L. LA VECK.

PAPER CATCHER.

APPLICATION FILED OCT. 22, 1920.

1,387,602.

Patented Aug. 16, 1921.

3 SHEETS—SHEET 1.

Fig. 1.

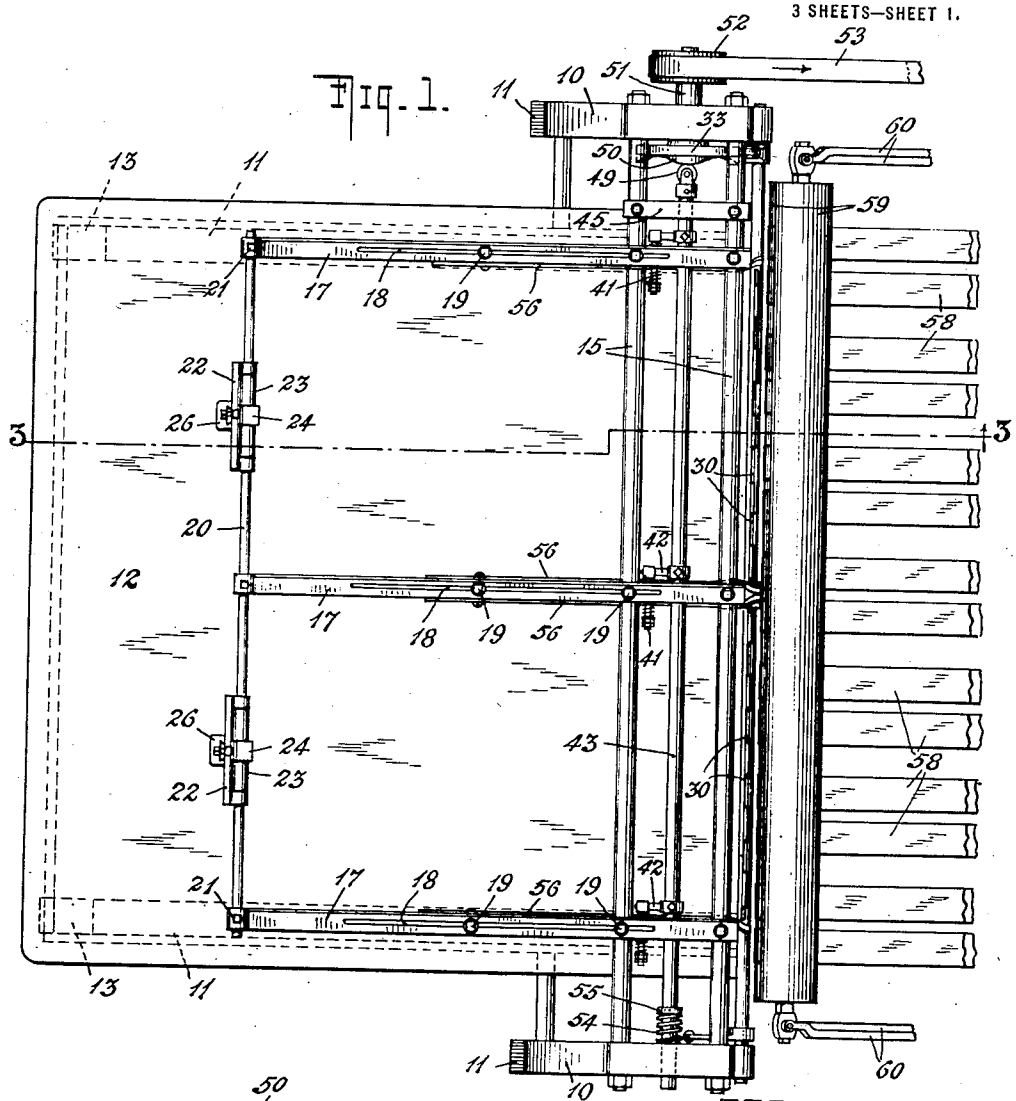


Fig. 8.

