

## IMPROVED FURNITURE CASTERS.

We illustrate herewith three new forms of furniture casters, recently patented through the Scientific American Patent Agency by Mr. Cevendra B. Sheldon, of No. 6 State street, New York city. They seem to possess more than an ordinary degree of novelty and utility among this class of inventions.

The arrangement shown in Fig. 1 consists in a metal ball, which is contained in a cup, B, which is stamped from a single piece of metal, and has its lower edge turned inward so as to confine the caster ball and, besides, a number of small friction balls, inclosed as shown above the latter. Outside of B is a casing, and in the annular space between is placed a lining of india rubber, C, or other elastic material. The friction balls are placed in sufficient numbers to cover about two thirds of the surface of the caster ball, and are prevented from reaching the top of the latter by a cavity on the top of the cup, B. The screw, which attaches the device to the leg, is fastened to the shell of the caster by means of a cup-shaped nut, D, which connects with the body of the shell.

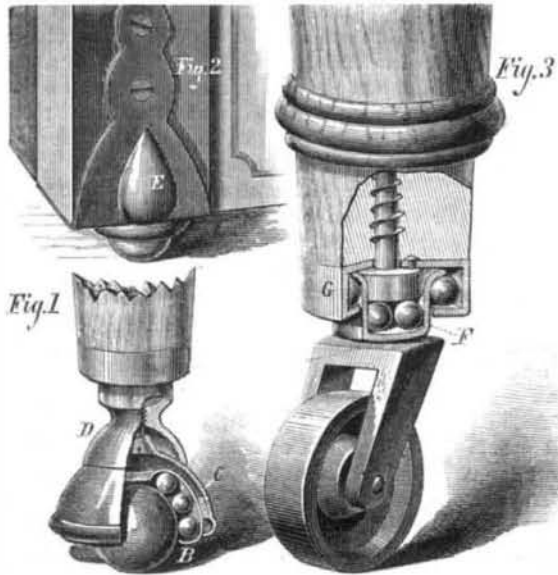


Fig. 2 shows the invention more especially adapted to protecting trunk casters from injury. In this case the cup in which the ball revolves is secured in a cavity formed in the bottom of the trunk by means of tongues, E, struck up from the sheet metal lining of said cavity. Thus arranged, it is stated, the caster will sustain severe concussions and great pressure.

Fig. 3 represents the application of the friction ball system to the ordinary wheel caster. In the top of the bracket is a corrugated cup, F, containing a number of the small spheres. G is a cap rigidly attached to the fastening screw, which forms an annular box outside of the cup, F, and also incloses friction balls, as shown. The head of the fastening screw, it will be noticed, rests upon the balls in the cup, F, while the balls outside the latter serve to keep the caster in place. By this means, it is stated, the friction is greatly reduced, and the caster wheel more readily turns and conforms to the motion of the piece of furniture.

## AUTOMATIC BRAKE.

The inventor of the device herewith illustrated has produced a brake which, whether it be employed in its present form or in such modified shape as occasion may require, will, we consider, be found to be based upon a principle of doubtless considerable value. Briefly described, the apparatus is a combination of brake shoes with suitable springs, whereby the friction of the former is constantly maintained against the periphery of the wheels, so long as no pushing or pulling force is applied to the vehicle; but the moment a slight drag is brought to bear upon the drawbar, the brakes are automatically released, leaving the wheels free to rotate. It is not necessary to particularize, in any detail, the very evident uses to which this invention may be applied. On railroad cars it places in the hands of the engineer the immediate control of the train, as he has simply to cause his engine to cease pulling, when every brake is instantly applied. It is believed to have an advantage over the air and other brakes controlled from the locomotive, in that, while it dispenses with the necessity for brakemen, it requires, as will be seen from the following description, no coupling of tubes or other apparatus between the cars, the simple attaching together of the vehicles in the ordinary mode being all-sufficient to render it ready for immediate action. The device will be found of utility in descending grades, in its automatic check upon the momentum of the train. For horse cars, it is perhaps equally as well adapted, as it avoids the use of cranks to govern the brakes, requiring the use of one hand of the driver, or of an extra

man when double teams are hitched on during bad weather; and besides, it allows of the car stopping at any point almost immediately.

