

No. 824,221.

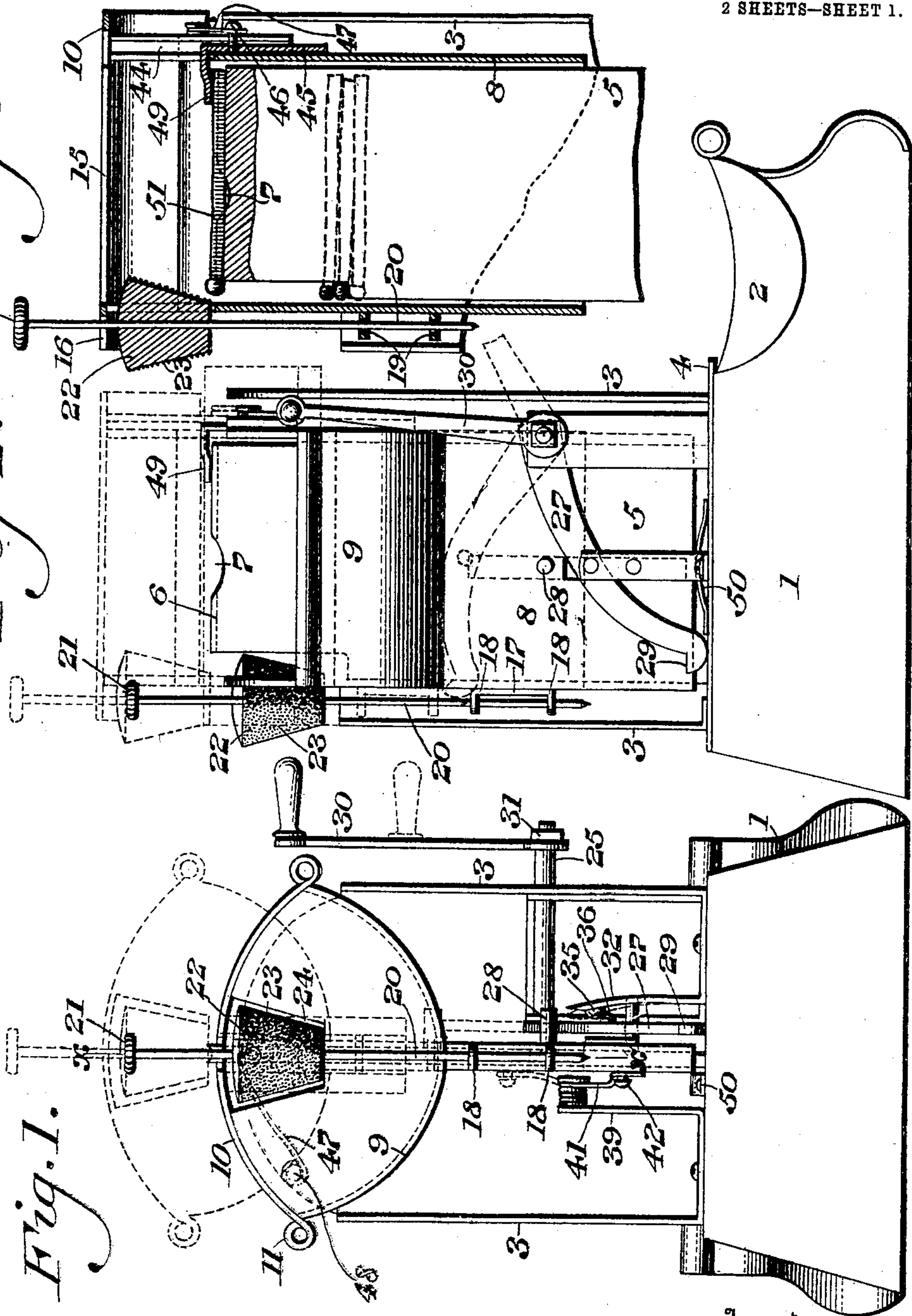
PATENTED JUNE 26, 1906.

