W. F. HUDSON.

AUTOMATIC FIRE KINDLER.

APPLICATION FILED FEB. 25, 1918.

1,298,214.

Patented Mar. 25, 1919.

3 SHEETS—SHEET 1.

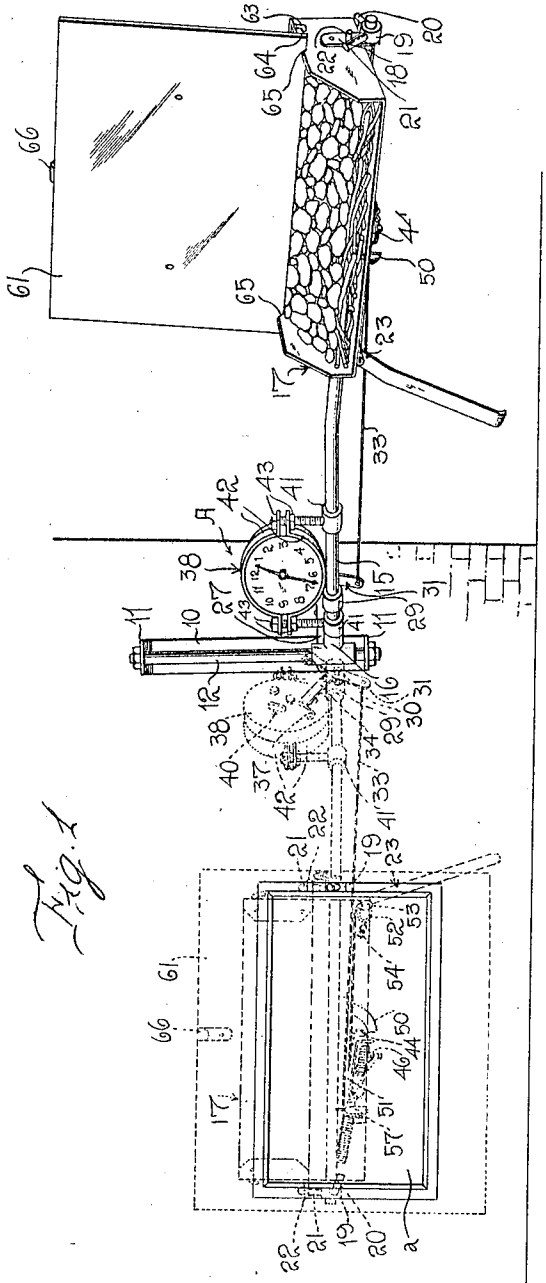

Fig. 1.

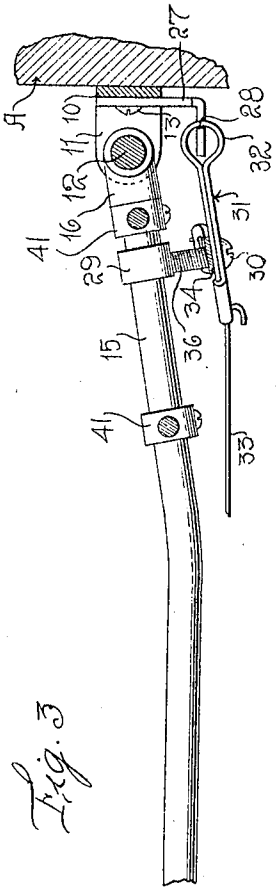

Fig. 3.

