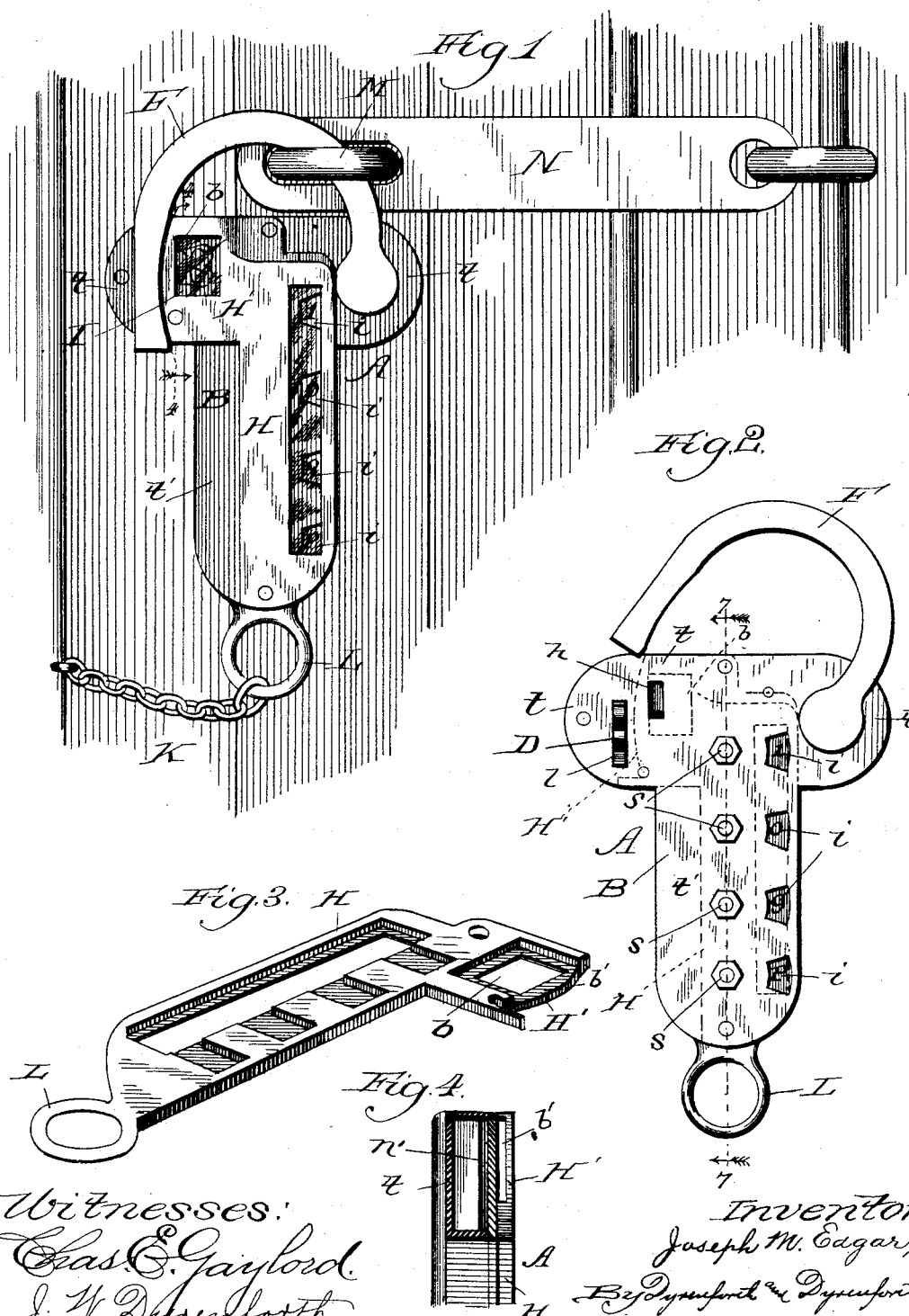


J. M. EDGAR.

LOCK.

No. 344,176.

Patented June 22, 1886.



