Jan. 25, 1927. 1,615,626

E. JAGENBERG

CIGARETTE PACKING MACHINE

Filed Nov. 9, 1925 2 Sheets-Sheet 1

Fig. 1.

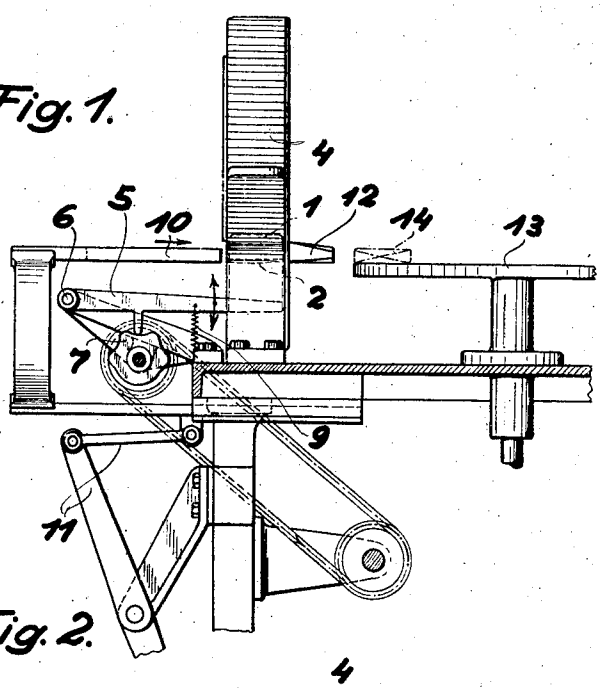
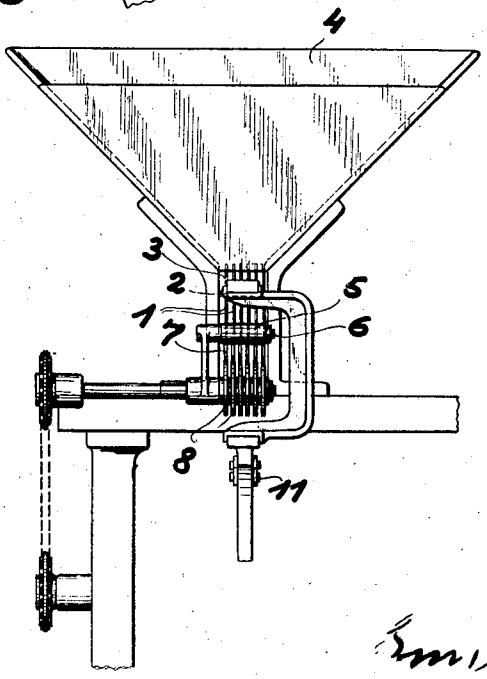



Fig. 2.




Inventor

Emil Jagenberg.

Jan. 25, 1927. 1,615,626

E. JAGENBERG

CIGARETTE PACKING MACHINE

Filed Nov. 9, 1925 2 Sheets-Sheet 2

Fig. 3.

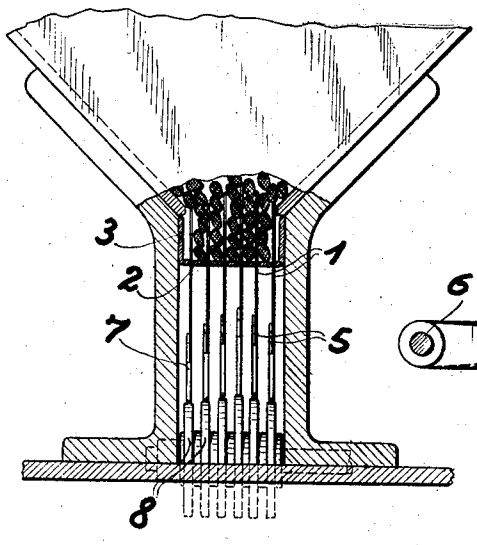



Fig. 4.

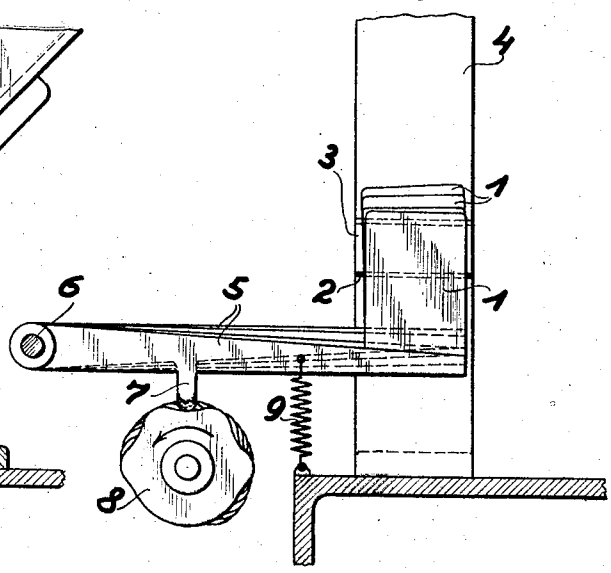



Fig. 5.