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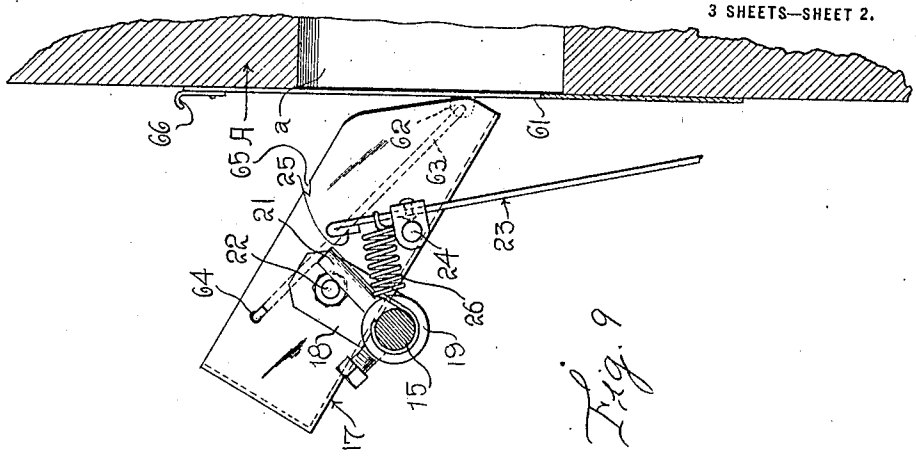
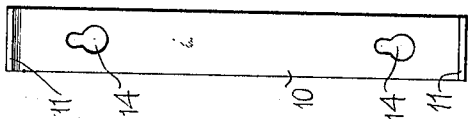


Fig. 9

Fig. 4



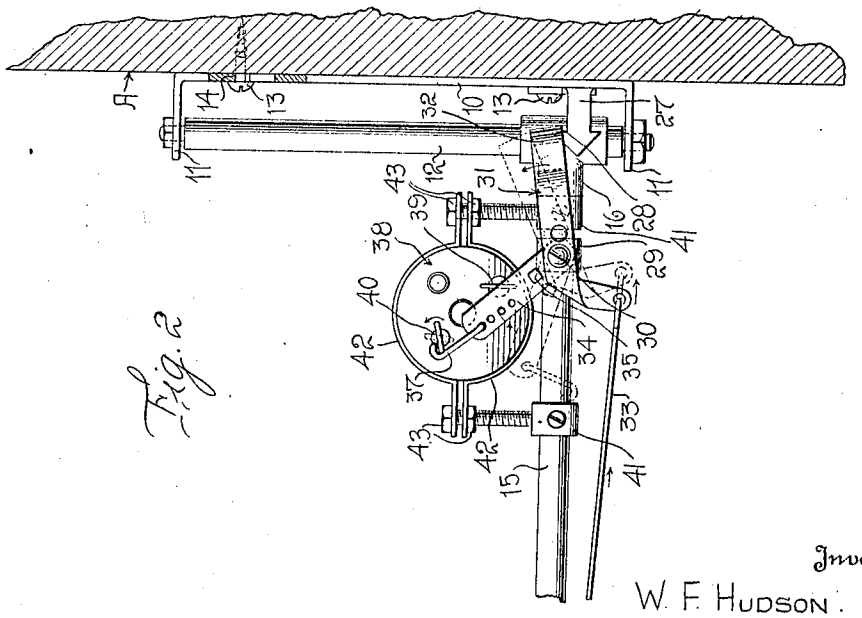


Fig. 2

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3 SHEETS—SHEET 3.

