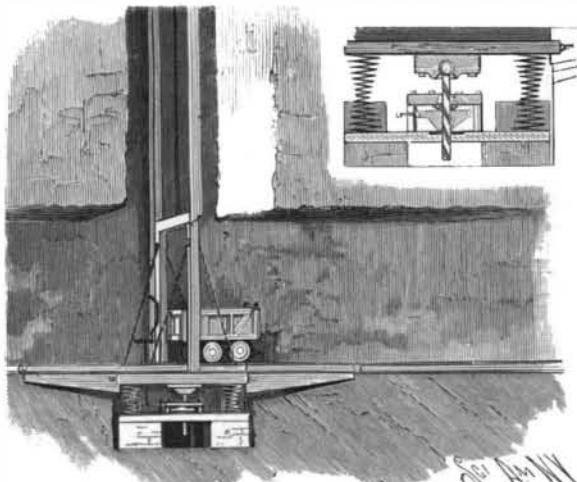


A STOP FOR ELEVATORS AND MINING SHAFTS.

The illustration represents a device adapted to stop the cages in elevator wells, mining shafts, etc., serving as a cushion to receive the descending cage, thus allowing the engineer to run it with greater speed and

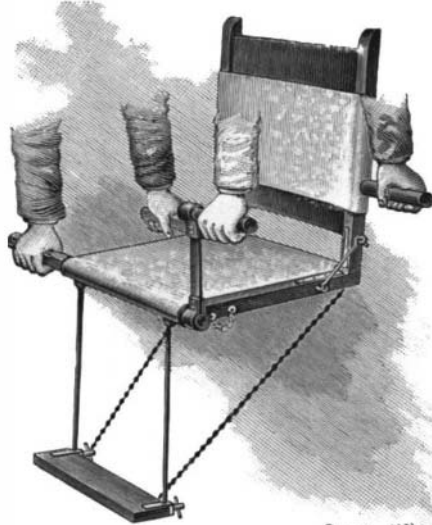


BELL & WILLIAMS' STOP FOR ELEVATORS AND MINING SHAFTS.

preventing damage to the cage from coming suddenly to the bottom. The improvement has been patented by Thomas Bell and John S. Williams, of Krebs, Indian Territory. The top striking platform is supported on springs resting on a suitably supported base plate, the downward movement of the striking plate being also limited by blocks on the base plate. Depending from the under side of the striking plate, and connected therewith by a ball joint, as shown in the sectional view, is a screw which extends through a support and through a ratchet wheel, a key in which engages the thread of the screw, so that the vertical movement of the screw turns the wheel, the screw also extending downward through a base plate and wear plate. The ratchet wheel is tapered on its under side to turn with but little friction when the plate and screw are depressed, but it turns with considerable friction when the plate is being lifted. The wheel is prevented from turning by a pawl fulcrumed on its under side, and the outer end of the pawl is pivoted to a connecting rod extending to the lower end of a lever, a spring-pressed extension of which extends into the path of the cage, whereby, as the cage ascends, the pawl will be automatically released, allowing the ratchet wheel to turn and the striking plate to rise. The locking of the stop device in its depressed condition holds the cage or car stationary while it is being unloaded or loaded.

A FOLDING INVALID CHAIR.

This very simple form of chair, to facilitate carrying invalids in upright position from one place to another, has been patented by Bernard E. Jamme (address in care of John Woolley, No. 111 Fifth Avenue, New York City). The invention consists principally of the handles at different heights on opposite sides of the chair, rendering it easier for two persons to carry up and down stairs and elsewhere an invalid seated in the chair. The chair may be placed upon the edge of a bed and the patient moved upon it or from it with the greatest ease, and when not in use it can be readily folded into a small, compact bundle.



JAMME'S FOLDING INVALID CHAIR.

A PORTABLE ELECTRIC PROPELLER FOR BOATS.

Among the multitude of inventions that are offered to the public day by day there are some that commend themselves to the judgment at first sight, and fill off-hand a long-felt want. The electric boat propeller, as shown in the accompanying views, is surely one such invention as mentioned above. It has the accumulated advantages of being cheap, portable, compact, and thoroughly safe to the user. Briefly described, it consists of a movable tube which is hinged at the stern of the boat, much as an oar is used in sculling. The tube contains a flexible shaft formed of three coils of phosphor bronze. This tube extends down and out into the water, where it carries a propeller, and at the in-board end an electric motor is attached, which is itself driven by batteries. The rudder and the propeller are thus in one, and the steering properties of a boat so fitted would be very swift and powerful. The tube, with its inclosed flexible shaft, is partly filled with oil; and these parts are thus automatically and constantly lubricated. The rate of speed is from three to five miles per hour. The combined propeller, motor, and rudder weigh only 35 pounds for a 10 foot to 18 foot boat. The batteries weigh from 100 pounds to 275 pounds, but being in four parts are easily handled.

