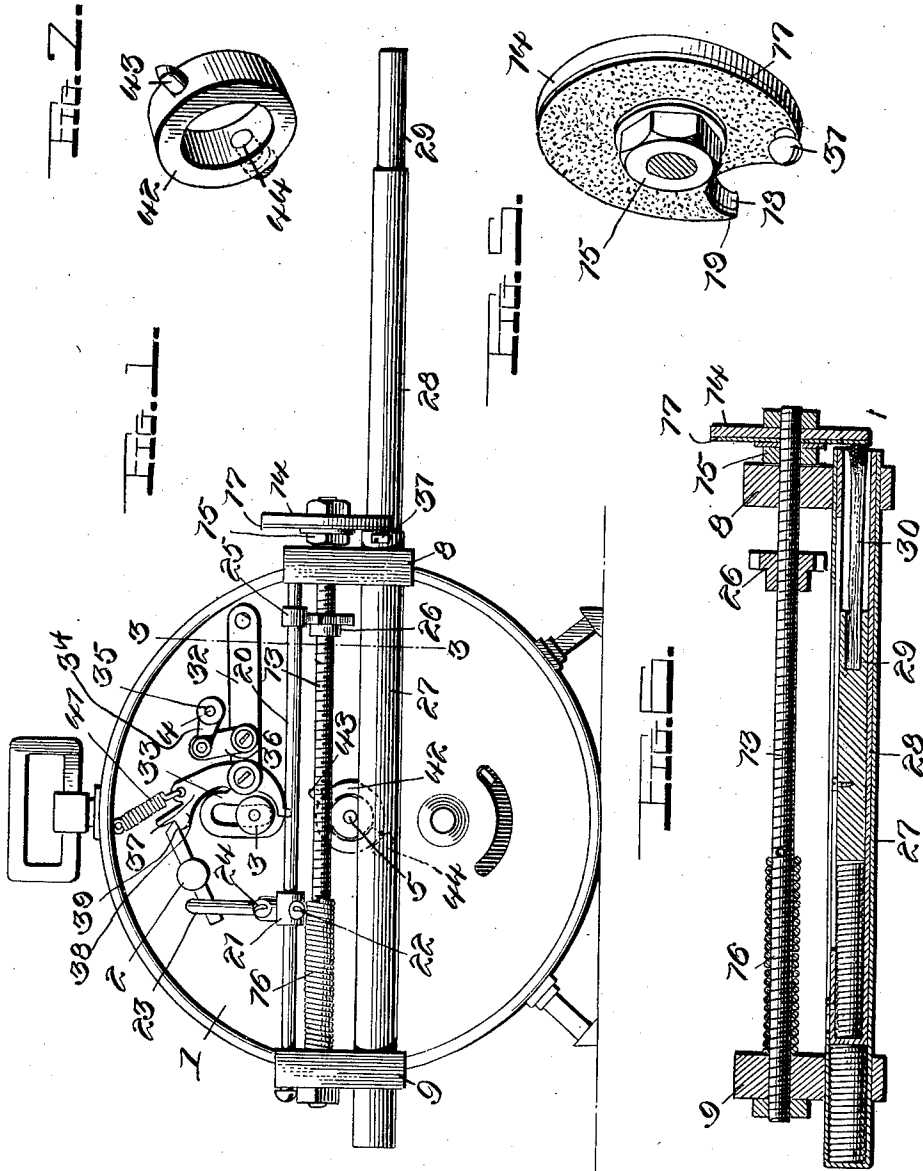


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AUTOMATIC FIRE KINDLER AND ALARM.
APPLICATION FILED MAY 31, 1911.

1,013,930.

Patented Jan. 9, 1912.

2 SHEETS—SHEET 1.



Witnesses

Chas. L. Griesbauer.
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Inventor