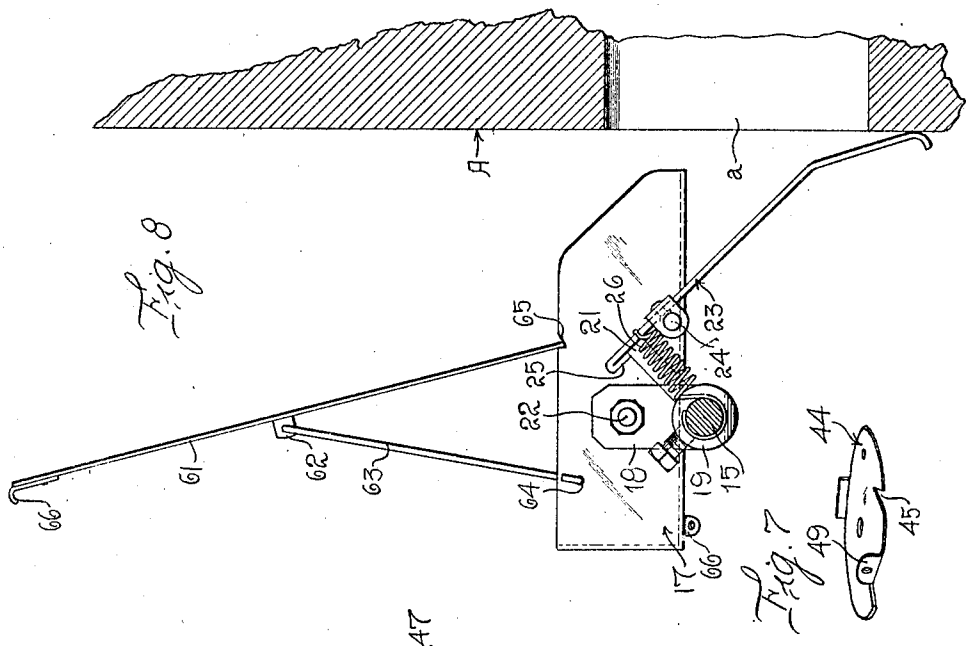

Fig. 8

Fig. 7

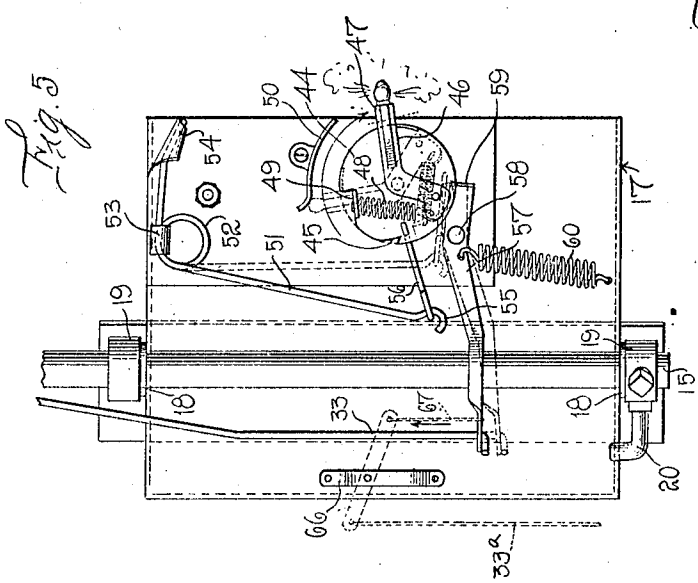

Fig. 5

Fig. 6

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UNITED STATES PATENT OFFICE.

WILLIAM F. HUDSON, OF ROCKINGHAM, NORTH CAROLINA, ASSIGNOR OF ONE-HALF TO BENJAMIN J. BOSTICK, OF ROCKINGHAM, NORTH CAROLINA.

AUTOMATIC FIRE-KINDLER.

1,298,214. Specification of Letters Patent. **Patented Mar. 25, 1919.**

Application filed February 25, 1918. Serial No. 219,104.

To all whom it may concern:

Be it known that I, WILLIAM F. HUDSON, a citizen of the United States, residing at Rockingham, in the county of Richmond and State of North Carolina, have invented certain new and useful Improvements in Automatic Fire-Kindlers, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to devices for kindling fires, and particularly to automatic fire kindlers.

The general object of the invention is to provide means acting at a predetermined time for discharging onto a grate a certain amount of fuel and readily combustible material, and providing means for igniting the combustible material as the fuel is discharged onto the grate.

A further object in this connection is to provide a blower which, as soon as the fuel is discharged into the grate, will slip down in front of the opening of the fireplace, grate or stove so as to cause a draft up through the ignited material and fuel.

A further object is to provide a device of this character including an alarm clock or other time actuated mechanism which at a predetermined time will release the support for the scuttle containing the combustible material so as to permit it to shift toward the fireplace and discharge thereinto and at the same time ignite the match which will set fire to the combustible material.