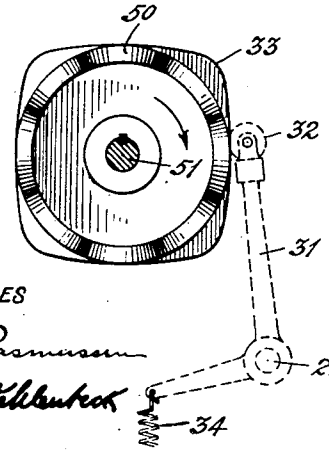
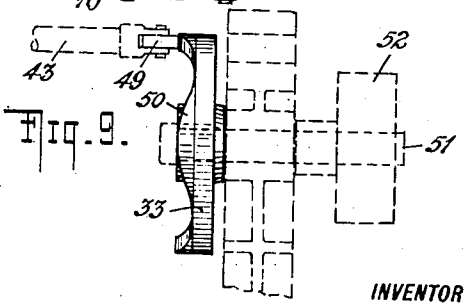


Fig. 9.



WITNESSES

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3 SHEETS—SHEET 2.

Fig. 2.

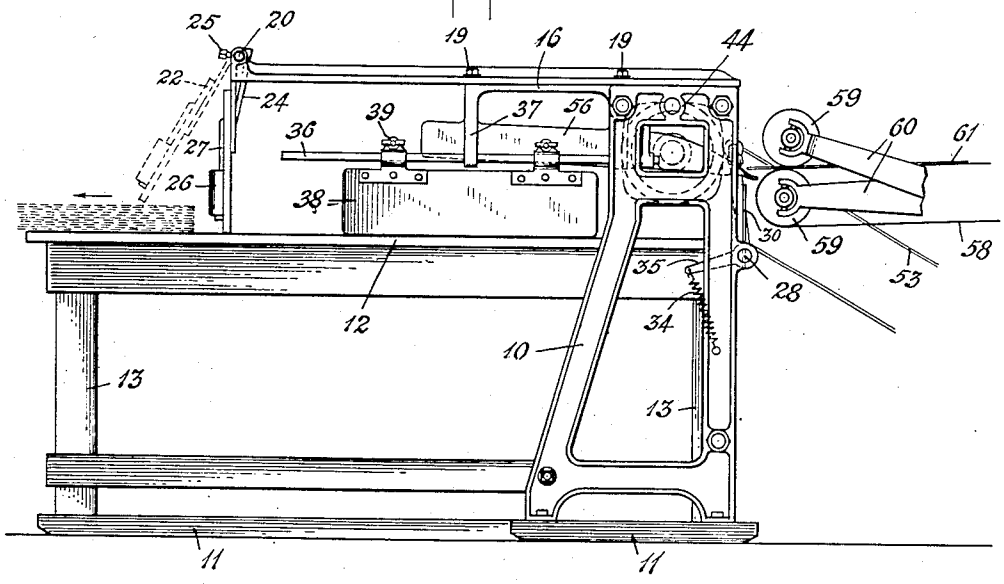
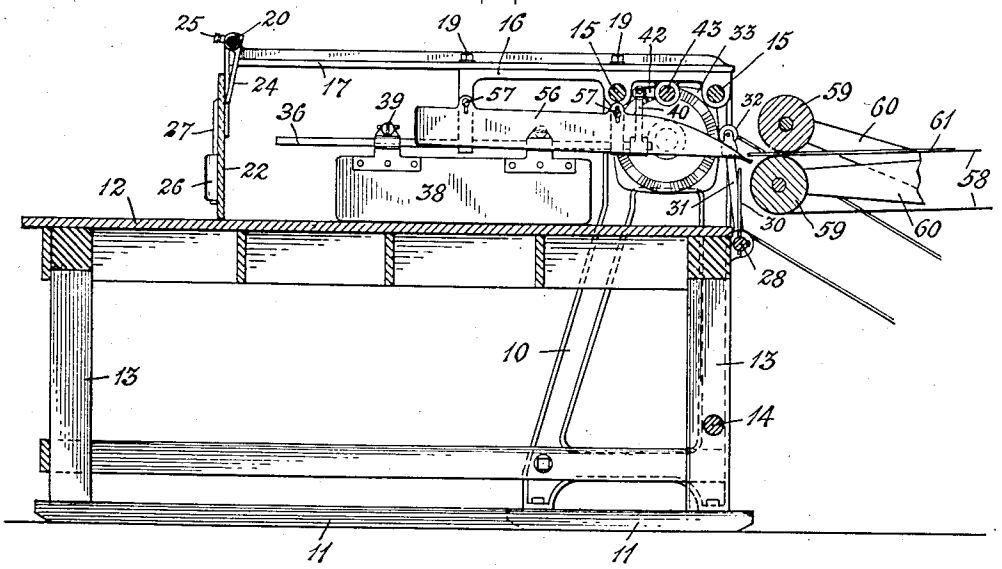


Fig. 3.



