W. A. PARMENTER & A. B. ALDEN.

SKIVING MACHINE.

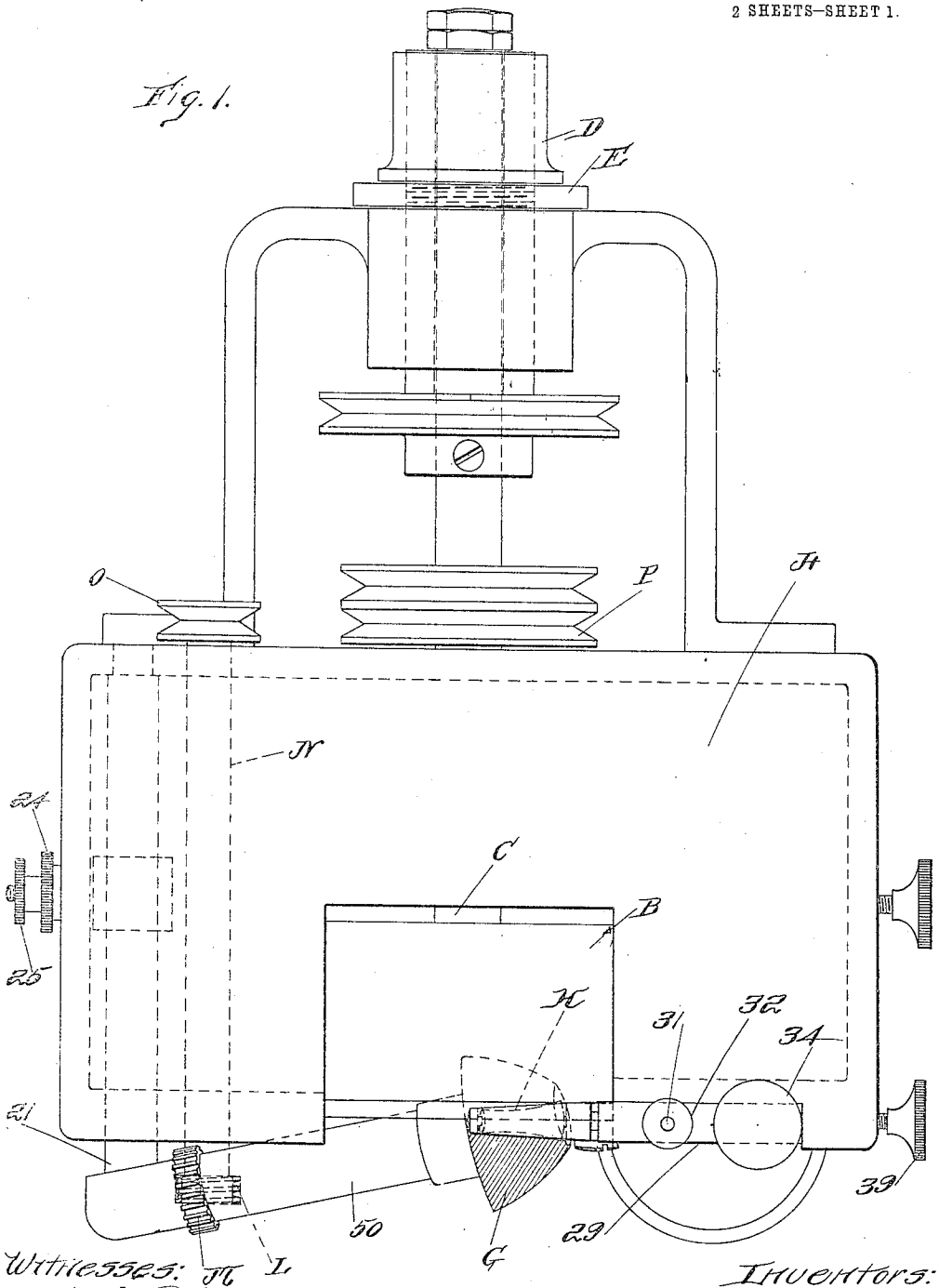
APPLICATION FILED OCT. 18, 1910.

1,035,228.

Patented Aug. 13, 1912.

2 SHEETS—SHEET 1.

Fig. 1.