Still another object is to provide in connection with the fireplace an arm swingingly mounted at one side of the fireplace and normally urged by gravity to a position across the fireplace, to provide a tiltably mounted scuttle on the arm normally held in a horizontal position, and to provide clock operated means for releasing said arm to permit it to swing toward the opening in the fireplace and to provide scuttle releasing means which will engage with the wall of the fireplace and cause the scuttle to tilt and discharge its contents.

Still another object is the provision of a spring actuated match holder and striking plate and the provision of a latch normally holding the match holder from rotation to carry the match against the striking plate and provide means actuated by the aforesaid clock for releasing the match striking means so that the spring is shifted to draw the match across the striking plate.

Another object is to provide a construction as above described with a blower plate mounted upon a bail swingingly mounted upon the scuttle, the blower plate normally being disposed in a vertical position and yieldably retained therein above the scuttle until the scuttle tilts, the blower plate then sliding downward over the upper edges of the scuttle and eventually being disposed in a vertical plane against the fireplace opening.

Other objects will appear in the course of the following description.

My invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a perspective view of my fire kindler in applied position showing in full lines the fire kindler retracted and in dotted lines the kindler disposed in discharging position with the blower closed;

Fig. 2 is an enlarged sectional view of the wall of the fireplace showing in elevation the adjacent portion of the fire kindler;

Fig. 3 is a top plan view of the construction illustrated in Fig. 2, the pintle 12 being in section and the clock mechanism being removed;

Fig. 4 is a front elevation of the bracket 10;

Fig. 5 is a plan view looking at the underside of the scuttle showing the match striking mechanism;

Fig. 6 is a transverse sectional view through the match holder and a match carried therein;

Fig. 7 is a perspective view of the disk 44;

Fig. 8 is a side elevation of the scuttle just before it discharges, the arm 15 being in section; and

Fig. 9 is a like view to Fig. 8 but showing

the scuttle turned to discharge its contents and the blower slipped into place over the fireplace opening.

Referring to these drawings, A designates the wall of a fireplace, *a* being the fireplace opening. I wish it understood that while I have illustrated this as applied to a fireplace having an ordinary fireplace opening, that I do not wish to limit myself to this, as it may be applied to stoves, furnaces, or in other like heating appliances and I further wish it understood that by the term fireplace I refer to any construction having an opening through which fuel may be discharged.

Disposed at one side of the fireplace opening is the supporting bracket 10 formed of a strip of metal, the upper and lower ends of which are outwardly bent as at 11 and disposed in these ears thus formed is the pintle 12, as it may be termed. The wall of the fireplace is provided with outwardly projecting studs 13 and the bracket 10 is formed with key-hole slots 14, the contracted ends of which are disposed upward. Thus the kindler may be readily attached to or detached from the wall of the fireplace. Preferably, and for a reason which will hereafter appear, the bracket 10 is not exactly vertical, but the bracket is inclined somewhat so that its upper end is nearer the fireplace opening *a* than its lower end.

Mounted upon the pintle 12 and rotatable therewith is an arm 15, which is illustrated as made of a metal pipe connected to the pintle by means of an elbow 16. This pipe is angularly bent for a portion of its length. Rotatably mounted upon the arm 15 is a scuttle 17, this scuttle being provided with downwardly projecting ears 18 extending below the bottom of the scuttle, these ears being perforated for the passage of the arm 15. Collars 19 are disposed upon the arm just outward of the ears 18, these collars being held to the ears by set screws or in any other suitable manner. One of the collars is provided with an angularly projecting pin 20 constituting a stop limiting the tilting movement of the scuttle in one direction. Both of these collars are provided with radially projecting pins 21, each of the ears 18 being provided with outwardly projecting pins 22, coacting with the arms and limiting the rotation of the scuttle in a direction to discharge the contents of the scuttle. The scuttle is held in a horizontal position by means of a latch 23, which comprises a relatively elongated strip of metal pivotally mounted upon a pin 24, the upper end of which is downwardly and rearwardly curved as at 25 to form a detent which engages with the extremity of the adjacent pin 21, the opposite end of this latch 23 extending downward and forward to a position beyond and below the forward or delivery end of the scuttle. A spring 26 engages at one end with the arm 15 and at its other end engages with the upper end of the latch 23 so as to urge the detent end of the latch toward the pin 21 with which the detent end engages as illustrated in Fig. 8. When the latch is engaged with the pin 21 as illustrated in Fig. 8, the scuttle cannot tilt downward to discharge its contents and inasmuch as the weight of the fuel is disposed over the forward portion of the scuttle, consequently upon the scuttle being unbalanced, the scuttle will not tilt rearward. When the lower end of the latch 23 is forced outward, the upper end releases its engagement with the spring 21 and, under these circumstances, the scuttle will tilt to its discharging position as illustrated in Fig. 9, and discharge the contents of the scuttle.

