

March 9 , 1926.

1,576,243

F. MENTGES

PAPER PACKING DEVICE

Filed August 4, 1923

2 Sheets-Sheet 1

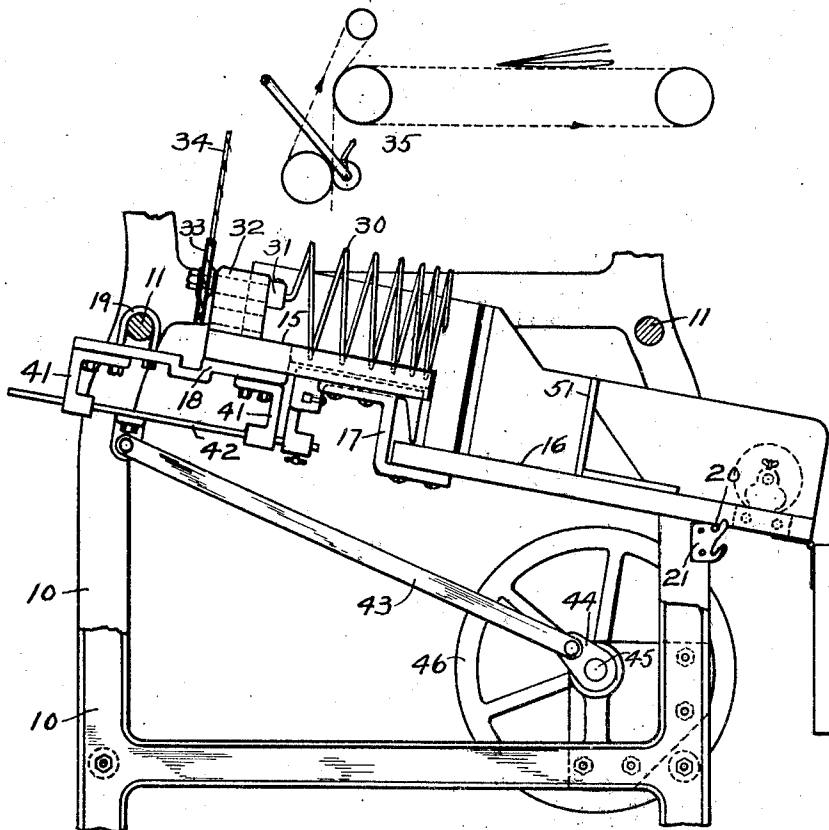


FIG. 1.

INVENTOR.

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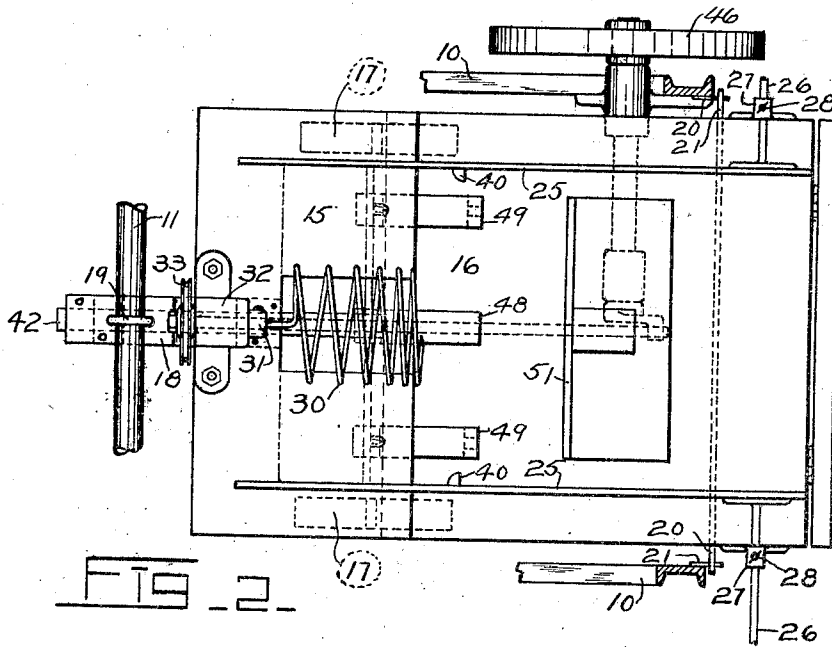


FIG. 2.

