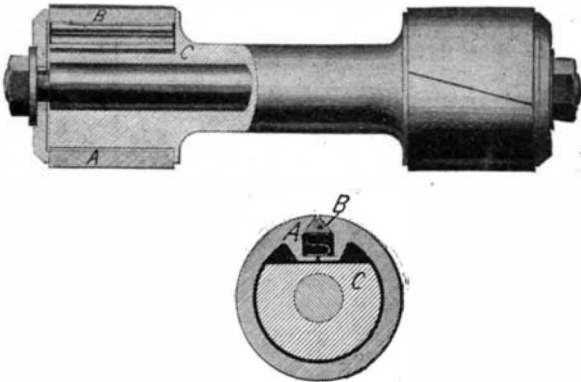




IMPROVED PACKING FOR PISTONS.

Pictured in the accompanying engraving is a new form of packing adapted for use on pistons and the like. The illustration shows the packing applied to a steam-pump piston. The packing ring *A* is loosely fitted on the body *C* of the piston, and the inner edge of the ring bears against a shoulder formed thereon. The

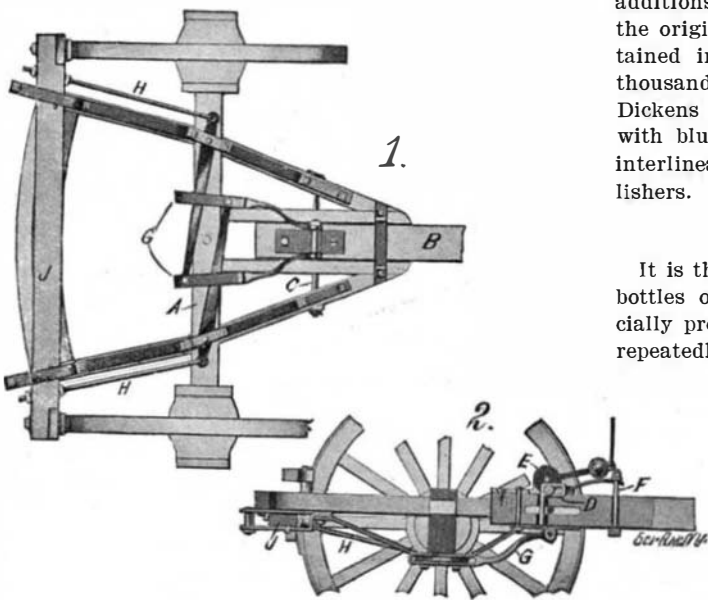


IMPROVED PACKING FOR PISTONS.

ring *A* is retained by a washer, which bears against its outer edge, the washer being held in place by a nut screwed on the outer end of the central piston rod. The packing ring *A* is split, being formed with beveled end walls adapted to engage a spreader bar *B*, of triangular cross section. This spreader bar is engaged and pressed outward by a spring *G* of S-shape, which is held on a seat formed integrally on the inside of the packing ring *A*. Instead of the S-shaped spring, liners or like devices may be employed for forcing the spreader bar *B* outward, with a view to opening the split ring, so as to firmly engage the inner surface of the cylinder in which the piston is used. It will be evident that the outer surface of the ring snugly fits the inner surface of the cylinder in which the piston is used, the ring being spread apart with sufficient force by the spreader bar *F*, so as to prevent all leakage from one side of the piston to the other. The ring is preferably made of steel, while the spreader bar is made of softer metal, such as brass, so as to prevent the outer corner of the spreader bar from cutting into the surface of the cylinder. A patent on this improved packing has been granted to Mr. Stewart Holmes, 357 Douglas Street, Brooklyn, N. Y.

WAGON BRAKE.

The accompanying engraving illustrates a novel form of brake adapted for use on wagons which carry heavy loads. The brake is so arranged that it may be set, to operate automatically when the wagon is traveling downhill. In our illustration Fig. 1 shows the under side of the fore truck, while Fig. 2 shows a longitudinal section through the brake mechanism. The axle is indicated at *A*, and this is provided with the usual hounds supporting guide bars between which the tongue *B* is fitted. A transverse bar *C* passes through the hounds and guide bars and also through a slot in the tongue *B*. A bolt *D* in the tongue *B* passes vertically through the slot therein, to the rear of the bar *C*, so that as the vehicle is drawn forward, the strain is borne by the bolt *D* bearing on the bar *C*. The upper end of the bolt *D* is provided with a lateral extension in which a slot is formed. This slot is engaged by a pin mounted eccentrically upon a disk *E*, which is journaled in bearings on the tongue. A king bolt *F* pro-



