S. E. KATELY AND H. C. ALGER.

JOGGING MACHINE.

APPLICATION FILED AUG. 30, 1919.

**1,396,436.** **Patented Nov. 8, 1921.**

2 SHEETS—SHEET 1.

Fig. 1.

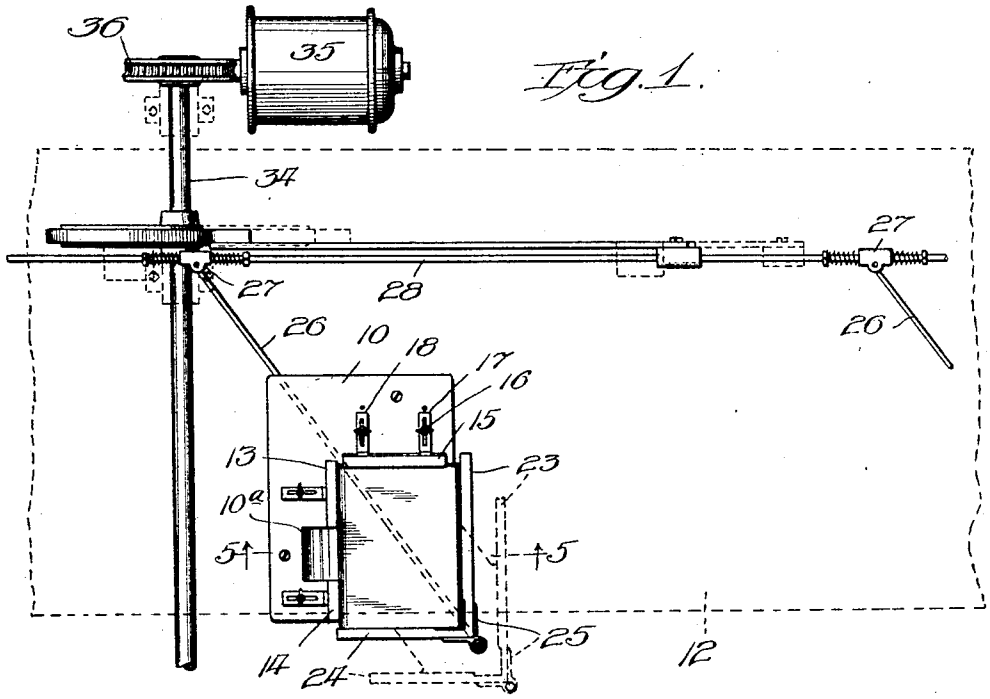



Fig. 2.

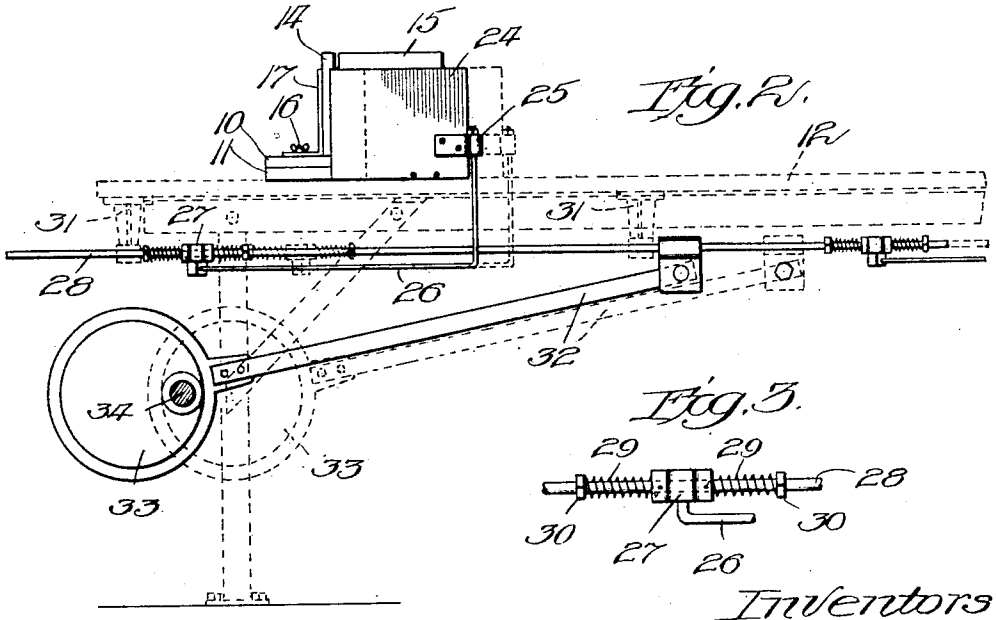



Fig. 3.




