# Scientific American.

# INVENTIONS

#### Railroad Car Coupling.

James Turner, of East Nassau, Columbia Co., N. Y., has taken measures to secure a patent for improvements in railroad car couplings. The improvements are chiefly intended to cause the locomotive or any car of a train that may, by accidental means, get off the track, to detach itself immediately from the train, by which means it will often be preserved from material injury itself, and other cars will not be drawn off the track along with it. The improvement also allows a closer connection to be made between the cars, and dispenses with the buffer springs. The improvement consists, simply, in connecting the inner end of the traction bars, to which the buffers are attached to the car, in such a manner as to allow the buffer to move sideways, and in attaching to the ends of the car a transverse bar, whose upper side inclines upwards from the middle towards the sides of the car. Upon this bar the head of the coupling pin rests, the form of coupling employed being the common link and pin. When the engine or a car gets off the track, it drags the buffers of the next car sideways, and the coupling pins, being also moved sideways, are raised by their heads passing up the inclines on the transverse bar, until they are drawn from the links, and the detached engine or car is thus uncoupled.

### Improvement in Sounding Boards.

Alfred Speers and Ernest Marx, of Aquackanock, N. J., have taken measures to secure a patent for an improvement in sounding-boards for pianofortes. The sounding-board is made in the form of a hollow cylinder, or prism, or part of either, the said board having its ends secured between two discs. The strings, cap, tuning block, and all parts of the instrument are suitably arranged around it to produce the sound. The principal object of making the board of this form is to improve the sound. The form also facilitates the making of a double instrument—one with two sets of strings in one case.

## Incombustible Floors.

John B. Cornell, of this city, has taken measures to secure a patent for a useful improvement in iron floors, which is also suitable for roofs of buildings. The floor is constructed of two plates, or a series of plates of corrugated sheet-iron placed at a short distance apart, with the pieces of their corrugations opposite each other; in other words, ridge above ridge and furrow above furrow—the space between the said plates being filled with an incombustible cement or a concrete.

## Submarine Exploring.

Willard Day, of the city of Brooklyn, N. Y., has taken measures to secure a patent for a useful improvement in sub-marine exploring vessels. The nature of the improvement consists in constructing a vessel having a chamber surrounding it into which both air and water are admitted, as required, in order to allow the vessel to float or sink. The sides of the vessel are pierced and contain lenses and lookouts; the lenses concentrate the light (which is artificial), within the vessel, and illumine the water and bed of the river, harbor, or sea, in which the vessel is working. The workmen look out from the vessel, and are enabled to examine objects outside of the vessel. Grapples, &c., are employed for warping and turning the vessel, and changing its location. The vessel is provided with which a patent was granted in October, 1850. attached, a spiral or other spring, a jointed letight hollow masts, through which a current The objects sought to be gained by the pecu- ver, and track upon which the movable end vessel, and to allow foul air to pass out. Steam is employed to propel the vessel by paddle-wheels, which have air chambers on their upper parts to prevent re-action when the vessel is sunk.

## Diurnal Reflectors.

An optician of Paris, M. Troupeau, has re-recently introduced what he terms a "diurnal reflector," for the purpose of superseding artificial lights in the day time, by reflecting in is always the case by the direct action of a lock post; F is the track; G is a spiral spring, any direction the natural ray of the sun from spring. any skylight or window, however obscurely wise, and pressing them into the service of view.

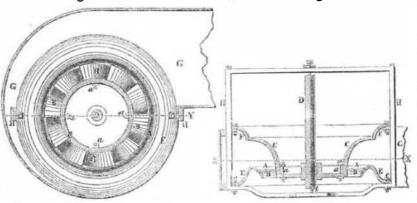
any dingy corner which may require such as- | tent they may be made to illuminate a dark | spring, G, is attached; c is a strap or cord, one ver-plated and polished, and slightly corruga- ries, vaults, warehouses, &c. ted in wavy ridges, radiating from the centre to the ends and sides, or to the circumference, if circular. This departure from a plane assists in the diffusion of light by multiple reflection, and without seeing one in action, it would hardly be conceived to what a desirable ex-

sistance. They are made of sheet-copper, sil- apartment, particularly rooms in basements to-

#### Improvement in Trip Hammers.

Peter Stebbins and John Holmes, of Schenectady, N. Y., have taken measures to secure a patent for an improvement in trip hammers, so as to give the hammer a true vertical blow. also for regulating its force and velocity.

#### DODGE'S IMPROVEMENT IN RE-ACTION WATER Figure 2. Figure 1. WHEELS



The accompanying engravings represent an | that they curve outwards in reverse directions alleged improvement in Water Wheels, invented by Mr. Edwin Dodge, millwright, of Dry- the upper rim, F, curving upwards. G is the den, N. Y., who has taken measures to secure scroll within which the wheel is placed, as 2 is a vertical section taken through the centre of the wheel at Y, fig. 1. The same letters refer to the same parts on both figures.

A represents the wheel; B are the issues, rather wider at the upper part than at the bottom, and are inclined, as fully shown in fig. 2. C is a bell-shaped cap or head, bolted to part of the upper rim. The peculiar object the wheel just within the issues, secured by the bolts, a a. The bell-shaped cap or head the water, as it is admitted, not only presses (best seen in fig. 2) gradually expands as it on the issues, causing the wheel and bellraises and projects at the top some distance shaped cap to revolve, but it will also press over the issues of the wheel. D is the shaft upwards against the cap or head, and thus of the wheel fitted on the point, b, at its lower ead. E is the stationary rim which encompasses the wheel, and F is the rim which encompasses the upper part of the bell-shaped fig. 2 that the rims are of a curved form, and above.