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3 SHEETS—SHEET 3.

Fig. 4.

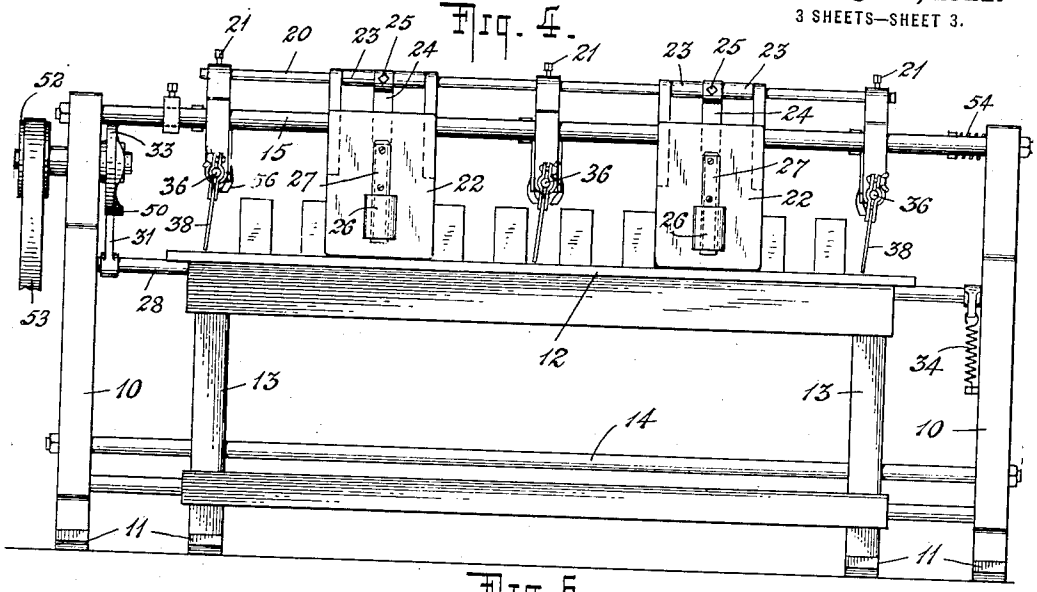


Fig. 5.

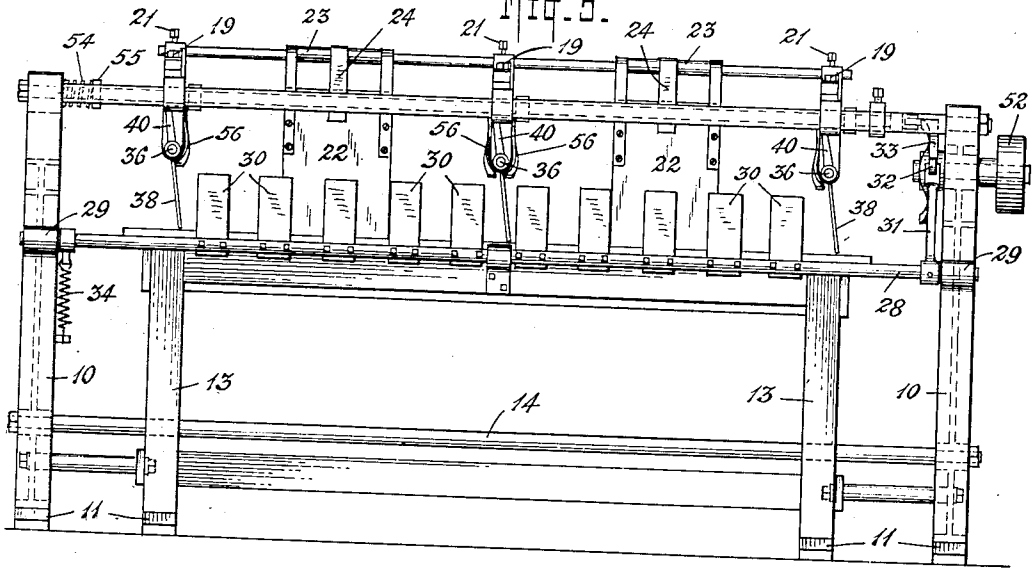


Fig. 6.

