E. L. BRACY.

MACHINERY FOR INTRODUCING INCLOSED PACKETS INTO SLIDING TRAYS AND BOXES.

APPLICATION FILED DEC. 11, 1907.

980,917. Patented Jan. 10, 1911.

3 SHEETS—SHEET 1.

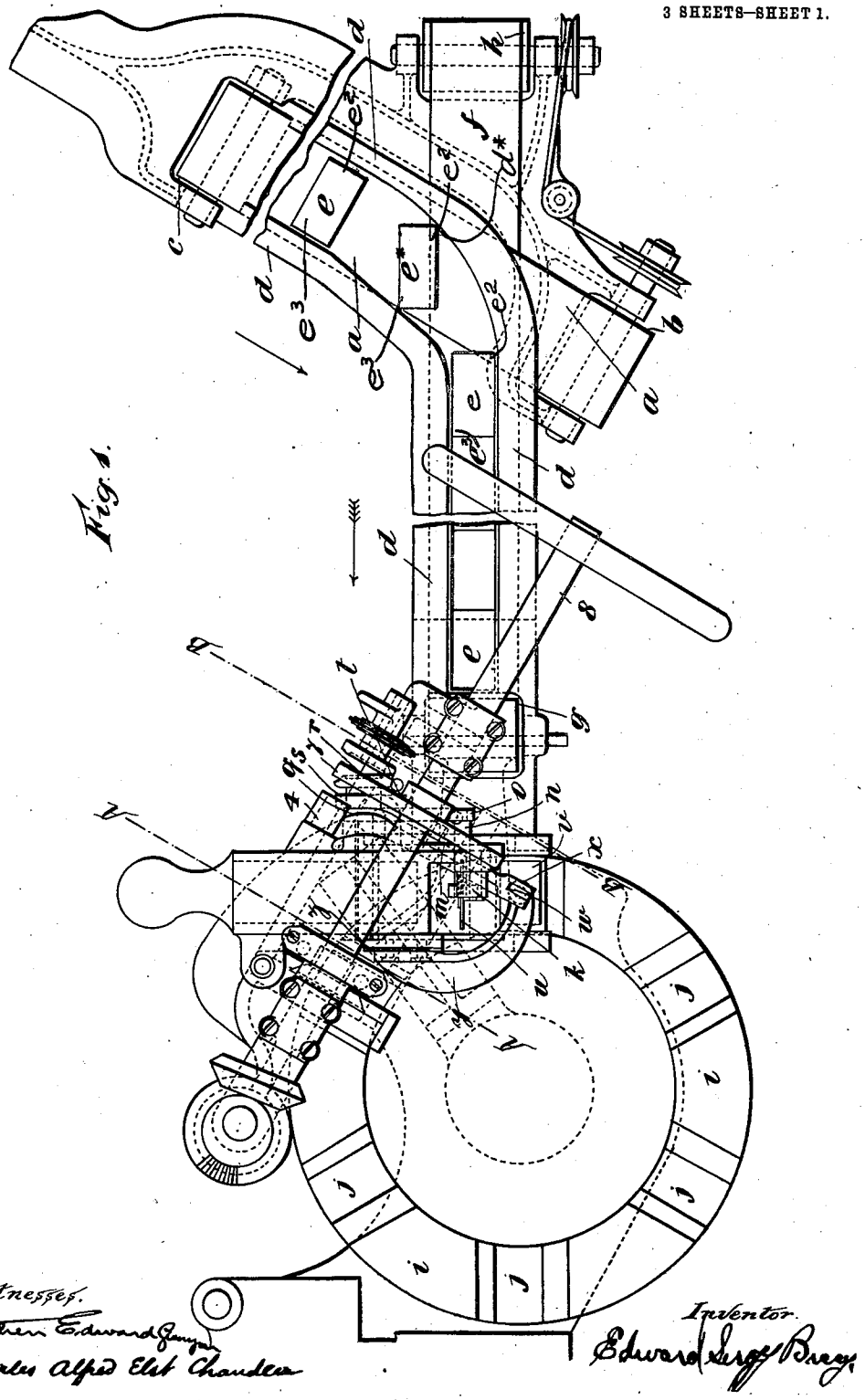

Fig. 1.

