E. D. ANDERSON AND C. BECKMANN.

MACHINE FOR PACKING GOODS.

APPLICATION FILED NOV. 13, 1917.

1,412,226. Patented Apr. 11, 1922.

4 SHEETS—SHEET 1.

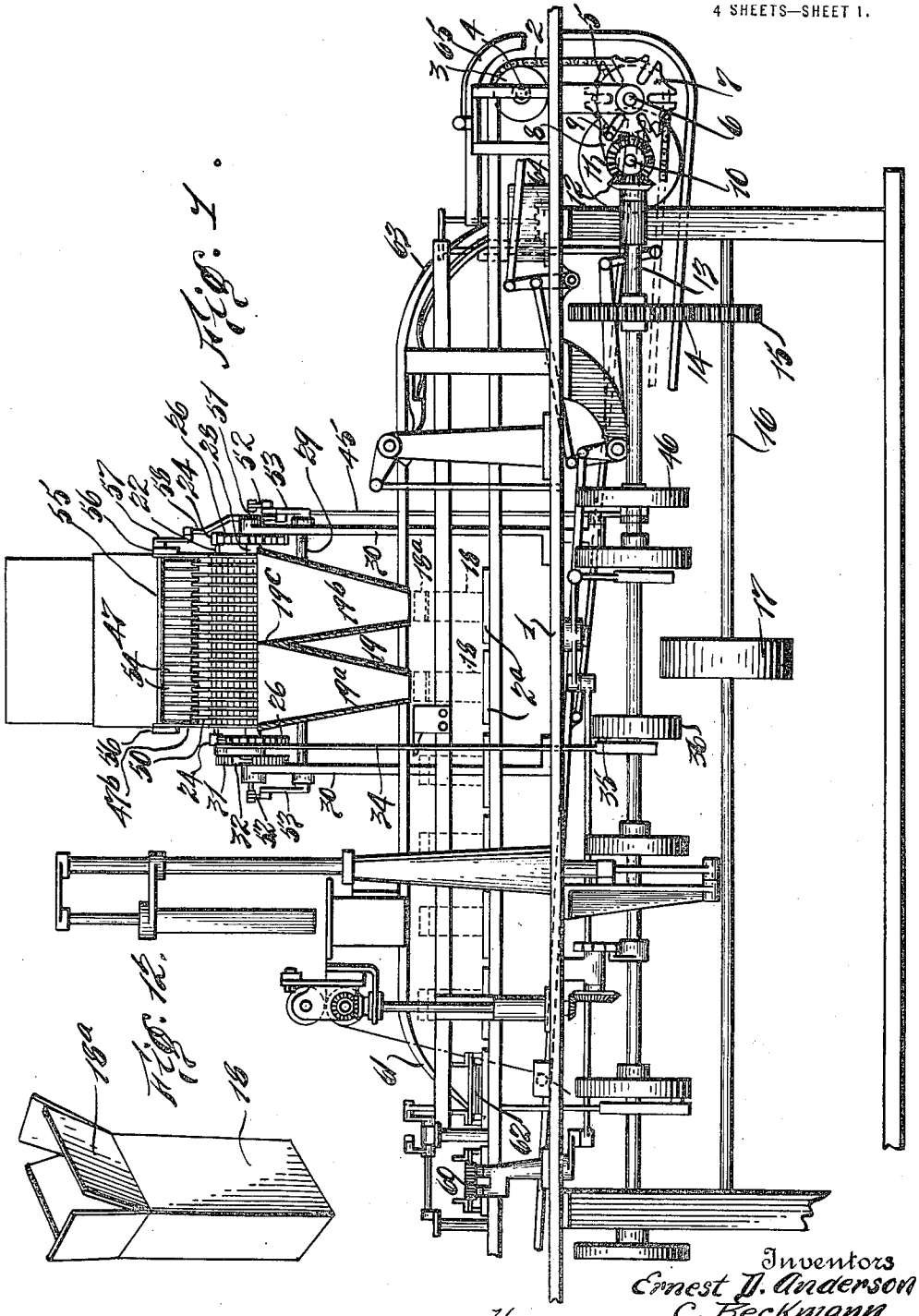


Fig. 1.

Fig. 1a.

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4 SHEETS—SHEET 2.

