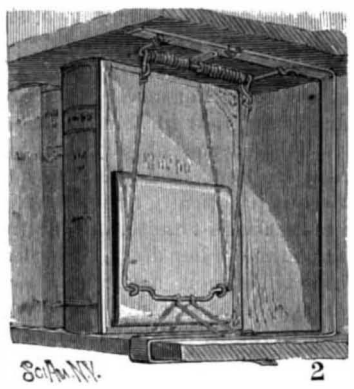
Progress of Railway Electrics.

While electricity may not yet be able to take the place of steam as an economical motive power for railway trains, it is demonstrating its ability, when properly managed, of cutting into the business of existing steam railways. The latest illustration of this is to be found in the passenger travel between St. Paul and Minneapolis. Until recently the steam railroads have controlled this business, and, with the exception of the fares charged, have given a fairly satisfactory service, but an electric road is now running between the two cities, connecting with the street lines of both, and in the half year which it has so far served the public it has taken such a large portion of the patronage from the steam railways that the latter will probably withdraw from competition for the local passenger traffic between the two cities. The reason is plain. The steam railroads charged 30 cents for a single trip of ten miles and 50 cents for a round trip, while the electric road has been put on a paying basis while charging but 20 cents per round trip. In addition to this difference in fares, the electric road runs its cars more frequently and gives transfers to other street railways in either city.

The electric company is making preparations to handle a very extensive traffic, and will soon be able to run trains under one minute headway. The 30 horse power motors first used will be replaced by new ones of 50 horse power, and the cars will be run at higher speed than at first. Similar conditions of travel in other places will doubtless be met in the same way, and before railroad men realize it, electric railways will be running, the character of whose traffic will bear a very strong resemblance to that of steam railways. In this growth the fact may be developed that a comparison between steam and electricity will not always lead to the results obtained in the experiments thus far made. —*Railway Review.*

A DEVICE TO HOLD BOOKS IN ORDER.

A simple form of device, capable of attachment to any book shelf, to automatically force the books along upon the shelf to close up vacant spaces, while also permitting of the replacing of books in orderly arrangement, is shown in the accompanying illustration. It has been patented by Mr. Lewis C. Hunter, of Fort Wayne, Ind. The base of the device consists of a strip of metal bent to form a clamp adapted to engage the shelf, and on the clamp, as shown in the large view, is secured a yoke, on which is pivoted a U-shaped arm, the upper bow section of which is bent outward to form a hand hold. On the bow section of the yoke is a coiled spring, the extremities of which are attached to the U-shaped arm, while near the center of the spring the metal is bent outward to adapt it for engagement at this place with an upwardly projecting tongue of the shelf clamp. A hasp hanging on the hand hold is also adapted for engagement with this tongue when the spring is to be held under tension while a number of books are being placed in position on the shelf. At each side of the hand hold a board or plate is pivoted to the U-shaped



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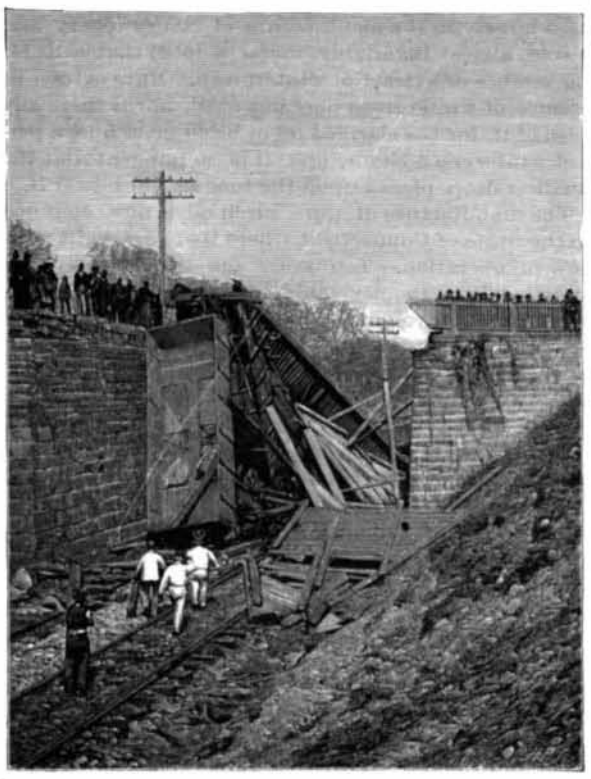
HUNTER'S BOOK SUPPORT.

