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H. W. PLUCKER.

COMBINED ASH TRAY AND CIGARETTE EXTINGUISHER.

APPLICATION FILED FEB. 26, 1917.

1,331,872. Patented Feb. 24, 1920.

2 SHEETS—SHEET 1.

Fig. 1.

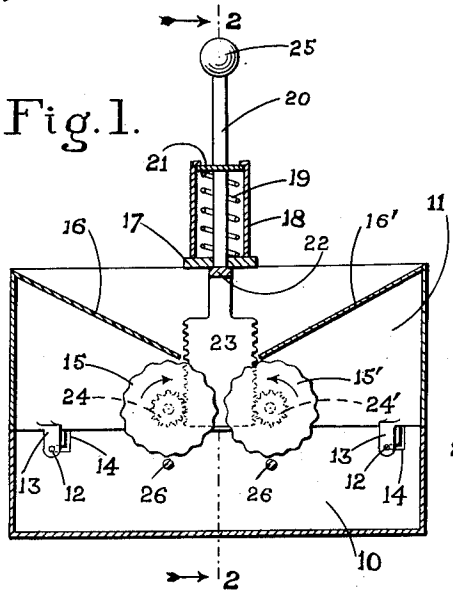


Fig. 2.

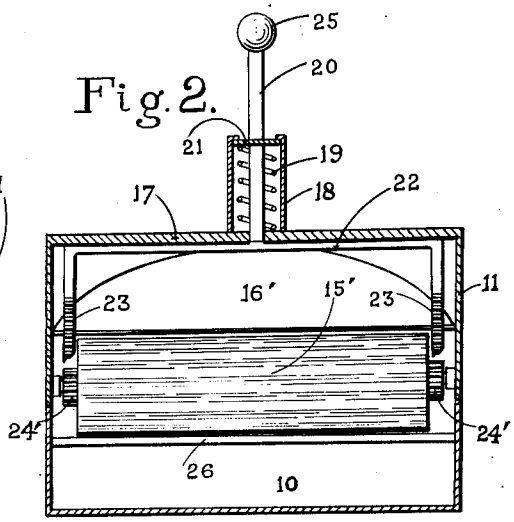


Fig. 3.

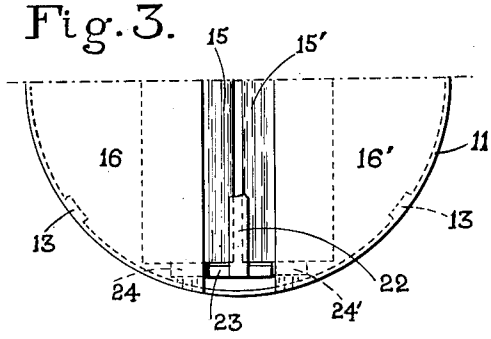


Fig. 5.

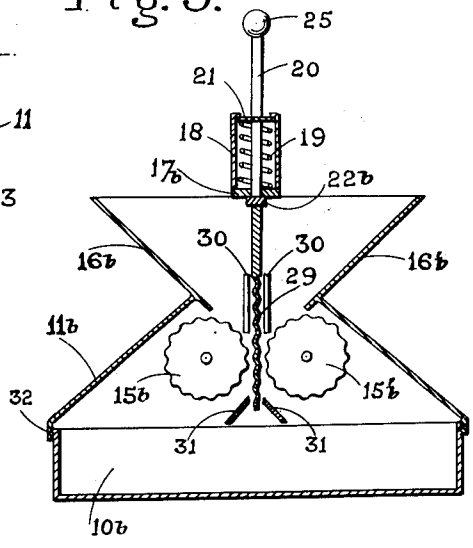
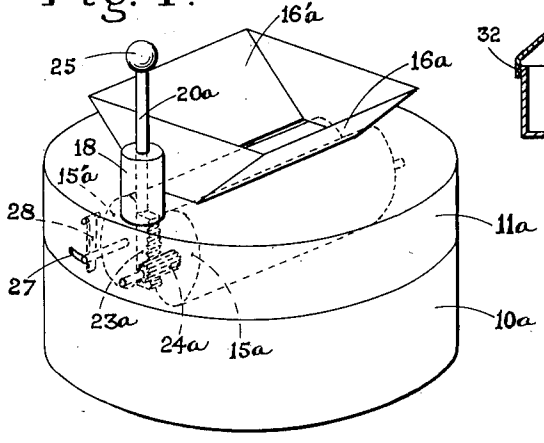


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 6.