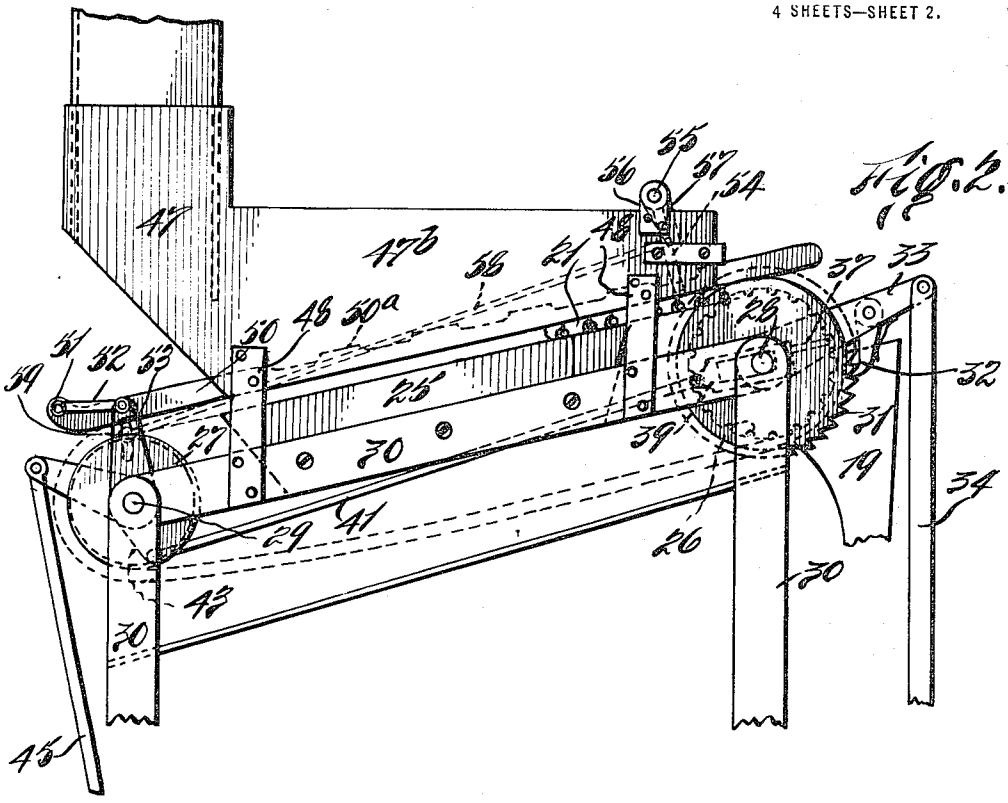


Fig. 2.

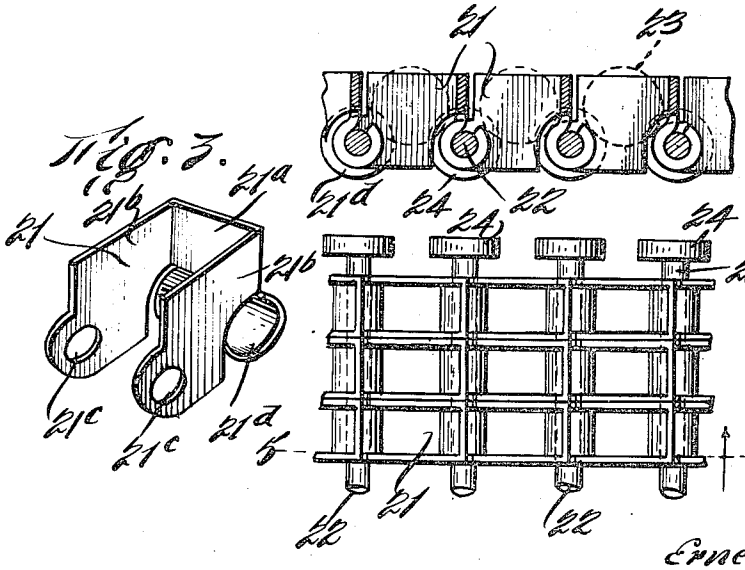


Fig. 3.

Fig. 5.

Fig. 4.

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4 SHEETS—SHEET 3.

Fig. 6.