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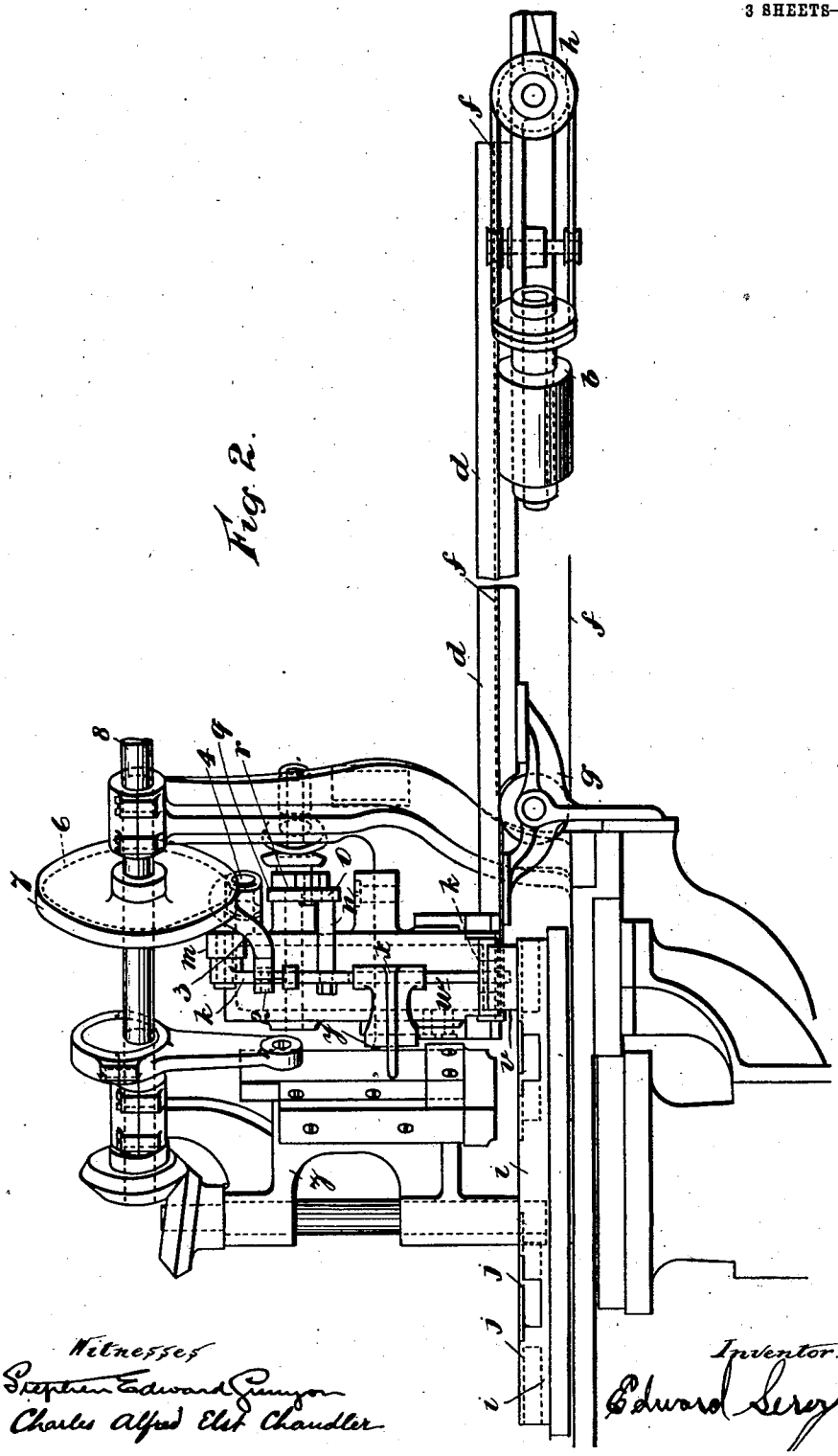
3 SHEETS—SHEET 2.

Fig. 2.



