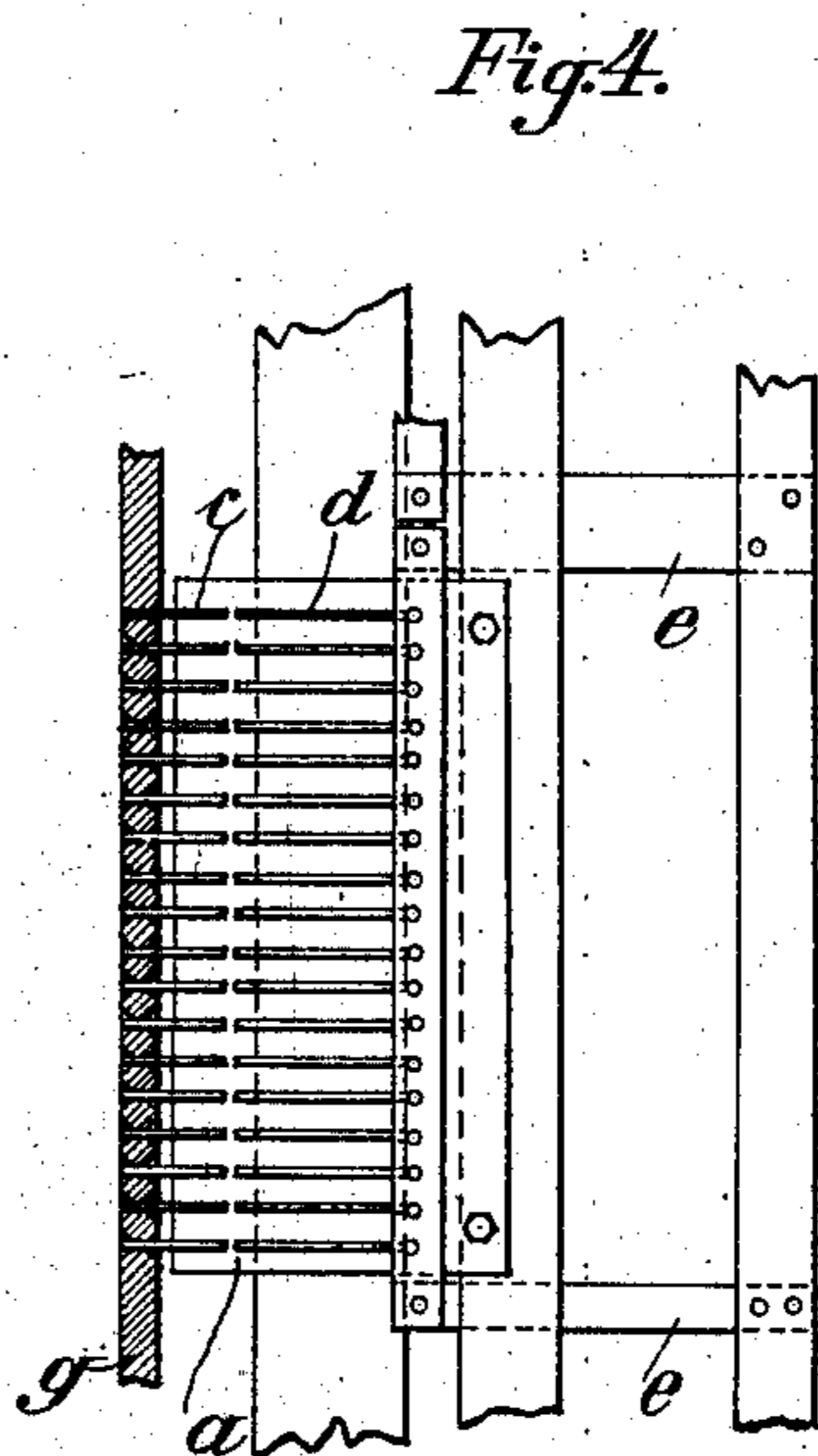