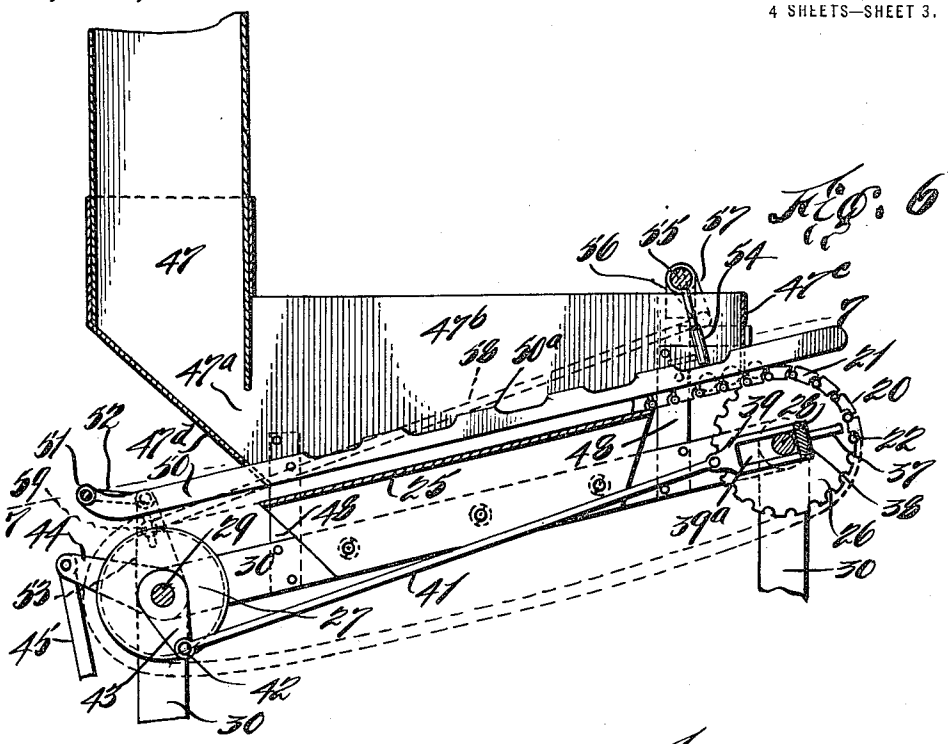
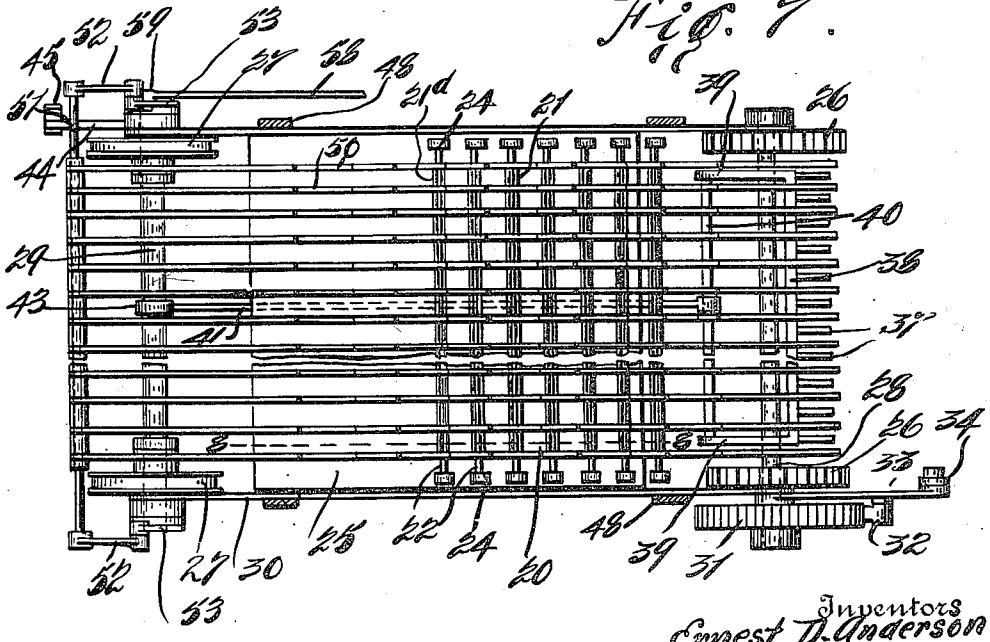


Fig. 7.



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4 SHEETS—SHEET 4.

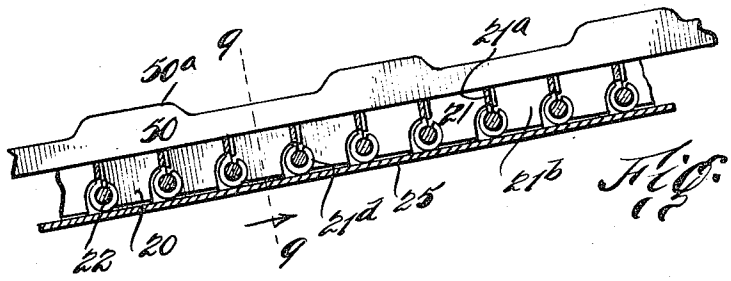


Fig. 8.

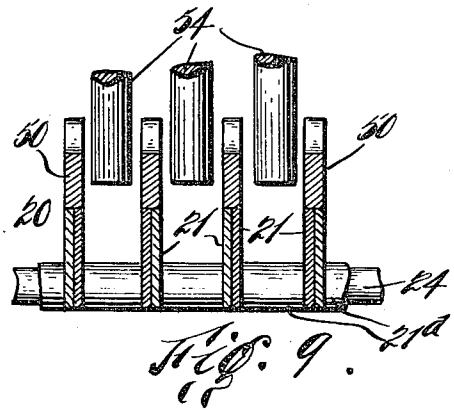


Fig. 9.

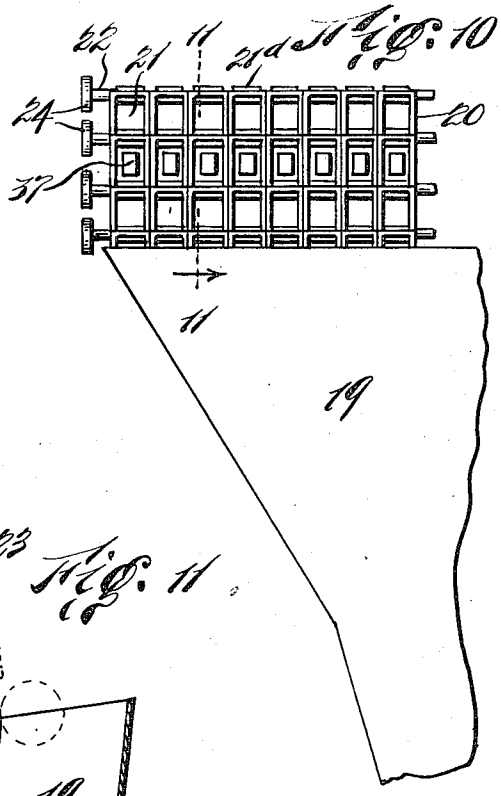


Fig. 10.