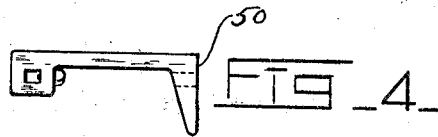


FIG. 4.

FIG. 3.

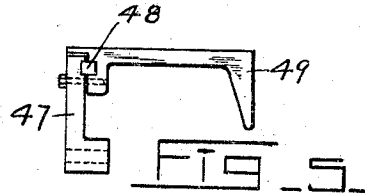
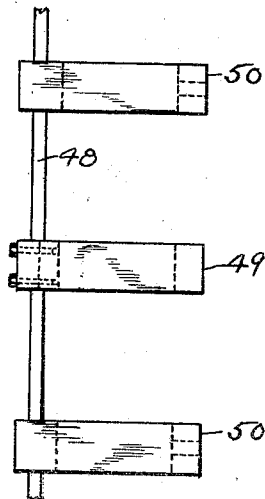


FIG. 5.

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UNITED STATES PATENT OFFICE.

FREDRICK MENTGES, OF SIDNEY, OHIO, ASSIGNOR TO THE MENTGES FOLDER COMPANY, OF SIDNEY, OHIO, A CORPORATION OF OHIO.

PAPER-PACKING DEVICE.

Application filed August 4, 1923. Serial No. 655,646.

To all whom it may concern:

Be it known that I, FREDRICK MENTGES, a citizen of the United States, residing at Sidney, in the county of Shelby and State of Ohio, have invented a new and useful Paper-Packing Device, of which the following is a specification.

My invention relates to devices for receiving folded papers as they come from a folding machine, whereby the papers are assembled in packs.

Devices for this purpose are not new, but mine embodies certain useful improvements over those heretofore produced. One object of my invention is to produce a packing device which is always ready to receive papers; that is, one in which it is immaterial whether the papers come to it at regular or irregular intervals. Another object is to provide a packing device which will not rub or blur the ink in case papers come to it fresh from a press. Another object is to prevent one paper from getting into the folds of another as the papers are brought together in a pack. Other objects and advantages of my device will be made apparent, or pointed out, as the detailed description of my invention proceeds.

In the accompanying drawings,

Fig. 1 is an elevational view, having certain parts removed in order to display other parts.

Fig. 2 is a plan view of my machine.

Fig. 3 is a plan view of one part of the machine, and

Figs. 4 and 5 are elevational views of certain members of the part shown in Fig. 3.

I shall now describe my machine, referring to the drawings as I proceed. The frame of the machine comprises two cast iron side plates 10, tied together by round rods 11. In Fig. 1 a portion of the near plate 10 is removed to exhibit the parts which it would conceal. In Fig. 2 only fragments of the frame are shown.

The principal part of my machine consists of a unit comprising a table 15 and packing floor 16, these parts being connected by iron bars 17, whereby the packing floor is placed on a plane lower than that of the table. These two planes are parallel, however. Secured to the under side of the table, and extending from the end of the table remote from the packing floor, is a bar 18, which is secured to one

of the rods 11 by a stirrup bolt 19, thereby sustaining one end of the unit. The other end of the unit rests on a rod 20, which lies in notches in brackets 21 carried by the frame plates 10. The unit as a whole slopes toward the packing floor end, or foot, and for the purpose of varying the amount of this slope the brackets 21 have two notches. When the rod 20 is moved from one notch to the other the bar 18 simply rocks on the rod 11.

