Jan. 1, 1952 W. SCHEMPERS 2,581,049

GROOVING OF INDEX CARDS

Filed Feb. 26, 1949 2 SHEETS—SHEET 1

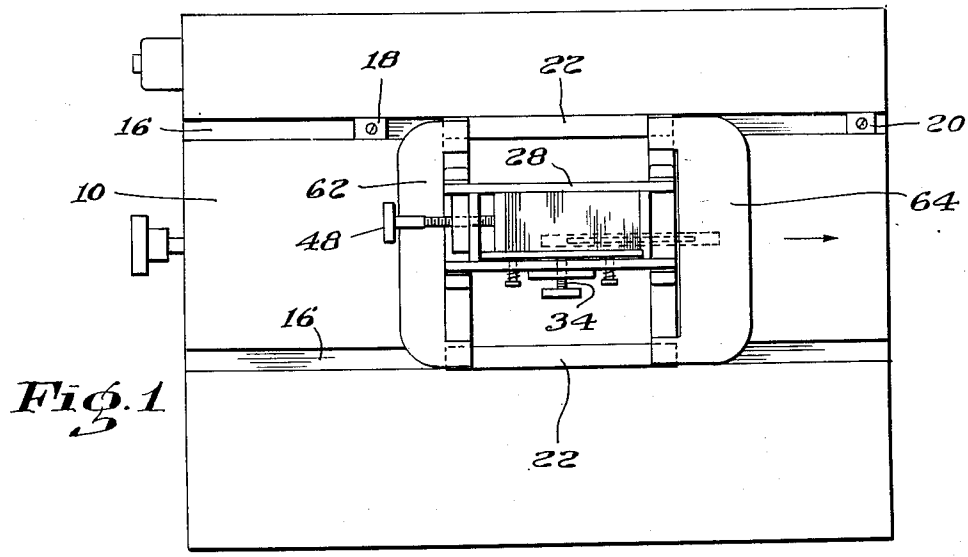


Fig. 1

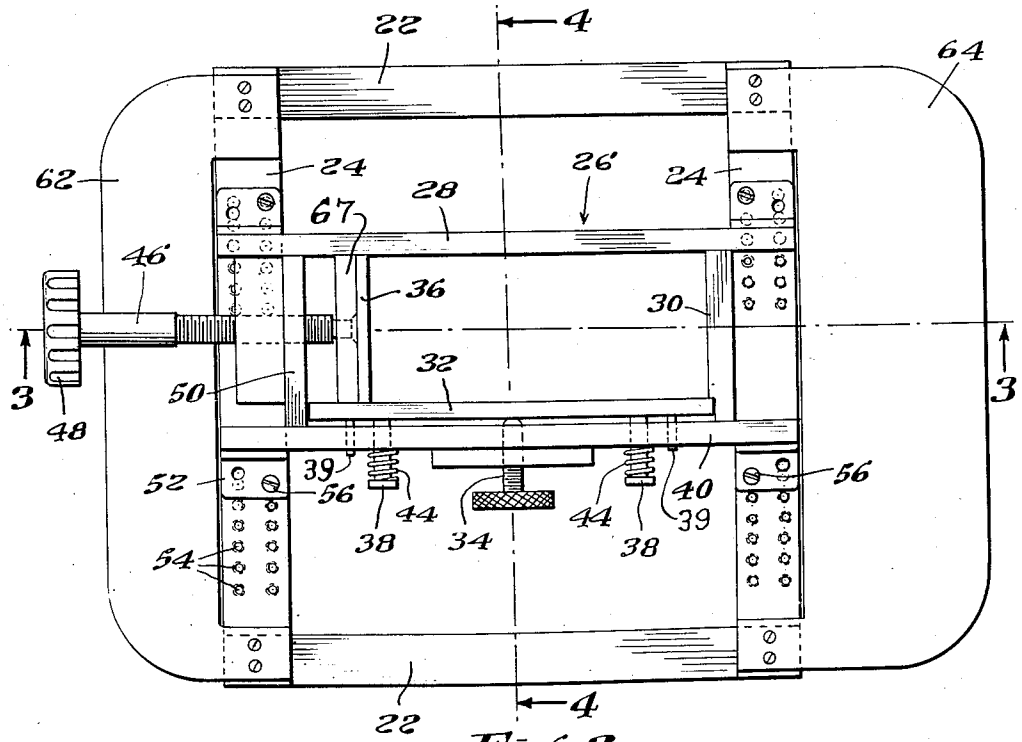


Fig. 2

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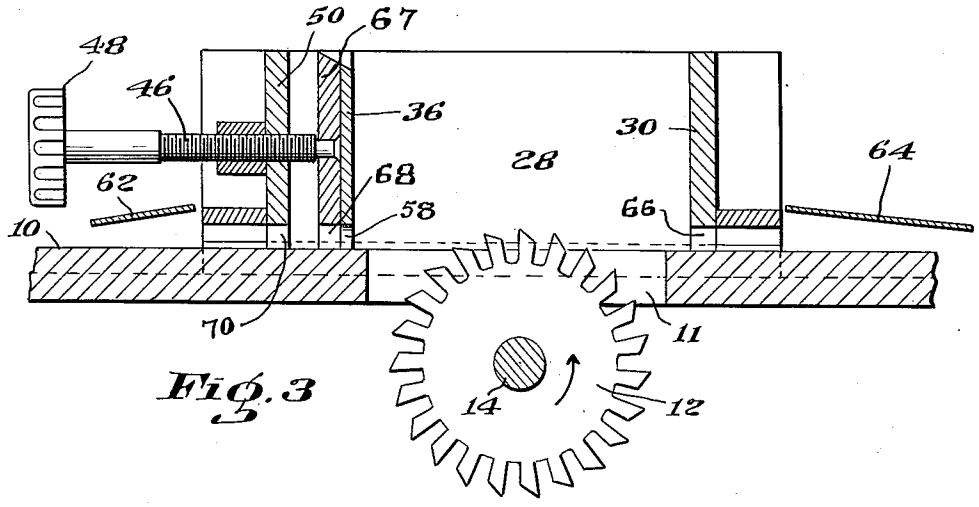


Fig. 3

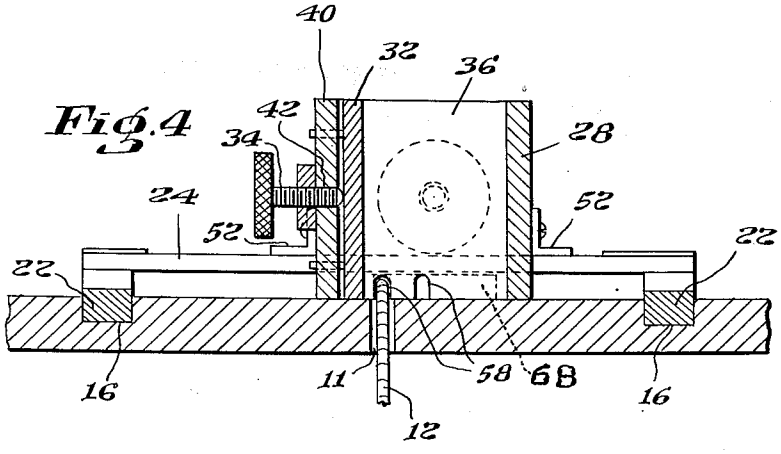


Fig. 4

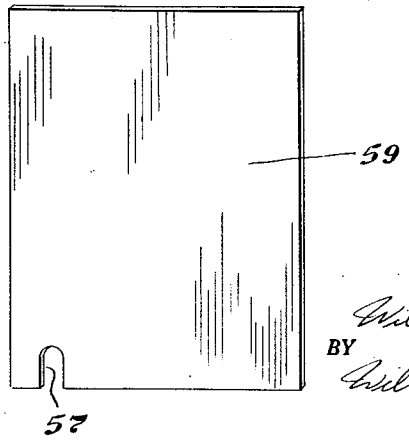


Fig. 5

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GROOVING OF INDEX CARDS

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2 Claims. (Cl. 164—61)

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This invention relates to a new machine for uniformly grooving the edges of index cards so that the cards may be used in a simple mechanical filing and culling out system.