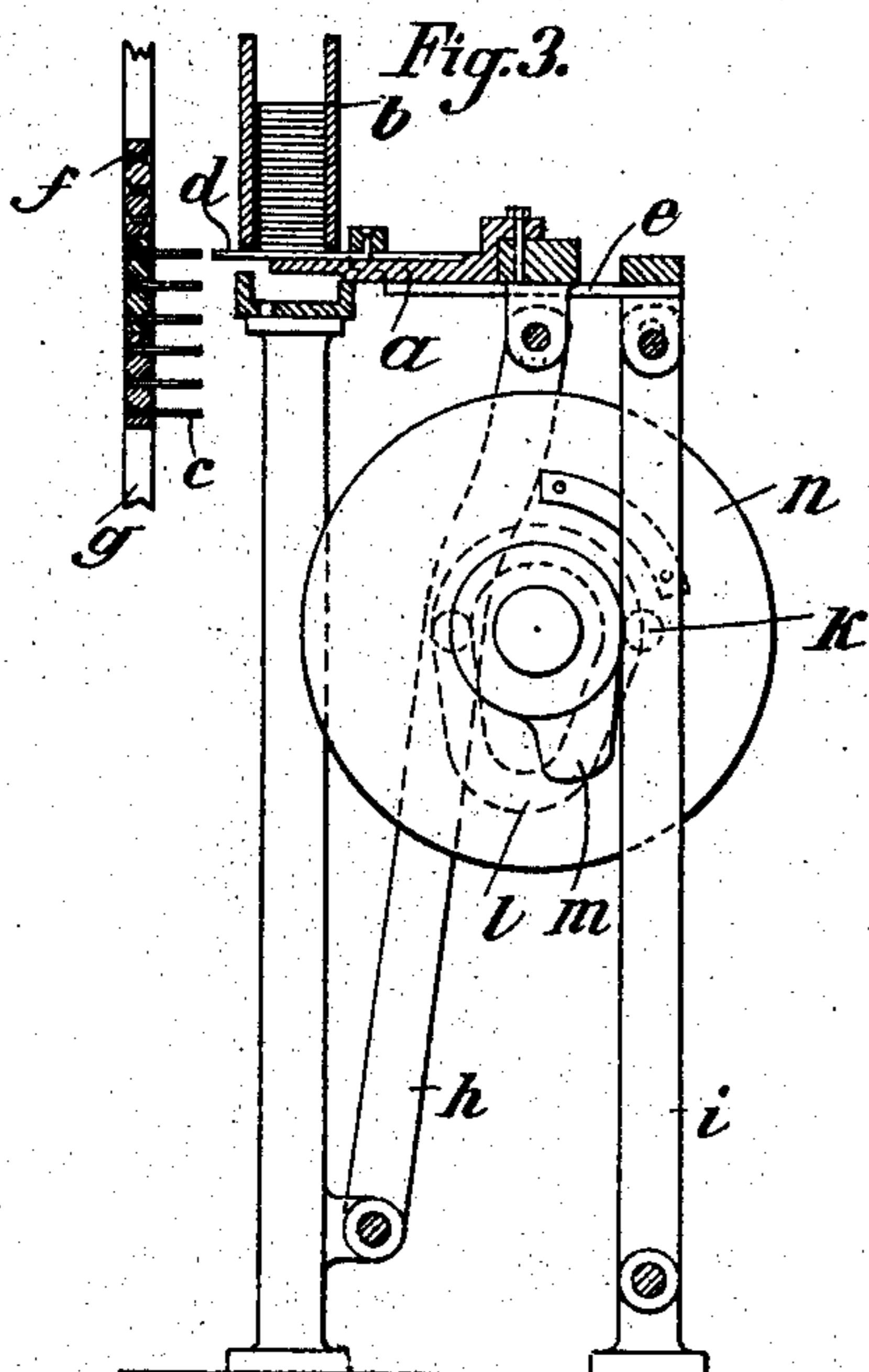