R. C. Dayton

By

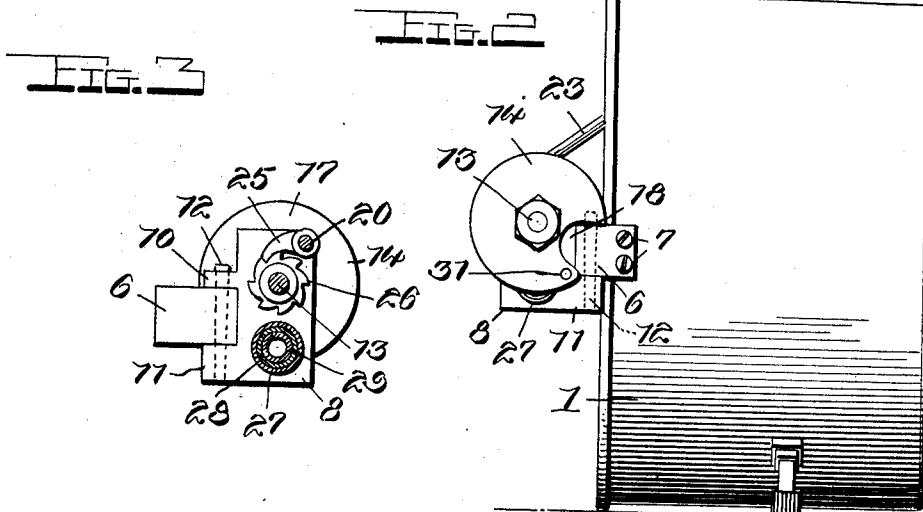
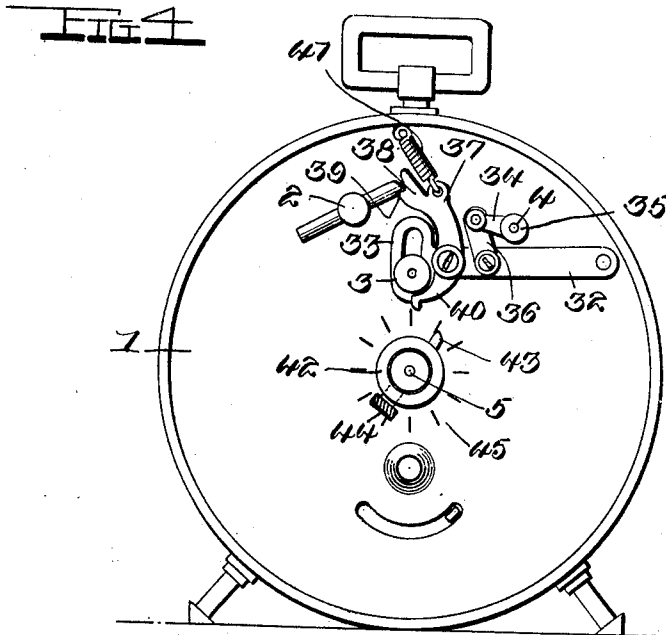
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UNITED STATES PATENT OFFICE.

REUBEN C. DAYTON, OF RHINELANDER, WISCONSIN.

AUTOMATIC FIRE-KINDLER AND ALARM.

1,013,930.

Specification of Letters Patent.

Patented Jan. 9, 1912.

Application filed May 31, 1911. Serial No. 630,471.

To all whom it may concern:

Be it known that I, REUBEN C. DAYTON, a citizen of the United States, residing at Rhinelander, in the county of Oneida and State of Wisconsin, have invented certain new and useful Improvements in Automatic Fire-Kindlers and Alarms, of which the following is a specification, reference being had to the accompanying drawings.

10 My invention relates to new and useful improvements in automatic fire kindlers and more particularly to a device of this character used in connection with an alarm device, and my object is to provide a device which, at a predetermined hour, will ignite a match and project the same into a stove or the like.

15 A further object of the invention resides in providing a device which is adapted to be mounted on the rear face of an alarm clock and the operation of which is entirely contingent upon the operation of the alarm-winding key.

20 A further object of the invention resides in providing a match projecting device comprising a plurality of spring-forced telescoping members, and a still further object resides in providing a spring rotating member co-acting with the match projecting device, said spring rotating member having means thereon for the ignition of a match previous to its projection.

25 A further object of the invention resides in providing means co-acting with said spring rotating member and the alarm winding key of the clock to allow the match to be ignited and projected at the unwinding of the key in sounding the alarm.

30 Still another object resides in providing means to stop the unwinding of said key and correspondingly quiet the alarm at a predetermined time, which means is adapted to be effective for a predetermined length of time, thereby announcing the ignition and projection of the match and also announcing the time when said match will have ignited the fire to a degree of efficiency.

35 A still further object is to provide a device of this character which is simple in construction, one which may be cheaply manufactured and applied to any alarm clock now in use and one which is effective and useful in operation.

