

C. F. PFLANZE.

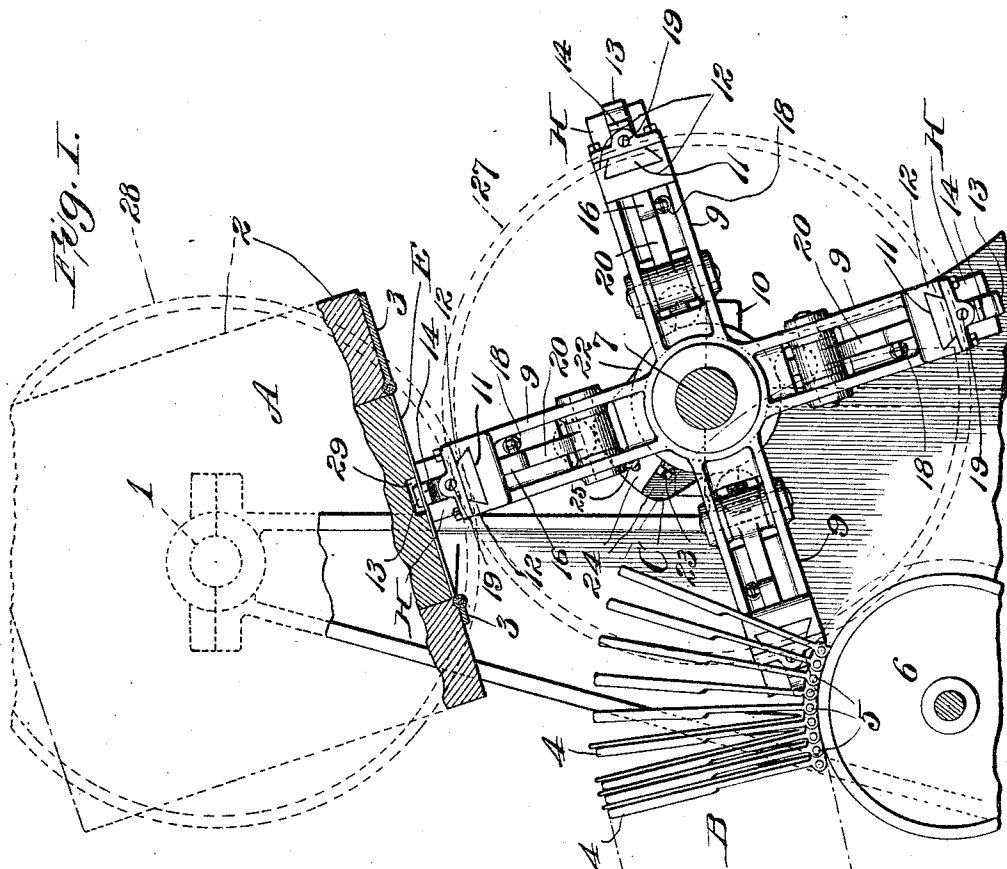
FEEDING AND TRANSFERRING MECHANISM.

APPLICATION FILED MAY 6, 1914. RENEWED NOV. 20, 1916.

1,230,771.

Patented June 19, 1917.