For the purpose of holding the arm 15 in a position approximately at right angles to the face of the fireplace A, I mount upon the bracket 10, the detent 27, this detent being in the form of a strip of metal bolted, riveted, or otherwise attached to the bracket, extending out at right angles thereto and bent outward at its end, this outwardly bent end being formed with a notch 28. Mounted upon the arm 15 is a collar 29 having an outwardly projecting pin 30, and pivotally mounted upon this pin is an arm 31, which is angular in form and at its rear end is formed with a loop 32 adapted to engage with the notch 28 of the detent 27. This arm constitutes a latch. The forward, downwardly extending, angular end of the arm 31 is connected by a link 33 to match striking mechanism which will be later described. Also pivotally mounted upon the pin 30 is an arm 34 carrying a pin 35 which, when this arm 34 is rotated in a counterclockwise direction, strikes the arm 31 so as to rotate the arm 31 with the arm 34. A spring 36 which is coiled around the pin 31 acts to urge the arm 34 in a counter-clockwise direction. The extremity of the arm 34 is provided with a plurality of perforations and engaging in any of these perforations is a hook 37. Mounted upon the arm 15, to swing therewith, is a time controlled motor in the form of an alarm clock, designated 38, this clock having the usual winding keys 39 and 40, the key 40 being the alarm winding key. When the alarm goes off this key 40 will rotate and it is designed that the hook 37 shall engage with this key 40 so that when this key 40 rotates under the action of the alarm mechanism, it will release the hook 37, thus permitting the controlling arm 34 to shift in a counter-clockwise direction, and thus raise the loop 32 on the arm 31 out of its engagement with the detent 28. The arm 15 will then

swing from a position at right angles with the face of the fireplace A into a position parallel thereto with the scuttle in a position to discharge into the fireplace opening.

While I do not wish to limit myself to any particular means for mounting the alarm clock 38 upon the arm 13, I have illustrated for this purpose the arm as provided with collars 41 having screw-threaded pins projecting from them and I have shown two semi-circular clamps 42 having angularly bent extremities through which these pins pass. Nuts 43 bear against these angular extremities and force the clamps into clamping engagement with the alarm clock. While I have described an alarm clock as being used, it will be obvious that special time controlled mechanism may be used in place of the alarm clock.

For the purpose of igniting the fuel, I mount upon the underside of the scuttle, adjacent its discharge end, a rotatable disk 44 having a notch 45 at one point in its circumference. Pivotally mounted upon this plate is a Z-shaped match holder 46 one extremity of which is formed to provide a match clamp 47, the other extremity having an ear with which engages one end of a contractile spring 48, the other end of this spring being engaged with a lug 49 struck up from the disk 44. Coacting with the match which is supported in the clamp 47 is a curved flange or striking plate 50, which is disposed concentrically to the axis of rotation of the disk 44, the match supported in the clamp being frictionally engaged with this plate as the disk 44 rotates.

For the purpose of rotating the disk 44 I provide a spring arm 51 having a coil 52 engaged with a lug 53, one end of this spring 51 being held by a socket 54, the free end of the spring 51 being hooked, as at 55 and engaged with this hook is a link 56 which extends downward between the disk 44 and the bottom of the scuttle and is pivotally connected to the disk 44. The spring arm 51, therefore, tends to rotate the disk 44 in a clockwise direction. For the purpose of preventing the rotation of this disk 44, I provide a latch 57 pivoted at 58 having a detent lug 59 engageable in the notch 45 and being urged into this engagement by a spring 60. To the extremity of the latch lever 57 is attached a link 33 previously referred to.

