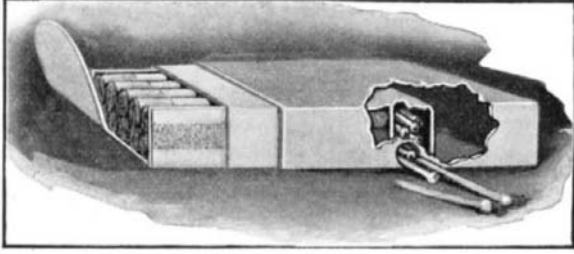


**CIGARETTE BOX WITH MATCH RECEPTACLE.**

The cigarette box illustrated herewith will appeal to the smoker who is invariably just out of matches. It seems but common sense to furnish with the cigarettes in each box, a means for lighting them. This is very simply and neatly done in the box which we illustrate, and which was invented by Mr. Alcibiades G. Psiaki, of 104 Wall Street, New York. The box has the usual construction, except that a chamber is formed at the inner end of the tray portion to receive the matches. This chamber is open at one side and is adapted to register with an opening in the side of

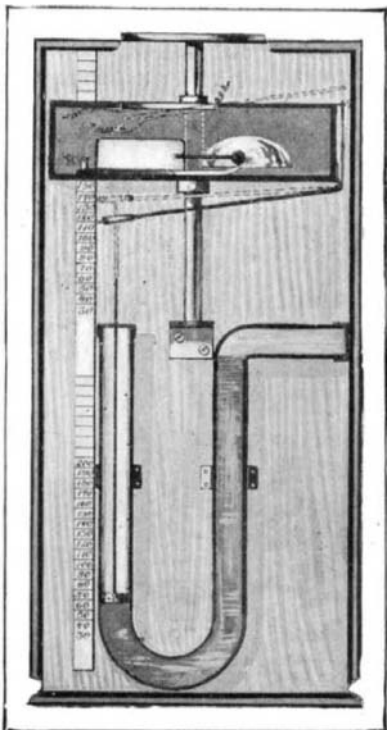
**CIGARETTE BOX WITH MATCH RECEPTACLE.**

the outer casing when the tray is drawn out half way. At the forward end of the tray is a sanded portion on which the matches may be ignited. When it is desired to use a cigarette the tray is drawn out until the match chamber is brought in line with the opening in the casing. A cigarette may then be taken out and lighted by means of a match shaken out of the chamber and ignited on the sanded portion. In order to prevent the cigarettes from falling out when the box is tilted to remove the matches, a flap is provided which fits over the cigarettes to within a short distance of their outer ends. The construction of the box is such that it can be very cheaply manufactured.

**AUTOMATIC ELECTRIC FIRE ALARM.**

A patent has recently been granted to Mr. Herbert Trull, of Fernie, Box 311, British Columbia, Canada, for an improved electric alarm, which is automatically sounded to indicate the presence of fire. This alarm system is particularly adapted for use in hotels or apartment houses. An alarm device is placed in each room of the building, and when the heat in any room rises to a point which indicates the existence of a fire, an annunciator in the clerk's office automatically reports in what particular room the fire has started, and at the same time the alarm bells throughout the building are sounded to warn the occupants. The alarm device used is illustrated in the accompanying engraving. It consists of a baseboard, at the upper end of which a box is mounted on a vertical rod supported in brackets. Within the box is the electric alarm bell. Hinged to the box at the top is a contact lever, whose left-hand end is weighted to normally hold the lever in the position illustrated by dotted lines. The lever may, however, be held in the position indicated by full lines, when its outer end engages an eye in one end of a bell-crank lever, which is hinged to the lower right-hand corner of the box.

The opposite end of this bell-crank lever is arranged to be swung to the position illustrated in dotted lines, when the heat reaches a predetermined degree of temperature, thus releasing the contact lever. The bell-crank lever is raised by means of a plunger, which projects from one arm of a U-shaped tube mounted on the baseboard. The plunger head rests on a quantity of mercury held in this tube.