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2 SHEETS—SHEET 2.

Fig. 4

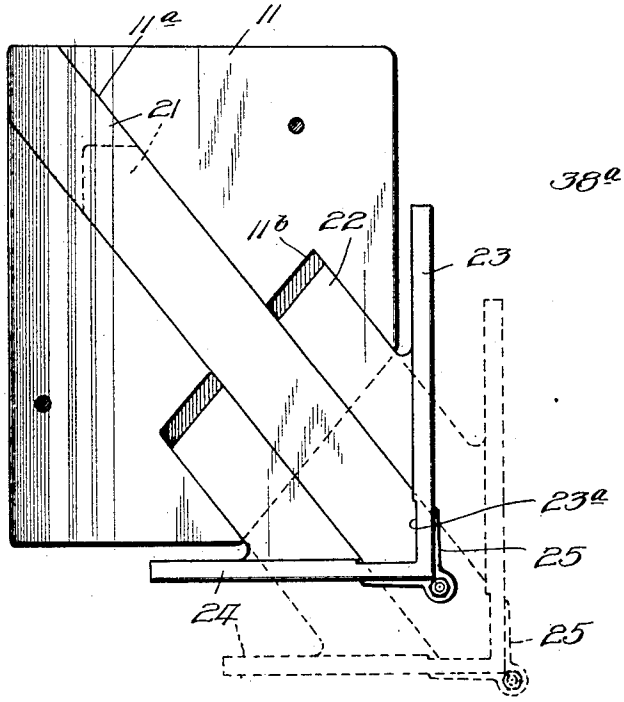



Fig. 7.

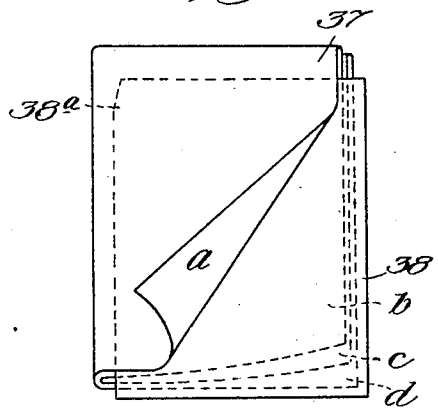



Fig. 5.

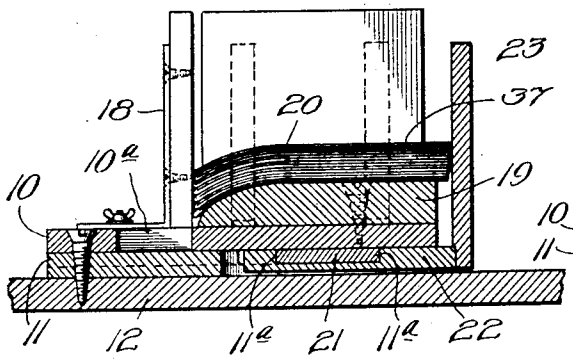
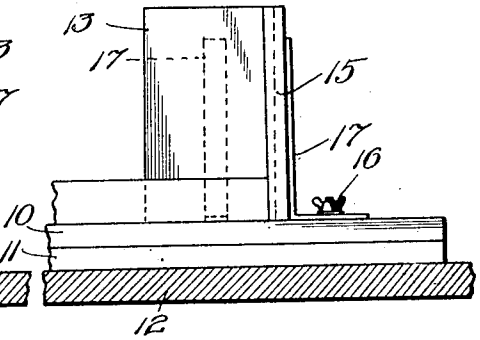



Fig. 6




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# UNITED STATES PATENT OFFICE.

SAMUEL E. KATELY AND HARLEY C. ALGER, OF CHICAGO, ILLINOIS, ASSIGNORS TO R. R. DONNELLEY & SONS COMPANY, A CORPORATION OF ILLINOIS.

## JOGGING-MACHINE.

1,396,436. Specification of Letters Patent. Patented Nov. 8, 1921.

Application filed August 30, 1919. Serial No. 320,807.