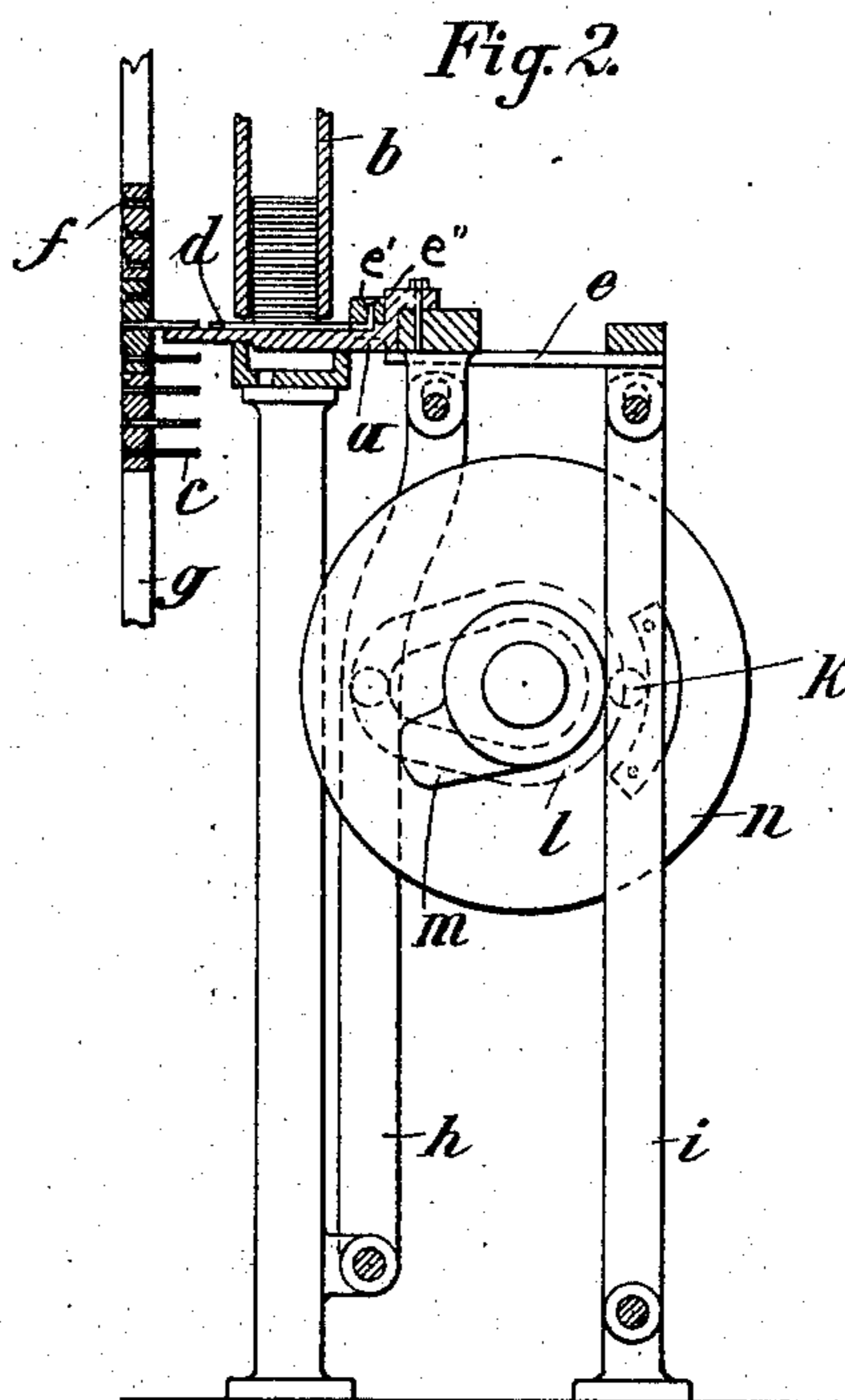