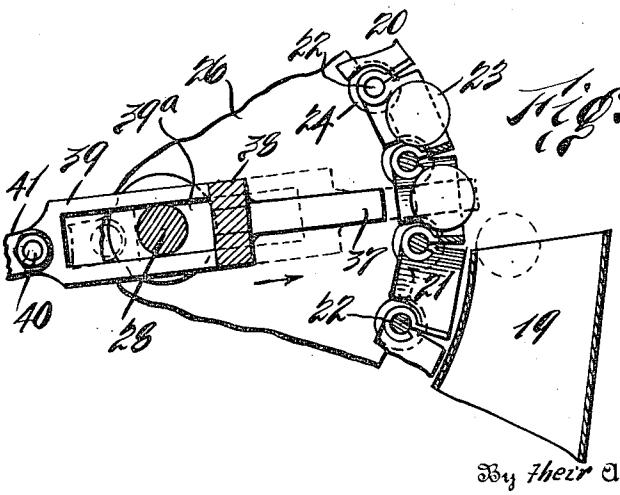


Fig. 11.

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UNITED STATES PATENT OFFICE.

ERNEST D. ANDERSON AND CARL BECKMANN, OF NEW YORK, N. Y., ASSIGNORS TO E. D. ANDERSON INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

MACHINE FOR PACKING GOODS.

1,412,226. Specification of Letters Patent. Patented Apr. 11, 1922.

Application filed November 13, 1917. Serial No. 201,817.

To all whom it may concern:

Be it known that we, ERNEST D. ANDERSON, a citizen of the United States, and resident of New York city, borough of Manhattan, county and State of New York, and CARL BECKMANN, a subject of the Emperor of Germany, and resident of New York city, county of Kings, New York, have invented certain new and useful Improvements in Machines for Packing Goods, of which the following is a specification.

Our invention relates to improvements in means for filling articles in bulk, such as candies, into suitable receptacles or containers, whereby successive receptacles may be charged each with any desired number of loose articles in an accurate and expeditious manner.

In the embodiment of our invention illustrated in the accompanying drawings we provide a transmitter having pockets or recesses to receive articles, a funnel or chute to receive the articles from the transmitter and guide the articles to receptacles, means to cause delivery to the funnel of a predetermined number of articles from the transmitter, and means to present receptacles in position to receive the articles from the funnel and to move the charged receptacles from the funnel, whereby continuous charging of successive receptacles each with a predetermined number of articles may be accomplished.

In order to expedite the charging of the receptacles we provide a plurality of spaced funnels or a funnel having a plurality of delivery portions to communicate respectively with separate receptacles simultaneously, and the packets in the transmitter referred to are related and proportioned to the receiving end of the funnel in such a manner that for each discharge from the transmitter a portion of the number of articles for a receptacle (approximately one-half of such articles) will pass down one funnel portion and another portion (the other one-half of such articles) will pass down the other portion of the funnel. The receptacles are fed from one portion to the other of the funnel for each successive charge from the transmitter into the funnel, the arrangement and operation being such that for each such discharge of articles into the funnel one-half of the articles pass through one portion of the funnel into an empty receptacle and the remaining one-half of the articles will simultaneously pass through the other portion of the funnel into a receptacle previously partially charged, and brought to rest under the last named portion, resulting in a complete charging of each receptacle in two successive stages.

Our invention also comprises means to assure the deposit in the pockets of the transmitter of a definite number of articles, such as a single article in each pocket, means to assure substantially simultaneous discharge from a plurality of pockets of the transmitter of the articles therein, means to feed receptacles or cartons successively, step by step, into charge receiving relation to the funnel and in timed relation to the deposit of the articles from the transmitter into the funnel, and also means for other purposes hereinafter set forth.

In the particular form of transmitter herein set forth we provide a series of links or pockets each adapted for the reception of one or more articles, rods pivotally uniting said links or pockets whereby several continuous endless series of links or pockets are related side by side, which rods have rolls to bear upon a table or plate to maintain the transmitter in proper relation to receive the articles from a source of supply, such as a hopper, and means for operating said transmitter step by step. In conjunction with such mechanism we provide a number of ejectors corresponding to the number of links or pockets laterally disposed along the transmitter adapted to enter such links or pockets to eject articles therefrom, with means to reciprocate said ejectors in timed relation to the successive stops of the transmitter in article delivering position, to cause successive discharge of articles from the laterally disposed series of pockets into the funnel before mentioned.

