2 Sheets—Sheet 1.

W. B. WATKINS.

TELEGRAPHIC BURGLAR DETECTOR AND POLICE ALARM.

No. 111,408. Patented Jan. 31, 1871.

Fig. 1.

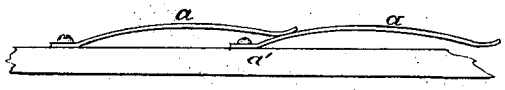


Fig. 2.

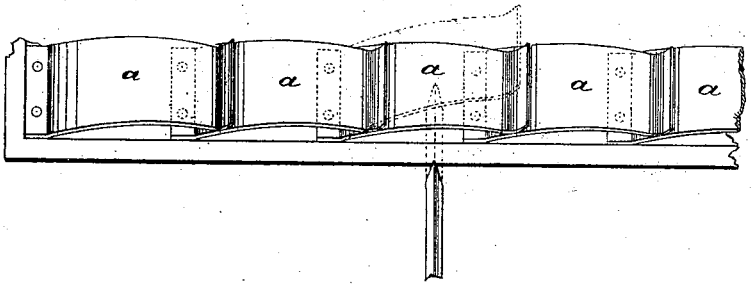


Fig. 3.

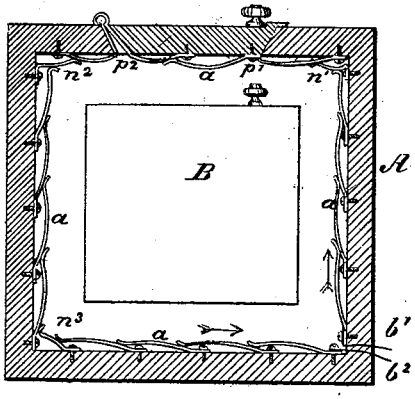


Fig. 4.

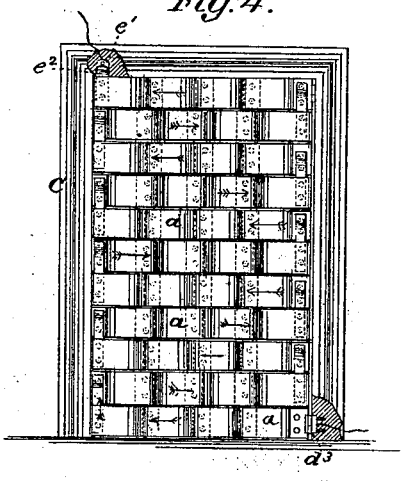
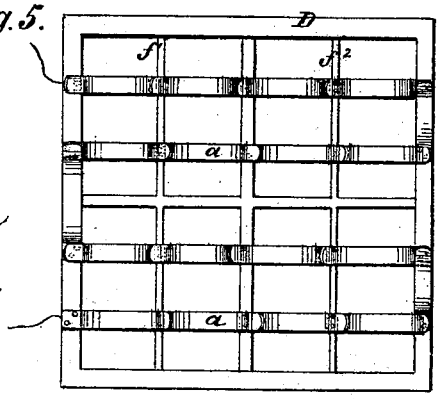


Fig. 5.



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2 Sheets—Sheet 2.

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TELEGRAPHIC BURGLAR DETECTOR AND POLICE ALARM.

No. 111,408. Patented Jan. 31, 1871.

