No. 785,476. PATENTED MAR. 21, 1905.

F. CZERWENY.

MATCH MAKING MACHINE.

APPLICATION FILED MAY 27, 1902.

Fig. 1

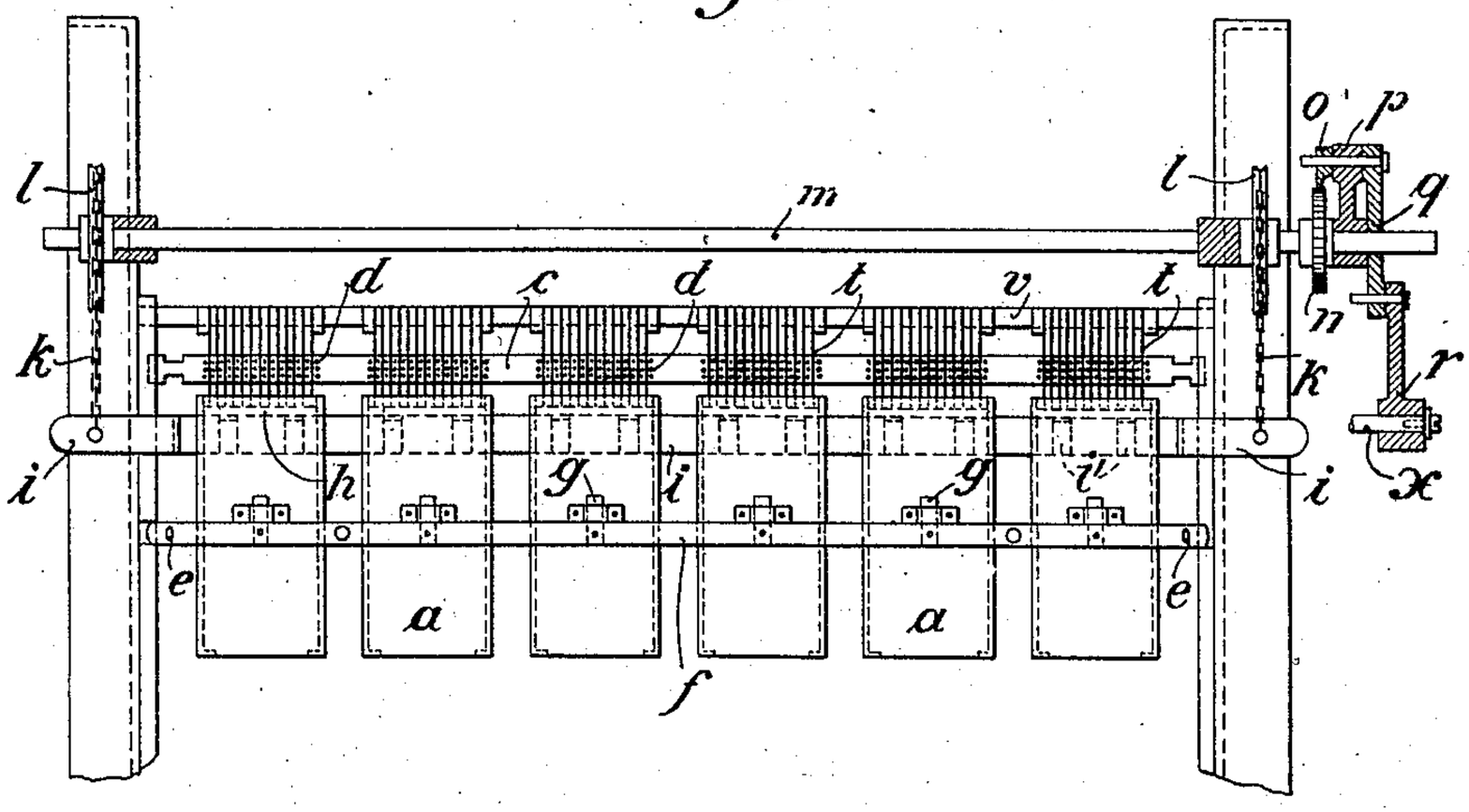


Fig. 4

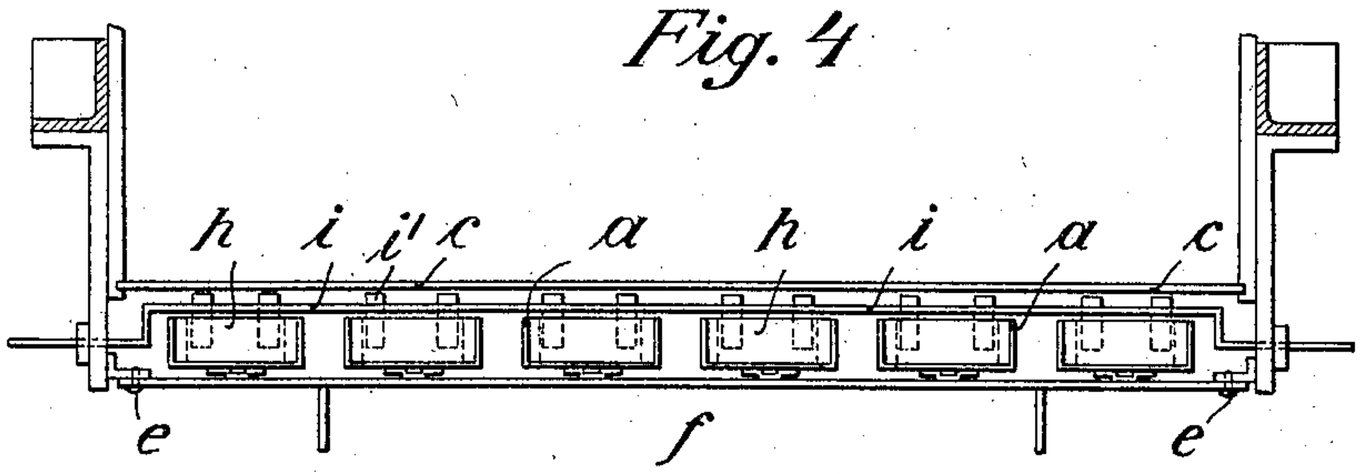


Fig. 2