E. WALDER.
MATCH BOX AND LIGHTER.
APPLICATION FILED AUG. 18, 1905.

2 SHEETS—SHEET 1.

Fig. 3.

Fig. 2.



Witnesses

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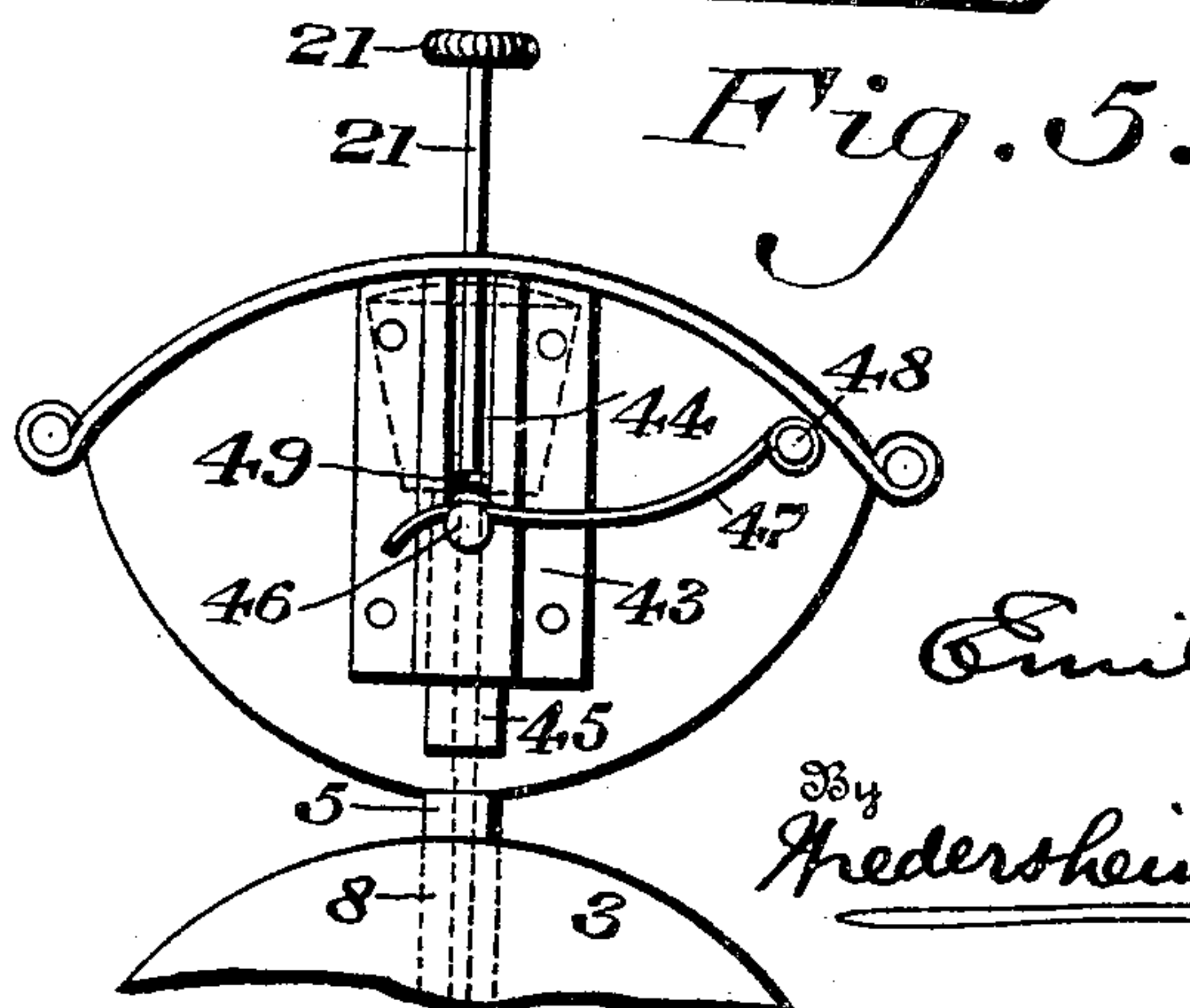
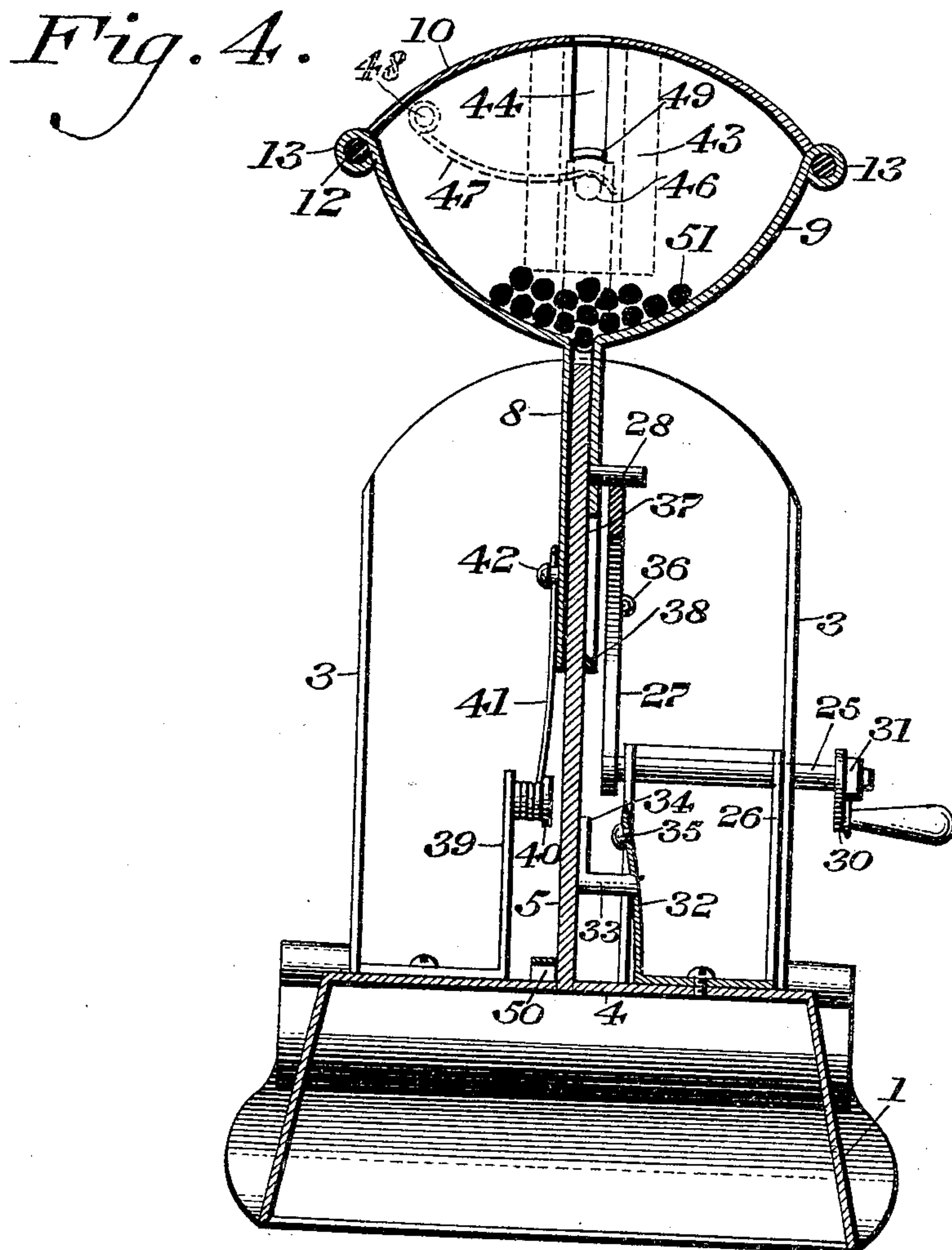
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UNITED STATES PATENT OFFICE.