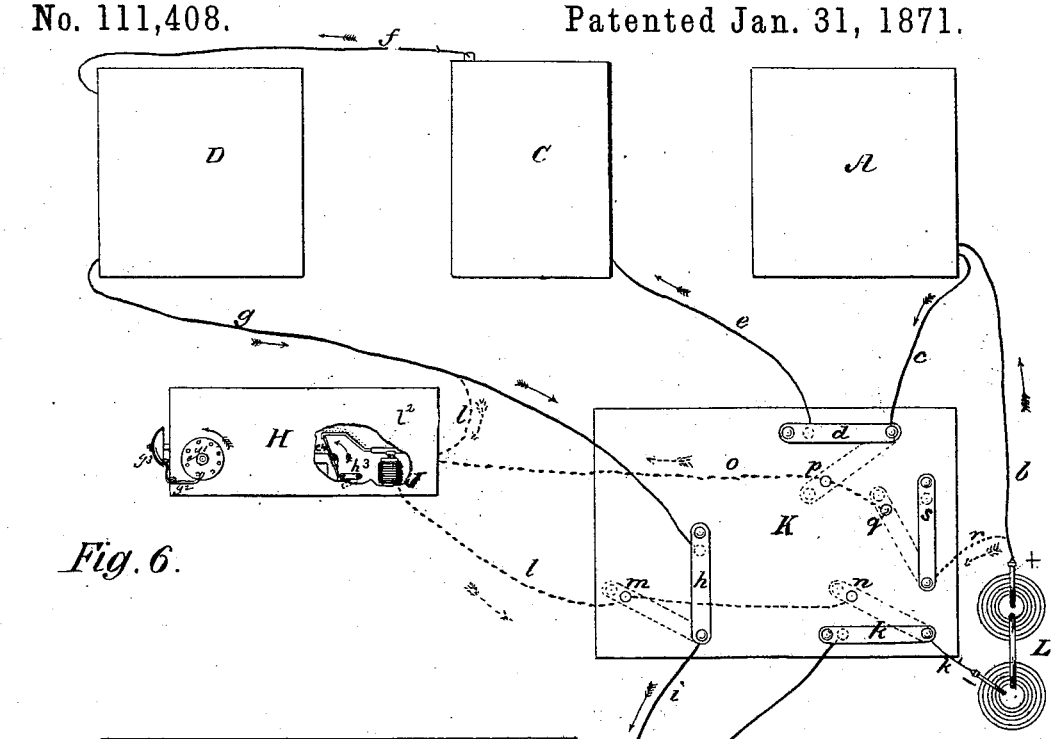
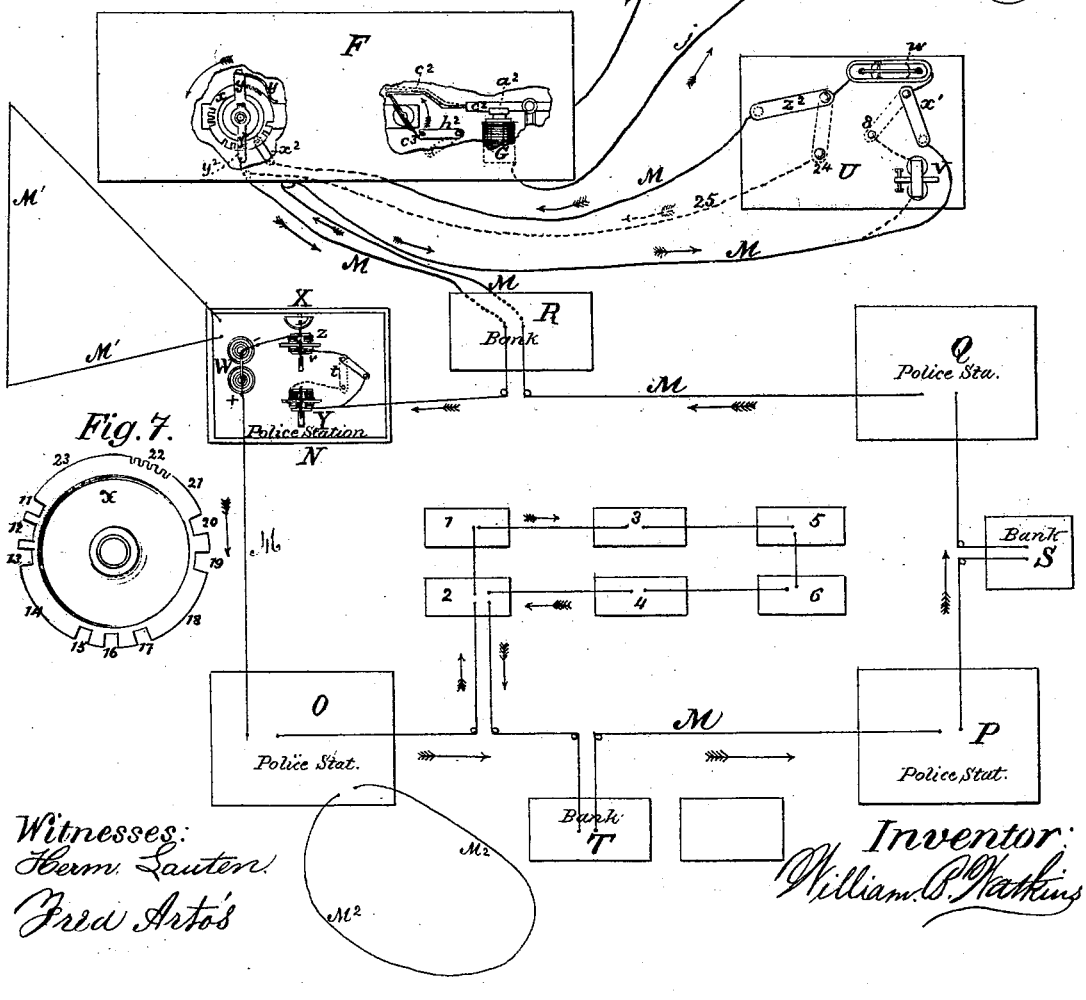