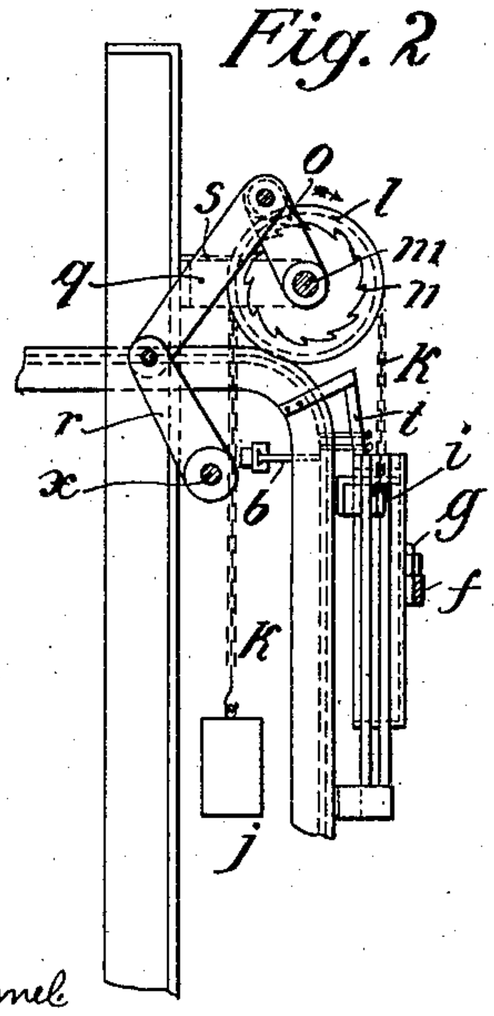
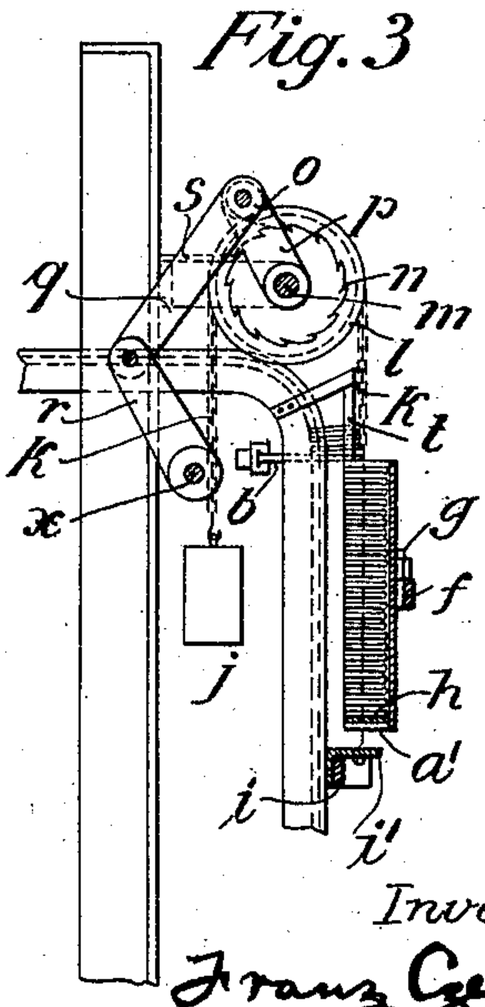


Fig. 3



Witnesses:

James F. Duhamel

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Franz Czerweny

by Edmond Cougar Brown

his attorney.