-the lower rim, E, curving downwards, and a patent for the same. Figure 1 is a horizon- well as the bell-shaped cap or head and the tal section taken at the line X X, fig. 2. Fig. two rims, the top of the scroll being just under the edge of the upper rim (better seen in fig. 1.) Both rims are secured to the uprights, HH, by small bolts which pass through the edges of the rims and lips in the uprights. The bell-shaped cap or head is fitted so as to work perfectly even as it revolves within the lower claimed by the inventor of this wheel is, that counteract not only the pressure of the water upon the issues, but also the gravity of the wheel, thus taking the weight off the point, b.

cap or head. It will be seen by referring to may be obtained by addressing the inventor as

# Information relative to the cost of this wheel

shut, this lever (the distance between the edge or the door and point at which the strap is attached) is acting with its greatest force. But it will be perceived that, as the door opens, this point of attachment swings back, and behind the fulcrum or hinge; and when the door is fully open, the spring is expending its force almost directly against the hingesits effective force being thus nearly or quite destroyed. Again, the arm or lever, b, attached to the jointed lever, is in a like manner losing its power by falling behind its fulcrum, and thus becomes constantly shorter. The jointed lever, when the door is closed, is also in its most powerful position, and is rapidly losing its power as the movable end is drawnback, so as to flex the lever, which is done by opening the door. The shape of the inclined plane is such as also to favor the same end. It will be readily seen that while the

end of which is attached to the movable end

of the jointed lever, and the other to the door;

d is a friction roller, over which the cord or

strap plays, and e is the highest part of the

Now, in order to understand how the ar-

rangement of these several parts effect the

objects above enumerated, it must be borne in

mind that the spring is the motive power, and

that the combination of levers and inclined

planes are simply to modify its action. In a

door spring of full size, the cord or strap is

attached to the door at a point about five inch-

es from its hinged edge; and when the door is

track.

tralize the effective force of the spring at any point which may be desired. The door is prevented from slamming by the great pressure of the roller upon the carriage, or track, till it passes over the most prominent point of the inclined plane; nor is this pressure at any time so much relieved as to allow the door to acquire much acceleration of motion-there being little or no difference from whatever point the door may start.

power of the spring is steadily increasing, the

power of these three levers (as modifyers) is

much more rapidly diminishing, so that the

effect of the spring upon the door is becoming

less. This effect has only further to be modi-

fied by the shape of the inclined plane to neu-

The last object named, and which is a very desirable one in many cases, is accomplished by attaching the arms, &c., to a simple plate and mortising into the under side of the lintel, and letting the arms play horizontally instead of perpendicularly, as in the accompanying engraving, in which case nothing is seen but the smooth surface of the plate, and are even plane

color of the casing, would not be detected. Persons desiring to purchase rights will please address the inventor, at Syracuse, N. Y.

with the lintel, and this, by being painted the

# Securing Spindles in Locks.

Nathan Mathews, of Pittsburg, Pa., has taken measures to secure a patent for an improved method of securing spindles in locks. The spindle is attached in the lock by means of a circular key which fits in a corresponding recess in the inner side of the lock which adjoins the door. The key is formed of a circular plate, said plate having a slot in it, and the slot passes over the spindle, the inner sides or edges of the slot fitting in grooves on each side of the spindle. There are a series of grooves in the spindle at equal distances apart, so that the spindle may be lengthened or shortened to suit doors of various thicknesses; thus making the spindle an extending one in every sense of the term.

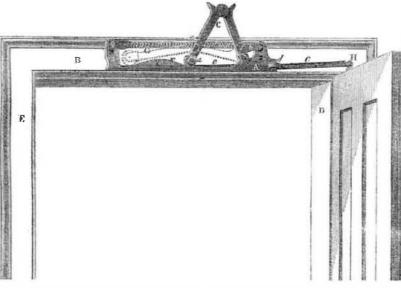
# Great Telegraphic Invention.

of. J. Milton Sanders, of Cincinnati writes to the editor of the Evansville Journal, that David Baldwin, of New York, who is at present in that city, has quite perfected a telegraph which he says will revolutionize the system entirely. By it news can be transmitted on one wire opposite ways at the same time, and as rapid as a person can talk.

# Linnet's Nest in a Curious Place.

Some workmen who were recently sawing up a log of English elm, in a block-maker's yard, at Sunderland, found a green linnet's nest 4th. To furnish a spring that may be pla- strap or cord is attached. a is a friction roller embedded in the very heart of the wood. which guides and facilitates the movement of The moss, hair, and other materials of which from bad construction of the building or other. to the lintel so as to be entirely hid from the movable end of the jointed lever; b is an the nest was composed, were in a good state arm from the lever, C, to which one end of the of preservation.

# WESTCOTT'S SELF-REGULATING DOOR SPRING.



Dr. A. Westcott, of Syracuse, N. Y., and for trame or plate, to which the other parts are of air is made to pass to the interior of the liar arrangement of this spring, are the four of this jointed lever moves, guided by a frictollowing, viz. :---

1st. To secure a sufficient amount of power at or near the closing point of the door, with- these several objects are respectively attained out too great a tension of the spring at that

2nd. To have this power gradually diminish as the door opens, till the spring finally the door; C is a rule-jointed lever, with one ceases to act upon the door at any point of end attached to the frame by a pivot, upon opening which may be selected. which it moves; D is a door post, to which

3rd. To prevent the door from slamming, as

placed for any immediately useful purpose ced on either side of the door, or mortised in-

This is an improvement on Door Springs, by | This door spring consists essentially of a tion roller and a cord or strap connecting the spring with the door. The manner in which will appear from the accompanying engraving, in which A represents a frame, to which the other parts are attached; B is the lintel of the hinges of the door are fastened; E is a and H is a standard on the door, to which the