Jan. 22, 1929. 1,699,677

G. W. SAMPSON

BLANK HOLDING APPARATUS

Filed Aug. 26, 1926

Fig. 5.

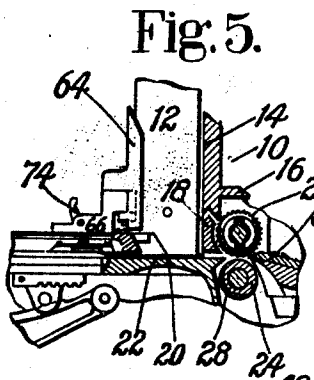


Fig. 4.

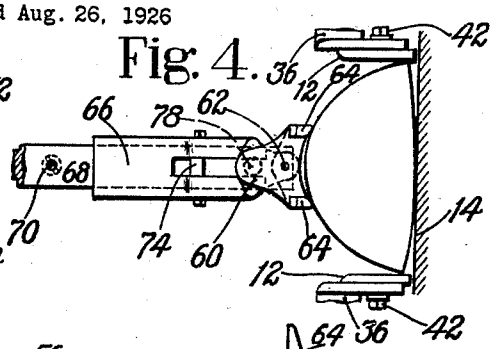


Fig. 3.

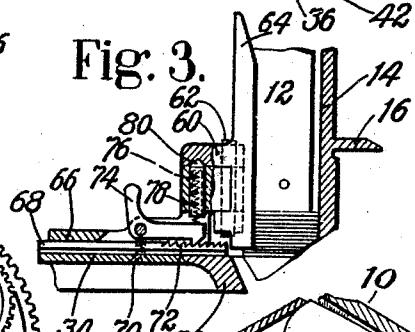
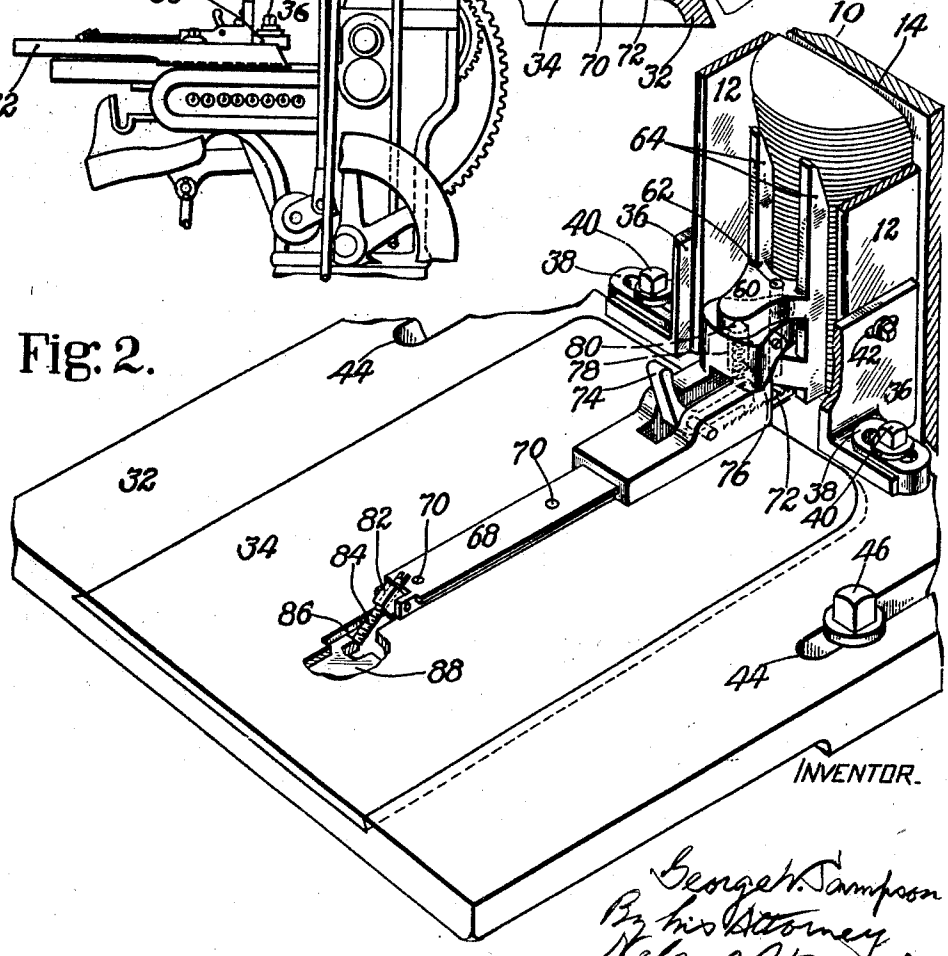


