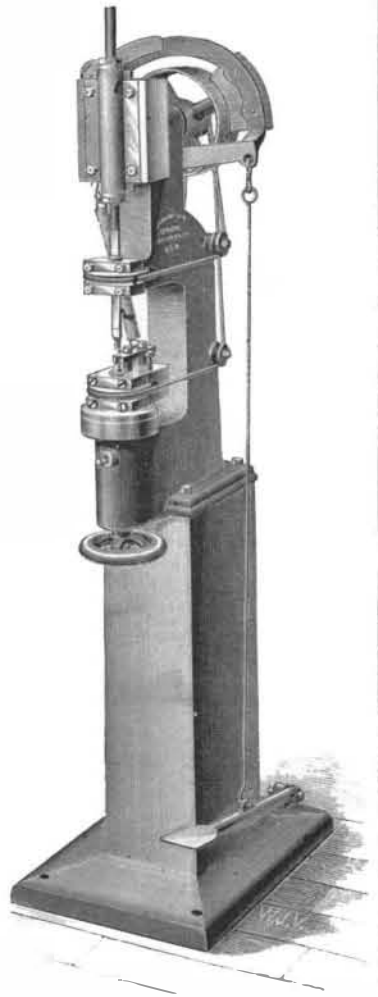


A BICYCLE CHAIN RIVETING MACHINE.

Builders of bicycles have adopted, for the manufacture of their chains, machines for hammering the heads of rivets over instead of spinning them. By spinning, the friction of the spinners against the rivets causes the metal to adhere to the spinner, thus marring and tearing the heads of the rivets. Also, with the spinning machine, it is a very difficult matter to spin over the hardened rivets which most of the bicycle dealers require to be used in their chains. The rivets are hammered by means of a reciprocating rotating hammer, also by a rotating anvil held against endwise movement, in an anvil carrier bolted to the table or support between which the chain passes. The illustration represents an improvement in that class of riveting machines designed to simultaneously head the opposite ends of the rivet, the object being to produce a simple, convenient, and effective machine, containing few parts, having a large capacity for accurate work, and not liable to derangement, at a small cost. The machine shown in the illustration, made by John Adt & Son, New Haven, Conn., is arranged for heading the rivets of bicycle chains.

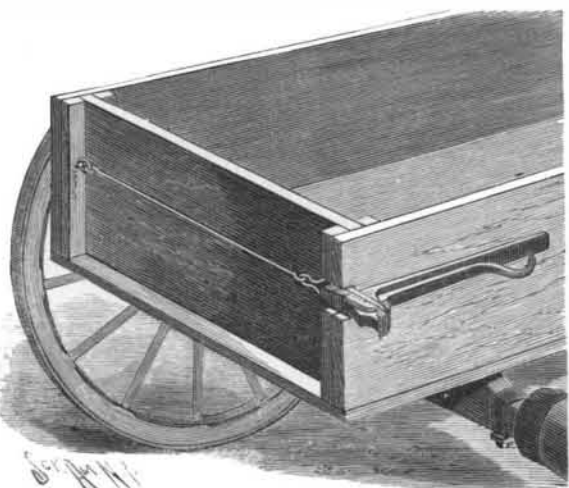


THE JOHN ADT ELASTIC ROTARY BLOW RIVETER.

By removing the lower revolving fixture it is adaptable for the riveting of articles which require riveting. The distance between the revolving hammer and the table is sufficient to allow the placing of fixtures thereon for the purpose of holding the work, thus expediting its manufacture. The largest chain manufacturers in this and foreign countries are now using this machine, which has had several years' prior use as a plain riveting machine, i. e., without lower revolving fixture. It is also largely used by skate manufacturers to rivet the runners of skates to the foot pieces. During the last six months John Adt & Son's factory, F. B. Shuster, proprietor, the manufacturer of these machines, has been worked to its full capacity to keep pace with the orders for riveting machines and patent automatic wire straightening and cutting machines, a large one of which has just been completed and shipped to the Washburn & Moen Manufacturing Company, of Worcester, Mass., weighing nearly six tons and being about 32 feet in length. It is capable of cutting and straightening wire from $\frac{3}{8}$ inch diameter and under and 21 foot lengths down to 1 inch in length.

A WAGON END GATE FASTENER.