This very ingenious and effective invention will be gladly welcomed by the sea and river sportsman. Its handiness and noiselessness make it admirably adapted to duck shooting; and it will commend itself at once to the special needs of the fisherman. All sportsmen, at one time or another, when they have been following the windings of some narrow stream, or threading their way through the mazes of a rush-grown marsh, have wished for a means of propulsion of smaller compass than a pair of sculls, or even a canoe paddle. The electric propeller, working snugly in the wake of the boat, is admirably adapted for such work, or for any



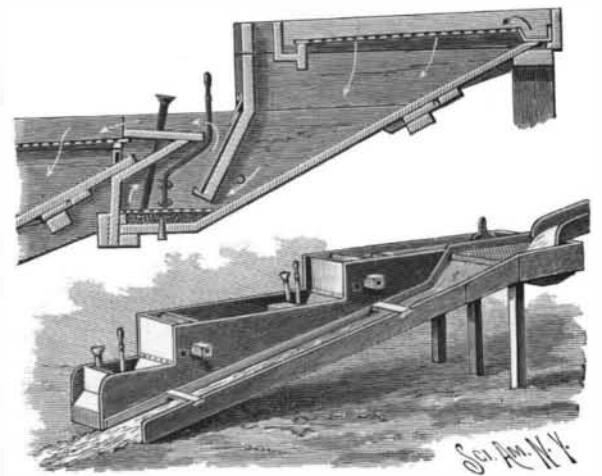
A PORTABLE ELECTRIC PROPELLER FOR BOATS.

circumstances where a boat has to be handled in a crowded wakeway. This handy device is manufactured by the Electric Boat Company, of 136 Liberty Street, New York City. The motor, propeller, and batteries can be purchased for \$150, and the running expenses amount to only 5 cents per hour.

A GOLD SAVING APPARATUS.

The illustration represents, in sectional side elevation and in perspective, a gold saving apparatus designed to save nuggets, coarse gold, and flour gold, with but a small expenditure of water and labor. A patent has been granted for the improvement to Dennis G. Frisbie, Dayton, Wyoming. The hopper into which discharges the sluice box carrying water and gold-bearing sand from the placer mine or the quartz mill has a false bottom over which large rocks and other coarse tailings pass into a tailing chute, the gold, sand and water passing through the coarse perforations in the false bottom into a transverse channel leading into a nugget box in the upper end of a hopper, as shown in the sectional view. This hopper has a perforated bottom through which the gold-bearing sand and water pass to a settling tank with inclined bottom, there being a transverse passage at one end of the hopper into the tailing chute. At the lower end of the settling tank is a gold-retaining chamber, with a perforated false bottom under which is mercury, the bottom being preferably hung on an upwardly extending lever, which the operator shakes several times a day. The dividing partition between the chamber and the settling tank is inclined, and carries a removable copper plate adapted to take up any gold in the flow of the gold-bearing sand, as it passes over to a second hopper with perforated bottom and settling tank, with gold-

retaining chamber at its lower end, the perforations or meshes of the second hopper being finer than those of the first. A pipe leading to the bottom of each gold-retaining chamber facilitates the introduction of a new supply of mercury when necessary. Any mercury



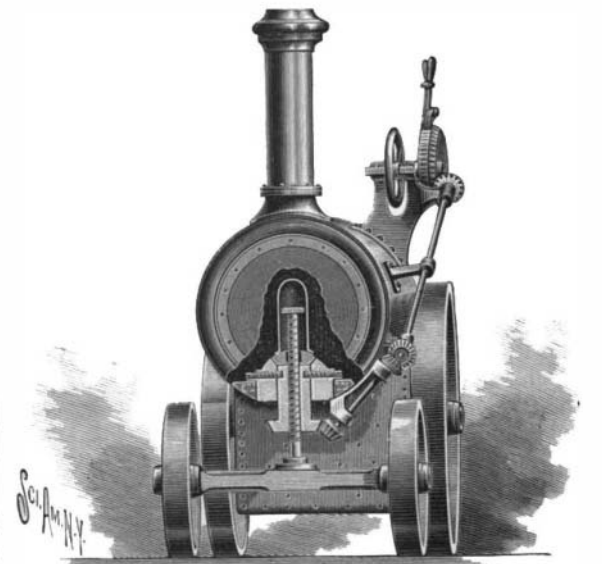
FRISBIE'S GOLD SAVING APPARATUS.

escaping from the quartz mill is readily caught and retained in this machine.

In a series of interesting experiments made to ascertain why trees are so frequently struck by lightning, it was demonstrated that the green wood is in all cases a bad conductor of electricity, and so much the worse in proportion as the tree is richer in oil. On the contrary, the green wood of such trees as are poor in oil conducts electricity relatively well. Living wood is a much better conductor than dead. The existence of dead branches in trees of both categories, therefore, increases the danger.

A BOILER LEVELING DEVICE.

An improvement by means of which portable boilers, traction engines, and similar machines may be conveniently brought to a horizontal position when standing on uneven ground, or traveling up or down a hill, is represented in the accompanying illustration, and has been patented by Willie C. Hancock, of Albany, Ky. An upwardly extending screw rod is fastened to the front axle, and on the rod is a revoluble nut in the under side of a block, the nut being held in place by set screws engaging an annular recess in the upper part of the nut. The block has on its sides trunnions journaled in the smoke box of the boiler, shown in the broken away portion of the engraving. The screw rod extends through the top of the block into a tubular extension or casing, to protect it from soot, etc. On the lower end of the revoluble nut is a beveled gear in mesh with a pinion on a short shaft whose other end has a bevel gear connection with a shaft extending up and back at one side of the boiler, the latter shaft having a bevel gear connection with a larger gear wheel with ratchet teeth engaged by a pawl on a lever fulcrumed on the shaft of the large gear wheel. By operating this lever, motion is communicated through the gear wheels and shafts to the revoluble nut, to raise the front end of the boiler, and to lower it the pawl is disengaged and the large gear wheel is oppositely turned by means of a handle, the weight of the boiler then assisting in rotating the nut.



HANCOCK'S BOILER LEVELING DEVICE.