The invention also comprises novel details of improvement and combinations of parts that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming part hereof, wherein,

Fig. 1 is a side elevation of a machine embodying my invention, shown partly in section; Fig. 2 is an enlarged side elevation, looking from the lefthand side in Fig. 1; illustrating the transmitter and devices associated therewith for delivering articles to re-

ceptacles; Fig. 3 is a perspective view of a pocket or link of the transmitter; Fig. 4 is a fragmentary plan view of the transmitter; Fig. 5 is a section on the line 5, 5, in Fig. 4; Fig. 6 is a longitudinal section of the machine; Fig. 7 is a sectional plan view on the line 7, 7, in Fig. 6; Fig. 8 is an enlarged detail sectional view of the transmitter substantially on the line 8, 8, in Fig. 7; Fig. 9 is a detail cross section, enlarged, on the line 9, 9, in Fig. 8; Fig. 10 is a detail front view illustrating portions of the delivery end of the transmitter and the funnel; Fig. 11 is an enlarged section on the line 11, 11, in Fig. 10, and Fig. 12 is a perspective view of an opened receptacle adapted to be charged with articles in accordance with my improvements.

Similar numerals of reference indicate corresponding parts in the several views.

We have illustrated our improvements incorporated in a machine having means to feed successive receptacles step by step, wherein 1 indicates a main frame having a conveyer 2, which may be in the form of an endless chain mounted upon supporting rolls or wheels 3 at opposite ends of the conveyer, which rolls are suitably pivotally supported at 4 in the main frame (one of which rolls is not shown). At 5 is a toothed wheel receiving said conveyer, and pivotally supported at 6 in the main frame, and there may be another wheel similar to wheel 5 at the opposite end of the machine. As a means to operate the conveyer step by step wheel 5 is secured to shaft 6, and to said shaft is also secured the slotted member 7 of a Geneva movement, the opposite member of which is shown in the form of an arm 8 having a projection or roller 9 to cooperate with the slots of member 7 in a wellknown manner. The arm 8 is secured upon shaft 10 journaled in the main frame, which shaft is provided with a gear 11 in mesh with a gear 12 secured upon shaft 13 journaled in the main frame. Shaft 13 may be rotated in any suitable manner, such as by means of a gear 14 secured to said shaft and in mesh with a gear 15 secured upon power shaft 16, which may have a pulley 17 to receive a belt from a power source in any wellknown manner (Fig. 1). In accordance with the arrangements described, the shaft 16 may be rotated continuously but by means of the Geneva movement the conveyer 2 will be suitably operated step by step. Conveyer 2 is provided with spaced receivers, indicated at 2^a, to support receptacles or cartons 18. The receptacles or cartons 18 may be supplied to receivers 2^a in any suitable or wellknown manner. As shown in Fig. 1, said receptacles 18 are retained upon the conveyer in an upright manner, with their flaps 18^a open. The receptacles 18 are adapted to be successively brought to rest beneath or in article receiving relation to a funnel or chute 19 in which goods or articles are to be deposited for discharge into the open ends of said receptacles. Said funnel is supported above the conveyer in any suitable manner in position to receive articles from a transmitter to direct such articles therefrom into the receptacles 18. We have shown the funnel 19 as comprising a plurality of outlets 19^a, 19^b, so spaced that their delivery ends will register with two spaced receptacles 18 simultaneously, whereby articles in bulk deposited substantially simultaneously in the receiving end of said funnel will pass in desired order into said receptacles. While the funnel may have but a single delivery portion or outlet to deliver articles into a single receptacle at one time, the funnel is shown having two delivery portions or outlets to deliver the articles into two receptacles at the same time, to expedite the charging of the receptacle, as hereinafter explained. The funnel may be made in a single structure having two delivery portions or outlets, or a plurality of separate funnels may be secured in place side by side for the same purpose.

A transmitter for the articles is indicated generally at 20, and is shown comprising a series of pockets or links 21, pivotally connected together by spaced parallel rods 22, whereby said pockets or links are united in an endless manner as in the nature of an endless chain. The pockets 21 are shown arranged side by side along the spaced rods 22, in parallel relation, according to the number of articles to be delivered from the transmitter at each step thereof. For instance, if twenty articles, such as candies, are to be delivered into a receptacle 18, there will be twenty pockets 21, side by side in series transversely across the transmitter, and there will be a number of such pockets or links extending lengthwise along the transmitter corresponding to the length thereof. The pockets 21 may be made of sheet metal stamped or pressed to the desired shape, and are shown comprising each an end wall 21^a from which extend spaced side walls 21^b, the latter being shown provided with opposing holes 21^c to receive corresponding rod 22, and with eyes 21^d on the side opposite the holes 21^c coiled from the material of the pocket or link to receive a rod 22. The eyes 21^d are narrower than the spaces between the walls 21^b so that the eye 21^d of one pocket or link may fit between the walls 21^b of an adjacent longitudinally disposed pocket or link, whereby when rod 22 passes through the holes 21^c of one pocket and through the eye 21^d of the next pocket, said two pockets will be coupled together on said rod, and so on throughout the length and breadth of the transmitter. It will be seen from the drawings that links or pockets are similarly coupled to the rods 22 side by side, along the

lengths of the rods transversely of the transmitter, whereby the several recesses in the pockets to receive the articles 23 (Figs. 5 and 11) are disposed in transverse rows across the transmitter as well as longitudinally thereof. The rods 22 are shown provided with rolls or heads 24 at their ends, which rolls are adapted to ride upon a plate or table 25 located beneath the upper run of the transmitter, (Figs. 2, 6 and 8), to keep said portion of the transmitter in a desired plane as it travels. The transmitter is supported upon wheels 26 and 27 (Fig. 6), the wheels 26 being shown spaced apart at one end of the transmitter and the wheels 27 spaced apart at the other end of the transmitter (Fig. 7). The wheels 26 are shown toothed and secured upon shaft 28 to propel the transmitter and the wheels 27 are journaled upon shaft 29, which shafts are supported by a suitable framing 30 carried by main frame 1, which framing 30 also supports the plate or table 25. The plate or table 25 is shown provided with depending webs screwed to framing 30 (Figs. 2 and 6). Wheels 27 are shown grooved to receive rolls 24 to guide the transmitter.

