THE GRIP OF THE BRIDGE CARS.

Wooden-Bound Grooved Wheels that Grasp the Cable as it Runs.

Passengers on the New York and Brooklyn Bridge on Saturday observed curiously the movement of the huge wire rope running rapidly over the sheaves most of the day. Many peered anxiously over the fence at the side of the footpath in the hope of seeing the cars move. But only the great rope ran silently on, and so accurately was it set that the movement could hardly be perceived. No cars came along. The observers had to be content with watching the big wheels at either end over which the rope runs and wondering where was the power that made the rope go.

Meanwhile, in the engine room at Main street, Brooklyn, the big steam engines were tugging away at the rope and whirling it around the drums, as if it were a bit of thread wound up on a spool which was never full and never empty. The object of running the rope was to regulate the cut-off valves on the engines so that the steam can be used most economically, and to get the machinery in perfect running order. Everything worked well with the exception of a little heating of journals, which was soon remedied. Col. Paine had the splice painted white, so that he could observe whether that portion of the rope worked differently from the rest. Thus far the experiments have been satisfactory, and the splice has worked through the grip, as it is called, with no perceptible difference as compared with the remainder of the rope. It was feared that the grip might work up a strand of the rope at the splicing, and prevent its running evenly though the sheaves, but nothing of the kind was perceived. This goes to establish the good judgment of adopting the long splice.

Before the cars can start each one must be fitted with the grip. Only one car as yet has been fitted with it. This grip was invented by Col. Paine. It has been in use several years, but it has required some adaptation for the heavy work required on the bridge. It is to be borne in mind that the object to be attained was to make a contrivance that would grasp the rope so firmly as to enable the rope to draw the car, yet not so firmly as to injure the rope, nor so suddenly as to make a dangerous strain on the rope or a sudden jerk of the car. Two pairs of grooved wheels are mounted horizontally so that the wire rope may run through them underneath the car, about five inches from the top of the pulleys or sheaves in the roadbed. When the car is in motion the rope will be constantly lifted by a forerunning wheel from the groove in the sheaves of the roadbed, and let down back to its place when the car has passed. The grip wheels are faced in the grooves with wood so as not to injure the rope. They are set in a frame and are pressed against the cable by levers. The frame is connected with an ordinary break on the car wheels at each end of the car. There is a very ingenious device by which the car brakes are automatically detached when the grip has seized the rope. This is necessary to prevent injury to the rope by any carelessness of the brakeman in putting on the brakes while the grip has hold of the rope, thus compelling the rope to drag the car while the wheels locked. The cars are to be pushed by motors from the depots toward the spot where the endless rope is running ready to drag them, which is a short distance from the starting point of the cars on each side of the river. The cars, when once started on their way, will go of themselves on the down grade to the place where the grip takes hold of the moving rope.

When the brakeman first puts on the grip the effect is simply to grasp the rope in the wooden-clad grooved wheels through which it runs. These wheels now revolve, but the car yet stands still. Gradually a shoe brake pressing on the inside of the flanged rim of each grooved wheel is brought to bear, and thus the motion of the wheels is slowly arrested. As the motion slows, the cars begin to move, and when the wheels have ceased to revolve, owing to the continually increased pressure of the shoe brakes, the car will be moving at exactly the rate of the cable. The strain, it will be seen, must still be borne by the wheels, but the wood takes on the wire cable, but this held is taken in such a manner that the principal friction and wear falls on the shoe brakes. When the brakeman wishes to stop the car he must first release the grip from the moving rope; next, before he can put on the brake, the machinery is so arranged that he must fix the grip so that it cannot be interfered with; then he can put on the car brakes, which are much like the brakes used on street cars.

If from any cause it is necessary to brake-up suddenly, or to aid the ordinary brake, a vacuum brake may be called into use. This is merely power in storage, to be used only when extra occasion requires. A cylinder is exhausted of air when the car is coupled to a locomotive, and a gauge shows how much power is in reserve. It is, of course, almost impossible that both brakes could be put on while the grip has hold of the moving rope. But if by any accident there should be such a state of affairs the result would be simply that the cars would be dragged along, while their wheels would not revolve, and would thus put considerable strain on the rope. There is an arrangement by which it is rendered impossible to operate the brake and grip at one end of the car while those at the other end are in use.

There is another device to avoid the consequences of thoughtlessness on the part of a brakeman. This consists of a trip by means of which, when a car is approaching its station, the grip on the moving rope is released, and the power that moves the car is thus withdrawn. This is accomplished by a protruding bar, which is set to strike a block at the point where it is desired to let the car free from the moving rope.

There are many other appliances which have been necessary to adapt the machinery to the comparatively new work to be done. But the experiments with the grip machinery have proved so satisfactory that the patterns on which the first cars were made will be used to make all the others. How much time it will require to do this Col. Paine cannot tell, but it must take several weeks before any attempt can be made to run the cars for the public. One problem yet remains to be solved, which is the stretch of the rope. Machinery is provided to take up 120 feet of stretch, which experience has shown to be a fair allowance even for the work required of the bridge traction rope.

Some work remains to be done at the New York end in preparing trucks which are to shift the passenger cars from the north to the south track. The independent endless rope which is to move these shifting trucks is to be spliced immediately, but no delay will be occasioned by this part of the work, as it can be done long before the new grips are ready.