Our engravings are designed to give a clear idea of the mechanism without referring it to any particular class of vehicle. Fig. 1 is an elevation with portions broken away, and Fig. 2 is a plan view of more important parts. Horizontal brake bars, A, are suspended from the car bed by means of longitudinally vibrating hangers, B, and are provided with brake shoes, C, at their extremities, which are made to fit snugly against the peripheries of the wheels. As shown in Fig. 2, and to the right of Fig. 1, the bars, A, are connected in pairs by helical springs, D, which are of sufficient strength to draw the brake shoes closely against the wheels. E E are two rods, the outer ends of which are supported by guides and abut against the two outer brake bars. These rods are designed to release the brakes from the wheels, and are made in curved shape so as to take the position shown in Fig. 1, that is, one above and the other below the two intermediate brake bars. Shoulders are formed upon them at F, which abut against the intermediate brake bars, and which operate in conjunction with the ends to release the brakes. G is a hanger secured rigidly to the car bed, and pivoted to which is a lever, H, the upper end of which plays loosely in a longitudinally movable drawbar, I, which is attached to the car bed by suitable guides. To the lever, H, the releasing rods, E, are pivoted, as represented, one below and the other above the fulcrum pin. To the extremities of the drawbar, H, are attached drawheads of any desired form, which are backed by the usual supports to take the strain. It is evident, if the drawhead on the right be moved in the direction of the arrow, one of the shoulders and one of the extremities of each releasing rod, E, will press against their respective brake bars, A, and force the brake shoes from the wheels, and a similar effect will take place if the opposite drawhead be pulled upon. Hence, as we noted in the beginning, it is merely necessary to remove the strain to cause the instant application of the brakes by the contraction of the springs, while their removal is effected with equal celerity as soon as even a slight force is re-applied.

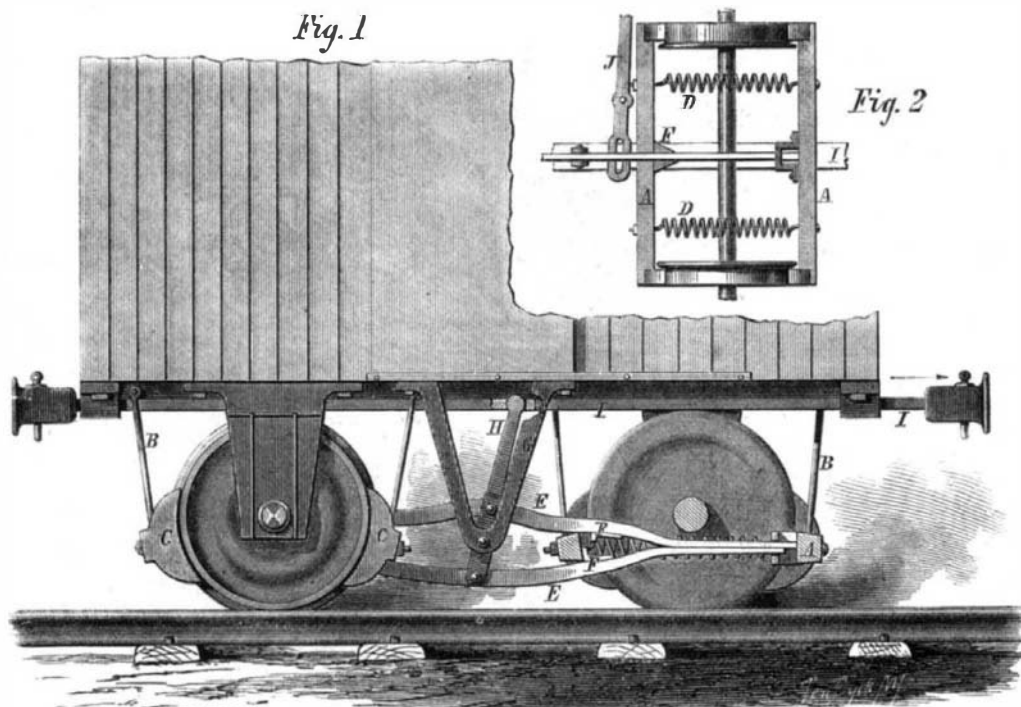
If it should be desired to release the wheels of a car from its brakes, this can be readily done by means of a lever, J, Fig. 2, which is pivoted to the car bed and connected by an oblong slot and pin to the drawbar, H. The outer end of the lever may be attached to a suitable winding-up rod by a chain and ratchet mechanism, so that the brakes may be held off for any required time. This contrivance, we learn, may be placed at one or both ends of the car and operated by a person on the platform.

It will be noted that the springs not only serve to apply the brakes, but that they also will operate as buffers to prevent shocks and concussions while a train is being made up or is in motion. The inventor also states that the device is applicable to ordinary wagons, and that he has thus employed it with much success. The draft tongue in such case is attached to the drawbar and a locking device applied to it, for allowing the springs to hold the brakes in contact with the wagon wheels while descending hills.

Patented November 11, 1873. For further particulars address the inventor, Mr. Eliot P. Harrington, Volusia, Chautauqua county, N. Y.