The shaft 28 may be rotated in any suitable manner to propel the transmitter step by step or intermittently. We have shown said shaft provided with ratchet wheel 31 cooperative with a spring-pressed pawl 32 (Figs. 1 and 2) pivotally carried by an arm 33 that is journaled upon shaft 28, to rock intermittently for correspondingly operating shaft 28. A rod 34 is shown pivotally connected with arm 33, which rod has a projection 35 to cooperate with a cam 36 secured upon a shaft 13 (Fig. 1), whereby as said shaft is rotated the arm 33 will be intermittently rocked for intermittent or step by step operation of the transmitter. The toothed wheels 26 are adapted to receive the rolls or heads 24 to propel the transmitter step by step, in accordance with the rotation of shaft 28. The delivery portion of said transmitter is located adjacent to the upper or receiving portion of funnel or chute 19 to deposit the articles 23 therein. (Figs. 2 and 11.) We have shown means to eject the articles 23 from the transmitter to cause transverse rows of said articles to enter the funnel in a successive or step by step manner. For such purpose we provide ejectors 37, shown in the form of projections extending outwardly from a bar 38. (Figs. 2, 6, 7 and 11.) Said bar is shown extending transversely within the transmitter adjacent to and between wheels 26, in position to permit the ejectors 37 to pass into or through the openings or recesses in the corresponding pockets or links 21 of the transmitter. Said ejectors are arranged in a transverse row, the ejectors corresponding in number to the number of pockets in a transverse row of the transmitter. The bar 38 is shown provided with rearwardly extending arms 39, shown adjacent to opposite ends of said bar, which arms are shown slotted at 39^a (Fig. 11) to receive shaft 28, whereby the arms are supported to reciprocate. The arms 39 are shown connected together by a rod 40 (Fig. 7) shown spaced rearwardly from bar 38, and to said rod is connected a longitudinally extending rod 41 that is pivotally connected at 42 with a rock arm 43 secured upon shaft 29 (Figs. 2, 6 and 7).

Shaft 29 may be rocked by any suitable means. We have shown said shaft provided with a crank arm 44 that is pivotally connected with a rod 45 that is operatively connected with a cam 46 on shaft 13 (Fig. 1). As shaft 13 is rotated, the arm 44 will rock the shaft 29 to cause reciprocations of rod 41, whereby the ejectors will be moved into and from a row of pockets or links of the transmitter 20 each time the latter comes to rest, to eject a transverse row of articles 23 from the transmitter for passage into the funnel or chute 19.

The articles 23 may be delivered upon the transmitter in any suitable manner. We have shown a hopper 47 for said articles located above the transmitter and having a passage 47^a leading to the top of the transmitter, whereby articles from the hopper may pass into the pockets of the transmitter. The hopper is shown provided with forwardly extending side walls 47^b on opposite sides of the upper run of the transmitter, and with a forward end wall 47^c and a rearward downwardly inclined end wall 47^d (Fig. 6) whereby the articles from the hopper are prevented from falling off of the transmitter. The hopper may be supported upon framing 30 by suitable bars 48 (Figs. 6 and 7). In order to properly distribute articles 23 from the hopper into the corresponding upper longitudinal rows of pockets of the transmitter, we provide spaced bars 50 located over the side walls 21^b of the pockets 21 of the transmitter and extending longitudinally over the upper run of the transmitter, said bars providing channels therebetween and serving as guides to direct articles 23 from the hopper into the pockets 21 (Figs. 7 and 9). The bars 50 are located in slots in the under edges of the walls 47^c, 47^d of the hopper, whereby said bars are guided and may reciprocate while resting upon the corresponding members of the transmitter. The bars 50 are to be reciprocated for the purpose of stirring or agitating the articles 23 that pass from the hopper to the transmitter. For such purpose we have shown the rearward ends of the bars 50 pivotally connected to a transverse rod 51, the opposite end portions of which are pivotally connected by links 52 with crank arms 53 shown secured to the ends of shaft 29, where-

by as said shaft is rocked the bars 50 will be reciprocated. The bars 50 are shown provided with uneven or toothed upper edges at 50ª, whereby to encounter articles 23 to agitate them.