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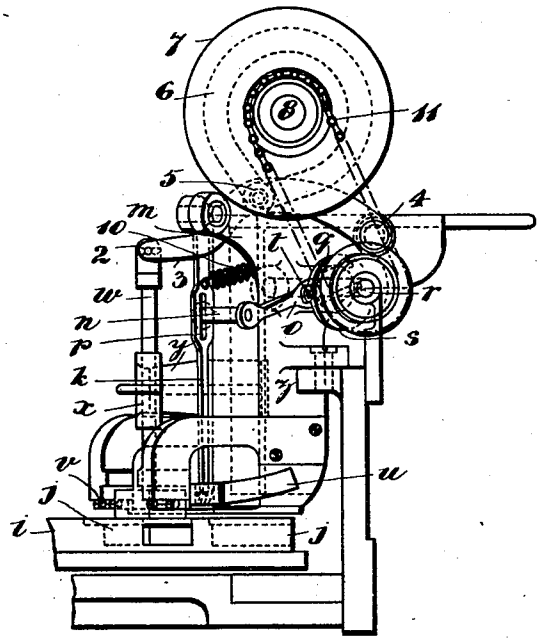
3 SHEETS—SHEET 3.

Fig. 3.



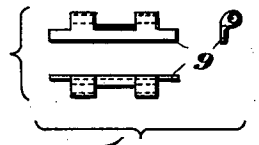


Fig. 7.

Fig. 6.

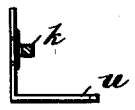


Fig. 4.

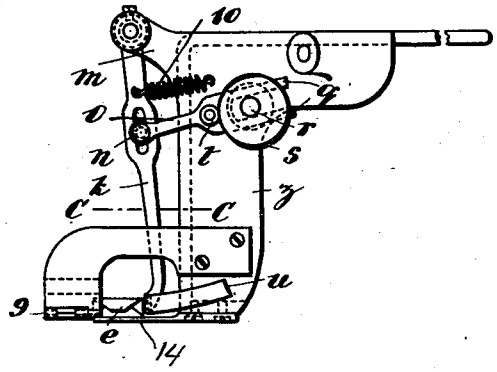
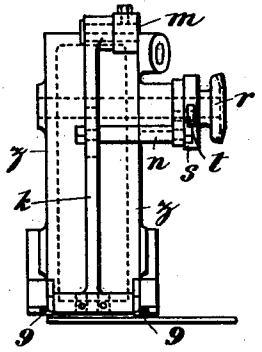


Fig. 5.



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UNITED STATES PATENT OFFICE.

EDWARD LEROY BRACY, OF SCOTLAND NECK, NORTH CAROLINA, ASSIGNOR TO RICHARD HARVEY WRIGHT, OF DURHAM, NORTH CAROLINA.

MACHINERY FOR INTRODUCING INCLOSED PACKETS INTO SLIDING TRAYS AND BOXES.

980,917. Specification of Letters Patent. Patented Jan. 10, 1911.

Application filed December 11, 1907. Serial No. 406,093.

To all whom it may concern:

Be it known that I, EDWARD LEROY BRACY, a citizen of the United States of America, residing at Scotland Neck, North Carolina, have invented new and useful Improvements in and Connected with Machinery for Introducing Inclosed Packets into Sliding Trays and Boxes, of which the following is a specification.

This invention relates to improvements in and connected with that class of machinery in which materials or articles (loose cigarettes for example) are delivered into boxes or sliding trays of paper or card, which trays are afterward slid into outer tubular covers or sheaths.

Heretofore, as far as I am aware, the machinery employed for the above purpose has delivered the materials or articles (cigarettes for example) loosely into the boxes or sliding trays, and the improvements which form the subject of my present invention relate to devices whereby the materials or articles first inclosed in paper, foil or other like materials, or a combination thereof, are delivered in the form of an inclosed and sealed packet, (or in the form of a loosely folded and unsealed packet) into the box or sliding tray which is afterward slid into its outer tubular cover or sheath.

The present invention is especially useful for packing cigarettes and other similar articles which quickly deteriorate unless inclosed in a wrapper which will preserve the contents from atmospheric, climatic, and other influences, but my improvements may also be applied to machinery for packing other articles or materials. The cigarettes (for example) are packed in packets of any convenient number, (say ten, for example) and wrapped in an inner layer of paper and an outer layer of foil by means of any known packeting and folding devices (such for example as those for which British Letters Patent were granted to William Henry Beck as a communication from Richard Harvey Wright, bearing date the 20th day of March 1902, No. 6819 and to the said Richard Harvey Wright and myself bearing date the 26th day of April 1904, No. 9531) in which the cigarettes are wrapped as above described, the ends of the paper and foil being folded and stuck down or not as desired.