2 SHEETS—SHEET 1.



Attest:
W. H. Scott.
a. j. McCauley

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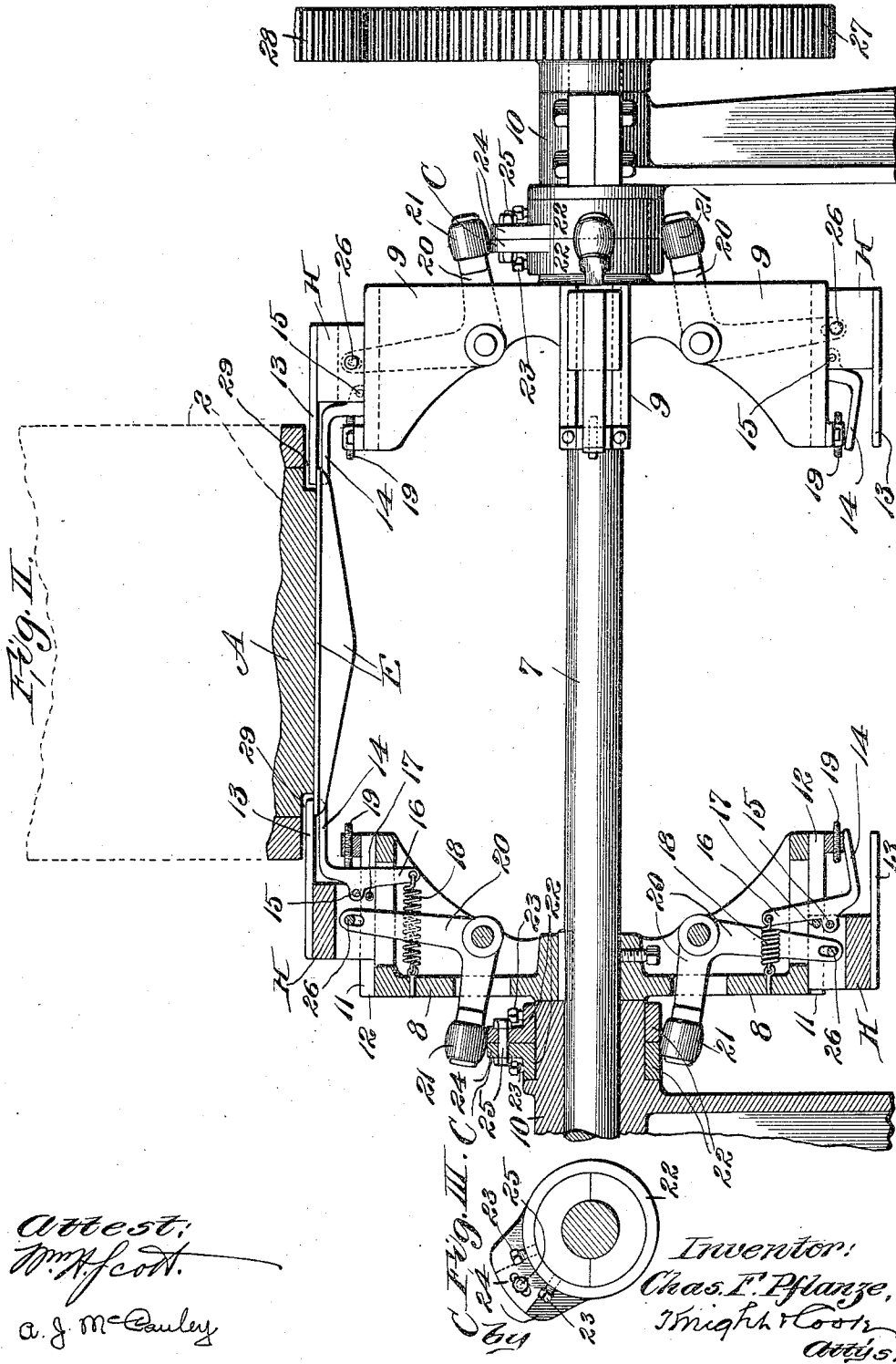
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UNITED STATES PATENT OFFICE.

CHARLES F. PFLANZE, OF ST. LOUIS, MISSOURI.

FEEDING AND TRANSFERRING MECHANISM.

1,230,771.

Specification of Letters Patent. Patented June 19, 1917.

Application filed May 6, 1914, Serial No. 836,630. Renewed November 20, 1916. Serial No. 132,500.

To all whom it may concern:

Be it known that I, CHARLES F. PFLANZE, a citizen of the United States of America, a resident of the city of Saint Louis and State of Missouri, have invented certain new and useful Improvements in Feeding and Transferring Mechanism, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to a feeding or transferring mechanism, the object being to provide a very efficient mechanism of this kind adapted to pick articles from a support and thereafter carry said articles to a predetermined point where they are released and deposited on another support. The preferred form of my invention comprises a carrier provided with a holder and gripping elements carried by said holder; combined with means for shifting the holder independently of the carrier so as to locate the gripping elements on opposite sides of the article to be transferred. The gripping elements are preferably carried by the carrier to a point directly opposite the articles to be transferred, and then shifted independently of the carrier to overlap a margin of said article. The gripping elements are then closed to firmly grasp the article during the feeding or transferring operation, and when the article reaches a predetermined point it is released by restoring the gripping elements.

Figure I is a vertical section of my transferring mechanism, showing it attached to an envelop making machine.

Fig. II is a front elevation, partly in section.

Fig. III is a detail view illustrating a cam for actuating the gripping elements.

In the accompanying drawings I have shown my feeding or transferring mechanism associated with certain parts of an envelop making machine, but it will be understood that the invention is not limited to this combination. The object in showing a portion of an envelop making machine is to show two supports for the articles to be fed or transferred, in combination with my device for picking the articles from one support and positively delivering said articles to the other support.