Now when the alarm mechanism of the clock is released, the arm 34 is released as previously described and the spring rotates the arms 34 and 31 in a counter-clockwise direction drawing upon the link 33 and this shifts the latch lever 57 to a position to release the disk 44. The disk 44 therefore rotates carrying with it the arm 46 and the match is drawn across the flange or striking plate 50 and the ignited match is projected beyond the forward edge of the scuttle so as to ignite the combustible material which may be disposed upon the scuttle. This combustible material may be oil soaked, waste, excelsior, light wood, or any other material which will readily ignite upon the application of the match thereto.

After the fuel has been discharged into the opening *a*, it is of course desirable to provide some means for closing this opening so that air may pass upward through the ignited fuel through suitable draft openings, and to this end I have provided a blower plate 61 being a flat plate of sheet iron having a size slightly greater than that of the fireplace opening and having lugs 62 projecting from its outer face. A U-shaped link 63 has its cross bar pass through the perforations in these lugs 62 and the legs of this link are pivotally mounted upon the sides of the scuttle as at 64. The legs of this link are long enough to permit the plate to be disposed in a vertical position between the wall of the fireplace and the discharge end of the scuttle. The upper edges of the side walls of the scuttle are notched as at 65 to engage and form seats for the lower edge of the plate 61, these notches having their lower edges extending at a slight angle to the upper edges of the side walls of the scuttle. When the scuttle is filled with fuel, the plate 61 is disposed in a vertical position with its lower edge resting on the seats 65 and will be sustained in this position until the scuttle has been tilted by the release of the latch 23. When the scuttle tilts, however, the lower edge of the plate 61 will slide off of the seat 65 and the weight of the plate 61 will cause it to move forward and downward until it is slipped between the discharge end of the scuttle and the fireplace, as illustrated in Fig. 9.

The operation of this mechanism will be understood from what has gone before. Normally the arm 15 is shifted to a position approximately at right angles to the face of the fireplace, the latching loop 32 being engaged with the latch 28. The disk 44 is in the position shown in dotted lines in Fig. 5, with the latch lug 59 engaged in the lug 45 and with a match disposed in the extremity of the arm 46. The scuttle is filled and in a horizontal position and is held in this horizontal position by the latch 23. The blower plate 61 is in a substantially vertical position resting upon the seats 65. The alarm is set and at the proper time the alarm mechanism of the clock operates to rotate the winding key 40 which releases the arm 34. This arm 34 moves in a counter-clockwise direction under the action of the spring 36 and in doing so rotates the arm 31 in a counter-clockwise direction, thus releasing

the loop 32 from the latch 28 and at the same time releasing the latch 57 from its engagement with the disk 44. The match is carried across the striker 50, ignites the material in the scuttle, and under the weight of the scuttle, the arm 15 swings into a position parallel to the face of the fireplace until such time as the lower end of the latch 23 strikes the wall of the fireplace, when the detent 25 is released and the scuttle tilts under the action of the weight of fuel and under the action of the spring 26, thus discharging the contents of the scuttle into the opening of the fireplace. The tilting of the scuttle releases the blower plate 61, which slides forward and downward and closes the opening of the fireplace after the fuel has been discharged thereinto. The plate 61 is preferably provided at its upper end with a handle 66 whereby it may be readily lifted, if desired, without the necessity of shifting the arm 15 away. The device may be readily attached to or detached from the fireplace by engaging the bracket 10 with the studs 13 or disengaging it therefrom. This kindling and fuel supplying device is very simple and effective in action, and it is obvious that it may be set to discharge fuel to ignite the fire at any predetermined time. If the clock is an alarm clock, as has been described, the alarm bell will sound the same time that the fire is kindled. It is obvious, of course, that there is no necessity of using the match striking mechanism, but that my mechanism may be used for discharging fuel into an already lighted fire at a predetermined time and applying the blower thereto, or the blower may be so set as not to drop when the fuel is discharged. If it be desired to remove the blower this may be readily done by shifting the arms of the yoke or link 63 out of engagement with the openings 64.