**AUTOMATIC FIRE ALARM.**

The other arm of the tube is hermetically sealed, and contains at its extreme end a quantity of liquid, which is easily volatilized by excessive heat, thus depressing the mercury and raising the plunger to the dotted position. This, as above stated, causes the contact lever to drop, and while dropping it brushes past a contact spring, which momentarily completes the cir-

cuit to the annunciator and sets it. The weighted end of the lever then comes to rest on a second contact spring, which completes a circuit through all the alarm bells in the building, and sets them to ringing. The alarm box, it will be observed, is held in place by means of a collar and set screw on the supporting rod. By moving this collar up or down, the box will be raised or lowered, and the contact lever will be released at a correspondingly higher or lower degree of temperature. The exact degree of temperature at which the parts will be set in action is indicated on the scale placed at one side of the baseboard.

**Brief Notes Concerning Patents.**

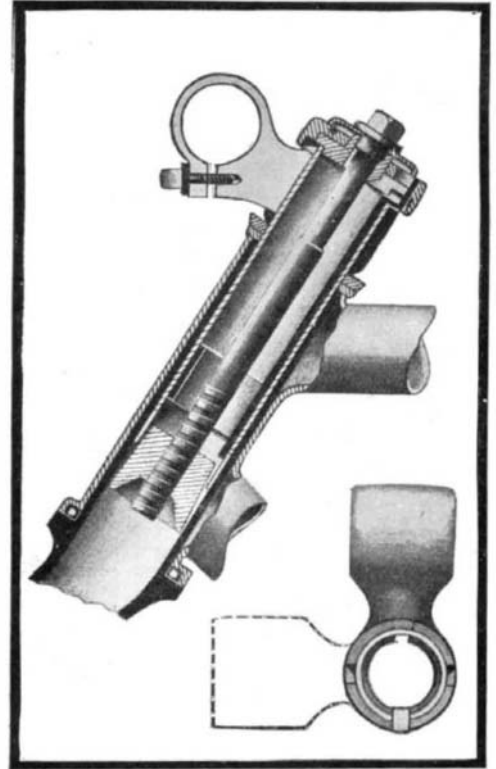
In the handling of the suburban traffic of the larger cities, the greatest source of delay is that at the stations, where much time is lost in getting the passengers on and off the trains. When this problem was struggled with at the time of the Columbian Exposition, the Illinois Central overcame the trouble by the construction of cars with doors extending the entire length and on both sides. It was by the use of these cars that the company was enabled to safely transport 19,000,000 passengers with great facility; and while these cars were eminently successful in operation they were not regarded as entirely suited for the regular railroad traffic. An improved car has just been adopted by that line which it is thought will meet all the demands, as it was designed by two officers of that line who have had long experience and who have given this particular subject a great deal of study. They are W. A. Sullivan, Assistant Second Vice President, and William Renshaw, Superintendent of Machinery. The cars are vestibuled and are supplied with side doors extending the entire length of the car. The doors may be operated singly or all at once by a train hand from his position at the end of the car. The seats extend crosswise in the middle of the car and each seat has accommodations for four persons. An eighteen inch aisle extends the whole length of the car on either side, so that when a passenger has entered at one of the doors he can find his way to any part of the car or to any of the other cars of the train. This is a feature which was not present in the construction of the cars referred to above for the Columbian Exposition service, and it was one of the serious drawbacks of their use that passengers were first compelled to find their seats before entering the car.

A new type of fishhook, the invention of J. E. Hindon Hyde, of New York, shows how even the simplest things of common life can be readily improved. The improvement consists in transferring the barb of the hook from the inside of the point, that is, between the point and the shank, to the opposite side of the point so that it lies on the outside of the hook. The advantage of the new hook is that it renders it much more difficult for a hooked fish to release himself upon a slack line. This is due to the fact that the new location of the barb creates a bar to the extraction of the hook after it has penetrated, and also to the fact that the barb, instead of playing against the soft mucous membrane of the mouth to prevent release as in the old style of hook, presses against the hard epidermis.