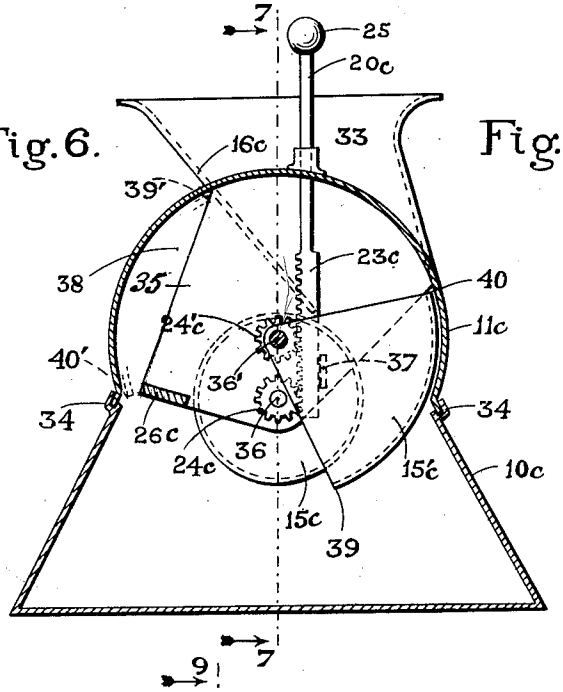


Fig. 7.

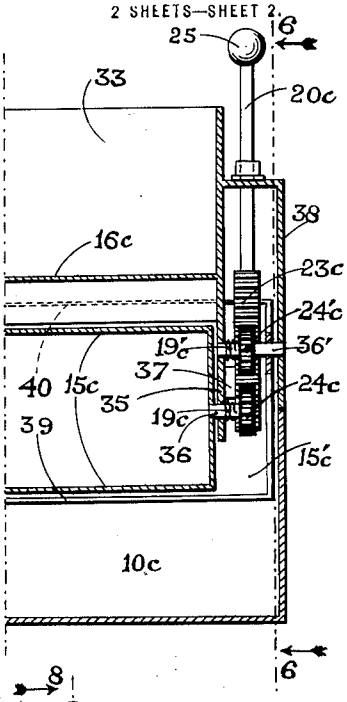


Fig. 8.

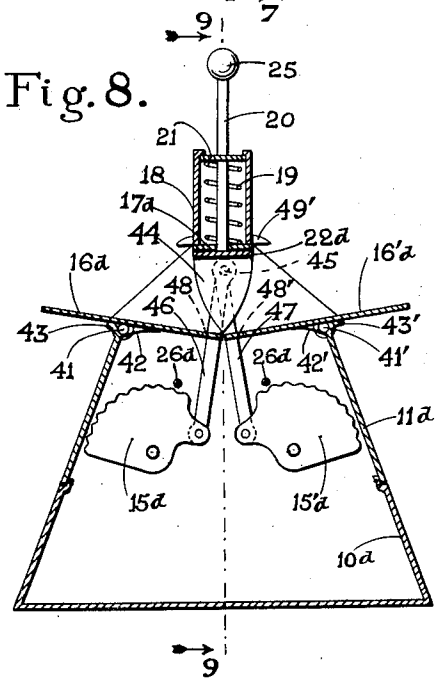
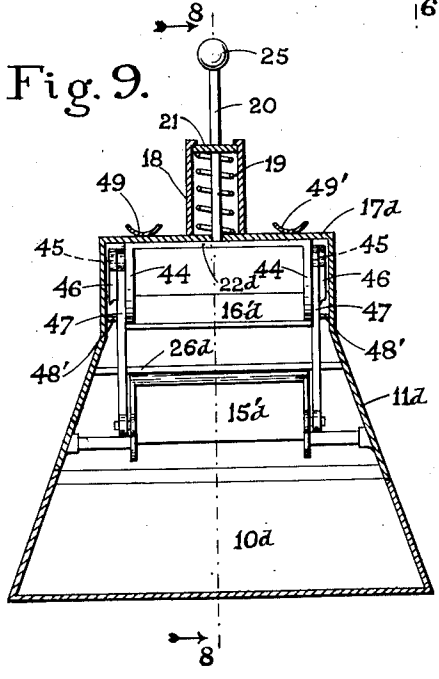


Fig. 9.