While I have illustrated certain features which I believe to be thoroughly effective, it is obvious that I do not wish to be limited to this, as many modifications might be made within the scope of the appended claims, without departing from the principle of my invention.

As illustrated in Fig. 5, I may provide on the bottom of the scuttle 17, a lever 66 which is normally in the position illustrated in full lines in Fig. 5, this lever being slightly bow-shaped in form, the purpose of this lever being to permit the operation of the match striking device and the scuttle release when the arm 15 is pivotally mounted at the left of the fireplace instead of on the right, as illustrated in Fig. 1. In this case the lever 66 is to be connected by a rod 33^a to the clock actuated releasing mechanism and a link 67 is to be used between the opposite end of the lever 66 and the arm 57 as illustrated in dotted lines in Fig. 5. Thus I provide a fire kindling device which can be disposed on one side or the other of the fireplace, as may be most convenient.

Having described my invention, what I claim is:—

1. A fire kindler including a bracket, an arm swingingly mounted on the bracket for movement in a horizontal plane, a scuttle rotatably carried by the arm for movement in a vertical plane and urged to an inclined discharging position, means for releasing the arm from a predetermined position allowing the arm to swing to a discharging position, and automatic means for releasing the scuttle and allowing it to tip to a discharging position when the arm has swung to a predetermined position.

2. A fire kindler including a bracket, an arm swingingly mounted upon the bracket for movement in a horizontal plane, a scuttle tiltably mounted upon the arm for movement in a vertical plane and urged to an inclined discharging position, a shiftable match holder mounted on the scuttle and coacting with a striking plate, means for releasing the arm from a predetermined position and allowing it to swing to a predetermined discharging position, means then acting to release the scuttle to permit it to tip to discharge its contents, and means acting upon a swinging of the arm to cause the shifting of the match holder to thereby ignite the match.

3. A fire kindler including a bracket, an arm swingingly mounted upon the bracket for movement in a horizontal plane, a scuttle rotatably carried on the arm for movement in a vertical plane and urged to an inclined discharging position, means holding the scuttle from discharging movement, means holding the arm from swinging to its discharging position, means for releasing the holding means for the arm, and automatically actuated means for releasing the holding means from the scuttle when the arm and scuttle have arrived at a predetermined position.

4. A fire kindler including a tiltable scuttle, means normally holding the scuttle in a horizontal position in front of a fireplace, a blower plate mounted upon the scuttle and normally supported above the scuttle when the latter is in a horizontal position, means for releasing the scuttle and permitting it to tilt to a discharge position, said blower plate being thereby released and shifting to a vertical position in front of the scuttle.

5. A fire kindler including a scuttle mounted upon a fireplace and having tiltable movement in a vertical plane, a U-shaped yoke having its arm swingingly engaged with the sides of the scuttle, a blower plate pivotally mounted upon said yoke, the sides of the scuttle being provided with

seats in which the lower edge of the plate normally rests, the blower plate sliding off the sides of the scuttle and moving to a vertical position when the scuttle is tipped.

6. A fire kindler including a scuttle movable to a position to discharge its contents into a fireplace, and a match striking device mounted upon the scuttle, normally held in an inoperative position, but automatically released when the scuttle is moved into a discharging position.

7. A fire kindler including a scuttle movable into a discharging position, means constantly urging the scuttle into said position, means holding the scuttle from movement into a discharging position under the action of said urging means, and means for releasing said holding means.

8. A fire kindler including a scuttle movable in a horizontal plane from a predetermined position into a discharging position and urged into said discharging position, said scuttle being mounted for tipping movement in a vertical plane to discharge the contents of the scuttle and being urged into an inclined discharging position, means for releasing the scuttle to permit it to shift to its discharging position, and automatically actuated means for releasing the scuttle to permit it to rotate in a vertical plane to its inclined discharging position.