A simple and durable device for securely holding the end gate of a wagon in place, and permitting of quickly



BELL'S WAGON END GATE FASTENER.

loosening it for convenient removal, is shown in the accompanying illustration, and has been patented by Samuel W. Bell, of Waynesborough, Va. The end gate slides loosely in cleats, extending through one of

which is a short screw rod with a nut on its outer end and an eye on its inner end, and the eye is connected by a rod with a link adapted to engage a projection from the fulcrum end of a lever pivoted in a bracket attached to the other side of the wagon body. The link is readily engaged with a recess in the outer end of the lever, when the latter is swung outward, after which the lever is swung inward close to the wagon body, as shown in the illustration, thus drawing the two sides of the wagon body toward each other to bind the end gate in place. As the screw eye may be drawn in by means of the nut, any slack in the link and transverse rod may be readily taken up, permitting of always closely binding the sides upon the end gate, and, as the clamping lever is entirely on the outside of the wagon body, it does not obstruct the loading or unloading of the wagon.

Mercury Oxycyanide as an Antiseptic.

According to Drs. Monod and Macaigne, laboratory experiments have shown that the antiseptic power of a 1:200 solution of mercury oxycyanide is equal to, if not greater than, that of a 1:1,000 solution of corrosive sublimate. From the results obtained in upward of four years of hospital and private practice, the authors have come to the conclusion that mercury oxycyanide may be advantageously substituted for mercuric chloride in surgical practice. In accord with Tarnier and Vignal, they have found that a 1:200 solution of mercury oxycyanide, fully as well as, if not better than, a 1:1,000 solution of mercuric chloride, prevents cultures from developing, kills the microbes already developed by cultures, and sterilizes an infected body. To strengthen the evidence, they have been careful not to employ in their experiments pure cultures of streptococci or staphylococci devoid of spores, and consequently presenting but a feeble resistance, but dust from hospital wards, containing various microbes, such as the bacillus pyocyanus, streptococcus, bacillus coli communis, and particularly a microbe resembling the bacillus anthracis and provided with spores, which resists a temperature of 212° Fab. The authors claim to have never met with symptoms of serious intoxication from the solution referred to. It should, however, not be employed for irrigation when there is reason to fear that the injected liquid may be retained. The fact that mercury oxycyanide does not attack steel instruments is also of great practical importance, seeing that it thus becomes possible to employ a single antiseptic agent for all purposes in the course of an operation.—*La Semaine Médicale*.

Horseless Carriages and Sanitation.

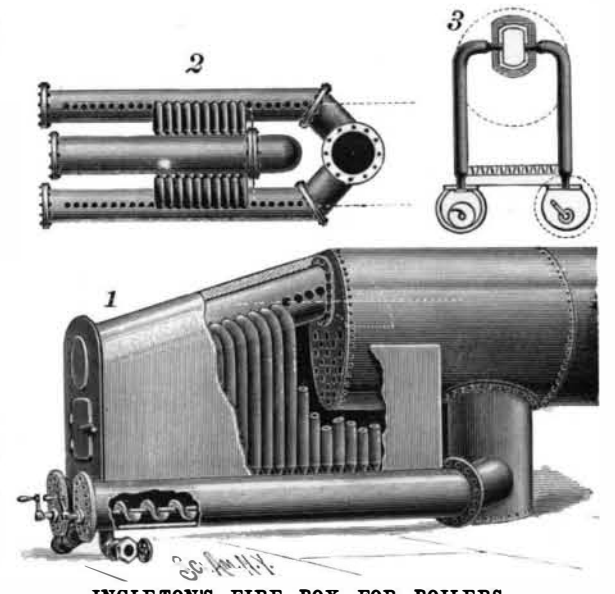
So novel as yet is the mere idea of street traffic without the aid of horse power that the minds of most persons can hardly have touched the practical questions involved in such an arrangement. We are not, however, wholly without evidence bearing upon this subject. The London Lancet says it is needless to discuss the many economic, æsthetic, and social effects which would follow even the partial disuse of the horse as a draught animal. Another question, that of sanitation, calls for more attention from us. Our stables without the horse would be as pure as our homes if we were ourselves visible only as figures of still life, waxen, or ivory models. The stable pit filled with the defiled bedding of our obedient and faithful four legged servant would be known no more to our senses. The contagia bred in its midst and scattered in the dry dust of summer air, to find their way within our sleeping and sitting rooms, would be only the remembered signs of a past and primitive civilization. The germs of glanders would not harbor and be hatched, as they still occasionally are, in the stalls of overcrowded mews. Thus far the margin of profit is on the side of him who charges his vehicle with steam or electric energy. Much remains to be done, and much can be done, in this direction in order to insure not only the health of stabled animals, but of the human population in or near mews. The frequent and regular removal of refuse is one important means to this end, and by means of the methods, at once effectual and simple, employed for this purpose in well kept stables the work of cleansing can be carried out with ease and completeness.