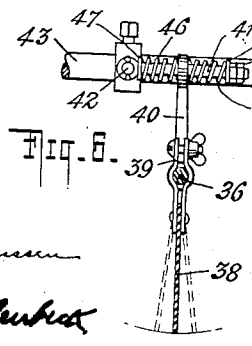
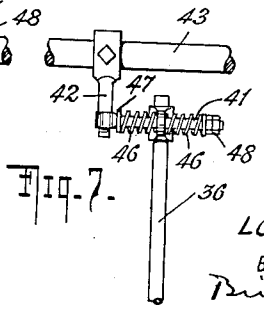


Fig. 7.



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PAPER-CATCHER.

1,387,602. Specification of Letters Patent. Patented Aug. 16, 1921.

Application filed October 22, 1920. Serial No. 418,852.

To all whom it may concern:

Be it known that I, LOUIS LA VECK, a citizen of the United States, and resident of the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Paper-Catchers, of which the following is a specification.

My invention relates to machines for catching paper after it has been cut and has for its object to provide a simplified and efficient construction of relatively light weight and which is constructed in the form of a unit capable of being operatively combined with the paper machine or taken away therefrom with a minimum expenditure of time and effort. My invention contemplates also an arrangement from which the collected paper, in predetermined quantities, may be periodically removed without requiring a stoppage of the paper machine such as a cutter and which requires no particular skill in operating. Other objects will appear from the description hereinafter and the features of novelty will be pointed out in the appended claims.

In the accompanying drawings, which show an example of the invention without defining its limits, Figure 1 is a plan view; Fig. 2 is a side elevation; Fig. 3 is a sectional elevation on the line 3—3 of Fig. 1; Fig. 4 is a front elevation; Fig. 5 is a rear elevation; Figs. 6 and 7 are detail views illustrating the mountings of certain members included in the machine; and Figs. 8 and 9 are detail views showing an operating cam which forms part of said machine.

As shown in its illustrated form the paper catcher comprises a frame or support 10 preferably carried by skids 11 or equivalent devices whereby the machine, while being firmly fixed in a stationary position when in operative use, may be readily shifted or transferred from one place to another when this is desired. A table 12 of suitable dimensions and material is carried by legs 13 also provided with skids or their equivalent 11 and is rigidly combined with the frame 10 by means of lower rods 14 and upper rods 15, the latter extending transversely across the machine as shown in Fig. 1. The construction includes two or more brackets 16 which are fixed upon the rods 15 and constitute supports for horizontal members 17 which are preferably adjustably connected with said brackets in any suitable manner as by means of slots 18 and bolts 19; with this arrangement the members 17 are slidable relatively to the brackets for adjustment purposes as will be more fully pointed out hereinafter. At their free ends the members 17 carry a rod 20 which may be secured in position in any convenient manner as by means of set screws 21. Movable stops in the form of plates or flaps 22 are pivotally connected with said rod 20 so as to be capable of swinging thereon and depend from said rod between opposed members 17 into close proximity to the table 12 as shown in Figs. 2, 3 and 4. The gravity stop plates 22 may be held against unintentional displacement lengthwise of said rod 20 in any desired way as for instance by sleeves 23 interposed between the suspending members of the plates 22 and stops 24 depending from said rod behind said plates 22 and secured in place by means of set screws 25 as shown in Fig. 4. The plates 22 are preferably weighted by means of weights 26 which may be removably mounted thereon for instance by means of dovetail ribs 27 extending lengthwise of the plates 22 and constructed in any suitable manner to retain the weights 26 in place. With this arrangement the latter are capable of swinging freely upon the rod 20 in the direction in which the collected paper is removed from the machine as will appear more fully hereinafter and are always automatically returned to normal vertical position by gravity and the action of the weights 26; at the same time the stops 24 arrest the swinging movement of said plates 22 in the opposite direction and prevent them from passing materially beyond their intended normal, vertical positions.

A rock-shaft 28 is journaled in bearings 29 upon the frame 10 and extends in a direction parallel with the stop-plates 22, said shaft carrying a plurality of upright fingers 30 which project above the table 12 as shown in Fig. 5. An arm 31 is fixed upon the shaft 28 and has its outer end forked for the accommodation of a roller 32 which engages a peripheral cam 33 and which is maintained in engagement therewith by means of spring 34 having one end connected with the frame 10 and its other end secured to a member 35 carried by the shaft 28 and projecting radially therefrom as

shown in Fig. 2. The spring 34 also permits the fingers 30 to yield under any pressure which may be exerted in a direction to the right in Fig. 3; the purpose of this will be more fully pointed out hereinafter.

