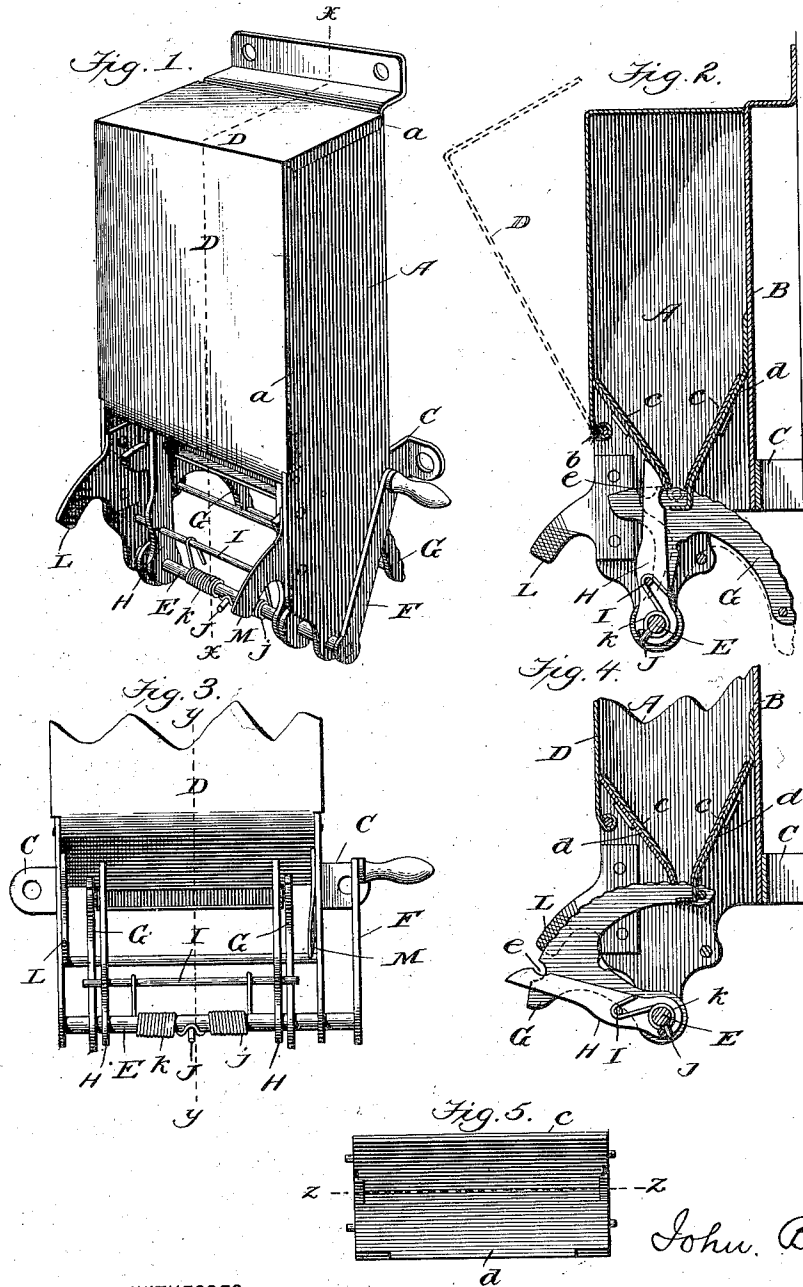


(No Model.)

J. B. DENNIS.
MATCH SAFE.

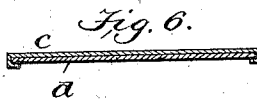
No. 544,968.

Patented Aug. 20, 1895.



WITNESSES:

Edwin L. Bradford
N. Curtis Lammond



John B. Dennis
INVENTOR

BY
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UNITED STATES PATENT OFFICE.

JOHN B. DENNIS, OF OTTUMWA, IOWA, ASSIGNOR OF TWO-THIRDS TO C. W. MAJOR, OF SAME PLACE, AND GUY G. MAJOR, OF TOLEDO, OHIO.

MATCH-SAFE.

SPECIFICATION forming part of Letters Patent No. 544,968, dated August 20, 1895.

Application filed March 21, 1895. Serial No. 542,677. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. DENNIS, a citizen of the United States, residing at Ottumwa, in the county of Wapello and State of Iowa, have invented certain new and useful Improvements in Match-Safes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that class of match-boxes in which the supply of matches contained in the hopper or box proper are automatically fed one at a time to devices which ignite and present them for use.

It has for its object simplicity and economy in construction, while at the same time securing certainty in results; and with these ends in view my invention consists in the details of construction and operation hereinafter fully set forth and claimed.

In order that those skilled in the art to which my invention pertains may know how to make and use the same, I will proceed to describe its construction and operation referring by letters to the accompanying drawings, in which—

Figure 1 is a perspective view of a match-box embodying my improvements; Fig. 2, a vertical section at line *xx* of Fig. 1. Fig. 3 is a front view of the lower portion of the box, showing in elevation the rocking match delivery and lighting devices. Fig. 4 is a vertical section at line *yy* of Fig. 3, with the rocking match-delivery devices in their outward position and after the match has been lighted and removed. Fig. 5 shows a plan view of one of the inclined bottom portions of the hopper, and Fig. 6 a longitudinal section at line *zz* of Fig. 5.