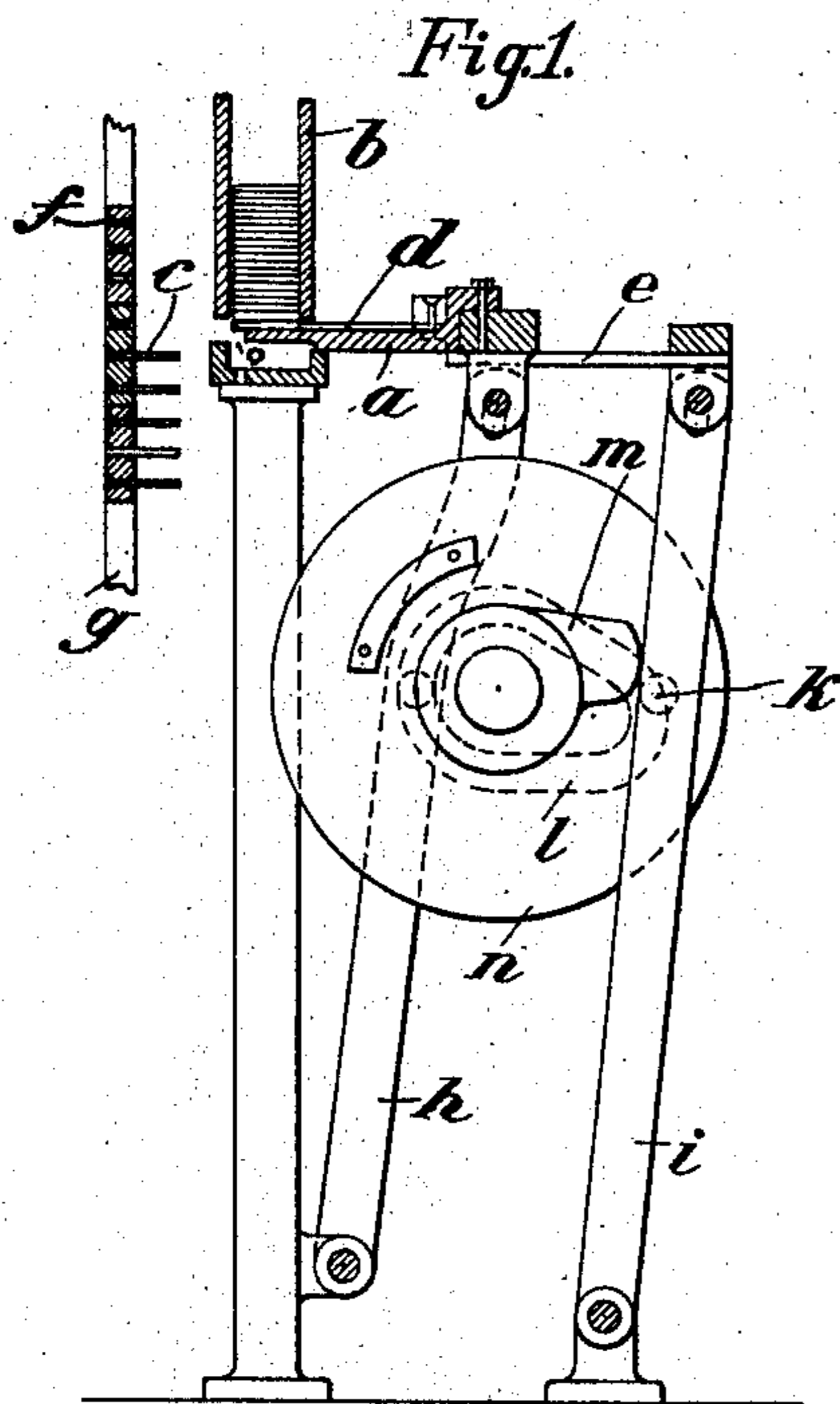