Fig. 1.

Fig. 2.



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UNITED STATES PATENT OFFICE.

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BLANK-HOLDING APPARATUS.

Application filed August 26, 1926. Serial No. 131,685.

This invention relates to devices for use in alining and retaining blanks or shoe parts within magazines of various sorts, and is herein illustrated as embodied in a skiving machine of the same general character as that disclosed in United States Letters Patent No. 1,260,551, granted March 26, 1918, upon application of Elmer E. Lane.

It is customary in machines organized as set forth in said Letters Patent to provide a vertically extending magazine in which blanks to be skived are arranged in stacked relationship, and a follower for engaging and pushing downwardly upon the top of the stack to compress and flatten the blanks and further to insure that the stack will shift downwardly as the lowermost blanks are fed from the bottom of the magazine.

The magazine for holding the stack of blanks generally comprises a stationary front wall and a plurality of side walls disposed parallel to each other and at right angles to the front wall, the rear of the magazine being left open for the purpose of facilitating insertion of the blanks when the magazine is being filled.

It sometimes happens that, owing to irregularities in the thicknesses of the blanks, the stack is higher at its rear exposed side than at its forward side. In such instances the follower in moving into engagement with the top of the stack tends to tilt the stack backwardly away from the front wall, which occasionally results in spilling the stack or a considerable portion thereof through the opening in the rear of the magazine. Furthermore, even in instances where the blanks comprising the stack are of substantially uniform thickness, it is often found that when the follower moves into engagement with the uppermost blank the stack has a tendency to bend or buckle which likewise results occasionally in the blanks being spilled through the open side of the magazine.

Accordingly, one object of the present invention is to provide means which will be effective to prevent a stack of blanks or shoe parts from spilling out of a magazine in which they are arranged. With this object in view a feature of the invention consists in the provision, in a machine of the character described, of a blank-containing magazine having an opening therein and a closure member mounted independently of the magazine for movement into and out of the opening in the magazine. The closure member is mounted for movement in this manner so that it may be moved into a remote position while the magazine is being filled and subsequently, upon completion of the filling operation, may be moved into the opening to hold the blanks in their proper position within the magazine.

At times in the use of machines of the character herein described, it happens that a few of the blanks in the stack are not properly alined when the stack is first inserted into the magazine and these blanks are held by means of the pressure applied by the follower with their rear edges projecting from the stack, in which position they frequently engage projecting parts of the machine and interfere with the proper feeding of the blanks from the bottom of the magazine. This interference is likewise apt to occur where there is a tendency on the part of some of the blanks to work themselves out of proper alinement with the stack during the feeding action.

The invention, accordingly, has for another object the provision of means for engaging the rear edges of blanks in stacked relationship in such a manner as to retain them in proper alinement within a magazine. To this end, a further feature of the invention consists in an alining device, comprising a plurality of spaced members mounted independently of the magazine for movement into and out of engagement with the rear edges of the blanks of the stack. In the illustrated construction these members are part of the closure referred to above and serve the double purpose of closing the open side of the magazine and of alining the rear edges of the blanks.