40 With these and other objects in view, my invention consists in the novel features of construction, combination and arrangement of parts as will be hereinafter referred to

and more particularly pointed out in the specification and claims.

In the accompanying drawings forming a part of this application, Figure 1 is a rear elevation of the clock showing my improved device applied thereto. Fig. 2 is a side elevation thereof showing the device in position to be effectively operated. Fig. 3 is a section as seen on line 3—3, Fig. 1. Fig. 4 is a rear elevation of the clock showing parts of my attachment removed. Fig. 5 is a detail perspective of the disk carrying the friction surface removed from its position on the spring-held shaft, and, Fig. 6 is a vertical longitudinal section through the match-projecting and igniting device. Fig. 7 is a detail perspective view of the ring member which is adapted to be applied to the minute hand shaft.

75 In carrying out my invention, I shall refer to the drawings in which similar reference characters designate corresponding parts throughout the several views and in which 1 indicates an alarm clock of the usual or any preferred type having the alarm-winding key 2, the alarm-setting key 3, the alarm-controlling key 4 and the key 5 of the minute hand shaft mounted, as usual, on the rear face thereof. Secured to the rear edge of the outer periphery of the clock at diametrically opposite points thereon, are the securing posts 6 which are removably held thereto by means of the set screws or the like 7. The posts 6 are provided with the vertical openings which extend completely therethrough, and an additional pair of frame posts 8 and 9 are each provided with the upper and lower laterally extending arms 10 and 11, respectively, said arms being provided with alining openings, and these arms are adapted to be positioned over the upper and lower faces of said posts 6 so that the alining openings therein register with the openings in said posts, whereby the pins 12 may be inserted to retain said frame posts to the securing posts.

80 Rotatably mounted between the posts 8 and 9, is a screw shaft 13, the one end of which is extended beyond the post 8, having mounted thereon the substantially circular disk 14, said disk being spaced from the outer face of said last referred to post by means of a nut or the like 15, and encircling said shaft, is a coil spring 16, one end of which is engaged with the post 9 and the other secured in an opening in said shaft 13.

The disk 14 has mounted on the inner face thereof a friction disk 17 of any desired material and both of said disks are provided with alining notches 18 and 19, respectively, the purpose of which will be hereinafter and more particularly described. Also rotatably mounted between said posts 8 and 9, is an additional shaft 20 having a block or the like 21 removably secured thereto by means of the set screw 22, said block carrying a trip lever or the like 23 which is also removably held thereto by means of an additional set screw 24, and a pawl 25, also carried on said shaft 20, is adapted to engage the teeth of a ratchet wheel 26 on the shaft 13 and retain both of said shafts in predetermined positions. A tubular member 27 is also rigidly mounted between the posts 8 and 9 below the shaft 13 and similar tubular members 28 and 29 are telescoped within said member 27, each of the members 27 and 28 being provided with coil springs to normally project the members 28 and 29 therefrom, respectively. These members 27 and 28 are also provided with elongated slots in which are mounted pins carried, respectively, on said members 28 and 29, thereby limiting the outward movement of said members, and the member 29 is also provided with a spring and adapted to receive in the open end thereof, a match 30, whereby when said tubular members are telescoped and allowed to be suddenly released, the match will be projected therefrom.

As just before stated, the disks 14 and 17 are provided with alining notches, which notches are adapted to be so positioned as to receive therethrough, the extended tubular members, and in order to limit the movement of said disks so that said notches will be properly positioned to accomplish this, a set screw or the like 31 is provided, which extends through said disks immediately adjacent one of the side walls of said alining notches. The tubular member 27 extends beyond the post 9 to a point so as to almost contact with the inner face of the friction disk 17, and when said members 28 and 29 are telescoped therewithin, said disks may be rotated, but the extended screw 31 is adapted to contact with the extended end of the member 27 and limit the rotative movement of said disks, the limiting movement in one direction being such as to align the notches of the disks with the telescoping tubular members to allow the same to project there-through.