arm, this board pressing against the side of the outer book, and thus causing all the books to bear snugly against one another. In Fig. 2 is shown another form of the device, wherein a perpendicular member unites an upper horizontal member with the base, and the yoke is secured to the upper member, the U-shaped arm with its plate then extending downward instead of upward, and the plate pressing against the books nearer the bottom, to more readily move them along.

A SINGULAR BRIDGE ACCIDENT.

On Sunday, April 26, while a train on the Columbia branch of the Pennsylvania Railroad was passing under a bridge on the Lancaster pike highway, at Mountville, a brake beam dropped from one of the

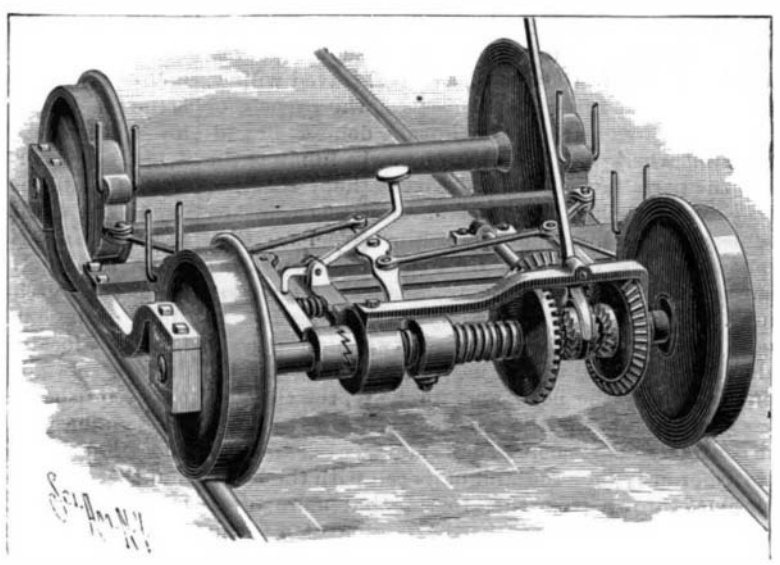


A SINGULAR BRIDGE ACCIDENT.

cars, which resulted in a wreck. Two of the cars were forced together endwise, and reared up against the under side of the bridge, lifting it off its abutments. The bridge then fell upon the railway track and broke into splinters. The bridge was 25 years old, of wood, of the Howe truss style. Distance from rail to under side of the bridge about 22 feet. Fortunately no person was on the bridge at the time of the accident. We are indebted to Mr. C. T. Emons, an amateur photographer of Columbia, Pa., for the excellent photograph from which our engraving was made.

AN AUTOMATIC CAR BRAKE.

