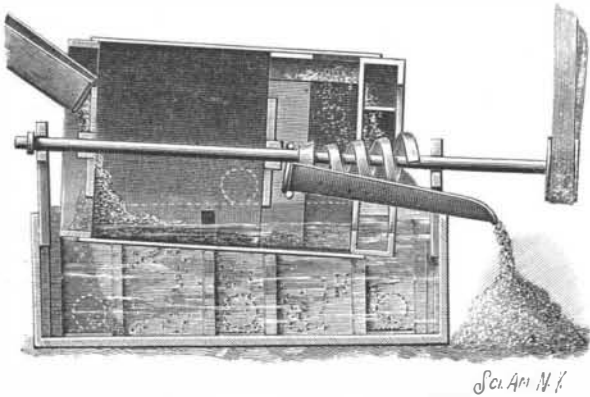


AN IMPROVED GRAVEL SCREEN.

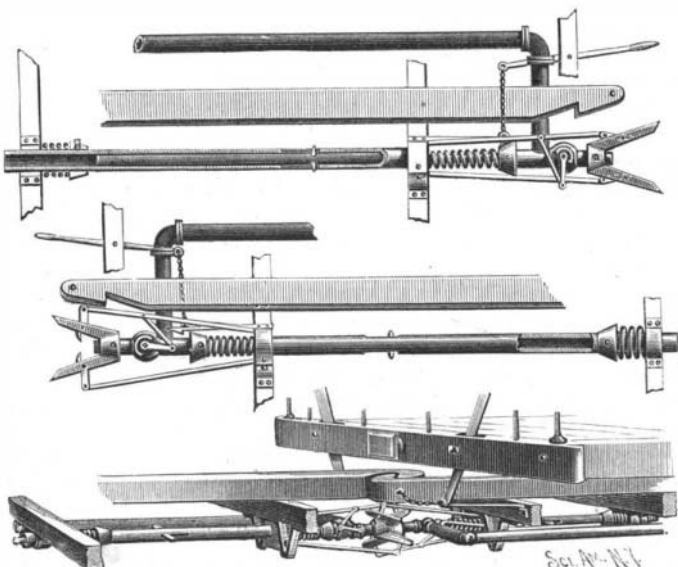
A screen designed to clean gravel economically, cleaning more than can be effected by the dry process in the same time, and which will also clean and save the sand, or clean gravel mixed with clay and loam, is illustrated herewith, and has been patented by Mr. John D. Loughran, of Neosho Falls, Kan. The tank is made preferably with its sides sloping inward to its bottom, and with side outlets near the bottom, each controlled by a slide. Suspended within the tank is an inclined drum screen, mounted on an inclined shaft having its bearings in a frame at each end, the screen having a spider at the end where it is fed, mounted on

**LOUGHRAN'S GRAVEL SCREEN.**

the shaft, the arms of the spider extending to a band or ring which supports the screen at that end. A little way from the other end of the screen is another spider and band, also supporting the screen, and two sets of buckets are placed inside the screen at its lower end. Surrounding the shaft at the bucket end of the screen is a worm conveyor, whose feed is outward on to an inclined chute when the screen is in operation. The material to be cleaned is introduced into the higher end of the screen, the tank being filled with water, and the shaft set in motion, when the centrifugal action of the revolving screen soon rids the material within it of the undesired particles. The screened portion will then be fed over the two sets of buckets, by reason of the inclination of the screen, and deposited upon the outwardly inclined chute, whence the conveyor will push it off the chute. It is said that in wire cloth a one-eighth inch mesh is large enough for cleaning gravel perfectly, and that perforated steel can be economically used instead of wire cloth.

IMPROVED HOSE COUPLING FOR RAILWAY CARS.