EMIL WALDER, OF PHILADELPHIA, PENNSYLVANIA.

MATCH BOX AND LIGHTER.

No. 824,221.

Specification of Letters Patent.

Patented June 26, 1906.

Application filed August 18, 1905. Serial No. 274,728.

To all whom it may concern:

Be it known that I, EMIL WALDER, a subject of the German Emperor, residing at Philadelphia, county of Philadelphia, State of Pennsylvania, have invented a new and useful Match Box and Lighter, of which the following is a specification.

My invention consists of a novel construction of a match box and lighter or striker in which a single match may be taken from the receptacle or box proper and lighted at the proper time.

It further consists of a novel construction of actuating mechanism and novel means for holding the match during the operation of lighting the same.

It further consists of a novel construction of a spring-catch which is adapted to retain the match-receptacle in elevated position after a match has been taken therefrom and novel means for releasing said catch.

It further consists of a novel construction of a match-striker and novel means for adjustably supporting the same.

It further consists of novel features of construction, all as will be hereinafter fully set forth.

Figure 1 represents a rear elevation of a match box and lighter embodying my invention and having the end plate thereof removed. Fig. 2 represents a side elevation of the same device having the nearer side plate removed. Fig. 3 represents a partial sectional view corresponding to line *x x*, Fig. 1, of the device, the position of the parts being changed. Fig. 4 represents a sectional view of the device transverse to Fig. 3, the position of the parts differing therefrom. Fig. 5 represents a front elevation of the match-receptacle, showing the spring-actuated device for holding the match.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings, 1 designates the base of the device, the front portion of which is adapted to hold a tray 2, which is shown as having, preferably, a semicircular form.

3 designates the sides of the device, which are secured to the top 4 of the base in any suitable manner.

5 designates a bar, standard, or upright rising from the top piece 4 and having at its upper end a groove 6, adapted to receive a match, the walls of said groove having therein recesses 7 for a purpose to be hereinafter described.

8 designates a carriage or sleeve which is adapted to surround and be guided by the bar 5 and move vertically thereon. This carriage has suitably secured thereto at its upper end a match-receptacle 9, which, as seen in Fig. 1, is preferably in the form of a trough, two of the sides inclining inwardly and downwardly and divided to permit passage of bar 5 therethrough.

10 designates a cover whose ends have eyes 11, which receive rods 12, which also pass through eyes on the receptacle 9, thus securing said cover to the latter.

15 designates a recess or slot through the cover 10, and 16 designates an open slot preferably in alinement therewith.

17 designates a bracket suitably secured to the carriage 8 and having outwardly-extending lugs 18, apertured at 19. A rod 20 is adapted to be held in these apertures, said rod being provided at its upper end with a knob or handle 21 for rotating the same, said rod also passing through the slot 16 aforesaid.

22 designates a cone mounted on the rod 20, the outer surface of which is knurled or covered with any suitable friction material 23 or otherwise adapted to form a friction-surface against which the match-head strikes during the operation.

24 designates a recess or cut-away portion in the rear wall of the match-receptacle into which a portion of the cone 22 projects.

25 designates a rock-shaft mounted in a support 26, which is secured to the top plate 4 by any suitable means.

27 designates a lever-arm which is fixed to the shaft 25 and adapted to coact with and move a pin 28, secured to the carriage 8, the end of the arm being provided with an outwardly-extending lug 29, which serves to limit the elevation of the carriage by abutting against said pin.

30 designates a crank-handle which is secured to the shaft 25 by any suitable means, such as a nut 31, whereby said shaft may be rotated and said arm 27 actuated.

32 designates a spring suitably secured to the top plate 4 and provided with an elbow 33, whose upper limb 34 is adapted to engage the bottom of the carriage 8, so as to hold the latter in elevated position during a desired interval.