Similar letters of reference denote like parts in the several figures.

A represents the sides, and B the back of the box, which may be made of one piece of sheet metal and bent into form, the side walls A extending below the terminus of the back B to furnish bearings for the rocking devices a suitable distance below the bottom of the feeding-hopper. The upper end of the back is bent and perforated to receive securing-screws, and at the bottom terminus of the

back there is secured by brazing or in any other suitable manner a strip or bracket C, provided with screw-holes, and the box may thus be rigidly secured in place.

D is the front of the box made of a single piece with the edges turned down, as shown at *a*. This front D is pivoted at its lower end, as shown at *b*, Fig. 2, and is capable of vibration on said pivot, as illustrated by dotted lines in Fig. 2, the frictional contact between the flanges *a* and the side A being sufficient to hold the front in its closed position.

The lower portion of the receptacle or interior of the box is provided with inclined pulsatory guide-plates *c*, between the lower edges of which there is left a space sufficient to permit the free passage of matches one at a time, as clearly shown at Fig. 2. These plates *c* are secured to fixed inclined supporting-plates *d d* by bent tongues *e*, which pass through slots or channels in the edges of the ends of plates *d* in such manner that the plates *c* are capable of a slight movement up and down, which I denominate a "pulsatory movement," for the purpose of agitating the matches contained in the box and to insure the dropping of the same successively through the space between the bottom edges of the plate *c*.

The plates *d* are secured to the back or sides of the match-box by any suitable tongues or rivets, as clearly indicated in the drawings. The rear inclined plate *d*, as most clearly shown at Figs. 2 and 4, extends below the lower terminus of the other inclined plate *d*, and terminates in a sort of trough open at one side and having the capacity of holding one match only.

In the lower ends of the sides A of the box is journaled a rock-shaft E, having a crank or handle F secured thereto. Two segmental arms G are likewise secured to the rock-shaft E, one near each end. The peripheries of these arms are slightly corrugated, and such corrugated surfaces are in slight contact with the lower edges of the sliding incline plates *c c*, so that as the shaft E is rocked the corrugated or roughened surfaces of the arms G will cause said plates to rise and fall, giving to them a pulsating movement which agitates the matches contained in the hopper and fa-

cilitates the gravitation of matches successively into the trough at the lower end of the plate *d*, before referred to.

H H are two radial arms secured together by a cross-bar I. They are arranged loosely upon the rock-shaft E, one near each end and inside of the segmental arms G. The rod or cross-bar I extends beyond or through the arms H a sufficient distance to pass in front of and in contact with the front edges of the segmental arms G, when the rock-shaft and its connections are in normal position, which is shown at Fig. 1. A radial pin J is secured about centrally in the rock-shaft E, and a double-coil spring K is wound around said shaft, the center loop of the coil passing over the pin J, and the free ends of said spring fashioned into hooks and grasping the cross-bar I. The radial arms H extend upwardly a sufficient distance, so that the rear edge of their upper ends shall be in contact with the outside of the front incline plate *d* when the parts are in the normal position, as shown at Fig. 1, and thus through the connection between the spring K with the rock-shaft E and cross-bar I the rearward movement of the segmental arms is arrested until sufficient power is applied to the crank F to overcome the spring. The periphery of each of the segmental arms G, near the front ends, is formed with a notch or recess *e*, and the rear edge of the radial arms H, near the upper end, is formed with a curved notch. (See Fig. 2.)

When the parts are in the position shown at Fig. 1 or as shown in Fig. 2, the peripheries of the arms G bridge the space between the incline plates *c c*, and thus prevent the fall by gravity of any match; but when the arms G have been rocked rearward against the action of the spring K the notches *e* are brought into alignment under the opening or space between the incline plates and a single match is free to fall through said space and into the notches *e* in the arms G, while the radial arms are at rest against the front of the plate

d. When pressure is removed from the handle or crank the action of the spring causes the arms G to return to their normal position, and this action causes the radial arms H, through the notches in their upper rear edge, to embrace the match and bind it firmly within the notches *e* in the arms G.

On the inside of one of the sides A of the box, below the bottom of the hopper, is secured an arc-shaped plate L, having its inside surface roughened, and on the inside of the opposite side A of the box is an arc-shaped spring-plate M, the relation of said plates L and M being such that as the arms G swing outwardly, bearing the match, the latter will have its head forced against the roughened surface of the plate L and caused to ignite, and it may then be readily removed by grasping it at any point between the arms H H.

The exterior of the box may be made of any desired fanciful design, and it may be made of any suitable material.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a match safe, the combination with a holder having a hopper shaped bottom open to permit the passage of a single match, the segmental arms G provided with notches *e*, the rock shaft E, means for operating the rock shaft, the radial arms H, cross bar I, spring K and plates L M, substantially as and for the purpose set forth.

2. The sliding or pulsating plates *c, c*, in combination with the vibratory segmental arms G corrugated or roughened on their peripheries whereby the plates *c, c*, are caused to rise and fall, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JNO. B. DENNIS.

Witnesses:

C. W. MAJOR,
W. W. EPPS.