No. 757,180.

PATENTED APR. 12, 1904.

F. CZERWENY.
APPLIANCE FOR ISOLATING MATCH STICKS.
APPLICATION FILED MAY 27, 1902.

NO MODEL.



Witnesses:
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UNITED STATES PATENT OFFICE.

FRANZ CZERWENY, OF DEUTSCHLANDSBERG, NEAR GRATZ, AUSTRIA-HUNGARY.

APPLIANCE FOR ISOLATING MATCH-STICKS.

SPECIFICATION forming part of Letters Patent No. 757,180, dated April 12, 1904.

Application filed May 27, 1902. Serial No. 109,190. (No model.)

To all whom it may concern:

Be it known that I, FRANZ CZERWENY, manufacturer, of Deutschlandsberg, near Gratz, Styria, Austria-Hungary, have invented certain new and useful Improvements in Appliances for Isolating Match-Sticks, of which the following is a specification.

My invention relates to match-making machinery, and particularly to apparatus in such machinery for receiving match-sticks from a hopper or other receptacle, isolating them, and feeding them either to the carrier-belt of an automatic match-making machine or to a dipping-frame or other device adapted to receive such sticks.

In one class of match-making machines as at present existing a plate is provided having grooves into which the match-sticks fall and from which they are afterward ejected into the carrier-belt or other devices adapted to receive them. After the match-sticks are ejected from the grooves splinters or other foreign matter sometimes remain therein, and it is therefore necessary to clean said grooves by hand from time to time, as required. One of the principal objects of my invention is to provide means for automatically cleaning said grooves, which, with other features of the invention, are hereinafter more particularly described.

The invention consists of the novel construction, combination, and arrangement of devices and parts hereinafter more particularly set forth.

The improved appliance may be used for inserting match-sticks in the carrier-belts of automatic match-making machines, as well as for placing match-sticks in the dipping-frames of match-making machines of all kinds, as for other insulating apparatus, its manner of working being the same in all cases. For this reason the first-named mode of execution only of this invention is illustrated in the accompanying drawings, in which—

Figures 1 to 3 are side views, partly in section, showing different positions of the parts, Fig. 1 indicating the position at the beginning,

Fig. 2 during, and Fig. 3 directly after the operation of pushing the sticks into position. Fig. 4 is a plan of Fig. 2.

a is the grooved plate below the stick-hopper *b*. Its grooves or flutes receive the matches *c*, which are ejected by the needles *d*, into the holes *f* of the carrier-belt *g* while it is at rest. The needles *d* are at their rear ends bent upward and passed through holes in a bar *e'*, which extends across the plate *a* and when in its normal position or being moved forward engages a shoulder *e''* at the rear of the plate.

Attached, respectively, to the grooved plate *a* and the connected adjustable carrier-bar *e* for the needles *d* are levers *h i*, the other end of same being preferably articulated, respectively, onto the lower frame of the machine or to some suitable point. Each lever is provided with a stud *j k*, respectively, the one, *j*, engaging with an eccentric slot *l*, while the other, *k*, stands in the path of a cam *m*, mounted on a rotating disk *n*.

At the beginning of the charging movement the parts are in the positions shown in Fig. 1, the ejecting-needles leaving the grooves free, so that the lowermost sticks in the hopper can fall into the grooves. This done, the plate *a* is moved forward by the lever *h* as far as the carrier-belt *g*. This movement is shared by the needles *d*, which shortly before the grooved plate *a* attains the outermost limit of its course, Fig. 2, push the match-sticks forward and press them into the carrier-belt. When freed from its charge of match-sticks, the grooved plate is quickly withdrawn, so as not to hinder the downward movement of the carrier-belt, while the needles *d*, as seen in Fig. 3, remain in position, and thus clean the forward portion of the grooves (previously occupied by the sticks) from splinters and the like. This accomplished, the needles *d* are withdrawn by the lever *i* into their original position, Fig. 1, so that the next layer of match-sticks can fall into the grooves and be forced into the next empty row of holes in the carrier-belt. Finally, to enable cross-lying sticks or splinters and the like to drop out of the match-

hopper a suitable gap *c* is left between the front wall of the hopper *b* and the grooved plate *a*.