*To all whom it may concern:*

Be it known that we, SAMUEL E. KATELY and HARLEY C. ALGER, citizens of the United States, residing at 5338 Kimbark Ave. and 5618 Kimbark Ave., Chicago, respectively, in the county of Cook and State of Illinois, have invented new and useful Improvements in Jogging-Machines, of which the following is a specification.

This invention relates to jogging machines and is particularly adapted to jog inserts in signatures or the like.

In the making up of books and catalogues it is customary to bind together a series of sections which are called signatures. It is frequently necessary to insert an extra sheet such as an illustration or a color plate at a definite point in one of these signatures. Heretofore it has been customary to open the signature at the desired point, insert the extra sheet, and pile the signatures with the inserts one upon another. When a convenient sized pile is formed for proper handling, it is picked up by hand and jogged first upon one side and then upon the top so as to force all the inserted pages evenly into signatures. Our jogging machine is designed to perform this operation which previously had been done by hand.

Our invention is fully described in the following specification and shown in the drawings in which,

Figure 1 is a plan view of our jogging machine, together with a means for driving it;

Fig. 2 is a front elevation of the same;

Fig. 3 is a detail of a driving mechanism;

Fig. 4 is a plan of the lower section of a base showing the guide;

Fig. 5 is a vertical section on the line 5—5 of Fig. 1 showing the signatures in jogged position;

Fig. 6 is a partial side elevation of the jogging box with a movable side removed;

And Fig. 7 is a perspective of a signature with a page inserted but not jogged.

We have illustrated as an embodiment of our invention a jogging box having upper and lower base members 10 and 11 respectively secured to a table 12. Vertical sides 13 and 14 and a vertical end 15 are secured to the base 10 by means of screws and wing nuts 16 which are adjustable in slot 17 of the bracket 18. The bottom of the box 19 is relieved at 20 for a purpose which will later be explained. Space is left between the side pieces 13 and 14 and a hole $10^a$ is correspondingly placed in the base 10 for the insertion of the hand of the operator for convenience in removing the jogged signatures.

The lower section 11 of the base is diagonally grooved at $11^a$ to accommodate a tongue 21 which is slidably fitted therein. The lower section is also slotted at $11^b$ and a guide 22 attached to the slide 21 is adapted to slide therein. The purpose of the groove and slot $11^a$ and $11^b$ coöperating with the slide 21 and the guide 22 is to cause the parts to move in the desired direction without binding. The guide 22 carries movable sides 23 and 24, which together with the side members 13 and 14 and the end 15 form the sides of a rectangle.

A corner brace 25 connects the movable sides 23 and 24 and has pivotally mounted therein one end of a rod 26, the other end of which is pivotally mounted in a block 27 which is slidable longitudinally of a reciprocating rod 28. The block 27 is mounted between compression springs 29 which are retained by collars 30 on the reciprocating rod 28. This rod is mounted in bearings 31 which are attached to the table 12 and is caused to reciprocate by the connecting rod 32 and the eccentric 33 which is mounted on a shaft 34. This shaft may be driven in any suitable manner as by means of a motor 35 through a worm wheel 36 on the shaft 34.

The jogging boxes are preferably arranged on a long table so that a single reciprocating rod 28 may be used to operate a number of boxes. The shaft 34 may also be extended in either direction so that a number of such reciprocating rods may be driven from a single shaft.

In Fig. 7 is shown a signature 37 made by folding twice on lines at right angles to each other, thereby producing four leaves of the finished book which are designated *a*, *b*, *c* and *d*. An insert 38 having the upper left hand corner $38^a$ cut off as shown is being inserted between sheets *a* and *b* preparatory to being jogged.

The operation of the jogging machine is as follows:

The motor is started thereby causing the reciprocating rod 28 and the movable sides of the jogging boxes to reciprocate as in-

dicated in dotted lines in Figs. 1 and 2. Signatures 37 with inserts 38 placed therein as shown in Fig. 7 are dropped one at a time into the jogging box. The movable sides 23 and 24 of the box which are constantly moving back and forth cause the insert to be forced snugly into the corners of the signature. The movable sides are cut back at 23ª so as to apply a more even pressure on the sides of the insert.

When folded signatures are piled up they tend to build up faster on the folded side, due to the fact that the sheets are not as close together as they are at the free ends. To overcome this difficulty we have cut back the bottom of the box at 20 so as to allow the signatures to fold over. As they build up they will tend to straighten out so that the top signatures will remain substantially flat. It will also be noticed that in Fig. 6 the upper side of the box 15 leans forward somewhat so that the upper signature, together with its insert will always receive slightly more pressure than those below which have been jogged.