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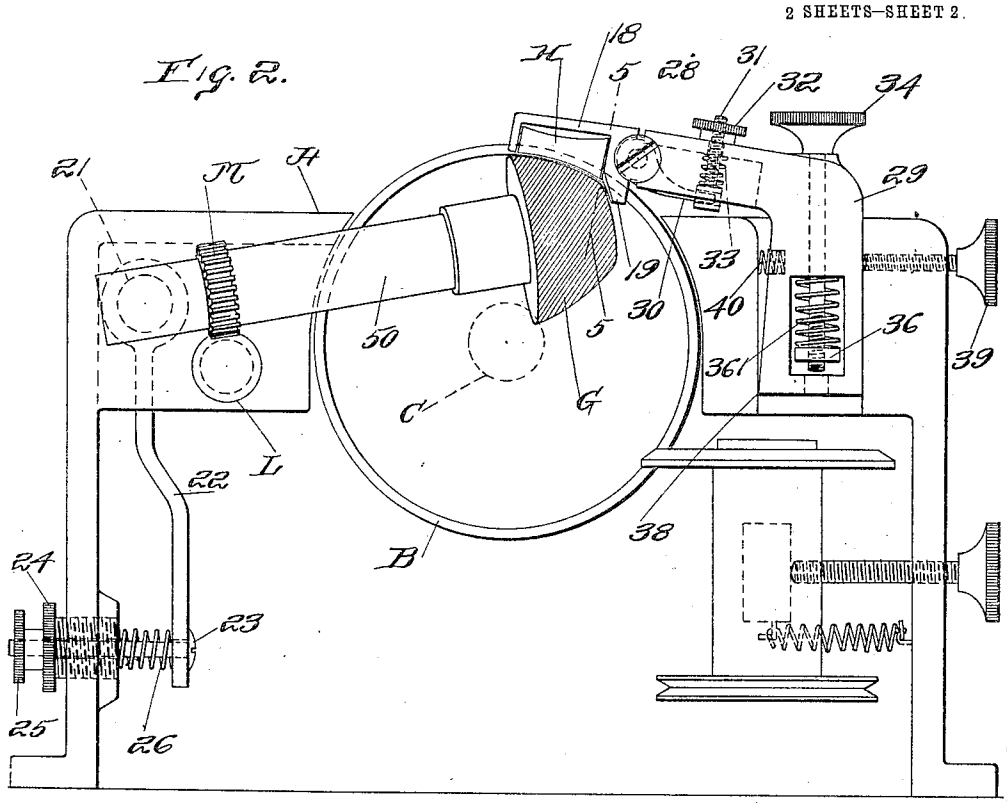
2 SHEETS—SHEET 2.

Fig. 2.



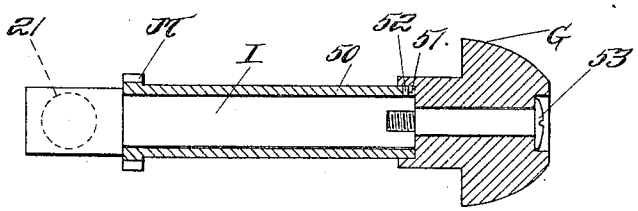


Fig. 3.

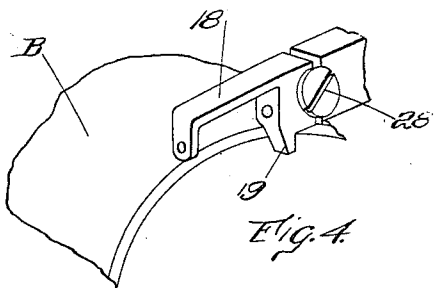


Fig. 4.

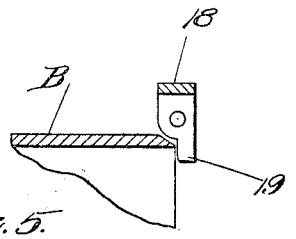


Fig. 5.

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UNITED STATES PATENT OFFICE.

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SKIVING-MACHINE.

1,035,228. Specification of Letters Patent. **Patented Aug. 13, 1912.**

Application filed October 18, 1910. Serial No. 587,739.