To form a receptacle in which to pack the folded papers, I provide two side walls 25, attached to the packing floor member 16 by means of rods 26 secured to the walls and held in brackets 27 on the packing floor by means of thumb screws 28. Thus a channel or packing receptacle is formed. A spiral conveyer 30 is mounted above the table on a shaft 31 which rotates in a bearing 32. A pulley 33 on the shaft carries a belt 34 which is driven by means not shown, and thus the conveyer is rotated constantly. A channel is formed in the top of the table allowing the lower portion of the spiral to be below the surface of the table, so that papers can stand on edge on the table as they are carried by the conveyer to the edge of the table, whence they drop to the packing floor. The papers are dropped from a conveyer 35, by which they are carried from the folder, not shown, into the conveyer. The convolutions of the conveyer 30 are widely separated at the point where the papers drop into the conveyer, and gradually come closer together toward the end of the conveyer. The distance from the top of the table to the packing floor is less than the vertical dimensions of the folded papers, so that after the papers drop to the packing floor the upper edges will remain above the top of the table. This precludes the possibility of one paper dropping into the folds of a paper previously dropped. A short distance from the edge of the table I secure to each of the walls 25 a cleat 40, and the walls are set at such a distance apart that the distance from one cleat to the other is less than the horizontal dimension of the folded papers. The space between the walls beyond the cleats 40 I shall hereinafter refer to as the pack receptacle, or simply receptacle. The space into which the papers drop from the table I shall, for lack of a better term, refer

to as the antechamber. The antechamber is bounded on its ends by the walls 25, and on one side by the end of the table and the ends of the pushers, while the cleats 40 serve as a wall for the other side. That is, the cleats prevent the papers from falling over, which is all that is necessary.

I shall now describe the mechanism for pushing the papers from the antechamber to the pack receptacle. Depending from the bar 18 are two arms 41 which afford support for a sliding bar 42. A pitman 43 connected at one end to this bar has its other end connected to a crank 44 on the end of a shaft 45, a pulley 46 being carried by the other end of the shaft. A belt, not shown, running on this pulley, rotates the shaft and thus the bar 42 is constantly reciprocated. Secured to one end of the bar 42 is a bracket 47, which carries a transversely positioned square rod 48. In addition to carrying the square bar the bracket carries a pusher 49 which is located under the table 15 and as the bar 42 reciprocates the pusher moves to and fro from a position under the table to where its forward end extends a substantial distance into the pack receptacle, that is, past a line drawn from one cleat 40 to the other. A pusher 50 is mounted on each end of the rod 48 similar to the pusher 49. These pushers have flat, vertical, front faces, and as they move toward the pack receptacle they push all papers which have fallen into the antechamber past the cleats and into the receptacle. No attempt is made to co-ordinate the movements of the pushers to those of the incoming papers, and none is necessary. The pushers are flat and smooth on top, and should papers drop on them while they are projected from under the table the pushers will slide from under the papers as they retire under the table, allowing the papers to drop into the antechamber. As the distance between the cleats is less than the horizontal dimension of the papers the papers have to be sprung past the cleats, but the papers are only momentarily distorted, and after they return to their proper shape the cleats serve to retain them in the receptacle. A portable bulkhead 51 stands on the packing floor, and as the receptacle fills the pack pushes the bulkhead back, the weight of the bulkhead creating enough friction to offer a little resistance to movement, thereby slightly compressing the pack.

The operation of this device is so obvious that it is not necessary to describe it in detail. But it is to be noted that as the spiral conveyer 30 is not depended upon for packing the papers in the receptacle it does not rub the surface of the papers. While it may lightly touch the freshly printed surfaces it will not rub it hard enough to blur the ink. The pushers press against the paper but do not rub it. Papers can drop into the

spiral at any time and it is only necessary to keep it rotating in order to carry the papers to the edge of the table. It is not necessary to rotate the spiral at any particular speed with reference to the frequency of reciprocation of the pushers, for it is immaterial how many papers accumulate in the antechamber before they are pushed into the receptacle, provided the chamber does not become crowded. The chamber is made comparatively narrow in order to insure maintenance of the papers in an erect position, but even so it will accommodate quite a number of papers without crowding. Having the height of the table less than the height of the papers standing in the antechamber, prevents papers getting into the folds of other papers, and so long as the spiral rotates fast enough to keep too many papers from accumulating in the antechamber all will be well. Below the journal in which the shaft revolves I provide a second journal, adapted to receive the shaft 31. If this journal is used a smaller spiral should be used. While I have described my invention as a device for packing papers for paper folding machines, it is not limited in its field of usefulness. It may be used for other purposes. For example, it might be used in connection with a stamp canceling machine. While I have disclosed and described that which I now regard as the preferred embodiment of my invention, it is not to be supposed that in practice it is limited to the construction shown. Various modifications may be made in the structural details without departing from the spirit of my invention, and I desire that the appended claims be given as broad a construction as possible in view of the prior art.