No. 785,476. Patented March 21, 1905.

UNITED STATES PATENT OFFICE.

FRANZ CZERWENY, OF DEUTSCHLANDSBERG, AUSTRIA-HUNGARY.

MATCH-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 785,476, dated March 21, 1905.

Application filed May 27, 1902. Serial No. 109,191.

To all whom it may concern:

Be it known that I, FRANZ CZERWENY, manufacturer, residing at Deutschlandsberg, near Graz, Styria, Austria-Hungary, have invented certain new and useful Improvements in Match-Making Machines, of which the following is a specification.

My invention relates to the apparatus for collecting the finished matches as they are thrown out from a match-making machine for the purpose of insuring an even and parallel arrangement of the matches in the collecting-boxes forming part of such apparatus, thereby facilitating their ultimate transfer to the match-boxes.

The object in view is obtained by providing the collecting-boxes with a bottom which is vertically displaceable and so arranged that it descends a distance equal to the thickness of the matches every time a complete row of matches is deposited in the collecting-box. The piling up of the matches is thus perfectly uniform; but in addition, in order to further insure their parallel position as they are falling off the machine, a series of parallel metal strips or partitions are arranged immediately above the collecting-boxes and between the series of adjacent match-sticks in such a manner as to act as guides for the matches.

The apparatus is represented in the accompanying drawings, in which—

Figure 1 is a front view, partly in section, of the apparatus for collecting the finished matches when being ejected out of the machine, showing parts of the frame, the collecting-receptacles and supporting means therefor, the rod for carrying the movable bottoms of these receptacles, means for raising and lowering the rod, and means for isolating the matches thrown out; Fig. 2, a side view of the parts shown in Fig. 1, showing the empty collecting-receptacles when the bottoms are at their highest point; Fig. 3, a side view, partly in section, of the full boxes—*i. e.*, when the bottoms are at their lowest—while Fig. 4 is a plan of Fig. 1.

In the construction shown in the drawings the collecting-boxes *a* are arranged side by side in front of and below the match-expelling punches *b* in such a manner that the match-sticks when they are expelled from the match-carrying strip or chain *c* (one link only of which is shown in Fig. 1) fall into the boxes. These boxes *a* are connected with each other and carried by a cross-bar *f*, fixed to the machine by bolts or in some suitable way, as by wedges or turn-buttons *e*, while the boxes are fastened to it by means of suitable wedges *g* or in other ways. The movable bottoms *h* of the collecting-boxes are all carried by a guide-bar *i*, suspended on chains *k*, carrying weights *j* at the other end and passing over pulleys or chain-wheels *l*, which are keyed on a shaft *m*. On the same shaft *m* is keyed a ratchet-wheel *n*, actuated by a pawl *o*, carried by a lever *p*, capable of rocking on the shaft *m*, and the other end of which lever is pivoted to a further lever *q*, pivoted in turn to an arm *r* of a reciprocating shaft *x*, actuated by the machine, by which arrangement when the machine is working the movable bottoms of the collecting-boxes are lowered by the thickness of a match-stick every time a row of matches is driven from the seat until the boxes are full. To prevent the parts moving during the return movement of the lever *p*, and consequently the bottom from rising, a stop-pawl *s* for the ratchet-wheel is provided, as shown. When the bottoms *h* reach the lower ends of the boxes *a*, they are arrested and supported by the inwardly-projecting ledges *a'*, while the guide-bar *i*, with its brackets *i'*, which had carried the bottoms, passes below the box to the position shown in Fig. 3. The boxes having been filled, they are replaced by empty ones. The pawls *o* and *s* of the ratchet-wheel are thrown out of gear, after which the guide-bar *i*, with new bottoms *h*, will automatically ascend to their highest position by the action of the weight. This done the pawls *o* and *s* are again thrown into gear with the ratchet-wheel and the filling of the boxes may recommence.

To insure parallelism between the matches as they are falling from the machine, sheet-metal strips *t* are employed, each of them separating two adjoining series of matches and being carried by a bar *v*, the ends of which are suitably attached to a part of the frame.

The matches from the boxes are usually transferred to the reservoir of a machine for

the automatic filling of the usual match-boxes, which are passing through it in endless succession.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

In a match-making machine, the combination with a series of portable boxes, means for detachably supporting same, detachable bottoms adapted to traverse the boxes vertically, a guide-bar with brackets supporting the bottoms while they traverse the boxes, chains or cords carrying the bar, counterweights, pulleys, a ratchet-wheel, a pawl and means for actuating the pawl to operate the ratchet-wheel and allow the bar to drop intermittently.

In witness whereof I have hereunto signed my name, this 13th day of May, 1902, in the presence of two subscribing witnesses.

FRANZ CZERWENY.

Witnesses:
JOHANN FLOTH,
ALVESTO S. HOGUE.