The accompanying illustration represents the application on a car truck of a mechanism designed to be thrown into gear by the backward or forward motion of the car to automatically apply the brakes, holding them at any desired degree of tension, while they may be instantly released before starting the car. The device has been patented by Mr. William S. Fraser, of No. 4 Eighth Street, Pittsburg, Pa. The brake shoes are connected by rods with a lever centrally pivoted on a cross bar between the two axles, the lever being actuated by a screw and burr, the screw being hollow and turning loosely on one of the axles. At the opposite end of the screw is a clutch adapted to be engaged by a clutch on the axle, the latter clutch being actuated by a vertical lever extending up through the car platform, the operation of the lever setting the screw in motion to draw the burr along it, thus applying the brakes. When the car has stopped, or the brakes are applied with sufficient force, the clutch is disengaged from the screw, which then holds the brakes in position. In a drum on the cylindrical end of the screw is a coiled spring which is wound up as the screw is revolved, the spring being then held under tension by a clutch adapted to be released by a foot lever projecting through the floor of the car platform. To apply the brakes when the car is moving backward, the upright lever is moved so that the clutch actuated thereby engages a clutch on an outer bevel wheel, turning loosely on the axle, and geared with two other bevel wheels to the screw, whereby the latter will be turned in the same direction as when the car has a forward motion. When the clutch actuated by the foot lever is held off while the brakes are applied, the spring within the drum immediately throws off the brakes on the release of the clutch actuated by the lever extending above the platform.



FRASER'S AUTOMATIC CAR BRAKE.

The Sierra Madre Expedition.

News has been received from the scientific expedition which Dr. Carl Lumholtz is now conducting in the wilds of the Sierra Madre and Northern Mexico.

The expedition started from Bisbee, Arizona, in the early part of September, and entering Mexico, traveled southward through the State of Sonora, with the intention of crossing the Sierra in the direction of Yanos and Casas Grandes. Before entering the mountain region, however, the explorers separated for a time, and while Dr. Lumholtz, with the main body, pursued his intended route, a detachment under Dr. Libbey, of Princeton, made an excursion in a more westerly direction, covering some 300 miles of territory. From Granados the ascent began, and continued steadily until, on December 2, the western slopes of the Sierra Madre were reached at Nacory, when a northeasterly direction was taken.

Three mountain ranges had to be scaled, the highest some 9,000 feet in height, and the magnificence of the scenery made a strong impression upon the minds of the travelers, who took hundreds of photographs. The weather was very cold. There was snow on the mountain tops, and men and beasts suffered severely in many ways. One man, a guide, whose health was already impaired, succumbed under the strain, and his death was a serious loss to the explorers, as he knew of ruined pueblos to which he had pledged himself to lead them. Several beasts also perished. After a month of severe exertion the party reached the eastern slope of the Sierra, near Pacheco, and there took a well-earned rest.

The journey had proved a most interesting one from a scientific standpoint. Many specimens of birds and plants were collected, as well as some important fossils.

Cave and cliff dwellings were also met with, some of these in perfect condition and showing signs of having been inhabited by men who had reached a comparatively high stage of culture. In one stairs were found. In the largest of these caves remains of a whole village were discovered, and in front of it stood a huge "olla" (*i. e.*, Mexican water jar), made of clay mixed with straw and very solid, the pottery being eight inches thick. This olla was twelve feet in height and twelve feet in diameter, and when first caught sight of, presented the appearance of a huge balloon. In one of the cliff dwellings were found some human remains —a complete skeleton, which had undergone some process of mummification.

The plateau on which the party was encamped when last heard from is near Pacheco, a few days' march from Casas Grandes. The neighboring country is dotted over with many large mounds, some of which it was the intention of Dr. Lumholtz to open. Altogether, the expedition promises well, and there is no doubt that Dr. Lumholtz will bring back much valuable information and make many important additions to our knowledge of the archæology and the natural history of Northern Mexico, past and present.—*American Naturalist.*

Athletics in New York.

There are several highly popular and successful clubs in New York City, the aim of which is to promote all forms of healthful sports and exercises. One of these corporations, the Manhattan Athletic Club, has lately erected a magnificent building on Madison Avenue, at a cost of nearly one million dollars. It is furnished with a theater, gymnastic apparatus, swimming and other baths, running course and all kinds of paraphernalia calculated to delight the athlete and encourage muscular development. The membership is limited to 3,000. In addition to its grand city building, the club owns an island on Long Island Sound, near the city, used for sporting purposes, and another island on the New England coast, where members may hunt and fish.

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