No. 698,406. Patented Apr. 22, 1902.

S. D. LOCKE.

MATCH SAFE.

(Application filed Apr. 16, 1901.)

(No Model.)

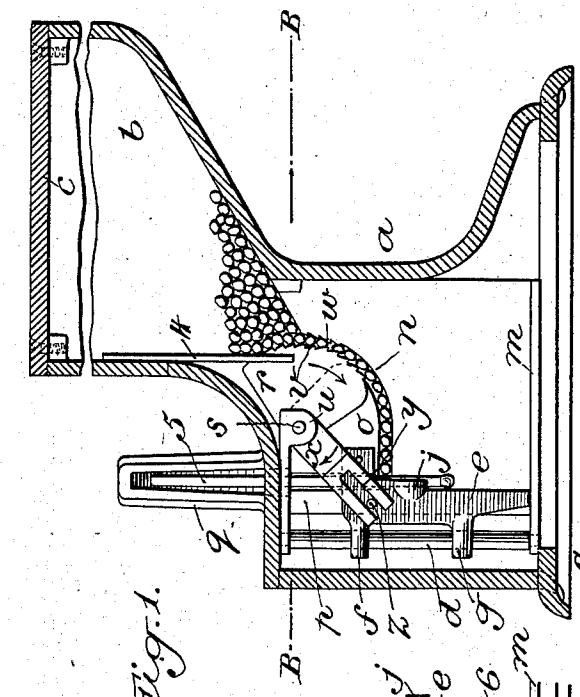


Fig. 1.

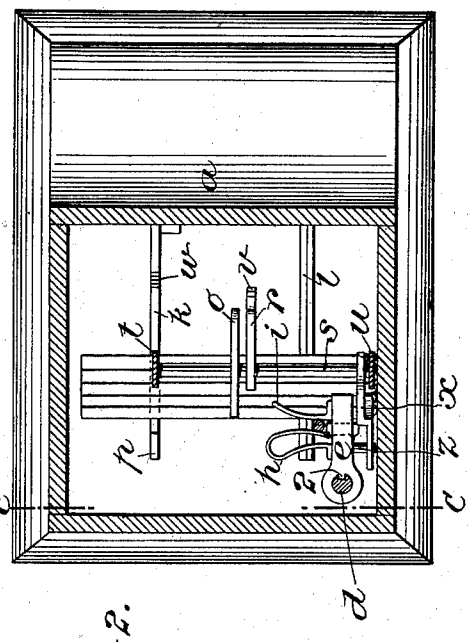


Fig. 2.

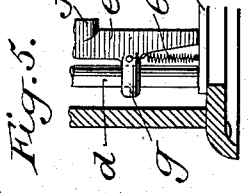


Fig. 5.

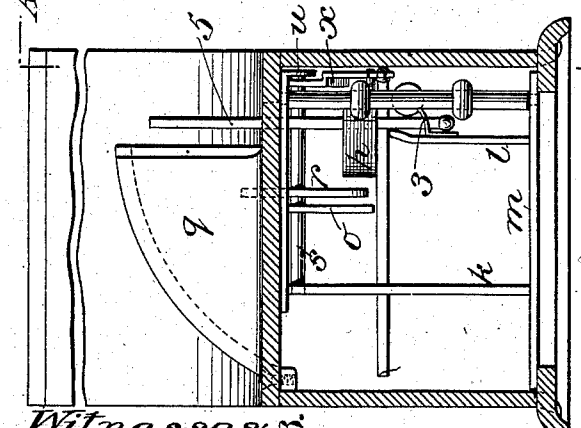


Fig. 3.

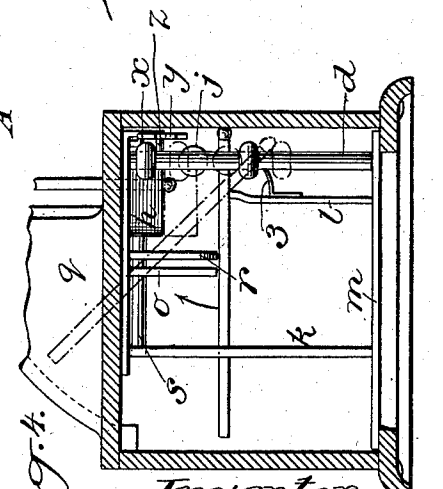


Fig. 4.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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MATCH-SAFE.

SPECIFICATION forming part of Letters Patent No. 698,406, dated April 22, 1902.

Application filed April 16, 1901. Serial No. 56,044. (No model.)