**IMPROVED SUPPORT FOR BICYCLE HANDLE BARS.**

Considerable difficulty is often experienced when resting a bicycle against a wall, tree or other support, owing to the projecting handle bars, which are apt to swing the front wheel about and cause it to run away from the support. To overcome this difficulty Mr. Robert H. Tate, of 392 Columbia Street, Portland, Ore., has invented the bicycle handle-bar support illustrated herewith, which permits the handle bar to be swung about until it lies parallel with the front wheel, whenever desired. When in riding position, however, the handle bars are automatically locked in a position at right angles with the front wheel. The handle bars are secured in a clamp provided with a body sleeve which fits over the tubular handle-bar post. The latter is secured to the front fork stem by means of a tapered nut which expands the lower end of the handle-bar post and presses it into frictional engagement with the fork stem. A collar is supported on the top of the handle-bar post, and over this an adjusting cap is mounted which controls the locking mechanism. The locking device consists of a bar formed at its lower end with a split sleeve adapted to fit tightly within the hollow handle-bar post. Near its upper end the bar is bent or crooked to engage a slot in the upper edge of the handle-bar post, and also one of three slots formed in the upper edge of the body sleeve of the handle-bar clamp. The extreme upper end of the locking bar engages a cam slot in the adjusting cap. When this cap is turned the cam slot draws the locking bar toward the center of the cap and out of engagement with the body sleeve of the handle-bar clamp, permitting the latter to be swung around either to the right or to the left until the handle bars are parallel with the front wheel, when another one of the three

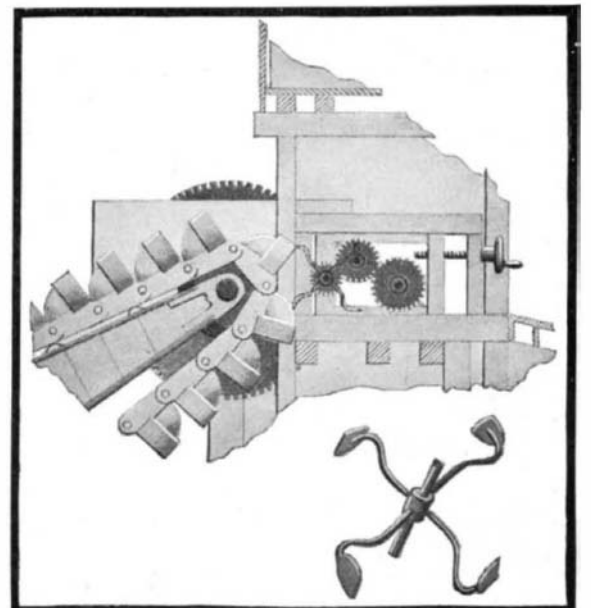
slots is brought into registry with the slot in the handle-bar post. The adjusting cap is automatically brought back to normal position by a coil spring acting

**IMPROVED SUPPORT FOR BICYCLE HANDLE BARS.**

thereon, and the locking bar is thus free to slip into the registering slots, locking the parts securely together.

**DREDGE ATTACHMENT.**

In the accompanying illustration we picture a means for automatically clearing out the buckets of dredges. This means is especially adapted to dredges in which the buckets are arranged on an endless chain, the buckets dumping as they turn over at the upper part of the dredge. In this class of dredges, especially when working in clay and stiff soils, the buckets often fail to dump completely, the amount accumulating therein and eventually entirely filling them with a substance of such consistency that it cannot be dislodged in the ordinary operation of the dredger. To overcome this objection Mr. Herman A. Funke, of Elizabethtown, New Mexico, provides a scraper device, which is arranged to automatically enter each bucket as it arrives at the dumping position, and throw out therefrom all the accumulated material. As shown in our detail view, the scraper comprises a hub carrying radial arms, on the ends of which the scraper blades are secured. The scraper is mounted on a shaft, which has bearings in a frame arranged to be adjusted to any desired position by means of an adjusting screw. The arrangement of the scraper blades is such that as each dredger bucket turns down into dumping position, it moves over one of the scraper blades, bearing it down, and thus rotating the scraper device. The same operation, of course, is repeated as each bucket engages

**DREDGE ATTACHMENT.**

the scraper. Every time the bucket moves into engagement with one of the scraper blades, the blade is caused to scrape through the bucket, and effectually clear out the accumulation therein. In order to prevent the scraper from rotating by its own momentum, and thus disturbing its proper relations to the successively arriving buckets, a train of gearing is connected with the scraper device, which produces a certain amount of friction that retards its rotation.