In order to prevent the accumulation of articles 23 over the forward delivery portion of the transmitter, we provide rocking fingers 54, which depend over the transmitter between the walls 47ᵇ and rearwardly of the wall 47ᶜ of the hopper from a rock shaft 55 (Figs. 2 and 6). Said fingers are arranged in a transverse row over the transmitter, and are shown depending between the spaced bars 50 and terminating over the upper edges of the pockets of the transmitter, to sweep back articles 23 that may be carried upon the transmitter above such articles in the pockets thereof. The shaft 55 is shown journaled in bearings at 56 upon the side walls 47ᵇ. Shaft 55 is shown provided with a crank arm 57 that is pivotally connected with one end of a rod 58 the opposite end of which is pivotally connected at 59 with the adjacent crank arm 53 (Figs. 2, 6 and 7), whereby as arm 53 is rocked, the shaft 55 will be rocked to rock the fingers 54.

Our improvements may be installed in a machine to which opened receptacles 18 are supplied in any desired manner to receive articles or goods from the funnel or chute 19, and from which machine the said receptacles may be removed with their flaps 18ª open, or in which machine such flaps may be closed. Or our improvements may be installed in a machine equipped with means to open collapsed receptacles or cartons, feed the opened receptacles in position to receive the articles or goods from the funnel 19, and also equipped with means to close said flaps of the charged receptacles, and to deliver the charged and closed receptacles. We have illustrated our improvements in connection with a machine of the last named character, which machine is more fully set forth in application for Letters Patent of Ernest D. Anderson for machine for packing articles, filed March 21, 1917, Serial No. 156,297. In Fig. 1 of the accompanying drawings devices are indicated generally at 60 to close flaps at one end of opened receptacles that are then horizontally disposed, and at 61, 62 are indicated generally means for turning said receptacles to an upright position upon the conveyer 2 to pass under the legs of the funnel 19 with their flaps 18ª opened or flaring. Means may be provided for closing flaps 18ª of the charged receptacles, substantially as set forth in the aforesaid application, and the charged receptacles may be moved down to a substantially horizontal position upon the conveyer by means indicated at 63, in conjunction with any other desired devices, to permit paste to be applied to one or more of the flaps 18ª, as by means of pasters indicated generally at 64 (Fig. 1). Such pasting devices may be arranged in any suitable manner, or such as shown in Letters Patent granted to Ernest D. Anderson on August 24, 1915, No. 1,153,233. The pasted and closed charged receptacles may be delivered through a guide 65 to any suitable means for receiving and removing the receptacles from the machine.

It will be understood that the funnel outlets 19ª, 19ᵇ are spaced apart a distance corresponding to the spacing of the receivers 2ª of the conveyer, and in the direction thereof, whilst the transmitter extends with regard to its length in a direction at right angles to the direction of the length of the transmitter, whereby the transverse rows of pockets of the transmitter extend in the direction of the length of the conveyer, the row of the ejectors extending similarly, whereby the articles deposited from the transmitter in the funnel will be quickly proportioned in equal numbers in spaced relation along the conveyer, according to the spacing of the receivers and receptacles thereon.

The operation of the improvements may be described as follows: The supply of articles 23 from the hopper will pass on to the upper run of the transmitter between the reciprocative bars 50, and such articles will enter the subjacent pockets of the transmitter. The transmitter will move step by step and each time that a transverse row of pockets containing articles 23 is brought to rest in front of the ejectors 37, the latter will advance and push the articles from such pockets into the funnel or chute 19. The ejectors will then recede from the transmitter and just before the ejectors push the articles from the transmitter into the funnel the conveyer will come to rest, with receptacles 18 respectively beneath the outlet portions 19ª, 19ᵇ of the funnel. Since the position of the intermediate portion 19ᶜ of the funnel, as illustrated in Fig. 1, is located approximately at the mid-transverse portion of the transmitter, one-half of the articles therefrom at one operation of the ejectors will pass into the portion 19ª and the other half of such articles will pass into the portion 19ᵇ of the funnel, whereby one-half of such articles will pass into the lefthand receptacle 18 and the other half of such articles will pass into the righthand receptacle 18, as shown located in Fig. 1. Upon the next step of the conveyer said lefthand receptacle 18 will be brought to rest under the portion 19ᵇ of the funnel, whereby when the transmitter next brings a row of articles 23 over the funnel and the ejectors next discharge such articles into the funnel, one-half of such articles will pass down the funnel portion 19ᵇ and complete the charging of the then righthand receptacle 18, and the other one-half of said articles will pass

down funnel portion 19ª of the funnel and give the first one-half charge in the receptacle then under the last named portion. The same operation occurs for each receptacle advanced by the conveyer, in that each receptacle is partially charged upon one deposit of articles in the funnel and finally charged upon the next deposit of articles in the funnel, with the result that if a receptacle has made two stops beneath the funnel it will pass therefrom fully charged, and so on with each succeeding receptacle. The advantage of the arrangement described is that the speed of operation for filling the receptacles may be expedited, for a given number of articles in a receptacle, by charging one-half thereof into the receptacles in two successive steps of the conveyer, since if twenty articles are to be charged into each receptacle, ten of such articles will run into the receptacle quicker than the twenty articles would, thus enabling the operations of the conveyer to be speeded. It will be understood, of course, that the improved transmitter in conjunction with the ejectors may be used with a funnel having a single outlet to discharge articles to fully charge a receptacle communicating with the single outlet at each step of the transmitter, where the question of speed of filling the receptacles is not so important or the character of the articles may dictate. It also will be understood that since the transmitter is provided with a definite number of pockets in each transverse row, the number of articles charged into the receptacles always will be equal, as the pockets of the transmitter will each be made only to receive a definite number of articles, such as one or two in each pocket, whereby reliance may be had that each receptacle will contain a predetermined number of articles.