Fig. 6.



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UNITED STATES PATENT OFFICE

WILLIAM B. WATKINS, OF JERSEY CITY, NEW JERSEY.

IMPROVEMENT IN TELEGRAPHIC PROTECTIONS FOR SAFES, VAULTS, AND BUILDINGS.

Specification forming part of Letters Patent No. **111,408**, dated January 31, 1871.

To all whom it may concern:

Be it known that I, WILLIAM B. WATKINS, of Jersey City, county of Hudson and State of New Jersey, have invented certain Improvements in Means of Telegraphic Protection for Buildings, Vaults, and Safes, and in Police-Alarm Systems, of which the following is a specification:

The object of the first part of my invention is to provide a more perfect means for detecting the operations of burglars in buildings than has been heretofore employed; and consists in constructing an outer casing for safes and vaults, and in shielding or lining the inside of such casing, or the inside of the safe or vault itself, and also the inside of doors, shutters, skylights, or other exposed portions of buildings where valuables are kept, with a series of metallic strips or springs, each overlapping the other in such a manner as to form an uninterrupted course, the beginning and ending of the course to be connected with the poles of a battery, and the electric circuit to embrace suitable alarm mechanism, so that when a burglar or other person penetrates or removes any portion of the part so shielded the strips or springs will be separated from each other, the electric circuit will be broken, the alarm sounded, and the operations of the burglar detected.

The object of the second part of my invention is to provide for public use a telegraphic burglar-detective and police-alarm system more perfect than has heretofore been employed; and consists in constructing a main telegraph-line which shall embrace within the circuit police-stations in different parts of a town or city, the line to be provided with suitable battery-power and apparatus for protecting and testing the line, and each police-station to have alarm-bells within the circuit, and telegraphic apparatus for communicating with each other, and with different points. I then propose to connect with the main line banks or other buildings in different parts of a city, which are protected against burglars, and to provide the banks or other buildings with a local circuit, and suitable alarm mechanism within the circuit, which shall so operate that when a burglar attacks the parts protected in either of the buildings the number of the particular street, and the number of the building in the street, or any desired signal, will be immediately sounded or struck at all the police-stations, thus bringing the proper officers to the spot for the capture of the burglar. I further provide the buildings so connected with telegraphic apparatus for communicating with the police-stations when desired.

In the accompanying drawings, Figure 1, Sheet No. 1, represents a convenient form of springs or strips, *a*, fastened to a section of wood, *a'*. Fig. 2 is a perspective view of a section of non-conducting material with several strips, *a*, fastened to it, and shows the effect of a tool when driven into the section. Fig. 3 is a view of a horizontal section of an outer casing, A, with the strips applied to it, and inclosing a safe or vault, B. Fig. 4 is a view of the inside of a door, C, shielded with the strips or springs *a*. Fig. 5 is a view of a skylight, D, showing one way in which the strips *a* may be applied. Fig. 6, Sheet No. 2, is a view of the connections of the casing A, door C, and skylight D with an alarm mechanism, F, for sounding the number of the street and building, a magnet, G, local alarm mechanism H, magnet J, switch-board K, local battery L, and their connections with the line. Fig. 6 also represents a main line, M, connecting with police-stations N O P Q, and with banks R S T and several buildings, 1 2 3 4 5 6, and in the bank R the main-line connections with the alarm mechanism F, switch-board U, and telegraph-instrument V, and in the police-station N the connections with the main line of the battery W, alarm-bell X, and telegraph-instrument Y. Fig. 7 is a view of the break-plate *x*, for opening and closing the main line for sounding the number of the street and building.