A designates the folder of an envelop making machine, and B a conveyer for carrying envelops away from the folder after the folding operation. The folder A, which is

only shown diagrammatically, comprises a rotatable shaft 1, an envelop holder 2 secured to said shaft, and folder wings 3 pivoted to said envelop holder. The conveyer B comprises a series of flights 4 flexibly connected together at 5 to form a sprocket chain, which passes around a wheel 6. The flights 4 are spread from each other in passing around the wheel 6, as shown in Fig. I. After the folding operation the envelops E are picked from the folder A and transferred to the conveyer B at a point where the conveyer flights are separated from each other.

My transferring device includes a carrier having a drive shaft 7 mounted in bearings 10 and arms 8 and 9 secured to said drive shaft. Holders H fitted to the outer ends of the arms 8 and 9, are preferably provided with dovetails 11 located between guide lugs 12 on said arms. The holders H carried by the arms 8 are located directly opposite to the holders on arms 9 and these holders may be moved toward and away from each other as will be presently described. The gripping elements carried by the holders H preferably comprise rigid fingers 13 extending inwardly from the outer ends of the holders H, and pivoted fingers 14 opposing said rigid fingers. Each finger 14 is pivoted to a holder at 15 and provided with an extension arm 16 adapted to engage an abutment 17 on the holder. 18 designates springs tending to pull the finger extension arms 16 into engagement with the abutment 17. 19 designates abutment screws which engage the fingers 14 when the gripping devices are closed, as shown at the top of the transferring device, Fig. II.

The means for shifting the holders H preferably comprises bell-crank levers 20 pivoted to the carrier arms 8 and 9 and provided with rollers 21 which travel around cams C. Each cam C is preferably a sectional structure including two sections which may be adjusted independently of each other around the axis of the shaft 7. Each cam section comprises a ring 22 secured to a bearing 10 by means of set screws 23, and a cam projection 24 extending from said ring. 25 designates connecting bolts passing through slots in the cam projections 24. The bell-crank levers 20 are connected to the holders H by pins 26 in the holders passing through slots in the bell-crank levers as shown at the left side of Fig. II,

When the rollers 21 travel over the cam projections 24 the bell crank levers 20 are moved, with the result of shifting the holders H toward each other, and during the movement of the holders the pivoted fingers 14 engage the abutment screws 19, thereby closing the gripping devices as will be presently described.

The envelop folder A travels around the axis of shaft 1; the conveyer B travels in the path indicated by dot and dash lines, Fig. I; and the gripping device carrier moves in an arcuate path around the axis of the shaft 7. All of these parts move in unison, and the shaft 7 is preferably provided with a gear wheel 27 meshing with a gear wheel 28 on the shaft 1. The envelop folder A has four sides and the gripping device carrier is provided with four pairs of gripping devices adapted to pick envelops from the folder. When a pair of gripping devices reaches the envelop folder a pair of the rigid gripping fingers 13 enters recesses 29, formed in the ends of the envelop folder, the object being to locate the rigid gripping fingers behind the envelop E on the folder A. The pair of opposing holders H located at the folder are shifted, through the medium of bell-cranks 20, in a direction approximately parallel with the axis of the gripping device carrier, and during this movement the opposing holders H move toward each other to shift the fingers 13 and 14 to a position that will cause them to straddle the envelop. When the inward movement of the holders H is almost completed, the pivoted fingers 14 strike the abutment screws 19 and a continued movement of the holders H results in the closing of the gripping fingers. The envelop E is then firmly held by the gripping fingers and when the envelop reaches a predetermined point in the conveyer B the cam rollers 21 pass from the cam projections 24, thus permitting springs 18 to restore the gripping devices. It will be noted that the springs 18 tend to open the gripping fingers and also tend to pull the opposing holders H away from each other, and when the cam rollers 21 are released from the cam projections, the gripping fingers open and the opposing holders H slide away from each other. This action releases the envelop, at the same time shifting the gripping devices to positions where they will clear the envelop as well as the conveyer flights 4 which lie between the gripping devices.

To illustrate the practical use of my invention I have shown and described many details of construction which are not essential to the invention set forth in the claims, for example, the gripping devices are not essentially associated with an envelop making machine; any desired number of grip-

ping devices may be utilized, and any suitable means may be employed to shift the gripping devices on the gripping device carrier.

I claim:—

1. In a transferring device, a carrier, gripping elements carried by said carrier, a shifter for moving the gripping elements transversely of the path of movement of said carrier so as to locate said gripping elements on opposite sides of a marginal portion of the article to be transferred, a closing device associated with said gripping elements to close them on said marginal portion of the article, and an opening device for opening said gripping elements at a predetermined point to release the article from said carrier.