If the operator's fingers are accidentally caught by the movable sides the movable part of the box will stop while the springs 29 will be compressed and no harm will be done. The same is true if any one standing near is struck by the movable sides.

By cutting back the corner 38ª of the signature we find that a very much more satisfactory result is obtained; that the corner of the insert does not have a tendency to stick and buckle and that the jogging thus obtained is much more uniform.

Folding the signatures over the bottom has the effect of causing the upper signatures to overhang slightly as they build up, as shown in Fig. 5, thereby giving the upper signature a heavier pressure from the side 23 than those below. A like result is obtained on the lower edge pressed by the side 24 by tilting forward the side 15 as previously explained.

We prefer to place the signatures in the box as shown and described, but it will be understood that the jogging can be done in any one of four possible positions of the signature in the box, and that we are not limited to the one shown.

Some signatures have only two leaves, the top being open. The line on which they are folded is also sometimes punched by the press to insure the bend at the proper place. It is then of much importance to have the corner 38ª of the insert relieved to prevent its catching in the punched marks.

The guide 22 is also made long enough so that it is never completely withdrawn from its slot and hence forms a protection for the operator's fingers.

While we have shown and described but a single embodiment of our invention it is to be understood that many modifications are possible. Changes therefore in the construction and arrangement may be made which do not depart from the spirit and scope of our invention as disclosed in the appended claims.

What we claim as new and desire to secure by Letters Patent is:

1. In a jogging machine for signatures and the like, a bottom, two substantially vertical sides forming a square, two substantially vertical sides forming a square and disposed oppositely to said first sides, the four sides forming a rectangle, means for reciprocating one of said pairs diagonally with respect to the rectangle, and a bottom relieved at the back for causing the upper signature in the pile of like signatures to overlap slightly the others whereby it will receive the maximum pressure.

2. In a jogging machine for signatures and the like, a bottom, two substantially vertical sides forming a square, two substantially vertical sides forming a square and disposed oppositely to said first sides, the four sides forming a rectangle, means for reciprocating one of said pairs diagonally with respect to the rectangle, and an upper side leaning toward the opposite movable side for causing the upper signature in the pile of like signatures to overlap slightly the others whereby it will receive the maximum pressure.

3. In a jogging machine for signatures and the like, a bottom, two substantially vertical sides forming a square, two substantially vertical sides forming a square and disposed oppositely to said first sides, the four sides forming a rectangle, means for reciprocating one of said pairs diagonally with respect to the rectangle, and a bottom relieved at the back and the upper side leaning toward the opposite movable side for causing the upper signature in the pile of like signatures to overlap slightly the others whereby it will receive the maximum pressure.

4. In a jogging machine for signatures or the like, a pair of adjacent sides, a pair of oppositely disposed adjacent sides and means for causing said pairs of sides to relatively alternately approach and recede from each other, and a bottom relieved at the back for causing the upper signature in the pile of like signatures to overlap slightly the others whereby it will receive the maximum pressure.

5. In a jogging machine for signatures or the like, a pair of adjacent sides, a pair of oppositely disposed adjacent sides and means for causing said pairs of sides to relatively alternately approach and recede from each other, and an upper side leaning toward the opposite movable side for causing the upper

signature in the pile of like signatures to overlap slightly the others whereby it will receive the maximum pressure.

6. The process of assembling inserts in signatures which are closed on two adjacent sides, consisting of relieving one corner of the insert, and inserting the insert into the signature with the relieved corner of the insert toward the corner of the signature made by the closed sides.

7. The process of assembling inserts in signatures which are closed on two adjacent sides, consisting of relieving one corner of the insert, inserting the insert into the signature with the relieved corner of the insert toward the corner of the signature made by the closed sides, placing the signature and insert with the closed sides of the signature against a stop and tapping the protruding edge of the insert.

8. The process of forcing an insert into a signature which consists in placing the insert roughly in the signature by hand, placing the signature and insert with the closed sides of the signature against a stop and tapping the protruding edges of the insert, each new signature and insert being placed on the top of the pile.

9. The process of forcing an insert into a signature which consists in placing the insert roughly in the signature by hand, placing the signature and insert with the sides of the signature against a stop and tapping the protruding edges of the insert, each new signature and insert being placed on the top of the pile, until a pile of the desired thickness is reached when it is removed.

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