## Benefactions of an Inventor.

A few weeks ago we announced the death of Seth Adams, of Boston, an inventor of no small reputation, who had amassed a large fortune out of his patents and the business



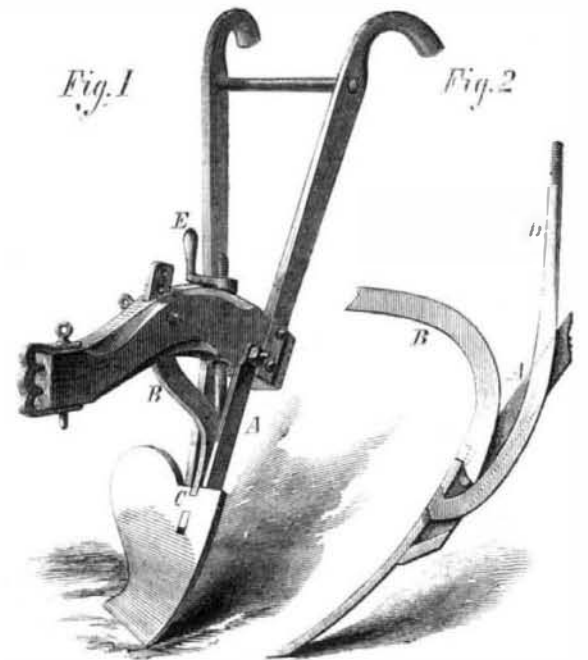
## HARRINGTON'S AUTOMATIC BRAKE.

he had built up under their fostering protection. The following are among the public benefactions, designated in his will, to Boston charitable institutions: \$1,000 to the Needle Woman's Friend Society; \$30,000 to the Consumptives' Home; \$20,000 to the Home for Aged Men; \$20,000 to the Association for the Relief of Aged Females; \$10,000 to the Baldwin Place Home for Little Wanderers; \$5,000 to the Boston Provident Association; \$1,000 to the Industrial So-

ciety of Boston; \$500 to the North End Mission; \$1,000 to the Boston Young Women's Christian Association; \$500 to the Children's Aid Society; \$800 to the Female Orphan Asylum; \$500 to the Temporary Home for the Destitute; \$500 to the Children's Hospital; and \$1,000 to the Society for the Prevention of Cruelty to Animals. A liberal sum is also donated to the town of Rochester, N. H., to be known as the Adams Fund, the income of which is to be paid to poor widows and orphans of that town.

## IMPROVED PLOW.

The object of the new form of plow herewith represented is to avoid the use of the heel bolt, and to allow the plowshare to be removed or placed in position with increased fa-



cility and celerity, simply by turning a hand screw on top of the beam. It is claimed that there is nothing about the device to wear out, give way, get lost or misplaced, or become out of order. No single portion is detached at any time, and the operator can tighten the fastening apparatus while plowing with perfect ease.

The standard bars, A, are set into recesses of the beam and pivoted thereto by a strong cross bolt. Their lower ends are rigidly connected so as to form a firm support for the under side of the plowshare. B is a curved brace, also rigidly attached to bars, A, and extending up through a mortise in the beam. Its upper end is perforated so that the brace may be locked by a crossbar, according to the angle of inclination under which the plowshare is set. A lug, C, formed upon the same brace, projects at its lower end beyond the standard, A, and is applied like a jaw into a recess of the share, as more clearly shown in the perspective view, Fig. 1. D is the adjusting rod, which passes between the standards and up through a conical perforation in the beam. Its upper end is threaded and raised or lowered by a suitable crank, E. The lower extremity curves around the brace, B, and projects beyond the standards into an aperture in the plowshare, as shown in section, Fig. 2. The share is therefore held in a firm and wedge-like gripe between the tapering jaw on the adjusting rod, and that already noted on the brace, B.

Different shares, we are informed, may in this manner be attached to the plow, as necessitated by the various requirements of farming, and their angles of elevation and depression be determined by simply adjusting the fore end of the brace.

The arrangement generally, the inventor states, is such as to offer no resistance to the soil slipping smoothly over, as there are no bolt heads or similar projections to catch. The plow also has a deep evenly curved throat, so that it cannot choke with grass, weeds, etc. We learn that the device obtained the highest premium at the Fair of the Georgia State Agricultural Society, at Macon, Ga.

Patented through the Scientific American Patent Agency, November 11, 1873. For further particulars address the inventor, Mr. Andrews Riviere, Barnesville, Pike county, Ga.

J. WRITES to complain of the unnecessary delay of the courts in adjudicating on patent cases; and he thinks that inventors whose rights have been infringed are hardly treated. He states that the equity calendar of the Southern District of the State of New York has on it a long list of cases which have been ready for hearing for a year or more.