9. A fire kindler including a bracket, an arm swingingly mounted on the bracket for movement in a horizontal plane, a scuttle rotatably mounted on the free end of the arm for movement in a vertical plane and urged to a downwardly inclined discharging position, a releasable latch normally holding the arm in a predetermined inoperative position, and a latch mounted on the scuttle and engageable with the arm to hold the scuttle in a horizontal position, said latch projecting beyond the scuttle.

10. In a fire kindler, a supporting bracket, an arm mounted at one end of the bracket for movement in a horizontal plane toward and from a fireplace, a scuttle rotatably mounted upon the arm for movement in a vertical plane, a latch pivoted upon the scuttle intermediate its ends, one end of the latch being formed with a detent, a spring urging the detent end of the latch in one direction and the opposite end of the latch into a position beyond the discharge end of the scuttle, and a member mounted upon the arm with which said detent end of the latch engages, said latch when so engaged holding the scuttle in a vertical position, this engagement with the latch permitting the scuttle to rotate to a downwardly inclined discharge position.

11. A fire kindler comprising a bracket, an arm swingingly mounted upon the bracket and urged from an inoperative position to a discharging position, a scuttle carried upon said arm, a detent mounted upon the bracket, a latch pivotally mounted upon the scuttle supporting arm and having one extremity engaging said detent, a spring urging said latch to a position out of engagement with the detent, and means normally preventing the rotation of the latch under the action of the spring but releasing said latch at a predetermined time to permit the scuttle carrying arm to swing to its operative discharging position.

12. The combination with a fireplace having a fireplace opening, of a scuttle mounted for movement toward or from the fireplace opening and urged toward the fireplace opening, said scuttle being mounted for movement from a horizontal to a tilted discharging position, and a latch normally holding the scuttle in a horizontal position, said latch having one end projected beyond the scuttle and adapted to be engaged by the wall of a fireplace when the scuttle is shifted into a predetermined relation to the fireplace to thereby permit the tilting of the scuttle and the discharge of its contents into the fireplace opening.

13. The combination with a fireplace having an opening, of a scuttle movable toward or from the fireplace, a shiftable match holder mounted upon the scuttle, a striking plate with which the match holder coacts, means urging the match holder to shift across the striking plate, means for holding the match holder from such movement, and means for releasing said holding means upon a movement of the scuttle toward the fireplace opening.

14. The combination with a fireplace having an opening, of a scuttle mounted for movement toward or from the opening, a disk rotatably mounted upon the scuttle, a match holding arm movable with the disk, a striking plate concentric to the disk, a spring urging the disk to rotate in a direction to carry the match holding arm parallel to the striking plate, a detent lever pivoted upon the scuttle and engageable with the disk to hold it in position against the action of said spring, a link extending from the latch lever, and means for releasing the scuttle to permit it to shift toward the fireplace, said means being connected to the link to thereby cause the release of the match striking mechanism at the same time.

15. The combination with a fireplace having a fireplace opening, of studs projecting from the face of the fireplace, a bracket having key-hole slots engaging said studs, a pintle mounted on the bracket, an arm engaging the pintle and swinging from a position at right angles to the fireplace to a position parallel thereto, said arm being urged into the latter position, a scuttle rotatably mounted on the arm for movement in a vertical plane, said scuttle being urged to an inclined

discharging position, a latch normally holding the scuttle in a horizontal position, but released by engagement with the wall of the fireplace when the scuttle approaches it, a match striking mechanism mounted on the scuttle, and means for holding the arm in a position approximately at right angles to the fireplace, and means releasing said holding means to permit the arm to swing to carry the scuttle to a discharging position and being operatively connected to the match striking means to release the latter while the scuttle is moving toward the fireplace.

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

WILLIAM F. HUDSON.

Witnesses:
J. R. McLINDON,
BOB V. HOWELL.