The temporary bridge across Sands street is finished, and the work of preparing the depot for extra cars at the Brooklyn end is in progress, and will be ready for use as soon as the grips are ready, although probably it will not be roofed at that time.

A CRACK VIRGINIA SHOT.

The Exploits of a Mountaineer who is Sure Death to Deer, Ducks, and Geese.

From the Philadelphia Times.

CHARLESTOWN, W. Va., Aug. 4.—Among the spurs of the Blue Ridge Mountains none are more picturesque and rugged than the Capon range. Here lives Julius S. Waddle. Coming of a pioneer stock, his grandfather having been among the first settlers in this section of Virginia, and born, as it were, with a rifle in his shoulder, his natural inclination and instinct led him at an early age to become a marksman, both of his weapon and his word.

Waddle was brought up to use the old-time long sporting rifle, identical, except for its percussion lock, with those used by the Culpepper Minute Men in the Revolution and by all of the characters in Cooper's "Leather Stocking" tales. He was more progressive than his neighbors, and for a time used a double-barrelled, muzzle-loading shotgun, but at the expense of the ridicule of many of his less progressive companions. But there during this period did he bag a brace of deer as they ran past him, one with either barrel. This to be repeated so often is of itself quite remarkable, but not by any means the climax of his success in this sport. Not being satisfied with either the rapidity or range of the shotgun, however, when the Winchester repeating rifle became known to him he adopted it as his weapon, and was again the subject of many jokes in regard to his "popgun."

Joining a party one day in the fall of 1875, a long drive was made. For the benefit of non-sporting readers it may be explained that "a drive" for deer is about the same as a "beat" for tigers. A mountain or a scope of country is selected, and a large party of men start in the same direction and for a given point, keeping quite a distance apart, and by noise, &c., drive every animal before them, the ground being always selected, so that all the game to keep under cover will have to pass through a narrow body of woods or some such natural road. Here the best shots are invariably stationed to do the execution of the day. It was at one of these crossings that Mr. Waddle was standing on the occasion mentioned when the drivers heard him shoot five times with wonderful rapidity. One of them, an old man, remarked: "That goes Julius with his new-fangled popgun a scarin' everything in the mountain." But when they came up to the place where his fusillade had taken place it was found that Mr. Waddle had had four deer take his crossing, three does and a buck; and being on the side of a ravine, the season late in the fall, he had an uninterrupted view, except for the tree trunks and limbs. As soon as the herd came in sight and at long range he opened fire and dropped one in its tracks, another—the buck—as they passed him, a third was shot a hundred yards further on, and the fourth, stopping to smell the wounded one and in confusion, was shot in the head and fell dead, while the one in it was smelling got up and attempted to run, but was stopped by the fifth shot from Mr. Waddle's unerring rifle. Thus he completed his work of killing four deer without moving out of his tracks. The time consumed could have been but little over a half minute. This I believe to have been one of the greatest—if not the greatest—pieces of shooting ever done in the field of actual sport.

I have also known this gentleman to kill a doe that was standing behind a tree with only her head in sight at a distance of 200 yards. On another occasion I knew him to strike a buck in the head four times in as many shots. It was swimming the South Branch River, near Romney, at a distance of about 150 yards from where Mr. Waddle was standing, when he sank, but was gotten with a boat.

In practice shooting with this same weapon he has broken eighteen glass balls in succession, sprung from a revolving trap at eighteen yards rise; from the same trap, with a shotgun, sixty-six without a miss, at the usual rise. At a pigeon-shooting match in Baltimore, I think, in 1877, he killed twenty-three straight birds and then stopped winner of the match; they were single birds, but thirty yards rise.

Mr. Waddle is also a prodigy with the pistol, having to my certain knowledge killed a buzzard that was sitting in a tree 100 yards off with a navy revolver, and also two crows on the wing, one falling dead 125 yards from him. While hunting on Chesapeake Bay I knew him to kill two wild geese that were out of range of shotguns and swan shot, probably 200 yards, one was shot from the island and the other from the shore, with this same remarkable pistol. There may have been and was, in all probability, some luck in these last few shots, but I have seen him strike a large nail on the head repeatedly, in a friendly pistol practice, at a measured distance of 100 feet.

A Monstrous Serpent in the South African Mountains.

From the Pall Mall Gazette, Aug. 2.

A snake so huge as to suggest the suspicion that the sea serpent has temporarily deserted its native element has been discovered in the Witzenberg Mountains, in South Africa. A resident, who went out to shoot rock rabbits, was sitting quietly waiting, when suddenly, from a large opening in a rock close by, he heard a great noise among these animals. He sat still, wondering what it could mean, when presently an enormous snake appeared.

He describes it as being scaly, and having a head like a good-sized calf, a neck about two feet and a body of about six feet in circumference. Its length about twenty to twenty-five yards. He saw the reptile first draw its hind body forward then, raising the front part of its body to the height of about fifteen feet, it gradually raised itself over a large kranz and disappeared. He thought of firing, but his gun being loaded with very small shot, he was afraid of drawing its attention upon him. He also asserts that he was within fifteen or twenty yards, and had a good view of the snake for about five minutes. A party of hunters went out from the village the ensuing day to hunt the snake, but did not find it, which perhaps was not very surprising.

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