While we have shown two funnel delivery portions or outlets for discharging equal numbers of articles similarly into two receptacles, it will be apparent that more than two funnel portions or outlets may be spaced side by side to receive each a corresponding number of articles from the transmitter simultaneously, for deposit in the receptacles, whereby each receptacle will receive a portion of its full charge in three or more stages instead of in two stages as illustrated in the accompanying drawings, the number of pockets in the transverse rows of the transmitter and the number of ejectors for such pockets being proportionate to the spacing of the funnel delivery portions or outlets and the number of articles for a receptacle.

Having now described our invention what we claim is:

1. The combination of a transmitter having a series of successively disposed pockets located transversely of the transmitter, a support for the transmitter, actuating mechanism to operate the transmitter, spaced bars located over the walls of the pockets and extending longitudinally of the transmitter, and means to maintain said bars in spaced relation.

2. The combination of a transmitter having a series of successively disposed pockets located transversely of the transmitter, a support for the transmitter, actuating mechanism to operate the transmitter, spaced bars located over the walls of the pockets and extending longitudinally of the transmitter, a support to maintain said bars in spaced relation, and means to reciprocate said bars.

3. The combination of a transmitter having a series of successively disposed pockets located transversely of the transmitter, a support for the transmitter, actuating mechanism to operate the transmitter, spaced bars located over the walls of the pockets and extending longitudinally of the transmitter, a support to maintain said bars in spaced relation, a transverse bar pivotally connected with said longitudinal bars, and means to operate the transverse bar to reciprocate the longitudinal bars.

4. The combination of a transmitter having a series of successively disposed pockets located transversely of the transmitter, a support for the transmitter, actuating mechanism to operate the transmitter, spaced bars located over the walls of the pockets and extending longitudinally of the transmitter, a support to maintain said bars in spaced relation, a transverse bar pivotally connected with said longitudinal bars, a rock arm pivotally connected with the transverse bar, and means to actuate said rock arm.

5. The combination of a transmitter having a series of successively disposed pockets located transversely of the transmitter, a support for the transmitter, actuating mechanism to operate the transmitter, spaced bars located over the walls of the pockets and extending longitudinally of the transmitter, and means to maintain said bars in spaced relation, said bars having projections on their upper surfaces for agitating articles.

6. The combination of a transmitter having a series of successively disposed pockets located transversely of the transmitter, a support for the transmitter, actuating mechanism to operate the transmitter, spaced bars located over the walls of the pockets and extending longitudinally of the transmitter, and a hopper having end walls provided with slots slidably receiving said bars to maintain them in spaced relation to the pockets of the transmitter.

7. The combination of a transmitter having a series of successively disposed pockets located transversely of the transmitter, a support for the transmitter, actuating mechanism to operate the transmitter, spaced bars

located over the walls of the pockets and extending longitudinally of the transmitter, a hopper having end walls provided with slots slidably receiving said bars to maintain them in spaced relation to the pockets of the transmitter, and means to reciprocate said bars within said slots.

8. The combination of a transmitter having a series of successively disposed pockets located transversely of the transmitter, actuating mechanism to move the transmitter step by step, a rock shaft, fingers depending from the rock shaft over pockets of the transmitter, a crank arm connected with said shaft, a rod extending from the crank arm, another crank arm connected with said rod, and means to rock the last named crank arm.

9. The combination of a transmitter having a series of successively disposed pockets located transversely of the transmitter, a support for the transmitter, actuating mechanism to operate the transmitter, spaced bars located over the walls of the pockets and extending longitudinally of the transmitter, a support to maintain said bars in spaced relation, fingers located over the pockets of the transmitter between said bars, and means to operate said fingers.

10. The combination of a transmitter having a series of successively disposed pockets located transversely of the transmitter, a support for the transmitter, actuating mechanism to operate the transmitter, spaced bars located over the walls of the pockets and extending longitudinally of the transmitter, a support to maintain said bars in spaced relation, a shaft extending transversely over the transmitter, fingers depending from said shaft between said bars over the pockets of the transmitter, and means to operate said shaft to move the fingers relatively to the pockets.

11. The combination of a transmitter having a series of successively disposed pockets located transversely of the transmitter, a support for the transmitter, actuating mechanism to operate the transmitter, spaced bars located over the walls of the pockets and extending longitudinally of the transmitter, a support to maintain said bars in spaced relation, a shaft extending transversely over the transmitter, fingers depending from said shaft between said bars over the pockets of the transmitter, and means to rock the shaft for rocking the fingers between the bars over the pockets of the transmitter.

Signed at New York city, in the county of New York and State of New York, this 9th day of November, 1917.

ERNEST D. ANDERSON.
CARL BECKMANN.