These and other features of the invention including certain details of construction and combinations of parts will be described as embodied in an illustrative machine and pointed out in the appended claims.

In the drawings,

Fig. 1 is a side elevation of a skiving machine embodying the present invention, certain parts of the machine having been broken away;

Fig. 2 is a detail in perspective showing more particularly the blank-retaining and alining device in operative position;

Fig. 3 is a vertical section through the work-retaining and alining device and the magazine;

Fig. 4 is a plan view of the magazine and the retaining and alining device; and

Fig. 5 is a vertical section showing the construction and arrangement of the parts of the skiving machine which operate to feed blanks from the magazine.

As hereinbefore stated the illustrated machine is a skiving machine of the type disclosed in United States Letters Patent No. 1,260,551, and reference may be had thereto for a detailed description of the construction and operation of any parts of the machine not herein fully disclosed.

Referring particularly to Fig. 5 of the drawings, the numeral 10 indicates a magazine in which the blanks to be skived are arranged in a vertical stack. The magazine comprises a plurality of side walls 12, and a front wall 14 which is provided with a rib 16 for rigid attachment to the frame of the machine. Located below the front wall 14 and forming a continuation thereof is a plate 18 which is mounted for vertical movement to allow the lowermost blank in the stack to be fed between the bottom of the plate 18 and the top of a rigidly mounted feed table 20.

The blanks are fed one by one from the lower end of the magazine 10, and to this end a flat pusher or feed finger 22 is mounted for reciprocation across the surface of the table 20. During each forward stroke of the reciprocation, the front edge of the pusher 22 engages the lowermost blank in the stack and moves it laterally out of the magazine and into engagement with a die roll 24 and pressure devices 26 in the form of toothed disks fast to a rotating shaft. The die roll 24 is provided with a customary blank positioning die cavity 28, and is arranged to cooperate with the pressure devices 26 in feeding the blank past a skiving knife 30 which is supported rigidly behind the bite of the die roll and pressure devices.

A guard or cover plate 32 is located above the mechanism for reciprocating the pusher 22 and serves as a protective covering for that mechanism as well as a work supporting table. The forward edge of the table or guard 32 is beveled and extends downwardly into a position to prevent the lowermost blank in the hopper from being fed backwardly out of the magazine during the return stroke of the pusher 22. As shown in Fig. 2, elongated slots 44 and bolts 46 permit horizontal adjustment of the guard 32 to lessen or increase the distance between the downwardly extending edge of the guard and the forward wall 14 of the magazine. Thus the guard may be adjusted to accommodate blanks of different widths.

The pusher 22 is mounted in such a manner that the magnitude of its reciprocation may be varied in accordance with variations in the width of the blanks being operated upon, and to facilitate making this adjustment the guard 32 is provided with a slidable section 34 which may be moved relatively to the guard to afford access to the reciprocating mechanism.

Turning now to a more detailed description of the construction of the magazine 10, as shown in Figs. 1 and 2, it will be seen that the side sections 12 are attached at their lower ends to bracket members 36. These brackets are secured to the table or guard plate 32 by means of slots 38 and bolts 40, which arrangement permits independent adjustment of the side sections 12 toward and away from each other to accommodate blanks of different lengths. Furthermore, the side sections 12 may, by means of slot and bolt connections 42 be adjusted relatively to the front wall 14 of the magazine to enable the forward edges of the members 12 to be disposed closely adjacent to the wall 14 notwithstanding adjustment of guard 32 and brackets 36 toward and away from the front wall 14.