To all whom it may concern:

Be it known that I, SYLVANUS D. LOCKE, a citizen of the United States, and a resident of Bridgeport, in the county of Fairfield and State of Connecticut, have invented a new and useful Match-Safe, of which the following is a specification.

My invention relates to a match-safe, with the object in view of providing a safe from which the matches cannot be removed without being ignited and in which the matches are automatically presented one at a time in position to be withdrawn from the safe.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a view of the safe in vertical section from front to rear, the section being taken along the line A A of Fig. 3 just inside the case. Fig. 2 is a horizontal section taken in the plane of the line B B of Fig. 1. Fig. 3 is a vertical transverse section in the plane of the line C C of Fig. 2, showing the match-operating drop and igniter in its lowermost position, the position which it assumes when a match is held ready to be withdrawn. Fig. 4 is a similar view showing in full lines the position of the match-operating drop and igniter at the upward limit of their stroke as they appear just before the match is ignited and showing in dotted lines the position of the match and the match-operating drop and igniter in the position which the parts assume about midway of the downward movement of the drop, and Fig. 5 is a view in detail of a modified structure.

The casing comprises a lower box portion (denoted by *a*) surmounted in the present instance by a match-reservoir *b*, communicating with the upper rear portion of the lower part *a* of the casing.

The particular form of the casing is not a feature of my present invention, it being understood that the casing shall be of a form adapted to contain the several operating parts, as will be hereinafter more particularly described.

The matches may be placed in the match-reservoir *b* by means of unscrewing the top *c* of the reservoir, or the top *c* may be provided with a lock of any well-known or approved form, so that access thereto may be gained only by the person holding the key.

Within the lower part of the casing and near one of the front corners there is located a guide-rod *d*, set upright and serving as a guide for the vertically-reciprocating drop *e*, which carries the device for causing the match to ignite when withdrawn from the safe and also serves to tilt a match into position to be withdrawn. The drop *e* is engaged in vertically-sliding adjustment with the guide *d* by means of a pair of lugs *f g*, which embrace the rod *d*. The said drop is provided at its upper end with a pair of jaws *h* and *i*, which flare as they extend laterally away from the drop *e* and the inner faces of which are roughened in any suitable manner for the purpose of insuring a frictional grip upon the head of the match to cause it to ignite when drawn from between them. Intermediate of its ends the drop *e* is provided with a lug *j*, in the present instance of rounded form, projected into the plane of the match which is most advanced for the purpose of tilting it into position to be withdrawn from the safe. The matches are conducted from the reservoir *b* into position to be operated upon by the drop *e* by means of lower supports *k* and *l*, in the present instance formed by means of plates uprising from the base *m* of an inner skeleton frame located within the lower part *a* of the casing, their upper edges, along which the matches travel, being curved, as shown at *n*, Fig. 1. Above the lower supports *k* and *l* and spaced above them a distance enough greater than the diameter of a match to permit the match to travel freely between them is the fixed guide-plate *o*, its edge toward the matches being curved to correspond with the curved upper edges *n* of the supports *k* and *l*. The support *k* has a part *p* extending upwardly at the front, so that its rear edge forms a stop for the advance movement of the matches as they are fed, lying in a horizontal position, along down the curved edges *n* of the supports *k* and *l*. Near the opposite end the advance match is arrested by the rear edge of the drop *e*, which is intended to be in alinement transversely of the safe with the rear edge of the upright *p* on the support *k*. The space between the jaws *h* and *i* on the drop is ar-

ranged to be in the same vertical plane that a match resting against the rear edge of the drop *e* and upright *p* would occupy, and the match-tilting lug *j* on the drop also projects into this same vertical plane. On the top of the lower portion *a* of the casing and communicating with the interior of the casing *a* through a slot is a hood *q*, the interior of which is a little wider than the diameter of a match and the front of which is open, as shown at Fig. 1. The hood *q* is arranged in the present instance transversely of the safe, with its open end for the passage of a match directed toward the side of the safe, as shown in Figs. 3 and 4, and the support *l*, on which the matches rest as they are fed forwardly, is located in a vertical plane a short distance farther toward the side of the safe than the end of the hood *q*, so that when the match is tilted on the upper edge of the support *l* as a fulcrum and thrown into an upright position by the drop *e* its exposed end will be carried away from the open end of the hood *q* far enough to enable the match to be taken conveniently between the thumb and finger to be withdrawn.

The matches are forced toward the front into engagement with the stop *p* and the front edge of the drop *e* by means of the sector *r*, carried by a spindle *s*, mounted in a pair of ears *t* and *u*, fixed to the skeleton frame within the upper position of the part *a* of the safe, the curved face of the sector *r* being provided with teeth, preferably ratchet-shaped teeth *v*, which coact with similar teeth *w* near the upper end of the curved portion *n* to force the matches forward as the sector is rocked in one direction, while passing freely over the matches when the sector is rocked in the opposite direction.