The accompanying illustration represents devices for automatically uniting the opposing sections of steam or air pipes located beneath the cars of a train when the cars are themselves coupled. The invention has been patented by Mr. Charles N. Burnett, of Clay Center, Kansas. Fig. 1 is a side elevation of the coupling, partially in section, in an uncoupled position, Fig. 2 being a similar view with the parts in the position occupied when coupled, while Fig. 3 is a perspective view showing the coupling heads connected. A jacket is centrally held longitudinally beneath the car and draw-head, in blocks or boxes secured at a certain distance apart to the car frame, the outer end blocks being secured to a yoke-like spring attached at its ends to the car frame, while at one side of the inner box a collar is formed upon the jacket adapted to engage with one end of a spring coiled around the jacket, the other end

**BURNETT'S HOSE COUPLING FOR RAILWAY CARS.**

resting against the box. This spring is designed to offset back or forward motion of the cars while running and when the cars are coupled. The outer end of the jacket is screwed into the outer box and a rod is projected into the jacket, the outer extremity of the rod being screwed into a coupling pipe, the rod being adapted to reciprocate with a limited move-

ment in the jacket. The outer end of the coupling pipe has a conical flange, and a spring is coiled around the rod between the flange and the outer box. The coupling pipe also has a valve and semicircular flange to limit the throw of a lever secured to the stem of the valve. When this lever is thrown downward the valve is closed, as shown in Fig. 1, and when reversed the valve is opened, as seen in Fig. 2. Upon the outer end of the coupling pipe a coupling head is screwed, the heads being inclined at an angle of about 45 degrees, and oppositely on opposing cars, so that they are always in position for coupling at either end. The head consists of a hub recessed to receive a washer and an outwardly extending tubular rubber cushion, and from the hub aligning arms are projected outward, flaring in opposite directions, a longitudinal slot being produced in each. Within the slot are gripping fingers the outer ends of which are pivotally connected to rods leading rearward, and having their inner ends pivoted in the forward box. The uppermost rod is also pivotally connected with the valve lever through a link. To the end boxes is attached a spring latch bar with a head adapted to engage the conical flange on the coupling pipe, to prevent the valves from closing in the pipes should the pipe heads be accidentally uncoupled. The latch bar is connected by a chain with a lever pivoted above the coupler, and representing the ordinary platform lever used upon passenger cars, whereby the latch may be moved horizontally to admit of uncoupling. Communication is established between the coupling pipe and the main steam or air pipe extending beneath the car by a flexible horizontal pipe intersecting the coupling to the rear of the valve. In the event that the hose should be uncoupled by accident, the valves would not entirely close, and the heads would leave each other freely.

For further information relative to this invention, address the patentee, or Mr. H. G. Higinbotham, Clay Center, Kansas.

The Standard of Ability.

When a young man starts out to learn his trade and goes into a shop, totally unschooled in the manual performance of his duties in the new field of life on which he is entering, it is important that he should bear in mind this fact, viz.: That his position, so far as it relates to himself, is intrinsically an educational one, as much so as in the school or college from which he may have recently graduated. The simple performance of so many hours' work per day, while it has a certain financial measure of value to the employer, has a value to himself when properly considered that is greater than can be measured in currency. As his progress and standing in the school depended on the thorough mental understanding of each progressive step he took, so, only in a more material sense, his advance in mechanical skill and knowledge is dependent on his thoroughly understanding not only the routine detail of his work, but the why and wherefore of each operation. There always has been and probably always will be two classes of mechanics—those who stand at their bench and go through the manual motions of their work like automatic machines, with little more conception of why the results are as they are; and the other, that class of men who make no moves without knowing why and how results are obtained, and the relative importance of each step. This is the mechanical education that counts, the education that schools the mind to a clear comprehension of principles, equally with details, and leads unfailingly to that higher field where skill, diligence, and marked ability find their natural level. The

young man who, on beginning his mechanical education, realizes and acts upon these truths, will develop that ability which is not gauged by mere manual dexterity, but rather that which, when in later years he may be called to design, lay out, and superintend the work of others, will enable him to creditably fill the position. Such positions come to those who bring thought and brains as well as manual dexterity to assist them in their work. To such men we owe the improvements of the age in every branch of mechanics.

It is a fact that too many mechanics work along day after day accomplishing

their work by "main strength and foolishness," which is the direct and legitimate result of a lack of proper and thorough application in their earlier mechanical life. The point emphasized is, that the mind that is able, through careful training and application, to bring to bear a knowledge of principles involved, as well as execution of detail in the work, is the one

that approaches that standard of ability which should be the aim of every young man who is beginning his mechanical education—his work in the shop. When he has attained this, no question of wages will ever trouble him. Such men are always wanted. The supply is not equal to the demand.—*The Stationary Engineer.*

IMPROVED TRUSS FOR ABDOMINAL RUPTURES.