It is customary, in machines of the type herein described, to provide means for pressing downwardly the stack of blanks contained in the magazine to compress and flatten them, and further to insure that the stack will shift downwardly as the lowermost blanks are fed from the bottom of the magazine. Accordingly, a follower 48 (Fig. 1) for engaging the top surface of the uppermost blank is secured to the lower extremity of a vertically extending rod 50 in such a manner that the follower and rod are free to descend as the height of the stack is reduced. As illustrated, the rod 50 is provided with an adjustable abutment screw 52 which engages a lever 54 when the stack of blanks in the magazine is reduced to a predetermined minimum. Movement imparted to the lever 54 is, by means including a connecting rod 56, utilized to render inoperative the blank feeding mechanism. The rod 50 is also provided with a series of rack teeth which, together with a pinion gear located in a casing, constitute mechanical means whereby the follower 42 may be moved upwardly into its highest position after the blanks in the magazine have been depleted.

Machines of the type set forth in said Letters Patent are prepared for operation in the following manner: first the rod 50 and follower 48 are moved upwardly into their highest position. Following this, the operative inserts a stack of the blanks which are to be skived, through the opening in the rear of the magazine, and arranges them in approximate alinement with their front edges disposed closely adjacent to the front wall 14. The rod 50 is then released to permit the follower 48 to drop forcibly into contact with the uppermost

blank in the stack. The blanks in the stack are thus compressed and flattened out, and are arranged to be fed successively from the bottom of the magazine.

To prevent any possible spilling or buckling of the stack of blanks, or improper alinement of the blanks comprising the stack, the illustrated machine is provided with means for engaging the rear edges of the blanks to retain them in proper alinement within the magazine. To this end (as shown in Figs. 2, 3 and 4 of the drawings) a yoke-shaped member 60 is mounted for vertical pivotal movement about a swivel pin 62 and is provided with a plurality of elongated arms 64 which extend parallel to each other and to the front wall 14 of the magazine 10. These arms are elongated for the purpose of engaging the rear of the stack along a substantial portion of its length, and are spaced apart for the purpose of engaging the rear edges of blanks at spaced localities properly to aline them. The pin 62, upon which the yoke 60 is mounted, is carried in a forwardly projecting portion of a carrier 66.

To facilitate the filling of the magazine, the carrier 66 is mounted for movement into an inoperative position in which it is remote from the opening in the magazine through which the blanks are inserted. Accordingly the carrier 66 is slidably mounted upon a guide bar 68 which is rigidly secured by means of screws 70 to the movable section 34 of the guard plate 32. The carrier 66 is provided with a pawl 74 for engagement with rack teeth 72 formed on the forward portion of the guide bar 68. The teeth 72 are so shaped that the pawl 74 rides freely over them only when the carrier 66 is moved in the direction of the opening in the magazine; when moved in the opposite direction (away from the opening) the pawl must be held manually out of engagement with the vertical walls of the teeth 72. The purpose in providing a series of teeth is to permit the blank engaging arms 64 to be locked in a desired adjustment relatively to the front wall 14 of the magazine to accommodate blanks of different widths.

The blank retaining device is provided with yielding means, including a hollow plunger 78 and a compression spring 76, which tend normally to hold the yoke 60 in a central position relatively to the carrier 66. It will be observed, however, that the top of plunger 78 is closed to present a conical projection which fits within a conical depression 80 formed in the yoke 60. This arrangement is such that the yoke 60 may be pivoted manually to cause depression of the plunger 78 and movement of the arms 64 into positions in which they lie at different distances from the front wall 14. Inasmuch as the majority of the blanks skived are substantially symmetrical with respect to a center line from front to rear, the yoke 64 will generally occupy its central position relatively to the carrier 66, as shown in Fig. 4; but it is with a view to holding with equal facility blanks that are unsymmetrical with respect to their center lines that the yoke is mounted for pivotal adjustment.

The lower end of the compression spring 76 engages the pawl 74 and tends normally to maintain the latter in engagement with the teeth 72 formed on the guide bar 68.

It has been hereinbefore pointed out that the guide bar 68 is rigidly secured to the movable section 34 of the table 32. To guard against rearward movement of the section 34, during the feeding of the blanks from the magazine, a block 82 is pivotally secured to the end of the guide bar 68 and is provided with a screw 84 which extends through a slot 86 and has abutting engagement with a rigid shelf portion 88 of the guard 32. Thus the screw 84 may be loosened and tilted out of engagement with the shelf 88 to permit free movement of the section 34 relatively to the guard 32.