Witnesses:
Chas. E. Gaylord
J. W. Dyerforth

Inventor,
Joseph M. Edgar,
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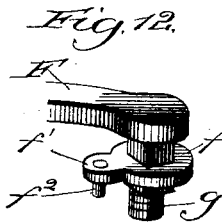
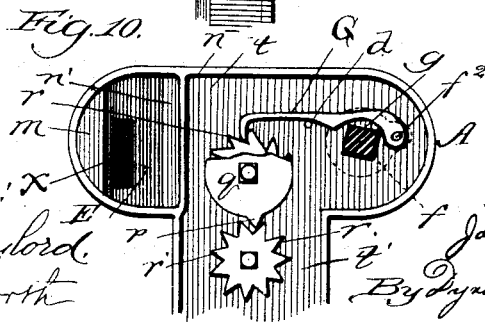
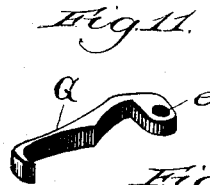
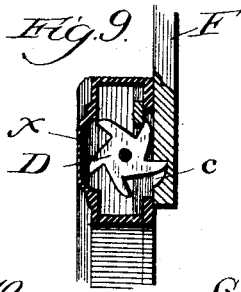
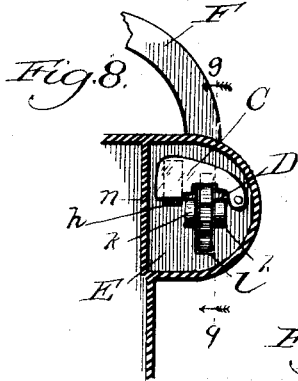
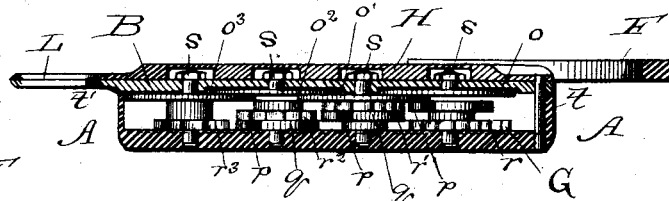
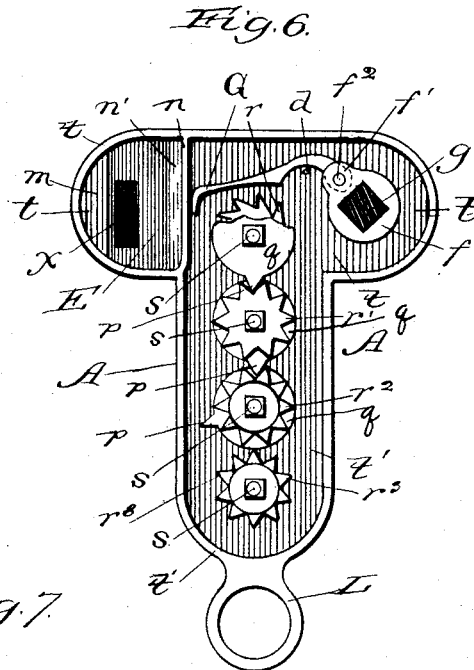
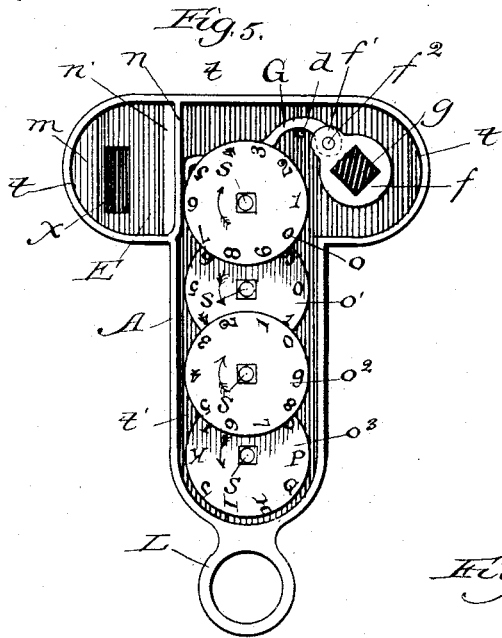
ATTY

J. M. EDGAR.

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No. 344,176.