In carrying out the first part of my invention, I do not confine myself to any particular shape or size of spring, nor to any particular arrangement of the order of the series.

The springs may be made of thin sheet-brass, or other metal or conductor of electricity, and each spring should be secured to the part to be protected, so as not to turn or slide edgewise on the spring which it overlaps. They should be fastened in such manner as to press against each other, so as to insure the free passage of the electric current through each strip, and the whole should be so ar-

ranged that each row of the series shall be separate from the row adjoining, so that the electric current may be completed through each spring in the series. They should be made sufficiently thin and pliable, so that if a tool should be driven through the part shielded and then withdrawn, the strip with which the tool comes in contact would remain separated from the one which follows, as shown by the dotted lines, Fig. 2.

To insure the most perfect protection the order of the series or rows should be so close to each other that the finest drills or tools used by burglars in penetrating between any two rows would come in contact with the edges of the springs or strips, and press them back from the springs with which they connect.

The manner in which the strips may be fastened to the parts and connected with each other will be readily understood by reference to Figs. 1, 2, 3, 4, and 5, Sheet No. 1. The points b^1 and b^2 in Fig. 3 show where the local line connects with the springs on the inside of the casing A. They follow and connect with each other in any convenient order on all sides, and on the top and bottom of the casing, connecting at the corners, as shown at n^1 n^2 n^3, connecting with the door, as shown at p^1, the circuit passing through the metallic hinge p^2, with which the springs connect on each side.

The local line connects with the door C, Fig. 4, through the hinge d^3, with the spring a, and the current will pass, in the direction of the arrows, through each spring of the series, forward and backward across the door, the connection being completed from the door to the local line by the strips e^1 e^2.

Burglars frequently enter buildings through skylights. I propose to shield these places in the same manner; but for this purpose I use longer and narrower springs or strips, fastened to light bars or supports f^1 f^2, Fig. 5. At Fig. 5 the fastenings and connections of the strips, and with the local line, are plainly seen.

In the manner in which the door C, Fig. 4, is lined, the whole floor or interior of a room may be covered or lined, so as to present a shield which could not be penetrated without giving an alarm; nor could any portion of a door or casing, or other part so shielded, be split apart or cut out without separating some one strip or spring from another, thus breaking the local circuit and causing the desired alarm.

Another advantage in the use of the strips or springs is, the facility with which all parts of the circuit may be tested when the connections have been disturbed.

Any suitable covering may be used to prevent accidental separation of the springs and to shield them from the dust.

In Fig. 6, Sheet No. 2, the bank-building R is shown as connected with the main line M, and also as having the local-line connections. From one pole of the local battery L the wire b runs and connects with the casing A of the safe or vault, the electric current passing through the strips or springs upon the inside, as described, and leaving by the wire c in the direction of the arrows, passes through the switch d, and through the wire e to the door C, where it connects with and passes through the strips or springs, as described, and thence by the wire f to the skylight D, through the springs attached to the same, as seen at Fig. 5; then through the wire g to and through the switch h; thence by the wire i to and through the coils of the magnet G, and by the wire j to the switch k, and thence through the wire k' to the other pole of the battery. A branch, l, (shown by the dotted lines,) connects with the magnet J and the button m, and also with the button n. Another branch, o, passes to the button p, and extends to the button q. Another branch, r, connects with the switch s.

The main line M, commencing at the police-station N, runs from one pole of the battery W, in the direction of the arrow, to the station O; is then connected with a row of buildings, 1 2 3 4 5 6, and bank T, running thence to the station P; thence to the bank S, with which it is connected; thence through the station Q; thence to the bank R, connecting with the mechanism, as hereinafter described; thence returning to the station N through the switch t and coils of the magnet z to the other pole of the battery. The armature v carries a clapper for striking the bell X when the armature is released and again attracted by the magnet. The telegraph-instrument Y, by means of the switch t, may be brought into the circuit and used for telegraphing when desired.