In the use of the device, the pawl 74 is raised out of engagement with the teeth 72, and the carrier 66 and yoke 60 are slid rearwardly into a position where they will not interfere with the movements of the operative in inserting a stack of blanks into the magazine 10. After the blanks have been inserted into the magazine and approximately alined with their front edges adjacent the front wall 14, the carrier is moved forwardly until the arms 64 engage and aline the rear edges of the blanks comprising the stack. During the forward movement of the arms 64 the pawl 74 is free to move into locking engagement with the teeth 72 to prevent rearward displacement of the arms relatively to the stack. With the arms so held and the blanks properly alined, the follower 48 is actuated to drop into engagement with the top of the stack, and the machine is then in condition to begin the skiving operations.

It will be appreciated that the arms 64 counteract any tendency on the part of the blanks to spill rearwardly out of the magazine and also serve properly to aline the blanks as they are being fed.

While this invention has been described with particular reference to skiving machines, it should be understood that it is not necessarily limited in its utility to embodiment in such machines.

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

1. In an apparatus for holding blanks in stacked relation, the combination with a blank-containing magazine, of an alining device comprising a pivotally mounted yoke member carrying a plurality of elongated parallel arms for engaging at spaced localities

the edges of the blanks contained in the magazine.

2. In an apparatus for holding blanks in stacked relation, the combination with a blank-containing member, of an alining device comprising a plurality of elongated arms for engaging the edges of the blanks at spaced localities, said arms being mounted for pivotal movement about a common axis.

3. In an apparatus for holding blanks in stacked relation, in combination, a blank-containing magazine having an opening therein, and a unitary alining device mounted for bodily movement into the opening to engage at spaced localities the rear edges of the blanks contained within the magazine.

4. In an apparatus for holding blanks in stacked relation, in combination, a blank-containing magazine comprising a front wall section and a plurality of side wall sections, a plurality of elongated arms mounted for pivotal movement about an axis disposed parallel to the front wall section, and means tending normally to maintain the arms at equal distances from the front wall section.

5. A blank-alining and retaining device comprising, in combination, a guide, an elongated carrier slidably mounted on the guide, a plurality of arms pivotally secured to the carrier, and means tending normally to maintain the arms symmetrically positioned relatively to the central longitudinal plane of the carrier.

6. A blank-alining and retaining device comprising, in combination, a guide having rack teeth formed thereon, a carrier mounted on the guide, a plurality of elongated arms pivotally secured to the carrier, and a yieldingly mounted pawl for engaging the rack teeth to lock the carrier against movement in one direction along the guide.

7. A blank-alining and retaining device comprising, in combination, a guide having rack teeth formed thereon, a carrier provided with a pawl for engagement with the rack teeth, a yoke pivotally mounted on the carrier, means tending normally to maintain the yoke in a predetermined position relatively to the carrier, and a plurality of elongated parallel arms secured to the yoke.

8. A device of the class described having, in combination, a magazine for a stack of blanks, said magazine comprising a front wall to engage the front edges of the blanks of the stack and side walls to engage the sides of the blanks, means for exerting pressure upon the top of the stack whereby the stack tends to buckle toward the open rear portion of the magazine, and a member slidably mounted for movement into the opening so as to support the rear of the stack.

9. A device of the class described, having in combination, a magazine for a stack of blanks, having an opening therein for the insertion of the stack, means for feeding blanks one at a time from the bottom of the stack, means for exerting pressure upon the top of the stack whereby the stack tends to buckle through the opening, and a member slidably mounted for movement into the opening and adapted to engage the stack.

In testimony whereof I have signed my name to this specification.

GEORGE W. SAMPSON.