The spindle *s*, which carries the sector *r*, is operated by the drop *e* through an arm *x*, provided with a slot *y*, which engages a pin *z*, projecting laterally from the drop *e*.

The drop *e* may be held in its proper position relative to the guide-rod *d* either by the feather-and-groove connection 2 (shown in Fig. 2) or by the interposition of a stop 3 (shown in Figs. 3 and 4) or by means of any other well-known or approved device.

The matches are conveniently directed to the channel between the feed-sector *r* and the supports *k* and *l* by means of a guide-plate 4, depending from the front of the upper portion *b* of the casing.

The operation may be briefly stated as follows: Assuming the match to be in the position 5, Figs. 1, 2, 3, the match so placed being grasped between the thumb and finger and lifted will by its frictional contact with the jaws *h* and *i* of the drop lift the drop to the limit of its upward movement, (shown in Fig. 4,) and the continued lift upon the match will draw the head of the match between the jaws *h* and *i*, thereby igniting it as it escapes from between the jaws. The upward movement of the drop *e* rocks the feed-sector *r*, by means of the pin-and-slot connection with the arm *x*, in a direction to advance a match into the horizontal position shown in full lines in Fig. 4—viz., directly beneath the interior of the hood *q* and also beneath the match-tilting lug *j* on the drop. As the match escapes from between the jaws *h* and *i* the drop, being released, will fall back under the influence of gravity into the position shown in Fig. 1, and during its drop the lug *j* will engage the match near its end and tilt it on the support *l* as a fulcrum into the position shown in Figs. 1 and 3. As the match is tilted by the engagement with it of the lug *j* it will be thrown forcibly between the jaws *h* and *i* and gripped with sufficient force to enable the drop to be lifted by the match when it is wished for use. The same downward movement of the drop also throws the feed-sector *r* back into position to again advance the matches along the supports *k* and *l* when the next succeeding match is withdrawn for use. The advance of a match into position to be presented for use depends upon the withdrawal of a match for use, and a match cannot be withdrawn for use without causing it to ignite. It thus follows that by making the safe secure against being opened save only by a person with the proper key or tools a safe is provided which will effectually prevent the removal of matches save only for immediate use and which will at all times present a match in convenient position to be used and ignited without defacing the surrounding walls or objects.

While I have referred to the drop *e* as operating under the influence of gravity and while I prefer to so construct the safe, it is obvious that in the event the drop should not be sufficiently heavy or for any purpose was not made sufficiently heavy to perform its work under the influence of gravity the power of its return movement might be accelerated by the introduction of a spring. Such an attachment is shown in the modified form, Fig. 5, where the spiral spring 6 is shown connected at one end to the lug *g* and at the opposite end to the base *m* of the skeleton frame.

What I claim is—

1. A match-safe comprising a casing, a reservoir for the matches, a drop arranged to tilt a match into position to be withdrawn from the safe, a match-gripping device connected to the drop whereby the withdrawal of the match moves the drop into position to operate on a succeeding match and ignites the match, and means for feeding the matches into position to be operated by the drop, substantially as set forth.

2. A match-safe comprising a suitable casing, means for presenting a match in position to be withdrawn from the safe and a match-gripping device connected to the match-presenting means whereby the withdrawal of a match moves the match-presenting means into position to operate on a succeeding match, substantially as set forth.

3. A match-safe comprising a suitable casing, a reciprocating drop, a feed mechanism operated by the drop, whereby the matches are fed one by one into position to be tilted by the drop and a match-gripping device connected to the drop whereby the withdrawal of a match moves the drop into position to operate on a succeeding match, substantially as set forth.

4. A match-safe comprising a suitable casing, a drop having a limited rising-and-falling movement within the casing, means for feeding the matches into position to be engaged by the drop during its falling movement, gripping-jaws connected to the drop, the drop being provided with an offset in position to tilt a match into position between the jaws with one end of the match exposed exterior to the casing, and means for feeding the matches into position to be engaged by the drop, substantially as set forth.

5. A match-safe comprising a suitable casing, a gripping device for engaging the match to be withdrawn, means connected to the gripping device for moving a succeeding match into position to be withdrawn, a feeding device and plates spaced apart forming a support for the matches as they are fed into position to be operated upon, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 9th day of April, 1901.

SYLVANUS D. LOCKE.

Witnesses:
FREDK. HAYNES,
HENRY THIEME.