In the bank R the line is connected with a mechanism for striking the number of the street and the number of the building, or the latter only. In the example shown the street is supposed to be Third street, and the number of the building 32. The mechanism for causing these numbers to be struck at the police-stations may be of any suitable construction—such, for instance, as a wound-up train of wheels, one of which may have pins secured to it at intervals, and arranged so as to come opposite to, and open and close a key of, the main line at intervals, so as to sound the desired number; or the main line may be connected with a revolving metallic wheel attached to one of the shafts of the train, and having breaks cut in it, or non-conductors inserted on its side or edge at the proper intervals, so as to open and close the main line to produce the desired signal at the police-station.

In the example shown I use a wound-up train of wheels, which need not be here further described than to state that it may be constructed so as to be carried by the force of a spring or weight, and the speed of the train, when released, be governed by a fan attached to the last shaft in a well-known manner. The train should be inclosed in a box for its protection, as shown at F.

Upon the frame of the train is secured a circular metallic plate, x, insulated from the train

and frame. Through the center of the plate one of the shafts of the train extends, so as not to touch the plate x. One end of a metallic arm, y, is secured to this shaft, and insulated from it, and the other end of the arm is in contact with the edge of the plate, and is made to press lightly against it, so that when the train is released the arm y will revolve around the plate. A metallic spring or standard, y^2, connected with the line M, is fastened at the lower end to the frame, and the other end presses against the revolving arm at the point where the arm is fastened to the shaft, so that the standard and the arm will be in contact with each other when the latter revolves. Non-conductors or breaks are inserted, or notches cut, in the edge of the plate in groups, the first group, 11 12 13, Fig. 7, being arranged to produce three strokes at short intervals for the street number. There is then a metallic interval, 14, and then a group of breaks, 15 16 17, at longer intervals; then a metallic interval, 18, then a group, 19 20. The last two groups, at longer intervals, produce strokes so as to distinguish the number of the building from that of the street. There is then a metallic interval, 21. Between the intervals 21 and 23 there is a series of breaks at exceedingly short intervals, as seen at 22, so as to produce a series of rapid vibrations or strokes upon the bells at the police-stations. The object of this arrangement is to distinguish an alarm caused by a burglar from an alarm produced from any other cause, and emanating from the same building, so as to strike the number of the street and the number of the building. The line enters the bank R, passes to the switch and key-board U through the switch x^1, and key w, and switch z^2, to the metallic standard x^2, which is in metallic connection with the plate x. The electric current passes through the plate, and revolving arm y, and standard y^2, which is connected with the line. The circuit of the main line is thus completed within the bank through the mechanism.

The electric current of the local line passes, as described, through the coils of the magnet G, which attracts the armature a^2, to which an arm, c^2, is attached, and which may be arranged in any suitable manner, so as to lock and release the train when the local circuit is closed and broken. In the example shown it catches the fly c^4 when the armature a^2 is attracted by the magnet, and locks the train; and, by means of a spring, the arm is pulled away when the circuit is broken, and the train is thus released, causing the arm y to revolve around the plate x. The detents h^2 and h^3 are for locking the fly c^3 and c^4 on each train, when desired; but they should be turned in the direction shown by the dotted lines at all other times. Now, when the train in the box E is wound up, and the local circuit is closed and completed through the shielded parts of the door, safe, or vault, skylight, and switch-connections, as shown and described, and the main line is also closed, it will be evident that if a burglar attempts to break through any of the parts shielded with the strips or springs, and comes in contact with any of them, as described, the local circuit will be broken, the armature a^2 will be released and pulled back, the train of wheels set in motion, and the arm y will revolve around the break-plate x, which will open and close the main line M, so as to sound the number of the street and the number of the building at all the police-stations, as described. By this means the burglar may be detected and captured before his designs are accomplished.

By means of a key, w, messages may be transmitted from banks to the police-stations, and, when the switch x^1 is turned on the button 8, messages, either printed or by sound, may be received through any suitable telegraph-instrument embraced within the line, as shown at V. But the switch x^1 should remain in the position shown at all times, so that the full strength of the current may pass through the magnets at the police-stations which work the alarm-bells, except when emergencies arise during the day at banks and other buildings connected with the line requiring communication with or assistance from the police-stations.