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Witnesses: X
Chas. C. Gaylord.
J. W. Dyrenforth

Inventor:
Joseph M. Edgar,
By Dyrenforth & Dyrenforth,

ATTORNEYS

UNITED STATES PATENT OFFICE.

JOSEPH M. EDGAR, OF KANSAS CITY, MISSOURI, ASSIGNOR OF ONE-HALF
TO JOHN Z. RORABACK, OF SAME PLACE.

LOCK.

SPECIFICATION forming part of Letters Patent No. 344,176, dated June 22, 1886.

Application filed February 5, 1886. Serial No. 190,383. (Model.)

To all whom it may concern:

Be it known that I, JOSEPH M. EDGAR, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented a certain new and Improved Safety-Lock; and I hereby declare the following to be a full, clear, and exact description of the same.

My improvement constitutes a lock only in the sense that it affords a guard by preventing tampering with it without detection, and not that it precludes the possibility of manipulation by any one without the use of a key, or the setting of it to a certain secret combination for the purpose of opening it to permit access to the object guarded by it.

My invention is applicable and useful in any connection wherein it is desired to prevent tampering with the contents of a receptacle without rendering the act apparent from the mere fact of manipulation. What I regard, however, as the most common, and therefore most important, application of my improved device is that of a seal for a freight-car door, operating in such connection on the principle of the common lead disk and wire or the tin-strip seal, but differing from the latter in the manner of operation, as well as in the facts that it forms, preferably, a permanent fixture upon or appendage to the car, and does not depend for its usefulness upon the certainty of its destruction by effective manipulation for the purpose of gaining access to the object guarded or sealed by it, being, on the contrary, a practically indestructible attachment capable of application to its purpose so long as the car to which it is connected remains sufficiently intact to perform its functions. My device therefore not only provides a means affording a substitute for the common forms of seals hitherto employed, equally reliable with the latter, if not more so, as it is thought to be, but, while its initial cost is greater than the device for which it is substituted, the fact that the latter, after having been used a single time, must be destroyed, and therefore rendered unfit for use a second time, makes the use of the same vastly more expensive in the end than that of my device.

My invention consists in a lock or guard of

the foregoing description provided with registering mechanism actuated by the bolt, and with a seal-receptacle communicating with and affording access to the locking mechanism.

My invention also consists in means for holding the bolt in locked condition; and it further consists in details of the construction and combinations of parts forming the same, all as hereinafter more fully set forth.

Owing to the fact, hereinbefore stated, that the most common application of my invention is to freight-car doors, I prefer to limit its description to such connection, in which it is also illustrated in the accompanying drawings.

Figure 1 represents so much of the side of a freight-car as is necessary to illustrate the manner of application of my improved guard, which is shown in the form of a padlock chained to the car, having its bolt passed through a staple on the door-jamb, and over which a hasp secured to the door is adjusted. Fig. 2 represents my device in elevation, with a feature removed to display details. Fig. 3 is a bottom perspective view of the feature referred to in the description of Fig. 2 as being removed. Fig. 4 is a sectional view taken on the line 4 4 of Fig. 1, and viewed in the direction of the arrows. Fig. 5 is a view in elevation of the device, having the top or covering plate removed to display internal features. Fig. 6 is a similar view to that shown in Fig. 5, but having the dial plates or disks removed to display features of the construction covered by them. Fig. 7 is a sectional view taken on the line 7 7 of Fig. 2. Fig. 8 is a bottom sectional plan view of the locking mechanism for the bolt. Fig. 9 is a sectional view taken on the line 9 9 of Fig. 8. Fig. 10 is a view in elevation of the head portion of the device broken away from the remainder of the same, showing the interior, to illustrate the operation of the dial-actuating detail. Fig. 11 is a perspective view of the dial-actuating detail, and Fig. 12 a similar view of a broken portion of the bolt with a detail attached, comprising the preferred means for actuating the detail shown in Fig. 11.