In enterprises such as life insurance companies, which must perforce maintain card index system containing sometimes millions of cards, it is usually necessary to cull out obsolete cards systematically so that the file will not become too unwieldy to be useful and will contain at all times only current cards. Where vast numbers of index cards are involved the burden of visually inspecting all the cards periodically and picking out the obsolete ones becomes excessive, tying up skilled manpower which could otherwise be usefully employed.

To overcome these difficulties various expedients have been proposed. Perhaps the most successful and simple system is to provide grooved index cards, the grooves being spaced along the the edges of the respective cards in accordance with the period of time they are to be left in the file. At appropriate intervals, such as annually, all cards are removed from the files in stacks and each stack placed in a vibrating sorting box provided with a selector key or rod. The selector is adjusted to a preselected location directly beneath the grooves of all cards to be removed so that by mechanically vibrating the stack all cards to be culled will fall out on the selector rod and may thereafter be manually pulled and discarded. In the operation of such a system unskilled help may be used, since the selection of cards to be discarded is a purely mechanical operation and the operator need not be instructed or experienced as to the intelligence appearing on the cards. The saving in time and skilled personnel is enormous as compared to the old-fashioned visual method of culling.

For the efficient operation of this system of mechanical culling it is important to provide a method and apparatus for initially grooving the index cards so that later they will readily fall out selectively in the sorting machine. Here again it has heretofore been proposed to punch the cards individually depending upon the interval they are to be left in the file. Individual punching requires a skilled operator and, even so, many errors occur in the spacing of the punched grooves of the cards. It has also been proposed to groove the cards by punching the margins thereof in a large punch press so that large numbers may be appropriately grooved at once. While such punches will operate very

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successfully in punching holes in the centers of cards or making grooves in the edges with narrowed throats, such punches are not convenient for grooving the edges of index cards uniformly at spaced predetermined intervals with uniform grooves having parallel sides.

It is an object of my invention to provide an apparatus for grooving index cards in which the location of the groove will be positively controlled and large quantities of index cards may be operated upon more quickly and simply than has heretofore been possible.

It is a further object of the invention to provide means by which the index cards to be grooved may be packed into a solid block and then grooved by abrasion rather than by cutting or punching.

It is still another object of the invention to provide means for grooving index cards which may be accurately and positively adjusted so as to locate the grooves uniformly at any desired location for any given number of index cards.

It is yet another object of the invention to provide a new and improved machine for grooving index cards which does not require skilled labor.

Further objects and advantages of the invention will become apparent from the following detailed description taken in connection with the accompanying drawings in which like numerals refer to like parts in the several views and in which:

Fig. 1 is a plan showing the relation of the card holding means to the table top of the circular saw;

Fig. 2 is an enlarged plan of the card holder;

Fig. 3 is a vertical section on line 3—3 of Fig. 2;

Fig. 4 is a vertical section on line 4—4 of Fig. 2; and

Fig. 5 is an elevation of an index card, grooved according to the method and apparatus of the invention.

The machine of the invention comprises a work table 10 under which is mounted a circular saw blade 12 rotating with an arbor 14 driven in the usual manner by any suitable means such as an electric motor (not shown). The table top 10 has a slot 11 through which the cutting edge of the blade 12 protrudes a predetermined distance. The top surface of the table 10 has formed therein two longitudinally extending straight parallel grooves 16 one of which is provided with stops

18 and 20 to limit movement of the traveling work holder.