To all whom it may concern:

Be it known that we, WILLIAM A. PARMENTER and ARTHUR B. ALDEN, citizens of the United States, residing at Brockton, county of Plymouth, State of Massachusetts, have invented a certain new and useful Improvement in Skiving-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

Our present invention relates to skiving machines of the type in which a cylindrical or ring knife is employed. Such a machine is shown and described in our prior Patent, No. 944,103, dated December 21, 1909.

The machine embodying our invention is intended particularly for use on work having sharp curves which cannot be skived entirely satisfactorily on machines as heretofore constructed. It is also adapted particularly for use on thin unresisting material such as felt, paper kid and soft leather.

In the use of machines of this type, as heretofore constructed, the chief difficulty has arisen from the tendency of the knife to cut a wavy scarf or even to nick the scarf or to clip off the last corner. This tendency has not been so apparent when the machine has been used on straight work or upon stiff or resisting material, but when it has been attempted to employ the machine to skive soft material or upon work having sharp curves or angles, this tendency of the machine has been so great as to cause serious loss and to make it uneconomical to use the machine for this class of work. The machine embodying our present invention is, however, so constructed that it is possible to skive satisfactorily very sharp curves and angles, and even both sides and the end of a slit; and also to skive very unresisting material, such as felt and the like.

The present invention also includes more means for adjusting the feeding instrumentalities relatively to each other.

The invention will be fully understood from the following description taken in connection with the accompanying drawings, and the novel features are pointed out and clearly defined in the claims at the close of the specification.

In the drawings,—Figure 1 is a plan view of a machine embodying our present invention. Fig. 2 is an end elevation of the machine shown in Fig. 1. Fig. 3 is a longitudinal section of the feed wheel. Fig. 4 is a view in perspective showing the relation of the adjustable arm, which supports the rotating feed guide, to the edge of the cylindrical knife. Fig. 5 is a detail of the same parts, being a section taken on line 5—5, Fig. 2.

Referring now to the drawings,—the table or frame of the machine is shown at A in Fig. 1.

At B is shown the cylindrical knife which is secured to the shaft C and rotates therewith. The said shaft C is adjustable longitudinally by means of the nut D and collar E so that the edge of the knife B may be moved forward or backward to exactly the right point with relation to the feeding mechanism. The said feeding mechanism consists of a knurled feed wheel G located interiorly of the knife and a rotating feed guide H located above the feed wheel G and coöperating therewith. The knurled feed wheel G is of peculiar shape, being of very much smaller diameter at one end than at the other and having a contour, such that when revolved it presents its surface at a distance from the edge of the knife which distance is substantially equal at all points between the knife and the feed wheel. In other words, if a section be taken through the feed wheel on the plane in which the edge of the knife lies the contour of the feed wheel in this section will correspond with a portion of the edge of the knife. The shape of the feed wheel is plainly seen from Figs. 2 and 3. The knurled feed wheel G is positively rotated upon a shaft I by means of worm and gear L and M, the said worm being mounted on a shaft N having at its rear end a belt pulley O driven from a similar belt pulley P on the main shaft C. The mushroom shaped feed wheel G is secured to a sleeve 50 by means of a projection or lug 51 engaging a slot 52 which is cut in the end of the sleeve 50. The said feed roll G is held in contact with the sleeve 50 by means of the screw 53 which engages the end of the non-rotating shaft I upon which the sleeve 50 rotates.

One peculiar feature of our improved machine lies in the fact that the axis of the feed wheel is at an angle to the vertical plane in which the edge of the knife lies as will plainly be seen in Figs. 1 and 2. As will be later explained, this has an important ef-

fect on the work produced. The wheel may also be placed as shown at an angle to the horizontal, but we do not consider this essential but only convenient as it keeps the shaft out of the way of the operator's hands. It will also be seen that the effective surface of the feed wheel is at one side of a vertical line passing through the axis of the cylindrical knife, the said side being that away from the main portion of the stock to be operated upon after the manner described in our patent of the United States No. 944,103, dated December 21, 1909, previously referred to.

Above the feed roll is located a rotating feed guide H supported in an adjustable arm 18. The axis of rotation of the rotating feed guide H is somewhat inclined from the horizontal as shown in Fig. 2, and the concave surface of the said rotating feed guide corresponds with the convex surface of the feed wheel G so that the work is carried forward between the feed wheel and the feed guide with a substantially uniform pressure on all parts. The adjustable arm 18 in which the rotating feed guide is supported is provided with a depending abutment 19 which is cut away on the side next the knife as shown in Fig. 4 and is so constructed that it lies very close to the cutting edge of the knife. As previously stated, the knife is adjustable slightly on its longitudinal axis so that it is possible for the operator to bring the edge of the knife very close to the abutment and yet not strike the abutment when the knife rotates.