A is a T-shaped case comprising the head *t* and shank *t'*. The foregoing is the preferred form of the device as a padlock, though it

may be secured permanently upon the jamb of a door by being sunk into the same—for example, when the form could be different from that shown, square, for instance—with the locking mechanism, hereinafter described, for the bolt in a recessed ear toward one corner, corresponding in that respect with the form illustrated; and the bolt in such connection could have the form of a latch, being less bent than illustrated in the present drawings. This and similar modifications of the construction, however, are so obvious that they need no further description nor illustration.

Within the case A, supported to permit their rotation upon suitable arbors, *s*, journaled within the bottom of the case, and the cover B, upon which latter nuts are provided to secure it and the arbors in place, are spur-wheels *r*, *r'*, *r''*, *r'''*, preferably four in number, though fewer or more may be employed, if desired, each of which is provided with, preferably, ten teeth. Each of the wheels *r'* and *r''* rests upon and revolves with a disk, *q*, Fig. 7, provided with a tooth, *p*, which on the disk of the wheel *r''* engages with the wheel *r'''*, and on that of the wheel *r'* is somewhat raised, as shown, to engage with the wheel *r''*. The wheels *r'''*, *r''*, and *r'* thus occupy planes at different elevations, rising in the order named, to permit the engagement with each, respectively, of an adjacent tooth, *p*, and to prevent their meshing with each other. The wheel *r* is provided with a similar toothed disk, *q*, which, however, rests upon the wheel, to be at an elevation to engage with the spur-wheel *r'*.

From the foregoing description it will readily be seen that the wheel *r* must make a complete revolution to move the adjacent wheel, *r'*, one tooth, and that it will require ten revolutions thereof to turn the wheel *r'* around once, whereby the wheel *r''* will be moved the extent of one tooth, and that it will require ten revolutions of the last-named wheel to move the wheel *r'''* the extent of one tooth by the engagement with it of the adjacent tooth, *p*. In other words, beginning with the first wheel, *r*, each succeeding wheel is moved one tooth by ten complete revolutions of the wheel preceding it, and thus ten thousand combinations may be afforded with four wheels provided each with ten characters corresponding in number with the number of teeth. These characters are provided upon disks forming dials *o*, *o'*, *o''*, and *o'''*, (see Fig. 5,) the numbers from 0 to 9 being preferably provided on the disks *o*, *o'*, and *o''*, and letters on the disk *o'''*, and these disks are caused to overlap each other, as shown, to save space. One side of the head *t* is separated by a partition, *n*, having a shoulder, *n'*, at one side from the adjacent part of the case, and the opposite side of the compartment E thus formed is provided with a shoulder, *m*, to afford a bearing for a pivotal latch, C, Fig. 8, and the bottom of this compartment is recessed, as shown at *x*, in Figs. 5 and 6, for a purpose hereinafter described.

The cover B, beside having the openings

formed longitudinally along its center to afford journal-bearings for the arbors *s*, is provided with a slot, *l*, Figs. 2 and 8, having lateral ears *k* on the under side of the cover to afford bearings for a shaft carrying a spur-wheel, D, having curved teeth, as shown, which, when the cover B is adjusted in position, lies partly within the compartment E, recessed at *x*, as hereinbefore stated, to make room to accommodate the wheel D and permit its rotation, from which, however, it is prevented, by the latch C, occupying by its own gravity, normally the position shown in Fig. 8, wherein it affords an obstruction to the movement of the wheel D, which can only be moved on releasing the barrier or latch C, in the manner hereinafter described. The cover B is further provided toward one edge with openings *i*, Figs. 1 and 2, each in position to permit a character on a dial below it to be viewed, and it is still further provided with a slot, *h*, Fig. 2, adjacent to the slot *l*, serving a purpose hereinafter stated, and with an opening to admit a shaft, *g*, Figs. 5, 6, 10, and 12, carrying the bolt F, and which extends through the bottom of the case, where it is properly secured by a nut. (Not shown.) The shaft *g* is provided with a collar, *f*, having an extension, *f'*, carrying a rivet, *f''*, (see Fig. 12,) which affords an eccentric, and extends into an eye, *e*, Fig. 11, provided in a catch or lever, G, toward its rear extremity, and serves to actuate the same by manipulating the bolt F, to rotate the wheel *r* by the engagement with the teeth thereof of its hooked forward end. A rest, in the form of a rivet, *d*, is provided under the catch G, to disengage it by raising from contact with a tooth, by which it is moving the wheel *r*, as soon as the latter has been moved sufficiently far to bring a character under the adjacent opening, *i*, with each movement or operation of the bolt F upon its pivotal point. The free extremity of the bolt F is provided on its under side with a recess, *c*, Fig. 9, to receive, when the bolt is adjusted to lock the device, the wheel D, which, owing to the form of its teeth, can be moved backward, in sliding the bolt over it, without obstruction from the latch C when in its normal position, but not forward, whereby the bolt, when once adjusted by sliding it over the wheel D, is automatically locked, and can only be released by raising the latch in the manner hereinafter described.