In practice, after the alarm has been set so that the alarm-winding key 2 is disposed in a substantially vertical position, a match is inserted in the outer end of the tubular member 29 to extend therebeyond and said members 29 and 28 are then telescoped within the member 27. With the telescoping of

the tubular members, the disks 14 and 17 may be rotated slowly by hand until the pin 31 therein contacts with the extended end of the tubular member 27 to limit the movement thereof, whereupon, the pawl 25 may be moved into engagement with one of the teeth of the ratchet wheel 26 of the shaft carrying said disks. Under these conditions, the spring 16 is, of course, under tension so that any movement of the pawl 25 will release the tension of the spring and allow the disks on the end of the shaft 13 to be rotated, and in the position in which the pawl 25 engages the ratchet wheel, as just described, the block 21 is preferably positioned so that the trip lever 23 thereof is disposed against the rear face of the clock on one side of the alarm-winding key, that side being the one to which the key turns when the same is being unwound. The clock, of course, has been properly set previous said arranging of the igniting device, so that when the alarm goes off and the key 2 turns in the direction opposite to the winding thereof, the same will raise the lever 23 which turns the shaft 20 upon which it is mounted, and correspondingly lifts the pawl carried by said shaft from its effective position in engagement with the ratchet wheel. With the release of the pawl, the tension of the spring will immediately rotate the shaft 13 and correspondingly the disks 14 and 17 thereon until the pin 31 contacts with the extended end of the tubular member 27 to limit the movement of said disks, which limitation will position the notches of said disks in alinement with said tubular member 27, whereupon the telescoped sections may be projected through the medium of the springs. As stated, however, a match is inserted in the tubular member 29 and the head thereof which projects considerably beyond the outer end of said member 29 normally contacts with the inner face of the friction disks 17 so that the quick and sudden rotation of said disks will ignite said match and as the tubular sections are forced outwardly, the match will be projected in an ignited condition. Thus, it will be seen that the clock may be set in any position adjacent a stove, range or furnace, so that at a predetermined time, a match will be ignited and projected into the draft or other opening for the purpose, to ignite the prepared fuel therein and thus eliminate the necessity of the fireman arising extraordinarily early for that purpose.

It will be understood from the foregoing, that the igniting and projecting of the match is entirely contingent upon the alarm, and in view of the fact that it is not necessary for the fireman to arise upon the operation of this device, it is extremely advantageous to provide some form of means for quieting the alarm, and to this extent, I

provide a lever 32, one end of which is pivoted to the rear face of the clock adjacent the outer periphery thereof and the opposite end thereof has a head 33 thereon which is slotted to receive therethrough, the shaft carrying the alarm-setting key 3. An arm 34 carried on the bell hammer shaft 35, has the free end thereof connected to the lever 32 about centrally by means of the pivoted link 36 and also pivotally mounted on said lever 32 adjacent its free end, is an irregularly designed arm 37. This arm 37 is pivoted about centrally to the lever 32 and the upper extension 38 thereon is provided with a shoulder or the like 39, while the lower end thereof has a projection 40 thereon and engaging said arm 37, is one end of a coil spring 41, the opposite end of which is engaged with the rear face of said clock and normally positions the lever in its upward position. In such a position, the alarm is adapted to be sounded at the predetermined time and the notch 39 in the arm 37 is disposed in the path of the alarm-winding key 2 so that when the same is being turned or unwound through the sounding of the alarm, the same is adapted to contact with said shoulder 39 and force the lever 32, which carries the arm 37, to its lowermost position, which quiets the alarm.

Adjustably mounted on the minute hand shaft 5, is a ring or the like 42 which has a projection 43 thereon, and as the minute hand shaft is revolved, this projection 43 is adapted to engage the extension 40 on the arm 37 and swing said arm on its pivot to release the shoulder 39 thereof from engagement with the alarm-winding key, thereby allowing said key to complete its rotation, the release of the arm with said key also allowing said lever 32 to be returned to its normal position through the medium of the spring 41, so that the alarm may again be sounded. As stated, this ring 42 is adjustably mounted on the minute hand shaft by means of the set screw or the like 44, and in order to provide means for the allowance of a predetermined time to lapse between the quieting of the alarm and the resounding thereof, a smaller dial may be provided on the rear face of the clock may be graduated, as shown at 45. In this manner, the alarm may be set for a predetermined time to cause the ignition and projection of the match and this portion of the device also set for the quieting of the alarm and resounding thereof at a predetermined time.

Through the medium of this device, it will be seen that a fireman may be notified at any set hour, of the ignition and projection of the match to start the fire without his arising, and at the second alarm, he will be notified of a time to arise, at which time, the fire will already have been kindled. Thus, considerable time and labor will be saved

and the numerous advantages which will be gained through the use of this device, are obvious. It will be seen that the clock with this improved attachment thereto, may be positioned by means of a stand or other device, (not shown), adjacent the stove or furnace, and as the securing posts are engaged with the periphery of the clock, the device may be directed to project in any position desired.