In order that my present invention may be fully understood I will now proceed to describe the same with the aid of the accompanying two sheets of drawings in which—

Figure 1 is a plan view of so much of a machine for introducing inclosed packets of cigarettes, for example, into sliding trays or boxes as is necessary to illustrate my present invention; Fig. 2 is an elevation of Fig. 1; Fig. 3 is a vertical sectional view taken between the lines A A and B B of Fig. 1; Figs. 4 and 5 are a front and an end elevation respectively illustrating more clearly the pusher-bar device hereinafter more fully referred to; Fig. 6 is a section on line C C of Fig. 4; and Fig. 7 illustrates in detail the spring hinged strips also hereinafter more fully referred to.

Similar letters of reference relate to like parts in all the figures of the drawings.

a is an endless traveling belt running over rollers *b* and *c*. The upper part of this belt *a* traverses the bottom of one straight portion of a fixed guideway or trough *d* and receives the inclosed and sealed or loosely folded packets *e* from the delivery end of a packeting and folding apparatus such as hereinbefore referred to, but which is not illustrated in the drawings. *f* is a similar endless traveling belt running over rollers *g* and *h*, the upper part of which belt also traverses the bottom of a straight portion of the fixed guideway or trough *d* at an angle to that portion which is traversed by the belt *a* as shown clearly in Fig. 1. It will be seen that the bottom of the fixed guideway or trough *d* is traversed by the combined upper parts of the two belts *a* and *f* throughout its entire curved length, the belt *a* passing closely over the belt *f* at the angular crossing thereof. The fixed guideway or trough *d* with the traveling belts *a* and *f* convey the closed packets *e* from the delivery end of the packeting and folding apparatus to a plate *i* to which horizontal intermittently rotating motion is imparted in any convenient manner. This plate *i* is provided with recesses *j* in its upper surface for the reception of the card or paper sliding trays or boxes and the inclosed packets *e* in a manner to be hereinafter more fully described.

The inclosed packets *e* are delivered on to the belt *a* from the packeting and folding apparatus their long sides lying transversely of the said belt as shown in Fig. 1, but are delivered on to the rotated recessed plate *i*

with their long sides radial to such plate as shown also in the same figure. This necessary change of direction of movement of the packets is effected automatically as the packet traverses from one end to the other of the fixed guideway or trough *d* which latter follows the same angular path as the belts *a* and *f* being suitably rounded as shown at the point where the two belts cross one another. The belt *a* conveys each packet with its long side across the belt (in the direction indicated by the plain arrow in Fig. 1) until one of its forward corners e^2 touches the inner vertical side of the outer rounded corner d^* of the guideway or trough *d* and the packet *e* is thereby retarded as shown at e^* and turned around the corner e^2 as a center with its end e^3 forward, as shown in Fig. 1. The second belt *f* then receives the packet and conveys it with its long side lying longitudinally of the belt *f* (in the direction indicated by the feathered arrow in Fig. 1) and delivers it in that position over the upper surface of the rotating recessed plate *i* between two of the recesses *j*, being supported in that position by the plate 14 which is attached to the frame *z* (Fig. 4) and forms an extension of the guideway or trough *d*. The packet *e* is then pushed sidewise into a position vertically over the adjacent recess *j* in the plate *i*, which recess *j* has previously received one of the card or paper sliding trays or boxes hereinbefore referred to in a manner well understood in connection with this class of machine.

The beforementioned sidewise movement of the packet *e* upon the recessed plate *i* is effected by means of a pendent oscillating lever or pusher bar *k* to be hereinafter more fully described, and the packet is prevented from falling into the recess *j* by means of spring hinged strips 9 carried by arms that project over the recess *j* one of which arms also acts as a stop against which the packet *e* rests when first delivered on to the recessed plate *i* and before being acted upon by the pendent lever *k*. The said pendent lever or pusher bar *k* is pivotally suspended at its upper end to a bracket *m* fixed to the frame *z* and receives vertical oscillatory motion at the proper moment by means of a crank pin on the end of a horizontally oscillating forked bar *o*. The crank pin *n* engages with a slot *p* (Figs. 3 and 4) in the pendent lever or pusher bar *k* and the fork *q* of the oscillating bar *o* rests upon and is guided by the spindle *r* carrying a rotating cam *s* the edge of which engages with the roller or bowl *t* mounted upon the forked bar *o*. The spindle *r* is driven from the shaft 8 by the chain 11. An intermittent oscillatory or swinging movement is thereby imparted to the pendent lever or pusher bar *k*, the said bar being swung outward by the crank pin *n* as the edge cam *s* forces the roller or bowl *t* in that direction, and the said lever or pusher bar *k* thereby effects the sidewise movement of the inclosed packet *e*, the return movement of the lever or pusher bar *k* being effected by gravity or by a spring 10.