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UNITED STATES PATENT OFFICE.

HENRY W. PLUCKER, OF NEW YORK, N. Y.

COMBINED ASH-TRAY AND CIGARETTE-EXTINGUISHER.

1,331,872. Specification of Letters Patent. Patented Feb. 24, 1920.

Application filed February 26, 1917. Serial No. 151,022.

To all whom it may concern:

Be it known that I, HENRY W. PLUCKER, a subject of the King of the Belgians, residing at New York, New York, United States of America, have invented certain new and useful Improvements in Combined Ash-Trays and Cigarette-Extinguishers, of which the following is a specification.

My invention relates to ash trays and it has for its chief object to provide an ash tray with means whereby cigars and cigarettes deposited thereon may be promptly extinguished.

In particular my invention aims at providing means for extinguishing the lighted ends of cigars and cigarettes by crushing the same without the user having to hold them between his fingers during the crushing operation, and it consists broadly in providing an ash tray with a support, preferably in the shape of an additional receptacle for cigars and cigarettes, and means for crushing these while at the same time transferring them from the said receptacle to the ash tray.

As compared with existing devices the chief advantages of my combined ash tray and cigarette extinguisher are that its operation is practically instantaneous, that it may easily be operated with one hand only and that two or more cigarette ends may be crushed at the same time. Most smokers, when laying aside a cigar or cigarette, do not wish or cannot afford to spend much time in extinguishing the fire therein and they often delay taking any action to that effect until the obnoxious fumes arising from the slowly burning cigar or cigarette become intolerable. With my improved device it is no longer necessary to hold the cigarette while it is being crushed and the extinguishing operation is considerably simplified.

In the accompanying drawings which illustrate by way of example various constructional forms of the device according to my invention,

Figure 1 is a sectional elevation of a combined ash tray and cigarette extinguisher;

Fig. 2 is a sectional elevation taken on line 2—2 of Fig. 1, certain parts being broken off for the sake of clearness;

Fig. 3 is a partial plan view of the device illustrated in Figs. 1 and 2, the operating mechanism being partly broken off for the sake of clearness;

Fig. 4 is a perspective view of a slightly different form, in which certain parts normally hidden from view are shown in dotted lines;

Fig. 5 is a sectional elevation of another embodiment of my invention;

Fig. 6 is a sectional elevation of a further embodiment taken on line 6—6 of Fig. 7;

Fig. 7 is a sectional elevation of one half of the device illustrated in Fig. 6, taken on line 7—7 of Fig. 6;

Fig. 8 is a sectional elevation of another embodiment taken on line 8—8 of Fig. 9, and

Fig. 9 is a sectional elevation on line 9—9 of Fig. 8.

Like reference numerals indicate like parts in all the views.

Referring first to Figs. 1 to 3 of the drawings, 10 designates an ash tray herein shown to be of circular shape, and 11 is a removable frame which fits on top of the tray 10 and may be locked thereto by means of pins 12 secured to lugs 13 integral with the frame 11, which pins fit into bent slots 14 in the tray. Mounted in the frame 11 are two rolls 15, 15′ which extend across the frame and are separated by a narrow slit. A pair of inclined plates 16, 16′ extend upwardly from points slightly above each roll toward the upper edge of the frame 11 to which both plates 16, 16′ are rigidly secured. A bridge 17 spans the frame and carries, preferably at its center, a cylindrical casing 18 in which is housed a spring 19 coiled around a rod 20 and interposed between the bridge 17 and a piston or plunger 21 on the rod 20. The rod 20 is mounted to reciprocate through an opening in the bridge 17 and its lower end is rigidly connected with a cross piece 22 the ends of which are bent downwardly and provided each with a toothed plate or rack 23 which meshes with pinions 24, 24′ on the shafts of the rolls 15, 15′ respectively.