It will further be seen that the operation of the device for igniting and projecting the match is entirely contingent on the rotation of the alarm-winding key, and it will further be seen that after said alarm-winding key has been rotated a short distance in one direction, the same will be retained.

Furthermore, it will be seen that the device is of such simple construction as to be readily and cheaply manufactured, one which may be easily applied to any alarm clock now in use and one which is extremely efficient and useful in operation.

What I claim is:—

1. A match igniting and projecting device, comprising the combination with a time controlling mechanism; of a supporting frame removably mounted thereon, telescoping members mounted in said frame, said telescoping members being under spring tension and adapted to carry a match, a spring-rotated shaft carrying a friction surface adapted to engage the head of the match, means to retain the shaft and friction surface thereon in position under tension of the spring, and additional means cooperating with portions of said time controlling mechanism to automatically release the same.

2. A match igniting and projecting device, comprising the combination with a time controlling mechanism; of a spring rotated shaft, supporting means therefor, telescoping members carried by the supporting means, said telescoping members being under spring tension and adapted to receive a match, a friction disk carried on one end of the shaft and in position to engage the head of the match when said members are telescoped, means to retain said shaft and correspondingly the disk in spring-held position, and additional means cooperating with portions of said time controlling mechanism to release the same, whereby the match will be ignited and projected.

3. A device of the character described, comprising the combination with a time controlling mechanism; of a spring rotated shaft, supporting means therefor, a friction disk carried on one end of said shaft and having a notch therein, telescoping members carried by the supporting means, said telescoping members being under spring tension and adapted to receive a match, the head of which is adapted to contact with

the friction face of the disk, an additional shaft rotatably carried by the supporting means, means carried by said additional shaft to retain said other shaft in a position under tension by the spring, a trip lever carried by this last referred to shaft, and means on the time controlling mechanism to trip said lever.

4. In a device of the character described, the combination with a pair of supporting posts, an alarm clock and means to secure said posts thereto; of a shaft rotatably mounted between said supporting posts, a spring encircling the same and having connection with one of said posts and said shaft, a friction disk carried on one end of said shaft provided with a notch therein, a plunger carried by said supporting posts comprising a plurality of telescoping tubular members, said tubular members being under spring tension and adapted to receive a match, means to retain said shaft and disk in a position under tension by the spring, and means to release the same from such position to ignite the match and allow the same to be projected.

5. A device of the character described, comprising the combination with supporting posts, an alarm clock and means to secure said posts thereto; of a spring-rotated shaft carried between said supporting posts, a friction disk carried on one end of said shaft and beyond one of said posts, said disk being provided with a notch therein, a tubular member carried between said posts and having one end thereof extended to a point immediately adjacent said friction disk, additional tubular members adapted to be telescoped within said first referred to tubular member and carrying a match, means to retain said shaft and disk in position under tension by the spring when said tubular members have been telescoped, additional means to release the shaft and disk

from its spring-held position to ignite the match, and means to limit the rotative movement of said disk to allow the match therein to align with said tubular member, whereby said match may be projected.

6. In a device of the character described, the combination with an alarm clock; of a pair of supporting posts adjustably mounted thereon, a spring rotated shaft carried between said supporting posts, a friction disk carried on one end of said shaft and spaced beyond one of said supporting posts, said disk being provided with a notch therein, a tubular member carried by the supporting posts, means to limit the rotative movement of said disk in one direction to align the notch therein with said tubular member, additional tubular members telescoping within said other tubular member and adapted to carry a match, means to retain said shaft and disk in a position under tension by the spring, and a lever co-acting with said last referred to means and adapted for coöperation by means of the alarm-winding key of said clock to release the shaft and disk from the aforesaid position, whereby said match may be ignited and projected.

7. In a device of the class described, the combination with an alarm clock having an alarm winding key projecting therefrom; of means coöperating with said key as the same unwinds for projecting and igniting a match, and additional means coöperating with said key as the same unwinds for temporarily quieting the alarm and for releasing the same at the expiration of a predetermined time.

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

REUBEN C. DAYTON.

Witnesses:

LOUIS F. PETEY,
CHAS. B. PETERSON.