The machine includes further a plurality of rock-shafts 36 which extend in directions at substantially right angles to the stop plates 22 and shaft 28 and are journaled in suitable bearings such as extensions 37 depending from the brackets 16. Vibrating members or plates 38 depend from the rock-shafts 36 into close proximity to the table 12 and are fixed upon said shafts 36 in any convenient manner as by means of suitable clamps 39 shown best in Fig. 6. The shafts 36 also carry levers 40 which extend radially therefrom and at their outer ends are provided with apertures through which bars 41 extend as illustrated in Figs. 6 and 7, the bars themselves being carried by stems 42 fixed upon a slide shaft 43 slidable in the direction of its length in bearings 44 forming part of or fixed upon the frame 10, the brackets 12 and a cross-bar 45 secured upon and extending between the rods 14. In the preferred form coil springs 46 are located upon the bars 41 upon opposite sides of the apertured ends of the levers 40 and each have one end in engagement therewith and their opposite ends bearing against washers 47, held in place respectively by the enlarged ends of said bars 41 and by nuts 48 screwed upon the outer ends thereof, thus providing a resilient and yielding connection between the plates 38 and the slide shaft 43. The one end of the latter is forked to receive a roller 49 which bears against a cam 50 constituting, in the illustrated example, an integral part of the cam 33, the combined cams 33, 50 being mounted upon a shaft 51 journaled in the support 10 and carrying a pulley wheel 52 for the accommodation of a belt 53 whereby said composite cam is operated; it will be understood that any other convenient means may be substituted for the pulley 52 and belt 53 for driving said cam. The roller 49 is maintained in engagement with the cam 50 by means of a spring 54 which surrounds the shaft 43 and has its one end in engagement with a collar 55 thereon and its other end contacting with the support 10 as illustrated in Fig. 1.

In addition to the parts so far described, it is preferred to include in the machine a plurality of stationary vertical guides 56 arranged in cooperating parallel pairs extending in the same general direction as the vibrating plates 38 and adjustably mounted, for instance through the medium of bolts and slots 57, upon the previously mentioned depending extensions 37 of the brackets 12 as shown in Fig. 3.

In the illustrated example the paper catcher is shown in the position it occupies when operatively combined with a paper cutter of any existing type, the drawings showing the customary traveling conveyers 58 and rollers 59 carried by levers 60 and which usually comprise parts of such paper cutters and whereby the cut paper is carried therefrom. In practice the present paper catcher, as a unit, is simply moved upon the skids 11, into proper receiving relation in front of the delivery mechanism as represented by the conveyers 58 and rollers 59 and remains in this position without the need for any extraneous fastening means. If the paper from the cutter is to be carried upon rolls or otherwise disposed of, the catcher is simply moved as a unit, out of the way, the absence of any positive connection with the paper cutter reducing these operations to the utmost simplicity, as will be apparent.

In operation, the paper 61, after having been cut by the cutter, is carried by the conveyers 58 to the rollers 59 between which it passes for delivery to the paper catcher. As it leaves the rollers 59 the paper 61 is thrown forward, as it were, between the vertical guides 56 which maintain it in its intended path and between which it drops to the table 12, the impetus imparted by said rollers being sufficient to carry the sheet of paper 61 into contact with the stop plate 22 whereby said sheet is positioned on said table. Each succeeding sheet 61 is similarly transferred to the catcher and is superimposed upon the preceding sheets. The composite cam 33, 50, being in operation at this time, the shaft 28 and with it the fingers 30 will be rocked by the action of the cam 33 on the roller 32 of the arm 31 and consequently will return to its intended position on the table 12 any sheet 61 which may rebound from the stop plate 22 after contact therewith. Because of the spring 34 the fingers 30 will readily yield backward if any resistance to their forward swing is interposed, thus preventing mutilation of or injury to said sheets of paper. At the same time, by the action of the cam 50 upon the roller 49, the slide shaft 43 will be reciprocated in its bearings and consequently will rock the shafts 36 and thus vibrate the plates 38; the latter engage the sheets 61 and evenly stack the same in a pile upon said table 12. The resilient connection afforded by the springs 46 renders the engagement of the plates 38 with the sheets 61 a yielding one so that the stacking is done without injury to or mutilation of said sheets. After a predetermined number of sheets, which may be a ream or any other number and the completion of which may be automatically indicated by a suitable alarm, have been stacked, the operator pulls the stack from the table 12, the stop plate 22 being automatically swung out of the way by the stack itself, to make this possible. As soon as the

stack has been completely withdrawn, the plate 22 drops back into its normal vertical position so that the removal of a stack may be accomplished without necessitating the stoppage of the paper cutter which thus may continue in operation without any interruption. This is a distinct advantage and increases the output of the product to a maximum extent and at the same time reduces the cost of production because of the elimination of idle periods both in the machine and the operators.