WAGON BRAKE.

vides means for securing a draft tree to the pole. Secured to the under side of the tongue *B* are a pair of links *G* formed with slotted rear ends. Connected to these links *G*, and fulcrumed to the axle *A*, in the manner indicated in Fig. 1, are a pair of levers, which are connected by the rods *H* with the brake beam *J*. The latter is mounted to slide in bearings formed on the hounds, and is provided with the usual brake shoes adapted to bear against the wheels. In use, when the vehicle is traveling downhill, it moves forward on the tongue *B*, thus swinging the levers connected to the arms *G* and drawing the brake shoes into contact with the wheels. If it be desired to disconnect the brake the driver swings the disk *E* on its journals by lifting a cord connected to the end of a weighted lever formed on the disk, and then after the tongue has been drawn forward on the transverse bar the bolt *D* is slipped down in front of the bar *C*, preventing the play in the slot necessary for the operation of the brakes. A patent on this improved wagon brake has recently been secured by Mr. George F. Young, of South Kortright, N. Y.

An Exhibition of Inventions.

A most interesting feature of the Jamestown Exposition which has just opened will be the "Section for Inventions," in which inventors are invited to display their inventions and demonstrate their value to visitors. The invitation is open to all, and every facility is offered in the way of floor space, tables, and shelves, advertising cards and labels, electric current, gas, lights, etc. A modest fee of from ten to not more than thirty dollars, except in very special cases, is charged for such space and service. The service includes as well the general care of models, explanation to visitors, and the return of the exhibit at the close of the Exposition. Awards will be made of gold, silver, and bronze medals and diplomas. That inventors are alive to this unparalleled opportunity for making public their creations is shown by the fact that within four weeks after the first notice was sent out by the Bureau of Inventions of the Jamestown Exposition, applications had been made for more than 5,000 square feet, and new applications are now coming at the rate of a hundred a day. The inventors are not the only ones who will profit by this display, for the exhibition cannot fail to be of interest and material benefit to the public at large. Never before has such an opportunity been presented at any exposition, and now that the first step has been made in this direction such exhibitions of inventions will no doubt become a part of all future expositions.

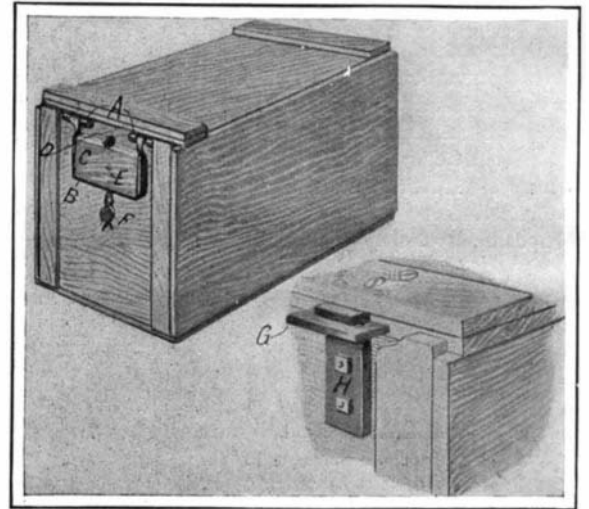
The Handwriting of Authors.

An interesting study is the handwriting of authors, as it indicates to a greater or less degree their personal temperaments. Longfellow wrote a bold, open back hand, which was the delight of printers. Joaquin Miller writes such a bad hand that he often becomes puzzled over his own work, and the printer sings the praises of the inventor of the typewriter. Charlotte Brontë's writing seemed to have been traced with a cambric needle, and Thackeray's writing, while marvelously neat and precise, was so small that the best of eyes were needed to read it. Likewise the handwriting of Capt. Marryat was so microscopic that when he was interrupted in his labors he was obliged to mark the place where he left off by sticking a pin in the paper. Napoleon's was worse than illegible, and it is said that his letters from Germany to the Empress Josephine were at first thought to be rough maps of the seat of war. Carlyle wrote a patient, crabbed, and oddly emphasized hand. The penmanship of Bryant was aggressive, well formed, and decidedly pleasing to the eye; while the chirography of Scott, Hunt, Moore, and Gray was smooth and easy to read, but did not express any distinct individuality. Byron's handwriting was nothing more than a scrawl. His additions to his proofs frequently exceeded in volume the original copy, and in one of his poems, which contained in the original only four hundred lines, one thousand were added in the proofs. The writing of Dickens was minute, and he had a habit of writing with blue ink on blue paper. Frequent erasures and interlineations made his copy a burden to his publishers.