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—

1. In a match-making machine, the combination with a grooved plate for receiving the match-sticks and means for reciprocating said plate, a series of needles supported by the plate and sliding in the grooves thereof, and means carried by the plate for causing a forward movement of the needles, of devices adapted to receive said match-sticks when the forward movement of the plate and needles is completed, and means adapted to return the needles to their normal positions after the grooved plate has receded in order to clear the grooves of splinters and the like, and to leave the grooves open to receive a further supply of match-sticks.

2. In a match-making machine, the combination with a reciprocating grooved plate having a shoulder, of means for reciprocating the plate, a laterally-disposed bar adapted to be engaged by the shoulder and carried with the grooved plate in its forward movement, a series of needles carried by the lateral bar sliding in the grooves of the plate and adapted to be left at their extreme forward position when the plate recedes and means independent of the movement of the plate for returning the bar and its needles to their normal position.

3. In a match-making machine, the combination with a receptacle for holding match-sticks, a grooved reciprocating plate under the receptacle and adapted to receive into its grooves match-sticks from said receptacle, means for reciprocating the plate, a series of needles sliding in the grooves of the plate and having their forward movement controlled by said plate, means for returning the needles to their normal positions after the plate has receded, and devices adapted to receive said match-sticks with the forward movement of the plate and needles and have the match-sticks held in place by the needles while the plate recedes.

4. In a match-making machine, the combination with a receptacle for holding match-sticks, of devices adapted to receive the match-sticks, a reciprocating plate beneath the receptacle and having grooves to temporarily contain the match-sticks, means for reciprocating the plate, a series of needles carried in the grooves back of the match-sticks and moving forward with the plate to force the sticks into the receiving devices and remaining in their forward

position while the grooved plate returns, and means for returning the needles to their normal positions at the rear ends of the grooves and clearing the grooves of splinters and chips.

5. In a match-making machine, the combination with a receptacle for holding match-sticks, of devices adapted to receive the sticks, a reciprocating plate with longitudinal grooves to carry the matches and a shoulder, a lateral bar normally engaged by the shoulder, a series of needles carried by the bar and playing in the grooves of the plate but normally retained in the rear ends of said grooves, means for moving the plate with the match-sticks and the bar with the needles toward the devices to receive the sticks and receding the plate and means for returning the bar and needles to their normal positions after the recession of the grooved plate.

6. In a match-making machine, the combination with a receptacle for holding match-sticks, of devices adapted to receive the sticks, a grooved reciprocating plate adapted to hold the sticks and carry them to the receiving devices, means for reciprocating the plate, a lateral bar having needles adapted to play in grooves back of the sticks, be carried forward by the grooved plate, force the sticks into the receiving devices, prevent the entrance of sticks into the grooves until the return of the needles to their normal positions in the back of the grooves and clear the grooves of chips, splinters and the like on their return movement, and means for returning the bar and needles to their normal position after the reciprocation of the grooved plate.

7. In a match-making machine, the combination with a receptacle for holding the match-sticks, of devices for receiving the sticks, a reciprocating grooved plate adapted to carry the sticks from the holder to the receiver, needles carried by a common bar, playing in the grooves and adapted to force the sticks into the receiving devices, a lever actuating the grooved plate, a cam operating the lever in its forward and backward movement, a lever connected with the needle-bar and adapted to return the needles to their normal positions after the recession of the grooved bar and a cam adapted to operate the latter lever to return the needle-bar.

In witness whereof I have hereunto signed my name, this 14th day of May, 1902, in the presence of two subscribing witnesses.

FRANZ CZERWENY.

Witnesses:

JOHANN FLOTH,
ALVESTO S. HOGUE.