The paper catcher may be constructed to accommodate individual stacks of paper or it may be a duplex machine as in the illustrated example in which case two stacks are concurrently built up, or it may be constructed in accordance with the capacity of any paper cutter and concurrently build up any number of stacks of cut sheets. In such cases it will be understood that the stacks are removed from the table at the proper time by one or more operators, the completion of the stacks being indicated, for instance, by means of a suitable alarm, which may be set to indicate the completion of individual stacks whereby one operator will be enabled to properly handle all of said stacks.

By shifting the horizontal members 17 in the direction of their length on the brackets 16, the positions of the gravity stop plates 22 may be changed; similarly by adjusting the brackets 16 and their correlated parts lengthwise of the rods 15 the location of the vibrating plates 38 may be changed. The machine is thus capable of being easily and quickly adjusted for paper of any dimensions and may, as a result, be used with cutters of any type or width.

Because of the fact that the stop-plates 22, the fingers 30 and the vibrating plates 38 may all yield under pressure, the danger of injury to the cut sheets of paper is reduced to a minimum. It will be understood, because of the speed of the operation, that the fingers 30 and plates 38 are vibrated rather rapidly whereby the stacking is efficiently accomplished in a uniform manner.

The paper catcher is adapted for universal use and because of its simplicity and light weight is specially adapted for use in paper mills where paper is cut into sheets or wound upon rolls directly from the paper machine. If it is intended to wind the product of the paper machine upon rolls, the paper catcher is simply moved aside out of the way without requiring any disconnection excepting possibly the removal of the belt 53 from the pulley 52; the shifting of the paper catcher is facilitated by the skids 11 which at the same time rigidly fix said catcher in operative relation to the cutter without the necessity for any extraneous fastening means.

The paper catcher is also well adapted for use in specialty mills which feature small lots and various sizes, as the stacks of paper may be removed while the machine is in motion and transferred to the bundling table or flat cutter as desired, thus doing away with a number of handlings.

In addition, the paper catcher may be efficiently utilized for catching folded sheets in the same manner as hereinbefore described, and may be advantageously combined with printing presses for catching the printed sheets therefrom.

Various changes in the specific form shown and described may be made within the scope of the claims without departing from the spirit of my invention.

I claim:

1. In a paper catcher, means for stacking sheets of material comprising a rock-shaft, a member carried thereby, a slide-shaft, a connection between said rock-shaft and slide-shaft and means for reciprocating said slide-shaft whereby said rock-shaft is actuated to vibrate said member.

2. In a paper catcher, means for stacking sheets of material comprising a rock-shaft, a member carried by said rock-shaft, a slide-shaft, a connection between said rock-shaft and slide-shaft adapted to yield in opposite directions and means for reciprocating said slide-shaft, whereby said rock-shaft is actuated to vibrate said member.

3. A paper catcher comprising a table, a gravity operated stop-plate suspended above said table, a pair of parallel rock shafts above said table extending transversely to said stop-plate, members depending from said shafts, a slide shaft, a yielding connection between said slide shaft and each of said rock shafts, and means for reciprocating said slide shaft whereby said rock shafts are actuated to vibrate said members.

4. A paper catcher comprising a table, a gravity operated stop-plate suspended above said table, a pair of parallel rock shafts above said table extending transversely to said stop-plate, members depending from said shafts, a slide shaft, a yielding connection between said slide shaft and each of said rock shafts, a spring controlled rock shaft, upright fingers carried thereby, means including a composite cam whereby said slide shaft is reciprocated to actuate said parallel rock shafts and vibrate said members and said spring controlled rock shaft is concurrently operated to vibrate said fingers and parallel guide plates extending parallel with said members.

In testimony whereof I have hereunto set my hand.

LOUIS LA VECK.