We find that the placing of the feed wheel G at an angle as described herein results in much improved work. We believe this to be due to the fact that the feed wheel tends to carry the work slightly away from the abutment 19 and thus to counteract the tendency of the knife to crowd the work against the abutment 19. By giving the axis of the feed wheel substantially the inclination shown in Figs. 1 and 2, the tendency of the feed wheel to carry the work away from the abutment is not sufficient to interfere with the proper guiding of the work on the abutment but serves to relieve materially the pressure of the edge of the work against the abutment. As any pressure of the edge of the work against the abutment tends to bend the edge of the work and to curl it up, it will be seen that the arrangement described assists the machine materially in producing a smooth scarf.

It is of importance that the feed wheel G and rotating feed guide H be adjusted to each other and to the edge of the knife with very great nicety as otherwise imperfect work is likely to be done. By this means, also, the thickness of the work at the scarf is determined. For this purpose the shaft I is mounted on a rockshaft 21 carried in bearings in the frame of the machine. Another arm 22 depending therefrom engages a screw 23 passing through a sleeve 24 and having at its outer end a thumb nut 25. A spring 26 is interposed between the arm 22 and the frame of the machine. This spring 26 serves to hold the arm 22 away from the frame of the machine and consequently to hold the feed wheel G upward against the inside of the knife with a yielding pressure, but the head of the screw 23 prevents the feed wheel rising above a predetermined point which is adjustable by means of the thumb nut 25. By this construction the feed wheel is allowed to yield downwardly and thereby allow a bunch or thick spot in the shaving to pass through while at the same time producing a scarf of uniform thickness.

The arm 18 in which the rotating feed guide is supported is pivoted at 28 to a bracket 29 supported in the frame of the machine. The arm 18 is provided with a tail 30 extending to the right, as shown in Fig. 2, and engaging the slotted head of a thumb screw 31 provided with a thumb nut 32. A spring 33 tends to move the tail 30 downwardly but the position of the tail may readily be adjusted by the thumb screw 32. This construction holds the feed guide so that it cannot yield upwardly and is perfectly rigid so far as movement upwardly is concerned but at the same time makes it possible to adjust the position slightly. It will of course be understood that the angle which the rotating feed guide makes with the horizontal determines the width of the scarf. This adjustment is effected as just described. The bracket 29 is adjustable vertically by means of the thumb screw 34 and this adjustment determines the thickness of the scarf at the edge. Said thumb screw 34 engages a lug 36 on the frame of the machine. A spring 361 tends to hold the said bracket up against the head of the thumb nut 34. The bracket 29 may also be tilted about the point 38 by means of the thumb screw 39. A spring 40 holds the bracket back against the end of the thumb screw 39. The system of adjustment of the bracket 29 which has just been described will be seen to be such that the rotating feed guide and arm 18 are incapable of movement above a point determined by the various adjustments but that the said rotating feed guide can yield downwardly slightly. The adjustment of the position of the arm 18 by means of the thumb nut 32 determines the width of the scarf. The scarf being wider the more nearly parallel the contour of the feed guide is to the contour of the feed roll.

What we claim is:

1. In a machine of the character described, the combination with a cylindrical knife, of a feed wheel interiorly disposed with rela-

tion thereto, the axis of said feed wheel being inclined to the plane in which the edge of the knife lies.

2. In a machine of the character described, the combination of a cylindrical knife, a feed wheel interiorly disposed with relation thereto, and a feed guide having an abutment adjacent the edge of the feed wheel, said cylindrical knife rotating toward said abutment, and said feed wheel having its axis inclined to the plane in which the edge of the knife lies whereby the rotation of the feed wheel tends to counteract the tendency of the knife to crowd the work against the abutment of the feed guide.

In testimony whereof we affix our signatures, in presence of two witnesses.

WILLIAM A. PARMENTER.
ARTHUR B. ALDEN.

Witnesses:
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ALICE H. MORRISON.