A BOILER FIRE BOX FORMED OF WATER TUBES.

The illustration represents a fire box constructed entirely of tubes, with their ends reduced to allow them to be brought tight together, forming a flame-tight tubular box, there being sufficient material in the tubes where they enter the water legs or drums to admit of proper fastening by expanding in the ordinary way. The improvement has been patented by Edward Ingleton, of Pottstown, Pa. Fig. 1 represents the application of the improvement, parts being broken away to show the construction, while Figs. 2 and 3 are plan and end views, showing the water legs or drums and their connection with the tubes and the boiler. At the bottom of the boiler, and separated from its interior by a grate, is a water pocket, branch pipes from which are connected with two lower wa-

ter drums, in each of which is a screw adapted to be turned by a crank to facilitate the removal of sediment.

The lower water drums are connected on each side, by a series of circulating tubes, with a central upper water drum, which has an upward and rearward inclination, and a nozzle surrounds the opening leading from the upper water leg into the boiler, the nozzle being curved downward to such an extent that its lower end will be below the water line, as indicated by the dotted lines. A throat sheet is carried beneath the boiler, forward of the water pocket, and short non-circulating tubes, suitably capped, here form the rear side portions of the fire box. The fire box is jacketed, there being a packing of asbestos, or other fire proof material, between the jacket and upper drum, and between the circulating tubes and the vertical walls of the fire box jacket. It is designed that this fire box may be readily removed from the boiler for cleaning or for repairs by breaking three joints only, removing the bolts from

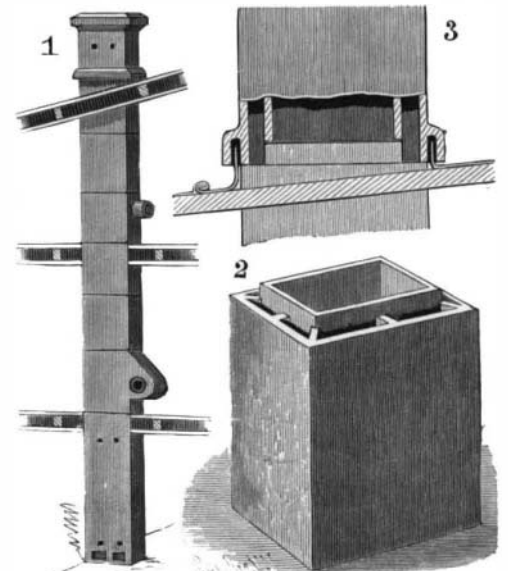


INGLETON'S FIRE BOX FOR BOILERS.

the flanges of the water legs where they connect with the head of the boiler and with the branches from the water pocket.

AN INEXPENSIVE, EFFICIENT CHIMNEY.

The chimney shown in the illustration is designed to be built up of sections after the manner of drain pipes, of clay or other suitable material, each section having an inner wall forming the smoke flue, and connected to the outer wall by ribs. The improvement has been patented by Charles Engert, Humboldt Street and Van Pelt Avenue, Brooklyn, N. Y. Fig. 1 shows the chimney in its relation to the floors and roof of a building, Fig. 2 representing a plain section and Fig. 3 the top section, which has an outside flange to receive the turned-up edge of the tin or other roof sheathing, and thus make a tight weather joint. The lower section is preferably long enough to reach from the basement floor to the floor above, and has bottom holes extending entirely through it, through which the soot may be removed, while other perforations, extending only through the outer wall of the section, in the side flues of the chimney, afford means of ventilation, there being similar openings in the top section above the roof. The several sections are connected by a suitable cement, and on each floor are suitable projections to facilitate making connection with the funnel of a stove or heater, each connection communicating with an inner, upwardly bent auxiliary flue delivering into the main inner flue, and not interfering with the draught of the auxiliary flues below. This



ENGERT'S CHIMNEY.

chimney provides for efficient ventilation, may be quickly built, and the sections break joint in such manner that there is little likelihood of an imperfect joint through which fire and smoke may pass.