A simple and inexpensive truss, designed to keep its place when adjusted, and maintain a uniform constant pressure on the rupture, while relieving the spermatic cords and vessels of constricting and injurious strains, is illustrated herewith, and has been patented by Dr. Alexander Dallas, of Bayonne City, N. J. The truss pad has a pressing face provided with a recess or cavity opening to its lower edge, and extending upward along the line of the inguinal canal when the pad is applied, to avoid pressure on the spermatic vessels, the face of the pad at both sides of and above the recess bearing on

**DALLAS' TRUSS.**

the ruptured parts, while the lower edge of the pad is inclined to fit the flesh fold between the abdomen and leg. The general pressing face of the pad is concaved transversely of the recess, and there is

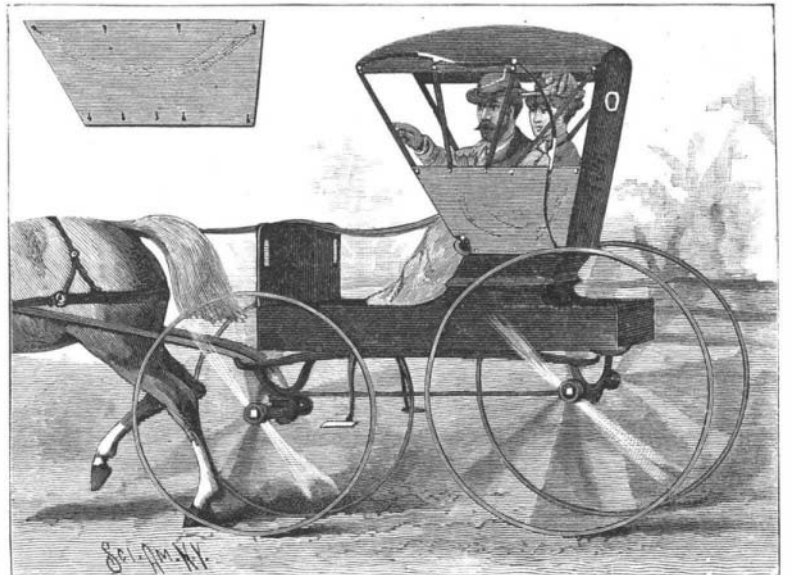
a back plate adapted for the attachment of fastening straps or belts, with springs interposed between the strap plate and presser plate. It is claimed that this truss marks a decided advance in the mechanical treatment of rupture; that it is anatomically correct, painless in use, and from its shape adapts itself so nicely that no movement of the body displaces it, the pressure being over the internal ring, so that the rupture does not protrude at all, while the groove prevents compression of the spermatic cord and vessels.

The New Torpedo Boat.

The Herreshoff Company are building a torpedo boat for the United States government, which is to be 137 ft. long, 14 ft. 6 in. broad, with a depth of hold of 8 ft. Its draught loaded will be 3 ft. 7 in., its displacement under the same conditions is to be 99 tons, and the speed fully equipped is to be 20 knots, though it is stated that the builders expect to get 23. The boat is to be fitted with twin screws and with engines indicating 1,500 horse power. Each engine has five cylinders, having diameters of 11¼ in., 16 in., 22½ in., 23½ in., and 22½ in. The price of the boat is to be \$82,750.

AN IMPROVED SIDE CURTAIN FOR BUGGIES.

The illustration herewith represents a sectional side curtain for buggies, so made that either the bottom or top portion, or both, on either or both sides, may be conveniently put up or taken down, as desired. It is a patented invention of Mr. Joseph W. Thomas, of West Side, Iowa. The side curtains may be made of any suitable material, but each is divided intermediately of its height into two different sections or pieces, the division being horizontal and the upper section being preferably made to slightly overlap the lower one. Each of these curtain sections has along its upper and lower margins a series of buttonholes, as shown in the small view, to provide for their attachment by buttons to the buggy top and lower frame, and for buttoning

**THOMAS' SIDE CURTAIN FOR BUGGIES.**

them together or to the bows where the sections meet and overlap in the middle. By this construction, as will readily be seen, the occupants of a carriage are allowed much greater latitude in arranging its side curtains, according to the different conditions of the weather and the roads, than has heretofore been the case.