2. In a device of the character described, two supports, and means for transferring articles from one of said supports to the other, said means including a carrier movable in unison with said supports, holders movably fitted to said carrier, gripping elements attached to said holders, and operating means for moving said holders toward each other to locate the gripping elements on opposite sides of the article to be transferred when the gripping elements are located adjacent to one of the supports, said operating means being adapted to close the gripping elements to grasp the article held by the last named support, and a releasing device including an opener for opening said gripping elements to release the article therefrom, thus depositing said article on the other support, said holders being movable away from each other in response to the action of said releasing device so as to carry the open gripping elements away from said article.

3. In a device of the character described, a rotatable folder, a conveyer, and means for transferring articles from said rotatable folder to said conveyer, said means including a rotatable carrier movable in unison with said conveyer and rotatable folder, a gripping device carried by said rotatable carrier, and operating means for moving said gripping device at a point adjacent to said rotatable folder to locate the gripping elements on opposite sides of the article to be transferred, said operating means being adapted to close said gripping elements when the gripping elements are located on opposite sides of said article, and a releasing device including an opener for opening said gripping device at a point adjacent said conveyer, thus delivering said article to said conveyer, said gripping device being movable away from said article, in response to the action of said releasing device, while the gripping elements occupy their open position.

4. In a transferring device, a carrier, two

gripping elements movable with said carrier, and operating mechanism including a shifter for shifting the gripping elements to points where they will lie on opposite sides of a marginal portion of the article to be transferred, said shifter being adapted to move the gripping elements transversely with respect to the path of movement of the carrier, a closing device adapted to positively close said gripping elements after they have been shifted to points on opposite sides of said marginal portion of the article, and a releasing device including an opener for opening said gripping elements to release the article from the carrier at a predetermined point, the open gripping elements being movable transversely of the path of said carrier so as to prevent said open gripping elements from striking the discharged article.

5. In a device of the character described, a movable support, and a transferring device for picking articles from said movable support, said transferring device comprising a carrier movable in unison with said support, a pair of holders movably fitted to said carrier, each of said holders being provided with a pair of gripping elements, and operating mechanism including a shifting device for shifting said holders on said carrier to locate the gripping elements at points where they will straddle opposite marginal portions of the article to be transferred, a closing device associated with said shifting device and adapted to positively close said gripping elements on said marginal portions of the article, and a releasing device including means for opening said gripping elements to release said article from the carrier at a predetermined point, said holders being movable away from each other in response to the action of said releasing device so as to prevent the open gripping elements from striking the discharged article.

6. In a device of the character described, a rotatable supporting device, and a rotatable transferring device for picking articles from said rotatable support, the axes of said rotatable devices being in different planes, said transferring device comprising a rotatable carrier movable in unison with said rotatable supporting device, a pair of holders fitted to said carrier, each of said hold-

ers being provided with a pair of gripping elements, and operating mechanism including a shifting device for moving said holders toward each other to locate the gripping elements at points where they will straddle opposite marginal portions of the article on said rotatable supporting device, a closing device associated with said shifting device so as to positively close said gripping elements on said marginal portions of the article, thus securing said article to the rotatable transferring device, and a restoring device including means for opening said gripping elements to release them from the opposite margins of said article at a predetermined point, said holders being movable away from each other in response to the action of said restoring device so as to prevent the open gripping elements from striking the discharged article during the continued rotary movement of said transferring device.

7. In a transferring device, a carrier, a pair of holders slidably fitted to said carrier, each of said holders being provided with a pair of gripping fingers, and operating mechanism including a pair of shifter levers pivoted to said carrier and fitted to said holders, cams to which said shifter levers are fitted, said shifter levers being movable in response to the movement of said carrier so as to shift said slidable holders toward each other, thus locating the gripping elements at points where they will straddle opposite marginal portions of the article to be transferred, abutments carried by said carrier and adapted to be engaged by two of the gripping elements so as to close the gripping elements on said marginal portions of the article in response to movements of said holders, and restoring springs tending to open said gripping elements, said cams being so formed that the restoring springs will open said gripping elements to release said article from the carrier at a predetermined point, said holders being movable away from each other in response to the action of said restoring springs so as to prevent the open gripping elements from striking the discharged article.

CHARLES F. PFLANZE.

In the presence of—

E. CLARK,

M. M. APGAR.