The work holder, as clearly shown in Figs. 2, 3, and 4, comprises clamping means for first accurately aligning and then tightly clamping a stack of index cards in such a way that they are compressed into a substantially solid block, together with means for feeding one surface of the block into the cutting edge of the saw 12, whereby all the cards of the stack are uniformly grooved, not only to a predetermined depth but at a predetermined distance from the marginal edges thereof. The work holder is mounted on a pair of spaced parallel supporting rails 22 slidably engaging the grooves 16 so that the work holder may move in a straight line longitudinally of the table 10, movement being limited by the stops 18 and 20. Affixed to the rails 22 are a pair of transverse supporting bars 24 on which the clamping and spacing device is mounted. The card holding receiver 26 includes a fixed upright side wall 28 and a fixed upright end wall 30 and is arranged to hold index cards of predetermined dimensions standing up in a stack, their bottom edges resting on the table 10 and the plane of each card being transverse to the plane of the saw 12. Opposite the immovable side wall 28 is a corresponding movable side clamping plate 32 which may be shifted by means of the adjusting screw 34 so as to push all the index cards to be grooved to one side of the work holder 26 thus insuring that all of the same will be grooved at a proper location. Corresponding to and opposite the end wall 30 a second movable clamping plate 36 is provided to compress the stack of index cards, which have previously been aligned by the plate 32, into a substantial solid block.

The plate 32 is adjustably mounted on two pairs of pins 38 and 39 which are slidably held in a vertical wall 40 of the receiver 26. The adjusting screw 34 is also appropriately journaled at 42 in the plate 40 being adapted to shift the plate 32 towards the index cards against the compression of the coil springs 44 on the pins 38.

The plate 36 is adjustable to compress the index cards after they have been pressed into alignment by the plate 32. Movement of the plate 36 is controlled by an adjusting screw 46 having a knob 48, the screw being threaded through a second fixed upright plate 50 which is firmly attached to the relatively immovable plates 28 and 40.

The entire receiver 26 is mounted by means of right angle brackets 52 on the cross bars 24. The cross bars 24 are provided with a series of spaced sockets 54 adapted to receive the mounting screws 56 of the brackets 52. It will thus be seen that the receiver 26 may be spaced transversely of the table 10 by removing the mounting screws 56 and sliding the work holder 26 to one side or the other and then replacing the mounting screws 56 in an appropriate socket 54. By using staggered mounting sockets 54 the apparatus, as shown, is capable of transverse adjustment to 12 different stations, thus permitting the grooving of a stack of index cards at any one or more of 12 spaced positions, a groove 57 at one such position being shown cut in a typical index card 59 of Fig. 5.

The movable card clamping plate 36 is provided with one or more slots 58 to accommodate the protruding edge of the cutting saw 12 when the card holder is shifted to its extreme position. I have found it desirable to provide a series of interchangeable plates 36 having only one or two slots 58 so that cards will be clamped firmly adjacent the cut when fed into the saw. Thus, readily interchangeable substitute plates 36, each provided with a slot 58 at a different position may be used to groove the cards at any one of 12 locations. On the other hand, since the saw 12 rotates in a counterclockwise direction, as shown in Fig. 3, when it is operating on such of the cards as are close to the plate 30 the action of the saw tends more closely to pack the cards rather than to spread them. Therefore, a single stationary end plate 30 may be used having a wide slot 66 at its base so that no matter which of the twelve lateral stations the card holder occupies, the bottom edge of the plate 30 will not come in contact with the blade. In a similar manner the backing plate 67 which supports the plate 36 may carry a single wide slot 68 similar to the slot 66 to prevent interference with the saw. A wide slot 70 is also provided in the base of the plate 50 to allow appropriate clearance from the saw blade as the holder is moved.

