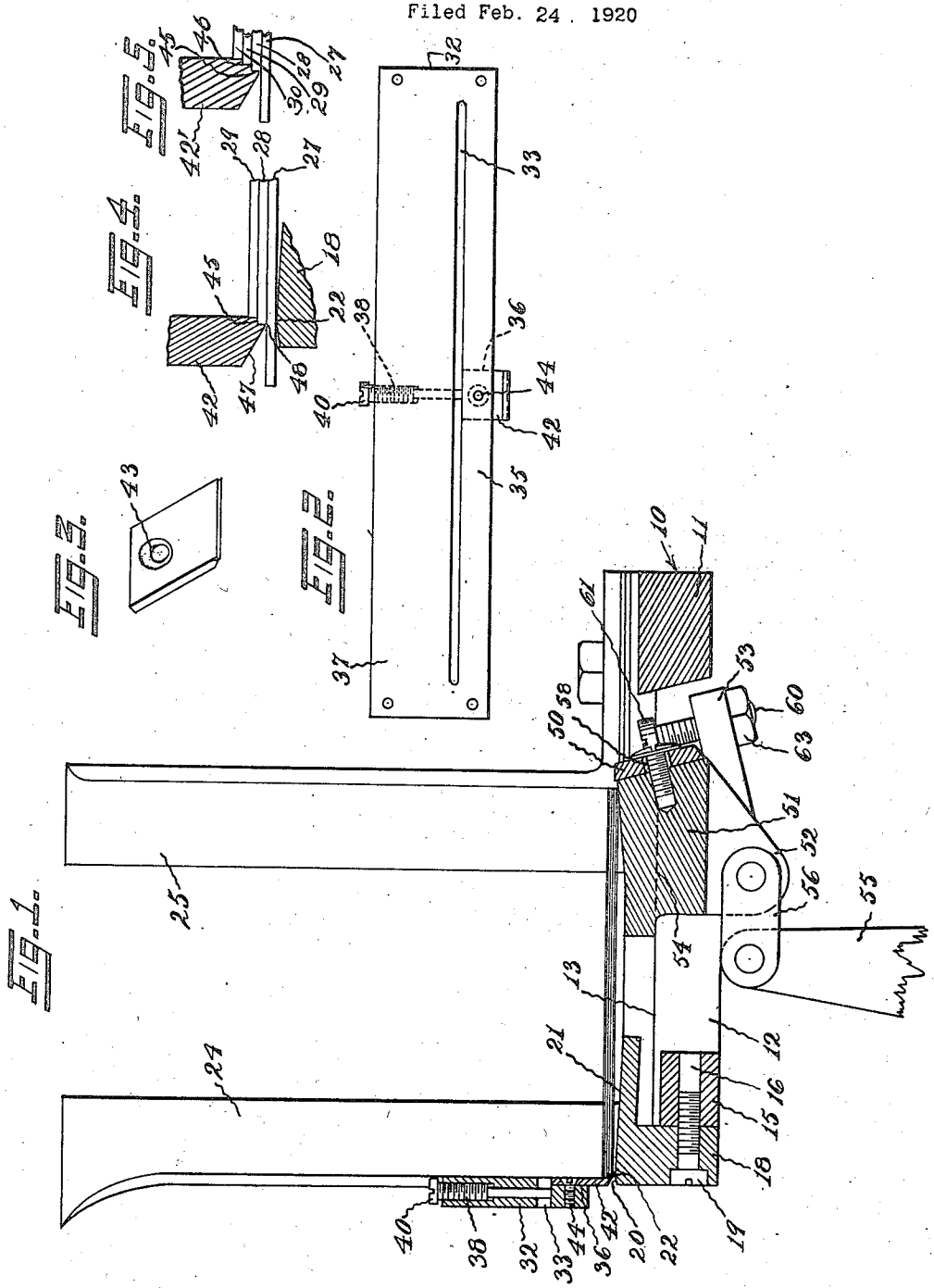
Nov. 4, 1924. 1,514,110

H. P. STILL

THROAT KNIFE FOR CARD FEED MECHANISM

Filed Feb. 24, 1920



Witnesses:
Louis C. Badeau
H. D. Penney

Inventor:
Harvey Peck Still,
By his Att'y,
H. H. Richards

Patented Nov. 4, 1924. 1,514,110

UNITED STATES PATENT OFFICE.

HARVEY PECK STILL, OF BURNSIDE, CONNECTICUT, ASSIGNOR, BY MESNE ASSIGNMENTS, TO POWERS ACCOUNTING MACHINE CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

THROAT KNIFE FOR CARD-FEED MECHANISM.

Application filed February 24, 1920. Serial No. 360,578.

To all whom it may concern:

Be it known that I, HARVEY PECK STILL, a citizen of the United States, residing in Burnside, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Throat Knives for Card-Feed Mechanism, of which the following is a specification.

This invention relates to feed mechanisms of card magazines of perforated card operated tabulating and sorting machines and similar machines, and has for its object generally to improve such mechanisms and particularly to provide an improved throat knife and co-operating throat block for the discharge slot of such feed mechanism.