In order to prevent the inclosed packets *e* from being fed to the recessed rotating plate *i* by the belt *f* during the beforementioned forward movement of the pendent lever or pusher bar *k*, the lower end of the said lever is furnished with a backwardly projecting angle or tail piece *u* which acts as a stop or barrier for this purpose while the lever *k* is making its forward stroke and while returning into its normal position.

v is a vertically acting plunger which is arranged to descend upon the top of the closed packet *e* after the latter has been left in position over the recess *j* as just explained, and to force the said packet into the card or paper tray or box contained therein against the resistance of the beforementioned spring-hinged strips 9. The stem *w* of the plunger *v* is guided vertically in a fixed boss *x* upon the end of the curved bracket *y* of the frame *z* and is pin-jointed at its upper end to the outer end of an arm 3 the other end of which arm is carried by a stud 4 on the frame *z*.

5 is a roller or bowl rotating upon a pin upon the arm 3 and engaging with a suitably shaped recess 6 in the cam plate 7 mounted upon and turning with the shaft 8. The action of this recess 6 in the cam plate 7 upon the arm 3 through the roller or bowl 5 thereon, maintains the said arm, and with it the stem *w* and plunger *v* in the raised position for the required period of time until the inclosed packet *e* has been placed in position by the pendent pusher bar *k* over the recess *j* of the plate *i*, and then lowers the said stem *w* and plunger *v* and causes it to push the packet *e* past the spring-hinged strips 9 into the card or paper tray in the recess *j*. The plunger *v* is then similarlly raised by the action of the cam plate 7 (or by means of a spring or the like) and is retained in that position until by the partial rotation of the plate *i* another recess *j* has been brought into position, another inclosed packet *e* has been pushed into position over the same by the pendent pusher bar *k* and the pusher bar has retired, when the plunger *v* is again lowered and so on. The continued intermittent rotatory movement of the recessed plate *i* brings the recesses *j* one by one, with their inclosed packets and card or paper trays or boxes opposite the discharging devices by which each of the said packets *e* contained in its card or paper sliding tray or box is forced radially out of its recess *j* into the outer tubular covers or sheaths or otherwise in a manner well understood in connection with this class of machinery;

which discharging devices are not illustrated in the drawings as they form no part of the present invention. The shaft 8 may be driven as shown or in any other convenient manner, and the traversing belts *a* and *f* may also be driven as shown or otherwise according to circumstances.

In some cases instead of the traveling belts being crossed as hereinbefore described a suitable turn-table device may be employed between the adjacent ends of the said belts for the purpose of altering the direction of motion of the inclosed packets *e* as they pass from the packeting and folding devices to the recessed plate *i*.

The means for intermittently rotating the recessed plate *i* and for insuring its maintenance in the desired position for the necessary period of time and for placing the card or paper sliding trays or boxes into the recesses *j* of the rotating plate *i* may be of the well known type and form no part of this invention.

Claims.

1. Machinery for introducing inclosed packets into trays comprising an intermittingly rotating plate having recesses therein into which the trays are placed, a pendent oscillating lever adapted to push the packet into position over the recesses, said lever having a curved tail piece and a slot intermediate its ends, a bar having a pin working in the slot, and a cam for reciprocating the bar.

2. Machinery for introducing inclosed packets into trays, comprising, in combination, an intermittently rotating plate having recesses therein into which the trays are placed, spring hinged strips for supporting the packets over the said recesses, a pendent oscillating lever adapted to push the packet into position over the recesses, said lever having a curved tail piece and a slot intermediate its ends, a bar having a pin working in the slot, a cam for reciprocating the bar, a vertically acting plunger for forcing the packets into the trays, an arm connecting to the said plunger, a roller on the said arm and a cam plate engaging the roller for reciprocating the plunger.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD LEROY BRACY.

Witnesses:

STEPHEN EDWARD GUNYON,

CHARLES ALFRED ELST CHANDLER.