The work holder carries screwed down to the cross bars 24 forwardly and rearwardly extending protective aprons 62 and 64 respectively, whereby the whirling saw blade is always shielded from the operator's hand when the device is shifted between the stops 18 and 20.

The operation of the apparatus of the invention may be described as follows: The work holder is initially shifted to the extreme left position of Fig. 1 against the stop 18 so that the saw blade 12 is received in the slot 66 out of engagement with any index cards which may be placed in the receiver 26. The adjusting screws 34 and 46 are thereupon loosened and a stack of upright index cards is inserted in the receiver 26 with their bottom edges resting on the upper surface of the table 10 on either side of the slot 11. As already described, the receiver 26 has previously been shifted laterally by means of the mountings 52, mounting screws 56, and sockets 54 to a predetermined station so that the cards will be grooved at a desired location. The adjusting screw 34 is next tightened to press the cards against the plate 28, aligning them uniformly so that all will be grooved at the same place. Thereupon, the knob 48 is operated to shift the clamping plate 36, thereby compressing the cards tightly into a substantially solid block to secure a clean cut. The block of index cards is now ready to be fed into the cutting blade of the saw 12 and, accordingly, the work holder 26 is manually shifted in the direction of the arrow of Fig. 1 and one face of the entire stack of cards is quickly and uniformly grooved by the protruding cutting edge of the saw 12.

It will, of course, be understood that a mechanical feed may optionally be provided to force the block of cards into the saw blade and further that I may optionally feed the revolving saw blade into the face of a stationary block of index cards rather than moving the cards, the only requirement being that there be appropriate relative straight line motion between the two. I may likewise optionally change the location of the grooves, by laterally shifting the saw rather than the card holder.

I have found that tightly packed index cards are so tough to abrade by a circular saw that for best results a tungsten carbide tipped blade should be used. Likewise, the side and end plates should be sufficiently rugged, for example of five-sixteenth inch tool steel, to give proper support to the index cards to assure a clean cut.

While I have described a preferred embodiment of the invention I wish to make it clear that the

same is susceptible of modifications and changes within the spirit and scope of the appended claims.

I claim:

1. A machine for grooving index cards comprising, in combination, a supporting frame, a circular saw supported in said frame, a table presenting a smooth upper surface mounted on said frame above said saw and having a slot extending in a direction from front to rear of said frame and in the plane of said saw to accommodate the cutting edge of said saw to a predetermined distance above said surface, said surface having formed therein a pair of spaced rectilinear grooves on either side of and parallel to said slot and an index card holder assembly slidably supported on said surface, said assembly comprising a pair of longitudinally extending rails arranged to slide in said grooves, transverse supports held on said rails, and an index card holder mounted on said supports, said holder comprising two pairs of opposed vertical clamping plates operative in a horizontal plane at right angles to each other, one pair in a forwardly and rearwardly direction and the other pair in a transverse direction, one plate of each of said pairs being fixedly attached to said supports and the other plate of each of said pairs being adjustable toward and away from its opposing fixed plate, a clamping device held by said supports for moving each of said adjustable plates toward and away from its opposing plate for aligning and compressing into a solid block a pack of index cards arranged vertically therebetween with their bottom edges engaging said surface whereby said block of cards may be fed in a rectilinear path into the cutting edge of said saw by movement of said assembly guided by said rails

to abrade a groove uniformly in the bottom edge of each card in said pack at a predetermined distance from its end, and positive locking means mounting said holder on said tranverse supports, said locking means permitting releasing and shifting of said holder transversely and relocking thereof at preselected uniformly spaced stations so that said cards may be grooved with accuracy at any desired location along their bottom edges, said forward and rearward clamping plates being slotted at their lower edges to clear said cutting edge during said abrading operation.

2. A machine in accordance with claim 1 in which said locking means comprises a transverse series of spaced threaded sockets formed in said supports permitting said holder to be held thereto at any selected station by means of locking screws.

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