

each screw, so that the movable leg moves in an upright position and the jaw faces stand parallel, no matter what the width of the work. This is a very substantial method of obtaining a desirable and important object, and greatly enhances the gripping capability of the vise.

Fig. 7 represents a sectional view of Hall's patent vise. *A* is the sliding and *B* the fixed jaw. *P* is the bed plate carrying the steel rack plate, *H*. Attached to each side of the base of the jaw *B*, closes on and grips the work. But as the motion is small in

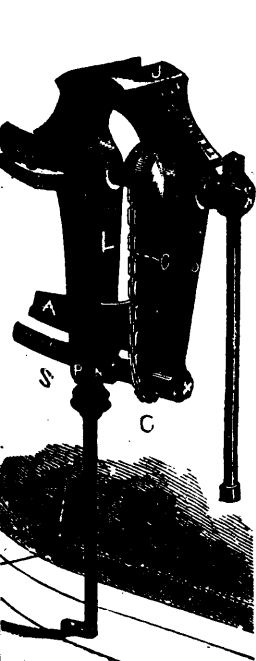


FIG. 6.

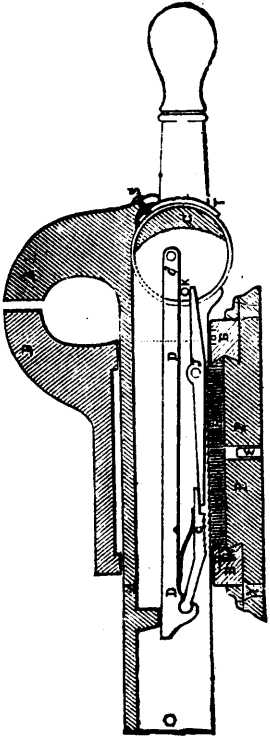


FIG. 7.

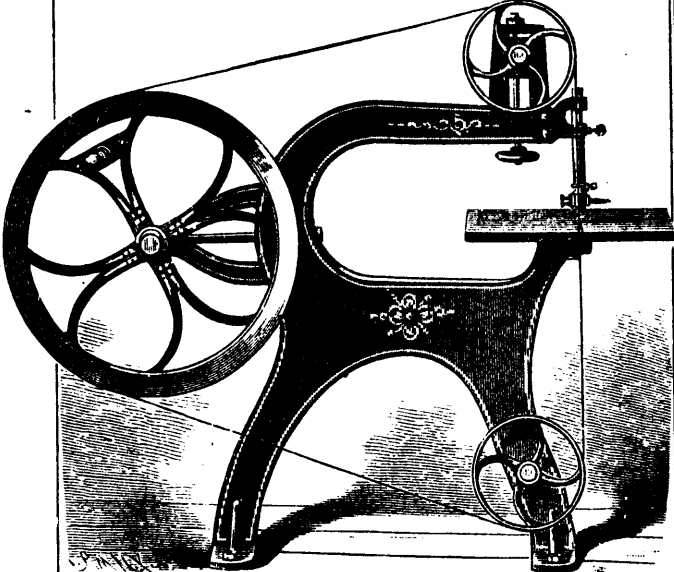
amount, the jaw, *b*, should be placed so to nearly or quite touch the work before *H* is operated. To unloose the work, the handle, *H*, is operated in an opposite direction, and the rack, *T*, as soon as the handle, *H*, is moved in the tightening direction. The vise grips with great force, because during the tightening the toggle, *G*, is nearly straight, and its movement less than would be the case with a screw-vise having the ordinary pitch of thread and under an equal amount of handle movement.

In this vise the fixed jaw is made to fasten permanently. There are discs carried on the outer end of the movable jaw, *A*, and are held in place by the friction straps, *T*, adjusted by the screws, *S*. On the radial face of the disc is the pin, *K*, which, when the handle or lever is lifted or raised, depresses the end of lever, *J*, which at its other end raises the clutch, *G*, disengaging the same from the rack, *H*, as shown in the engraving. The jaw *A*, is thus free to be moved by hand, so as to have contact with the work. To tighten the vise the handle is depressed, whereon *K* releases *J* and the latter permits the toothed clutch, *G*, to engage with the teeth of *H*. At the same time the bar, *D*, which is pivoted to the discs is drawn outward. The end of the bar, *D*, meeting the surface of the lug shown on *A* acts (in conjunction with the toothed clutch, *H*) as a toggle fulcrum from which the discs may force the movable jaw to grip the work.

This action may be more minutely described as follows: The end, *d*, of *D* is pivoted upon the discs, as shown, hence when the handle is depressed the effort of the end, *d*, is to move to the right, but *D* being fixed at the other end the pressure is exerted to force the movable jaw to the left, and therefore upon the work. The amount of jaw movement due to the depression of the handle is such that if that jaw is pushed near or close to the work the handle will stand about vertical downward when the vise firmly grips the work.—*Blacksmith & Wheelwright.*

THE HAND POWER BAND SAW.

The engraving shows a new hand power band saw made by Frank & Co., of Buffalo, N. Y., and designed to be used in shops where there is no power and where a larger machine would be useless. It is calculated to meet the wants of a large class of mechanics, including carpenters and builders, cabinet-makers, and wagon-makers. It is capable of sawing stuff six inches thick, and has a clear space of thirty inches between the saw and the frame. The upper wheel is adjusted by a screw pressing against a rubber spring which compensates for the expansion and contraction of the saw.



The machine has a very complete device for raising, lowering, and adjusting the wheel, and all of the parts are made with a view to obtaining the best results in the simplest and most desirable way.

The machine is six feet wide and five feet high, and weighs 380 lb. The wheels are covered with pure rubber bands well cemented.

Further particulars may be obtained by addressing Messrs. Frank & Co., 176 Terrace street, Buffalo, N. Y.

IMPROVED WHIFFLETREE PLATE.

Our illustration represents an Improved Whiffletree Plate patented by Mr. Peter Black, carriage builder, 133 Broadway, Cleveland, Ohio. Its simplicity and effectiveness will commend it to the trade. The cut shows the plate full size. It is packed with sole leather, which has been proven to be superior to any other packing for this purpose. It is claimed that there is no rattle or strain on the bolt; and no friction or creaking. Its cheapness and many good qualities seem likely to ensure for it a large sale.