H, Fig. 3, is a plate, to surmount the cover B, slotted longitudinally toward one edge, where it covers the openings *i*, to avoid obstructing the latter, and provided with an ear, H', to coincide with the compartment E, and which has a square opening, *b*, to receive a, preferably, paper or pasteboard tag or seal, I, Fig. 1, which is held between the part H' of the plate H and the cover B, covering thereby the slot *h*, which leads into the compartment E. By puncturing the seal I with a nail or other suitable instrument access of the latter is gained into the compartment E, underneath the latch C, which may thus be raised from

contact with the wheel D, permitting the latter to be rotated, and thus allowing the bolt F to be withdrawn. Whenever a seal, I, has thus been destroyed, to permit the insertion of a new one the old is previously slipped out through an opening, *b'*, after the bolt F has been raised, and the lock, with the new seal in position, is again in operative condition. Inspection of Fig. 4 will show at the side of the opening *b*, next to the wheel D, this opening *b'*, by way of which the seals I are slipped in and out, which operations, however, can only be performed when the bolt F is raised, since, when it is locked, it fits so closely against the opening *b'* as to prevent access to the latter.

The manner in which my device performs its functions is as follows: The device is attached upon the jamb of a freight-car door, preferably by means of a chain, K, and a ring, L, on one end of the padlock, as shown, and is adjusted to lock or guard the car-door by passing the bolt F through the staple M, over which the hasp N is previously placed. The free end of the bolt F is then slid over the wheel D, which thus enters the recess *c* in the bolt, and the latter is prevented from being withdrawn by the latch C, in the manner hereinbefore described. With the adjustment of the device into its operative position the dials *o*, *o'*, *o''*, and *o'''* will show certain characters, (as 1 0 9 *p*, shown in Fig. 1,) which are noted by the proper official. Any change in the characters thus noted will indicate the fact that the lock has been tampered with in the transit of the car, rendering the official in charge responsible for any loss from or damage to the contents. The bolt F cannot be disturbed without altering the combination or series of characters, since with each of ten movements of the same from its locked position the dial *o* will display a new character, being turned with each such movement one tooth by the action of the catch G, actuated through the medium of the eccentric pin or rivet *f'*. The primary protection therefore afforded by the device consists in the means provided to enable the detection of any change in the noted order of characters, and this object would be attainable in a certain measure without the employment of the mechanism for locking the bolt F, and comprising the latch C, to hold the wheel D and the seal I with the parts immediately operating with the latter. It is, however, preferred to use this mechanism, as it affords additional security, and prevents tampering with the bolt F by idlers, who might, through curiosity, be induced to manipulate it.

What I claim as new, and desire to secure by Letters Patent, is—

1. A safety lock or guard for freight-car doors and the like, having, in combination, registering mechanism, substantially as described, a bolt connected with the registering mechanism to actuate the same by movement of the bolt, and a seal-receptacle communicating with and affording access to the locking mechanism, substantially as set forth.

2. A safety lock or guard for freight-car doors and the like, having, in combination, registering mechanism, substantially as described, a catch to engage with the registering mechanism and actuate the same, and a bolt connected with the catch to actuate it by movement of the bolt, and a seal-receptacle communicating with and affording access to the locking mechanism, substantially as set forth.