When the switch z^2 is turned on the button 24 the current will pass through the branch 25, (shown by the dotted lines,) and the train of wheels or break-plate x may be removed for repairs without breaking the main line, thus preserving all other connections.

Any suitable alarm mechanism may be placed at H for local-alarm purposes. A wound-up train of wheels may used for the purpose, which, when released, will carry or revolve a wheel, g^1, with pins fastened to it, so as to trip a hammer, g^2, for striking the bell g^3.

When the switch h is turned on the button m, the current of the local circuit will pass through the branch l and coils of the magnet J, which may be made to operate an armature and lever, l^2, so as to catch the fly c^4, and thus lock and release the train when the local circuit is closed and broken. By this arrangement both a local and police alarm may be sounded by the operations of the burglar. The advantage of combining the two alarms within the local circuit is, that if burglars should attack a bank in such numbers as to disregard a local alarm and overpower a watchman, as has frequently been the case, an alarm would still be sounded at the police-stations through the main line, and their designs be thus frustrated.

When the switch d is turned on the button p, and the switch h is turned on the button m, as shown by the dotted lines, the connections of the local line will be with the safe only, and both a local and police alarm will be sounded when the safe is interfered with. When the switch k is turned on the button n, and the switch d is turned on the button p, the safe and local alarm only will be embraced within the local circuit, and no police-alarm

will be sounded. This arrangement may be found useful during the day for bank-officers, to prevent any unauthorized person from entering a safe or vault without giving an alarm.

If the switch *k* is in the position shown, and the switch *s* and the switch *h* are turned in the position shown by the dotted lines, both trains may be held wound up, and the safe or vault, and door or other connections, may be opened without giving an alarm. The use of this arrangement is to prevent unnecessary alarms during the day.

The alarm mechanism F should be kept in a secret place where burglars would not be likely to find it. The switch-boards K and U may be kept in any convenient secret place for office use. The main line M may be either a metallic circuit, or, with proper ground connections, may be part metallic and part ground circuit, and may be carried and supported, in the usual manner, above ground, or be carried under ground through pipes.

In large cities, for the purpose of affording means of protection to buildings at remote points, separate lines, all centering at one point, and there provided with suitable battery-power, and connected with alarm-bells in police-stations, may extend over different sections of a city; or branches or loops may be carried from any point of the main line for this purpose. M^1 represents such an extra line, and M^2 represents a loop or branch, which may connect with and extend from the main line.

As it is necessary to keep up the power of the battery, the advantage of the closed local circuit will be evident, for the battery could not run down without releasing the train of wheels and giving the alarm; and if a galvanometer or other instrument for indicating the condition of the current be embraced within the circuit, this cause of an alarm could be readily detected.

It is the principal design of one branch of this invention to afford means which shall alarm the police, and direct them to the very spot when burglars attack banks or other buildings that are protected, so as to secure their capture at the very outset. To insure this end with the greatest certainty, the police-alarm mechanism at F only should be embraced in the local circuit, for, if the local alarm at H should also be set in motion, the burglars would become alarmed and their capture defeated.

I claim—

1. A shield or lining for vaults, safes, doors, or other parts of buildings, consisting of a series of strips or springs, through which the electric circuit of a line provided with battery-power is completed, combined with mechanism for sounding an alarm when any strip or spring of the series is pressed apart or separated from another strip or spring.

2. A burglar-detective and police-alarm system, consisting of a main telegraph line or lines, provided with suitable battery-power, embracing police-stations and having alarm-bells in the circuit, combined or connected with mechanism embraced within a closed circuit in banks or other buildings, which mechanism, when set in motion by the operations of burglars upon the protected parts of such banks or other buildings, will open and close the main line, so as to sound the number of the street and the number of the building, or the latter only, or any desired signal, at the police-stations.

3. The combination and arrangement of the switches *d*, *h*, *k*, and *s* with the local line, for the purpose described.

4. The combination of a local and police alarm mechanism, arranged as and for the purpose described.

5. The combination of the following elements, viz: first, a main line constructed to enter banks or other buildings; second, a local line within such buildings, embracing within its circuit a series of springs or strips, arranged as and for the purpose described; third, mechanism combined with said local line for opening and closing the main line, so as to sound the number of the street and that of the building, or the latter only, when the strips or springs are separated from each other, as described.

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