SEAL BOX FASTENER.

It is the custom to ship heavy objects, such as large bottles of mineral water and the like, in boxes specially provided for the purpose, and to use such boxes repeatedly until they are worn out. Ordinarily, the lid is nailed on the box, and the repeated nailing soon renders the box useless for further shipment. To obviate such difficulties, Mr. Clarence A. Schaad, of 846 South Tenth Street, San José, Cal., has invented a fastener by means of which a lid may be secured to a box without nailing. The fastener is so designed that a seal of lead or like material may be applied thereto, to prevent tampering

with the contents of the box *en route*. As shown in the accompanying engraving, the lid of Mr. Schaad's box has hinged thereto at *A* a U-shaped strap, or bail *B*. Secured to the front of the box is a block *C*, over which the bail is adapted to be fitted. In this position it is held by a bolt *D*, which passes through the block and the bail. The bolt is formed with a slot near the center, and a pin or screw *E* in the block passes transversely through the slot to retain the bolt. A leaden seal *F* may be secured to the

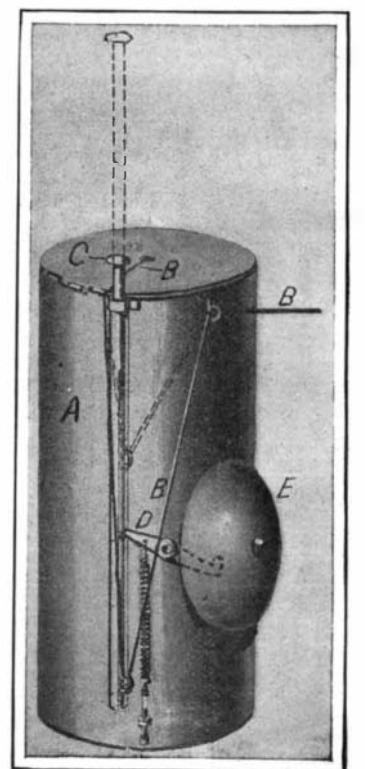


SEAL BOX FASTENER.

lower end of the bolt. The hinge at the rear of the box consists of two slotted plates *G* secured to the lid, and two straps *H* fastened to the body of the box. The straps are formed with hook ends adapted to enter the slots in the plates. By this arrangement the lid may be entirely removed from the box when the latter is opened. At the same time it requires a very strong hinge, which is necessary because in packing such boxes it is customary to use a quantity of excelsior or shavings, which must be pressed down with considerable force when applying the lid. The box may be used to advantage in shipping eggs, fruit, etc., as well as heavier articles, such as bottles, jugs, and the like.

ALARM ATTACHMENT FOR SELF-BINDERS.

Considerable trouble is experienced in the operation of self-binding harvesters, due to the tangling or knotting of the twine, and its consequent breaking. To overcome this difficulty a recent patent provides an alarm device which, in case of improper feeding of the twine, will give a signal to the driver in time to have him stop the machine before the twine is broken, and thus save the delay and inconvenience which would otherwise be entailed in rethreading the mechanism. The accompanying engraving illustrates the alarm device. The twine is held in a receptacle *A*, and passes out through an opening in the top. Thence the twine *B* is led down over the side, and threaded through an eye carried at the bottom of a rod *C*. From this point it is led back through an eye at the top of the receptacle, and thence to the mechanism of the binder. The rod *C* is mounted to slide vertically in a slideway. Intermediate of its length it is provided with a pin, which bears against one arm of the lever *D*. The opposite arm of this lever carries a hammer head adapted to strike the gong *E* when it is released from engagement with the pin on the rod, the striking being effected by a coil spring, which exerts a tension on the lever. In operation, should the twine become knotted and feed improperly out of the receptacle, the rod *C* would be lifted up to the dotted position, shown in the engraving, thus disengaging the lever *D* and sounding the gong. The length of twine *B*, extending down to the bottom of rod *D* and back again, is such that the operator would have time to stop the machine before the twine would break. A patent on this novel attachment has been granted to Mr. Lewis J. Phillips, of Foss, Oklahoma Territory.



ALARM ATTACHMENT FOR SELF-BINDERS.