It will be seen that the plates 16, 16′, the upper surface of the rolls 15, 15′ and the lateral walls of the frame 11, form a receptacle and that a cigarette dropped in this receptacle will slide down the plate 16 or 16′ until it rests on the rolls 15, 15′. By pressing on a knob 25 on the reciprocating rod 20 the racks 23 are depressed and the rolls 15, 15′ rotated in the direction of the arrows, whereby the cigarettes are forced through the slit and crushed between the

rolls. To insure a better crushing action the rolls 15, 15′ are preferably corrugated.

When pressure is removed from the knob 25 the spring 19 raises the plunger 21, and the rod 20 with its attached parts and the rolls 15, 15′ resume their initial positions.

A pair of bars 26 may be arranged across the tray to scrape off any fragments which may adhere to the rolls 15, 15′.

In the form shown in Fig. 4 the plates 16^a, $16'^a$, form a hopper on top of the frame or cover 11^a. The actuating rod 20^a is located on one side of the crushing rolls and there is but one rack 23^a which engages the pinion 24^a of the roll 15^a while the shaft of roll $15'^a$ is slidably mounted in horizontal slots 27 in the frame 11^a and pressed against the driving roll 15^a by springs 28, one such spring being arranged at each end of the driven roll $15'^a$.

The device illustrated in Fig. 5 has a bridge 17^b similar to the bridge 17 shown in Figs. 1 to 3 but instead of racks the cross piece 22^b carries a corrugated plate 29 which extends across the frame 11^b. The rolls 15^b, $15'^b$ rotate freely in their bearings and are driven by the friction of the cigarettes forced between said rolls and the plate 29. Suitable slides 30 may be provided on the inner walls of the frame 11^b to engage the sides of the plate 29 and guide the same in its downward movement. Cam plates 31 extending straight across the frame 11^b are preferably provided for deflecting the crushed cigarette ends away from the reciprocating plate 29. The tray 10^b and frame 11^b are herein shown to be provided with a screw thread 32 whereby they can readily be assembled together or taken apart when desired.

In Figs. 6 and 7 I have illustrated a device in which the cigarettes introduced into a hopper 33 will slide down a plate 16^c and fall between a roll 15^c and a hollow segment $15'^c$ mounted eccentrically with respect to each other. The hopper 33 extends nearly over the whole length of the frame or cover 11^c the side walls of which engage in slides 34 on the tray 10^c, which, in this embodiment, has a rectangular shape. The end walls of the hopper 33 have depending extensions 35, 35 in which is mounted the shaft 36 of the roll 15^c while the shaft 36′ of the segment $15'^c$ is made in two sections supported by the extensions 35 and the adjacent end walls 38 of the frame 11^c, the arrangement being such that the shaft 36 does not interfere with the movement of the segment $15'^c$. The reciprocating rod 20^c is located on one side of the hopper 33 as shown in Fig. 7. A suitable plate or block 37 may be secured to one of the extensions 35 for guiding the rack 23^c.

When the knob 25 on the rod 20^c is depressed the rack 23^c rotates the roll 15^c and the segment $15'^c$ by means of the pinions 24^c and $24'^c$ respectively and the cigarettes lying between the roll and the segment are carried through an arcuate path. As will be readily understood from an inspection of Fig. 6 the portions of the roll 15^c and segment $15'^c$ which engage the cigarettes move closer to one another until they pass the line 7—7 drawn through the axes of the shafts 36 and 36′, whereby the cigarettes are gradually crushed, the maximum pressure being exerted in the vertical plane passing through the line 7—7. The movement of the rack 23^c comes to a stop when the forward edge 39 of the segment strikes the edges of the plates 35 at 39′, the rear edge 40 of the segment being then at 40′. A suitable scraper bar 26^c engages the crushed cigarettes carried by the segment $15'^c$ and causes them to fall into the tray. To return the movable parts to their initial positions I provide suitable coil springs 19^c and $19'^c$ secured at one end to the shafts 36 and 36′ respectively and at the other end to the adjacent plate 35.