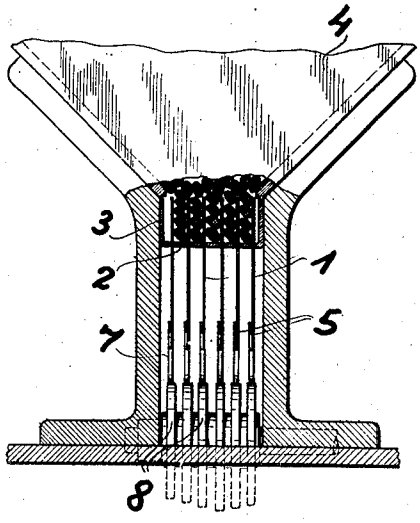
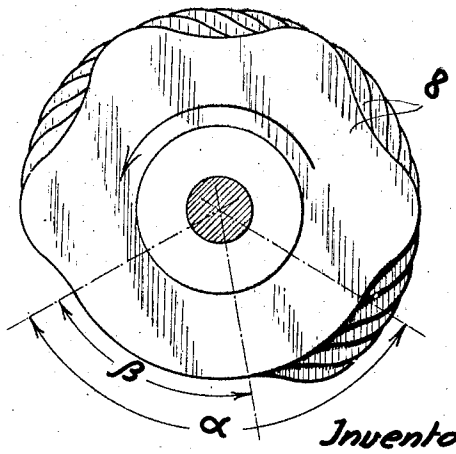



Fig. 6.




Inventor

Emil Jagenberg

Patented Jan. 25, 1927. 1,615,626

# UNITED STATES PATENT OFFICE.

EMIL JAGENBERG, OF DUSSELDORF, GERMANY.

## CIGARETTE-PACKING MACHINE.

Application filed November 9, 1925, Serial No. 67,996, and in Germany November 11, 1924.

This invention has reference to packing machines for cigarettes and the like, and it is particularly intended to increase the velocity of operation and the general construction of such machines and to devise means for greater care in handling and consequently of improving the quality of the goods. The invention refers in particular to the feeding and admitting means for the cigarettes in such machines. In view thereof in the practise of this invention, the cigarettes are dropped in a manner otherwise well known into a tubular container, shaft or the like in which vertically reciprocated metal sheets are operated so as to sectionally divide the container into adjacently disposed chambers in which the cigarettes are arranged in rows ready for being packed for shipment. It is one of the chief objects of this invention to arrive at an unobjectionable and perfectly uniform position of the rows of cigarettes before they are pushed into the packing material and this object is accomplished in accordance with the invention by imparting a rapid alternating reciprocating motion to the movable metal plates during the feeding of the cigarettes in such a manner that the plates are moved at different rates with relation to each other and are arrested uniformly in the deepest position shortly before the pushing out of the cigarettes. The plates will thereby be successively caused to assume their position of rest in which they will all be retained for a certain period during which the pushing out or delivery of the cigarettes is effected. The operating means for the movement of the plates or partitions are arranged at the outside of the tubular container, in accordance with this invention, so that any dropping off particles of tobacco or the like may descend and drop out of the machine without causing any damage.

The invention will be more fully described with reference to the accompanying drawing showing by way of illustrative exemplification an embodiment of a cigarette packing machine constructed in accordance with this invention, in Fig. 1 in side view and in Fig. 2 in front view. Figs. 3 to 5 illustrate parts of the device on an enlarged scale, respectively in elevation and in two cross sectional views, and Fig. 6 shows a detail. The plates, sheets of metal or the like 1 protrude through the bottom 2 of the tubular container or shaft 3 which is a continuation of the feeding or storing hopper 4. By these plates or partitions 1 the tubular container 3 is subdivided into narrow compartments the width of which approximately corresponds to the thickness of the cigarettes. The plates 1 are angularly mounted on arms 5 all of which are pivotally disposed on a common pivot 6 and by means of supporting projections 7 are adapted to rest on cam discs 8 against which they are forced by springs 9. The cam discs are provided with partial undulary or corrugated peripheries and are relatively staggered for equal angular distances. The arms 5 project only with their extremities and with their plates 1 mounted thereon into the container 3, while the moving and journalling means are disposed outside of the container. Before the front side of the container 3 the pusher 10 is disposed which may be moved like a carriage by means of a system of connecting levers 11. At the rear of the container 3 a guiding funnel 12 is arranged through which the cigarettes may be pushed and guided into the packing means 14 on the turn table 13 by the movement of which the packings are moved towards the cigarettes.

