flexible endless power transmission elements each trained over one power transmission wheel of a motor and a power transmission wheel of an abrading wheel, thereby to individually drive the abrading wheels, and a single rocking support for both motors adapted to maintain equalized tension of the flexible endless power transmission elements.

14. A band knife grinder comprising in combination, a pair of rotary abrading wheels supported at opposite faces of a band knife to shape an edge thereof, power transmission wheels in fixed relation to the abrading wheels for rotation therewith, a pair of electric motors each including a driving shaft and a power transmission wheel driven by the shaft, a pair of flexible endless power transmission elements each trained over one power transmission wheel of a motor and a power transmission wheel of an abrading wheel, thereby to individually drive the abrading wheels, a motor support frame shiftable toward and from the abrading wheels, a motor support plate rockingly mounted within the frame, and means fixing the motors to opposite faces of said motor support plate.

RALPH W. HALL.

REFERENCES CITED

The following references are of record in the file of this patent:

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