35 designates a head or lug extending outwardly from the upper end of the spring 32, with which a head 36 on the arm 27 is adapted to coact.

37 designates a slot in the carriage 8 in which the upwardly-extending portion 34 of the arm 33 is adapted to move, the carriage being beveled at the lower end of said slot, as seen at 38, in order that said portion may easily pass out of said slot.

39 designates a support suitably secured to the frame and having at its upper end the lug 40, to which is secured one end of a spring 41, the latter being adapted to engage a screw or pin 42, secured to the carriage 8.

43 designates a guide secured to the front side of the match-receptacle 9 and having a slot 44 therein.

45 designates a depending plate which is adapted to move within said guide and provided with a pin 46, extending outwardly therefrom, which latter is adapted to move in the slot 44.

47 designates a spring suitably secured at 48, so as to engage the pin 46 and to normally keep the match-holder 45 in its lowermost position.

49 designates an arm or clamp extending laterally from the plate 45 and adapted to overhang one end of the groove 6, and thus engage the match during the operation.

50 designates a buffer-spring which, preferably curved, is secured to the bottom plate 4 and with which the bottom of the carriage 8 is adapted to engage in its downward movement, said carriage being hollowed or recessed at the point of contact, if so desired.

The operation is as follows: The match-receptacle 9 is first filled (or partially filled) with matches 51 and the cover 10 then secured in position. The handle 30 is now operated, whereby the arm 27 is raised and, owing to its engagement with the pin 25, the carriage 8 is elevated to its highest position, as seen in Fig. 4. As the receptacle is raised the clamp 49, though depending from the spring 47, is relieved of pressure of the latter and is held freely above the groove 6 of the match-support plate 5, said groove now being below the bottom of said receptacle, and as the handle 30 is allowed to return to its normal position the carriage 8 will be lowered, owing to the tension of the spring 41 and also the weight of the carriage, and a single match will be left in the groove 6 as the match-receptacle moves downwardly. The arm 49, which is held in its lowermost position by means of the spring 47, which lowers with the receptacle, now engages the pin 46, will clamp the match and firmly press against the end of the same opposite the head against the base of said groove. As the carriage 8 further descends the end 34 of the arm 33 will engage the bottom of one of the side walls of the carriage 8 and prevent the further descent of the latter, while the arm 27 continues to move, it being understood that the spring 41 engaging the pin 42 in the carriage always tends to move said carriage downwardly. As the han-

dle 30 and hence also the arm 27 approach their normal positions the lug 36 will engage the lug 35 and cause the spring 32 to be bent outwardly, carrying with it the arm 33 and end 34 secured thereto. This will cause the upwardly-extending portion 34 of said arm 33 to be disengaged from the bottom of the carriage 8. This carriage falls, assisted by spring 41 and evidently not retarded by arm 27; but as the match-receptacle and the carriage move downward the head of the match lies in the path of the cone 22, which frictionally engages and ignites the same. The rod 20, on which the cone 22 is mounted, is supported at its lower end, so that the cone 22 will yield slightly outwardly, the rod 20 then being movable in the slot 16 when the head of the match engages with the cone, whereby said head will not be caught on said cone. The slot 15 of the cover 10 rests normally below the groove 6 in the plate 5, so that the single match presented through said slot and lighted will be above the match-receptacle and there will be no danger of the other matches contained therein catching fire. The lighted match may now be conveniently removed, the recesses 7 permitting the fingers to readily grasp said match. The sides of the device are adapted in any suitable manner to receive advertising matter, and the tray 2 may also be used either as a receptacle for such matter or as a place for the burned matches.

I wish to call especial attention to the manner in which the friction-cone is mounted. It will be seen that the rod 20 is rotatably mounted in the lugs 18, so that when one friction-surface has become worn the rod may be turned by means of the knob 21 and a new friction-surface brought into operative position.