Other objects of the invention will appear as the description proceeds; and while herein minute details of the invention are described, the invention is not limited to these, since many and various changes may be made without departing from the scope of the invention as claimed.

In the accompanying drawing, showing by way of example, two of many possible embodiments of the invention,

Figure 1 is a central longitudinal vertical sectional view of the magazine embodying the improvements;

Fig. 2 is a face view of the throat knife supporting plate with the throat knife thereon;

Fig. 3 is a perspective view of the throat knife;

Fig. 4 is an enlarged detail sectional view of a throat knife and block showing the position of the cards during operation; and

Fig. 5 is a view, similar to Fig. 4, showing another form of throat knife.

The magazine to which my new throat knife is herein applied is similar to the one shown and described in the U. S. Patent No. 1,282,626, issued Oct. 22nd, 1918, to James Powers, and the U. S. Patent, No. 1,315,370, issued Sept. 9th, 1919, to William W. Lasker, and reference is made to these patents for an understanding of the construction and the general operation of card magazines and their relation to sorting machines.

While the magazine shown is particularly adapted for use with sorting machines, it is particularly noted that my improvements are not so limited and may be used with practically all kinds of magazines and for a great variety of purposes.

As shown, the magazine parts are mounted upon a magazine base frame 10 comprising a rear frame piece 11, side members 12 having longitudinal slide ways 13 at their upper inner edge. Said frame also comprises a forward cross-member 15 connecting the side members 12 near their forward ends and provided with horizontal threaded bores 16 transverse to the cross-member. A throat block 18 is secured to said cross-member by screw bolts 19 engaging in said bores 16. The upper face of said throat block is beveled at the forward part as at 20 and is forwardly and upwardly inclined as at 21 from its rear edge to the rear edge of the bevel thereby forming a slightly raised portion or edge 22.

Front and rear vertical corner guides 24 and 25 of angular cross-section are mounted on the forward end and intermediate part of said side members 12 respectively and are adapted to engage the corners of and confine a pack of cards some of which are designated 27, 28, 29, and 30 (Figs. 4 and 5), over said base frame with the forward edge of the bottom card 27 resting on said throat block.

A horizontal throat-knife supporting-plate 32 is secured against the front face of said front guides 24 above said bevel 20 and is provided with a long horizontal slot 33 (Fig. 2) near its lower edge, thereby forming a lower-bendable adjustable strip 35 having a vertical recess 36 in the mid-part of its rear face. Above said slot 33 is an upper rigid portion 37 provided with a vertical threaded bore 38 in which is disposed an adjusting screw 40 engaging said adjustable strip 35 for adjusting the latter toward or from the throat block.

A throat knife 42 provided with a screw hole 43 (Fig. 3) in its upper middle part is secured by a screw 44 in said vertical recess 36. The lower edge of the rear face of said knife is cut away to form a horizontal right angular step 45 (Fig. 4) about .008 of an inch in depth and about .01 of an inch in breadth, meeting the lower beveled face 47, thereby forming an acute lower edge 48 disposed just above said raised por-

tion 22 of the throat block, thereby to form a micrometer slot through which the bottom card 27 is forced.

The card ordinarily used is about .0065 to .007 of an inch thick and the step 45 thus has a depth approximating, but very slightly greater than, the thickness of the card. If a card of different thickness were used, the depth of the step would be correspondingly varied.

As the bottom card is forced out, the next to the bottom card is carried into the step 45, thus holding down and preventing the bottom card from being caught by the lower edge 48 of the knife.

If desired, another form of knife 42' (Fig. 5) may be provided, having two or more steps 45 and 46 in order to facilitate the above action.

The bottom card 27 is forced out by a picker blade 50 carried on a picker-block 51 disposed between said side members 12 and provided with a downwardly projecting lug 52, a rearwardly projecting lug 53, and with end lugs 54 engaging in said slide-ways 13 for slidably supporting the picker-block.

The picker block is reciprocated by a reciprocatory lever 55 connected by a link 56 to said downwardly projecting lug 52, as in said Lasker patent. The picker blade 50 is secured against the rear face of said picker-block and provided with a horizontal slot (not shown), and vertical slots 58 through which pass clamping screws 59 for holding the blade on the block.

A positioning screw bolt 60 passing through said rearwardly projecting lug 53 is provided with a head 61 engaging snugly in said horizontal slot for adjustably moving the picker blade up or down. A jam nut 63 is provided on said positioning screw for locking it in adjusted position.

The operation of the new throat knife is very simple. The picker blade 50 reciprocates in the usual and well known way and engages the rear edge of the bottom card 27 and forces it out through the micrometer slot. This movement of the bottom card carries the next to the bottom card into the step 45, which protects the bottom card and prevents it from getting caught on the edge 48 of the throat knife. The second step 46 (Fig. 5) receives the third card 29 and thus facilitates the entrance of the sectional card 28 into the step 45.