The continuously rotated cam discs 8 by the action of the undulatory parts of their periphery cause the plates 1 to be rapidly vertically reciprocated, imparting to them relatively irregular movements, by which means the cigarettes are caused to descend in the compartments. Along a portion of their way which we may call $\alpha$ the cam discs 8 cause the arms 5 with the plates 1 to be arrested in their deepest position, and inasmuch as the cam discs are uniformly staggered upon their common rotating shaft, the arresting of the plates or the like 1 will take place in rapid succession. Along their angular distance $\beta$ the plates 1 all remain at least in their deepest position and during the inoperative period thereby produced the cigarettes are fed by means of the pusher 10 into the packing 14. In view of the fact that the plates or the like 1 are moved into the deepest inoperative position in succession, a perfectly uniform positioning of the cigarettes is produced which fact is of particularly great importance for instance in the case of cigarettes with oval cross section and which heretofore could not be satisfactorily positioned and packed.

It should be understood that the inven-

tion, though having been shown and described herein merely for illustrative purposes in a preferred exemplification, may find expression in various other modified or changed embodiments in accordance with the particular kinds of goods under treatment, the convenience of the operator and local conditions, and that various changes may be made in the arrangement and construction of the parts, different kinds of material and different configurations thereof being for instance used for the partitions and for other parts of the device, and without deviating from the spirit and scope of the invention as particularly set forth in the appended claims.

I claim:—

1. In a device of the kind described in combination, a container, a plurality of parallelly spaced partitions in said container, means to alternately longitudinally move said partitions, and to arrest the movement thereof in rapid succession, and pushing means, engageable with and between said partitions during their period of rest.

2. In a device of the kind described in combination, a container, a plurality of parallelly spaced partitions within said container, moving means for said partitions mounted outside of said container and operatively connected to the partitions, means to alternately and discontinuously and longitudinally move said partitions within their own plane, and to arrest the movement thereof in rapid succession, pushing means laterally disposed with relation to the container, and engageable with and between said partitions during their period of rest, and guiding means opposite said pushing means.

3. In a device of the kind described in combination, a container, a plurality of adjacently and coaxially disposed cam discs outside of said container, alternately staggered projections peripherally disposed on said cam discs, and continuous staggered peripheral portions on said cam discs, a plurality of lifting members bearing on the cam discs and operated thereby and projecting into the container, and a plurality of parallelly spaced partitions in the container adapted for operative engagement with the lifting members, and ejecting means entering the container.

4. In a device of the kind described in combination, a container, a plurality of adjacently and coaxially disposed cam discs outside of said container, continuous portions on said cam discs and substantially alternately staggered peripheral projecting portions on the cam discs, a plurality of lifters intermediate the cam discs and the container, a plurality of parallelly spaced partitions in said container, means on said lifters projecting into the container and into operative engagement with the partitions, and adapted to cause alternating, discontinuous reciprocation of said partitions within the container, and the temporary retaining of the partitions in their lowest, inoperative position, and ejecting means, adapted to enter the container.

5. In a device of the kind described in combination, a substantially tubular container, feeding means for said container, a plurality of alternately undulatory cam discs outside of the container, and staggered for the distance of the succeeding undulations, smooth peripheral portions on the cam discs, a plurality of axially reciprocable parallelly spaced partitions in the containers, motion-imparting means in contact with the cam discs and projecting into the container into engagement with the partitions, guiding means on one side of the container, and reciprocable pushing means on the other side of the container opposite the said guiding means, and adapted to enter between the partitions in the period of rest of the same, and to move the contents of the container into engagement with the guiding means.

6. In a device of the kind described in combination, a substantially tubular container, a plurality of parallelly spaced axially reciprocable partitions in said container, cams in operative connection with the partitions for reciprocating said partitions, said cams having smooth and undulating portions, the corresponding portions of the cams being progressively staggered to actuate the partitions in rapid succession, and spring means for maintaining the partitions in position for working coaction with the surfaces of the cams.

In testimony whereof I affix my signature.

EMIL JAGENBERG.