3. A safety-lock for freight-car doors and the like, having, in combination, registering mechanism, substantially as described, a catch to engage with the registering mechanism and actuate the same, and an automatically-locking bolt provided with an eccentric pin connected with the catch to actuate the latter by movement of the bolt, substantially as set forth.

4. A safety-lock for freight-car doors and the like, having, in combination, registering mechanism, substantially as described, a catch to engage with the registering mechanism and actuate the same, a rest adjacent to the catch, and a bolt provided with an eccentric pin connected with the catch to actuate the latter by movement of the bolt, substantially as set forth.

5. A safety-lock for freight-car doors and the like, comprising, in combination, a covered case, A, provided with spur-wheels connected with toothed disks *g*, in mesh with spur-wheels and carrying dials visible from without the covered case, and a bolt, F, connected with a spur-wheel to actuate the same by movement of the bolt, and a seal-receptacle communicating with and affording access to the locking mechanism, substantially as described.

6. A safety-lock for freight car doors and the like, comprising, in combination, a covered case, A, provided with spur-wheels connected with toothed disks *g*, in mesh with spur-wheels and carrying dials overlapping each other and visible from without the covered case, and a bolt, F, connected with a spur-wheel to actuate the same by movement of the bolt, and a seal-receptacle communicating with and affording access to the locking-mechanism, substantially as described.

7. A safety-lock for freight-car doors and the like, comprising, in combination, a covered case, A, provided with spur-wheels connected with toothed disks *g*, in mesh with said spur-wheels and carrying dials visible from without the covered case, a catch, G, to engage one of said spur-wheels, and an automatically-locking bolt, F, connected with the catch, to actuate the same by movement of the bolt to move the said spur-wheel, substantially as described.

8. A safety-lock for freight-car doors, having, in combination, registering mechanism, substantially as described, a bolt provided at one end with a recess, *c*, and connected at its opposite end with the registering mechanism, to actuate the same by movement of the bolt, a wheel, D, journaled in the lock to enter the recess in the bolt, and a pivotal latch, C, to

engage with the wheel D, substantially as set forth.

9. A safety-lock for freight-car doors and the like, having, in combination, registering mechanism, substantially as described, a bolt provided at one end with a recess, *c*, and connected at its opposite end with the registering mechanism, to actuate the same by movement of the bolt, a wheel, D, journaled in the lock to enter the recess in the bolt, a pivotal latch, C, to engage with the wheel D, and a slotted plate, H H', provided with an opening, *b*, leading to the latch C, and to be covered by a seal, I, the whole being constructed and arranged to operate substantially as and for the purpose set forth.

10. A safety-lock for freight-car doors and the like, having, in combination, registering mechanism, substantially as described, a catch to engage with the registering mechanism and actuate the same, a bolt provided at one end with a recess and at its opposite end with an eccentric pin connected with the catch to actuate the same by movement of the bolt, a wheel, D, journaled in the lock to enter the recess in the bolt, an adjustable latch, C, to engage with the wheel D, and a slotted plate, H H', provided with an opening, *b*, leading to the latch

C, and to be covered by a seal, I, the whole being constructed and arranged substantially as and for the purpose set forth.

11. A safety-lock for freight-car doors and the like, comprising, in combination, a covered case, A, having a compartment, E, and provided with spur-wheels connected with toothed disks *g*, in mesh with said spur-wheels and carrying dials visible from without the covered case, a catch, G, a rest, *d*, adjacent to the catch, a bolt, F, provided at one end with a recess, *c*, and at its opposite end with an eccentric pin connected with the catch to actuate the same by movement of the bolt, a wheel, D, journaled in the cover of the case to extend into the compartment E and engage with the recessed end of the bolt, a latch, C, pivoted within the compartment E, to engage with the wheel D, a slotted plate, H H', provided with an opening, *b*, leading into the compartment E, and to be covered by an interposed seal, I, the whole being constructed and arranged to operate substantially as and for the purpose set forth.

JOSEPH M. EDGAR.

In presence of—
WM. TEGUS,
H. C. KESSLER.