I claim:

1. In combination, a magazine; a throat block secured thereto; a horizontal throat-knife supporting-plate secured against the front of the magazine face of said front guides just above said block and provided with a long horizontal slot near its edge dividing the supporting plate into a bendable strip and a stiffer portion provided with a threaded bore; an adjusting screw in said bore and engaging said strip; a throat knife secured to said strip just above said block; and a reciprocatory block on said base.

2. In combination, a magazine having a base and front corner guides; a throat block secured thereto; a horizontal throat-knife supporting-plate secured against the front face of said front guides just above said block and provided with a long horizontal slot near its lower edge dividing the supporting plate into a lower adjustable strip having a vertical recess in the mid-part of its rear face, and an upper rigid portion provided with a vertical threaded bore; an adjusting screw in said vertical bore and engaging said adjustable strip for adjusting the latter toward or from the throat block; a throat knife secured in said recess just above said block; and a reciprocatory picker-block on said base and provided with a picker blade.

3. In combination, a magazine having slide ways and a discharge slot; a reciprocatory picker-block provided with a rearwardly projecting lug, and with end lugs engaging in said slide-ways; a picker blade secured against the rear face of said picker-block and projecting slightly above the picker block and provided with vertical slots and a horizontal slot; holding screws passed through said vertical slots for holding the blade on the block; and a positioning screw bolt passing through said rearwardly projecting lug and provided with a head engaging in said horizontal slot.

4. In combination, a magazine having a base frame comprising side members having longitudinal slide-ways at their upper inner edge; a throat block secured thereto at the front of said bases; a throat knife secured on the magazine above said block; a reciprocatory picker-block disposed between said side members and provided with a rearwardly projecting lug, and with end lugs engaging in said slide-ways; a picker blade secured against the rear face of said picker-block and projecting slightly above the picker block and provided with vertical slots and a horizontal slot; holding screws passed through said slots for holding the blade on the block; a positioning screw bolt passing through said rearwardly projecting lug and provided with a head engaging snugly in said horizontal slot; and a jamb nut positioning screw for locking it in adjusted position.

5. In combination, a magazine base frame comprising a rear frame piece, side members having longitudinal slide-ways at their upper inner edge, and a forward cross-member connecting the side members near their forward ends and provided with horizontal threaded bores transverse to the cross-member; a throat block secured to said cross

member by screw bolts engaging in said bores; front and rear vertical corner guides of angular cross-section and mounted on the forward end and intermediate part of said side members respectively and adapted to engage the corners of and support a pack of cards over said base frame with the forward edge of the bottom card resting on the forward part of said throat block; a throat knife supporting plate on the front guides above said block; a throat knife secured to said plate; and a reciprocatory picker-block disposed between said side members and provided with end lugs engaging in said slide-ways.

6. In combination, a magazine having a throat block; a supporting-plate secured to the magazine and provided with a horizontal strip and a stiffer portion; adjusting means engaging said strip and portion; and a throat knife secured to said strip near said block.

7. In combination, a magazine having a throat block; a supporting member secured to the magazine and provided with a horizontal bendable strip and a stiffer portion; adjusting means on said portion and engaging said strip; and a throat knife secured to said strip near said block.

8. In combination, a magazine having a throat member; a supporting member secured to the magazine and comprising a bendable strip and a stiffer portion provided with a threaded bore; an adjusting screw in said bore and engaging said strip; and a throat knife secured to said strip near said throat member.

9. In combination, a magazine having a throat block; a one-piece supporting-plate secured to the magazine and comprising a horizontal bendable lower strip and a stiffer portion provided with a threaded bore; an adjusting screw in said bore and engaging said strip; and a throat knife secured to said strip near said block.

10. In combination, a card magazine for receiving a pack of cards; a throat block; a reciprocatory picker-block provided with a picker blade adapted to force the bottom card of the pack forwardly and with it, through friction, the card next above the bottom card; a throat knife located above the throat block to form with it, a slot through which the cards are forced, the lower edge of the rear face of said knife being cut away to form a step into which said card next to the bottom is forced while the bottom card is passing through the slot; a plate having an adjustable portion to which the throat knife is secured; and means for moving the adjustable portion toward and away from the throat block.

11. In combination, a card magazine for receiving a pack of cards; a throat block thereon having its upper face bevelled to form a slight ridge near the forward edge, and forwardly and upwardly inclined from its rear edge to said ridge; a reciprocatory picker-block opposed to said throat block and provided with a single picker blade secured against its rear face and projecting slightly above the picker-block and adapted to force the bottom card forwardly to the throat block, thereby to carry the next to the bottom card forwardly by friction only, thereby to break the adhesion between it and the card above; and a throat knife secured on the magazine above said block and provided with a rearwardly and downwardly bevelled lower face thereby forming an acute lower edge above and near said ridge to form a micrometer slot through which cards are forced, the lower edge of the rear face of said knife being cut away to form a horizontal right angular step into which said next to the bottom card is drawn by said friction only.

HARVEY PECK STILL.

Witnesses:
W. E. AYLESWORTH,
D. K. SANDERSON.