What I claim as my invention is as follows:

1. A packing device for paper folding machines, comprising a packing receptacle, an antechamber therefor, a table upon which the folded papers fall, a constantly revolving spiral conveyer adapted to receive the papers as they fall and carry them to the edge of the table, whence they drop to the antechamber, and means for moving the folded papers, one or more at a time, from the antechamber to the packing receptacle.

2. A packing device for paper folding machines, comprising a packing receptacle, an antechamber therefor, a table upon which the folded papers fall, a constantly revolving spiral conveyer adapted to receive papers as they fall and carry them to the edge of the table, whence they drop to the antechamber, means for moving the folded papers, one or more at a time, from the antechamber to the packing receptacle, and means for preventing the return of the papers to the antechamber.

3. A packing device for paper folding

machines, comprising a packing floor, a table on which the folded papers are first deposited, a conveyer for moving the papers to the edge of the table, whence they drop to the packing floor, a pusher which reciprocates through the area into which the papers drop and at one part of its cycle retires under the table, said pusher moving the papers one or more at a time from the area in which they fall, thereby preventing crowding of said area, and being so shaped that it slides from under papers that drop upon it while it is in said area, and means for preventing the return of the papers to the area from which the pushers have moved them.

4. A packing device for paper folding machines, comprising a packing floor, a table on which the folded papers are first deposited, a spiral conveyer adapted to receive the papers as they fall and carry them to the edge of the table, whence they drop to the packing floor, a pusher that reciprocates through the area into which the papers drop, and at one part of its cycle retires under the table, said pusher moving the papers from said area to make room for others, and being so shaped on top that it slides from under the papers that drop upon it while it is in said area, the end of the spiral conveyer being adapted to prevent these papers from falling back on the table during the time they rest upon the pusher.

5. A packing device for folded papers, comprising a packing receptacle, an antechamber therefor, a table, a spiral conveyer constantly revolving upon an axis parallel to the table and so situated that papers dropped between its convolutions are kept standing on edge on the table while being moved by the conveyer until they reach the edge of the table and drop to the antechamber, means whereby papers are periodically transferred from the antechamber to the receptacle, the velocity of the spiral conveyer being sufficiently high to deposit two or more papers in the antechamber for each transfer of papers to the receptacle.

6. A packing device for folded papers, comprising a packing receptacle, an antechamber therefor, a table, a spiral conveyer

constantly rotating on an axis parallel to the table and so situated that papers dropped between its convolutions are kept standing on edge on the table while being moved by the conveyer until they reach the edge of the table and drop to the antechamber, the pitch of the convolutions of the conveyer being largest at the end where the papers are dropped into it, the pitch gradually becoming smaller toward the discharge end of the spiral, means whereby papers are periodically transferred from the antechamber to the receptacle, the velocity of the spiral conveyer being sufficiently high to deposit two or more papers in the antechamber for each cycle of the transferring means.

7. A packing device for folded papers, comprising a packing receptacle, an antechamber therefor, a reciprocating pusher whereby papers deposited in the antechamber are pushed into the packing receptacle, and means for depositing two or more folded papers in the antechamber during each cycle of the pusher.

8. The method of packing folded papers as they come from a folding machine, which comprises standing them on edge and moving them laterally to a position over an antechamber, and then dropping them into the antechamber, said lateral movement being in a plane below the upper edge of the papers which have dropped into the antechamber; and periodically pushing a plurality of papers which has accumulated in antechamber into a pack receptacle, leaving the antechamber clear for the reception of other papers.

9. The method of packing folded papers, which comprises assembling a plurality of papers in an antechamber and periodically pushing these assembled papers through a slightly constricted opening into a pack receptacle.

10. The method of packing folded papers, which comprises introducing them one at a time into an antechamber and then pushing two or more at a time through a constricted opening into an expansible pack receptacle.

FREDRICK MENTGES.