In the device shown in Figs. 8 and 9, the crushing mechanism is normally hidden from view by the plates 16^d, $16'^d$ which are pivoted at 41, 41′ respectively to opposite walls of the rectangular frame 11^d. Flat springs 42, 42′ hold the plates 16^d, $16'^d$ pressed against flanges 43, 43′ on the frame 11^d, thus keeping the tray normally closed. Secured to the ends of the reciprocating cross piece 22^d is a pair of cams 44 arranged to engage the sides of the plates 16^d, $16'^d$. The cams 44 each carry a pin 45, to which is pivoted a pair of links 46, 47 adapted to rotate a pair of crushing segments 15^d, $15'^d$. The sides of the plates 16^d, $16'^d$ are slotted at 48, 48′ to permit of the links 46, 47 passing freely therethrough. 49, 49′ are cigarette rests arranged on and secured to the bridge 17^d.

When the knob 25 is depressed against the tension of spring 19 the rod 20 and the cross bar 22^d are forced downwardly and the cams 44 are caused to depress and separate the plates 16^d, $16'^d$ while the segments 15^d, $15'^d$ are moved through an arc of circle. The arrangement is such that when the gap between the plates 16^d, $16'^d$ is sufficient to allow a cigarette to drop, the segments 15^d, $15'^d$ will have moved close enough to each other to engage the falling cigarette which is then crushed therebetween. The rod 20 and its attached parts are returned to their initial positions by the spring 19, while the plates 16^d, $16'^d$ are brought back to their closed positions by the springs 42, 42′.

While I do not wish to be restricted to the use of any particular form of actuating means for operating the crushing mechanisms, I prefer to employ a reciprocable hand-actuated member such as shown in the views hereinbefore described. With such

construction considerable power may be applied to the actuating member without impairing the hold of the hand on the ash tray and the device may be operated with one hand only as it is always possible so to arrange the device that the pressure on the actuating device is opposed by the table or other support on or against which the tray is placed. As will be understood, my improved device can be used with advantage not only in apartments but also in theaters, railway coaches and automobiles, in which case the ash tray may be provided with hooks or other suitable means whereby it may be fastened to a wall, a seat or other convenient support.

Although I have more particularly referred to cigarettes in the foregoing description, it will be obvious that the mechanism is sufficiently powerful to crush also cigar ends.

I also wish it to be understood that while the invention has been described with particular reference to certain details of construction, the same is not to be considered as limited thereto, as many changes can be made and still fall within the scope of the invention set forth in the following claims.

What I claim and desire to secure by Letters Patent of the United States is:

1. The combination, with an ash tray, of a receptacle for cigarettes on said ash tray, and means for engaging the cigarettes in said receptacle, said means being adapted to extinguish same by crushing action and transfer them from said receptacle to said ash tray.

2. The combination, with an ash tray, of a removable frame fitting the top of said ash tray, a receptacle for cigarettes carried by said frame, and means for engaging the cigarettes in said receptacle, said means being adapted to extinguish same by crushing action and transfer them from said receptacle to said ash tray.

3. The combination, with an ash tray, of a receptacle for cigars and cigarettes, and means for extinguishing by crushing action the cigars and cigarettes in said receptacle, said receptacle being mounted on said ash tray and having walls adapted to convey the cigars and cigarettes to said extinguishing means and hold them in engagement therewith.

4. The combination, with an ash tray, of a pair of rotary rolls mounted on said ash tray, said rolls being adapted to extinguish cigars and cigarettes by crushing action, and means for actuating said rolls to force cigars and cigarettes therebetween.

5. The combination, with an ash tray, of a pair of crushing members adapted to support and engage cigarettes deposited thereon, and a mechanism for operating said crushing members, said mechanism including a hand actuated reciprocable rod and means for returning the said members and rod to their initial positions.

In testimony whereof I affix my signature.

HENRY W. PLUCKER.