It will be apparent that the match is securely held in place during the lighting operation by means of the arm 49, secured to the plate 45, and that the strength of the spring 47, which engages the pin 46 in said plate, may be varied as desired. The upright arm 34 will always stop the downward movement of the carriage 8 at the proper time, owing to the tension of the spring 32, which moves said arm inwardly toward the plate or upright 3, and when this spring 32 is moved outwardly, owing to the engagement of the head 36 with the arm 35, the upright arm 34 will be moved outwardly therewith, and the carriage 8, thus disengaged from said arm, will suddenly fall. It is evident that the force of this downward movement, and therefore the force with which the friction-cone strikes the head of the match, may be varied as desired by varying the strength of the spring 41, which engages the pin 42, secured in the carriage 8. The arm 27 will cause the carriage to be positively raised above the groove 6 in the plate 5. There is no possibility of the matches in the match-receptacle igniting, as the cover

10 protects the same and the slot 15 in said cover is only slightly wider than a single match.

5 A match box and lighter manufactured according to my novel construction may be very cheaply made and is very accurate in its action. In the devices of this character now on the market there has been considerable difficulty, owing to the fact that they easily get
10 out of order. In my novel construction this difficulty is entirely obviated, and as the spring 41 moves the carriage downwardly the friction-cone will always engage the head of the match and cause the same to be lighted.
15 The buffer-spring 50 serves to prevent the carriage from striking the bottom plate and also lessens the shock of the downward movement of the carriage, as well as deadening the sound which is usually to be found in
20 match-boxes of this character. The light caused by the match, which when lighted is above the surface of the box, will attract the attention of people near the device to the advertising matter displayed thereon.

25 It is evident that the carriage and match-receptacle may be made integral, if so desired, and while I have shown herein the preferred embodiment of my invention it will be evident that various changes may be made
30 by those skilled in the art which will come within the scope of my invention, and I do not, therefore, desire to be limited in every instance to the exact construction herein shown and described.

35 Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

40 1. In a match box and lighter, a movable receiver, the top of which is open, a stationary match-support, whose top is normally at the top of said receiver, a movable clamp adapted to overhang one end of said match-support and a resilient device on said receiver from which said clamp depends.

45 2. In a match-lighter, a receiver, a match-support normally above the receiver, means for raising the receiver, a clamp adapted to secure a match upon the support on the downward movement of the receiver, and means
50 movable with the receiver for igniting the match.

3. In a match-lighter, a match-support, a receiver surrounding the support and movable past the same, an igniter secured to the receiver and means for continuously raising
55 said receiver and igniter and interruptedly lowering the same.

4. In a match-lighter, a match-support, a receiver, an igniter movable past the support, means for raising the igniter, and means for
60 interrupting the downward movement of the same.

5. In a match-lighter, a match-support, an igniter, an arm adapted to raise said igniter, a stop adapted to prevent the igniter from
65 following the arm during a portion of the downward movement of the latter and means on said arm for releasing the stop.

6. In a match-lighter, a match-support, an igniter movable past the support, a carriage
70 for said igniter, a laterally-movable stop for said carriage, an arm engaging with said carriage to raise the same and to permit the lowering of the carriage and means on the arm
75 for disengaging said stop.

7. In a match-lighter, a movable match-receiver a match-support, an igniter connected with said receiver and movable with
80 respect to the support and means for turning the igniter, the mounting of said igniter being resilient, whereby said igniter yields automatically laterally when engaged by the
85 head of a match.

8. In a match-lighter, a match-receiver, a match support and igniter connected with
85 said receiver, and movable with reference to said support, a handled rod connected with said igniter, whereby it may be rotated, the top of said receiver having a slot, the same
90 freely receiving a portion of said rod, the latter being resilient, whereby said portion is laterally movable in said slot.

9. In a match-lighter, a match-support, a carriage movable along said support, an igniter attached to said carriage, a stop for said
95 carriage, means for releasing said stop and resilient means for increasing the speed of the carriage when released.

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Witnesses:

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