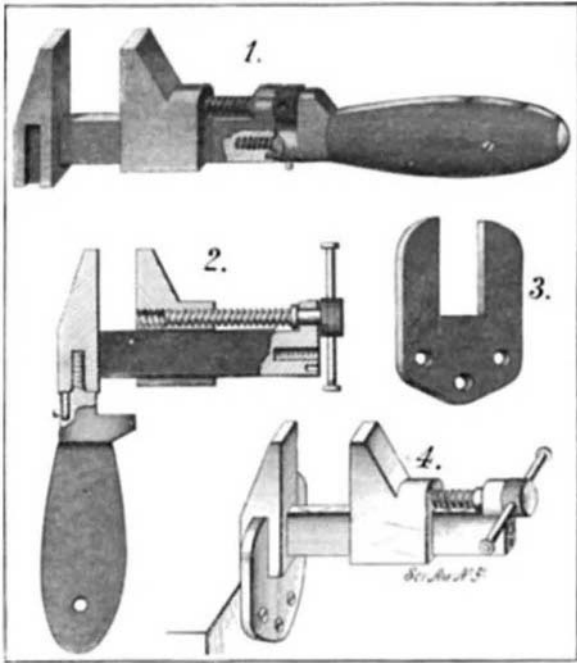




CONVERTIBLE WRENCH AND VISE.

Pictured in the accompanying engraving is a very handy tool, which may, at will, be used either as a



CONVERTIBLE WRENCH AND VISE.

wrench or a vise. The wrench is of the usual sliding-jaw type. The handle, however, is detachable, being screwed into the lever bar and normally held by a keeper bolt, as shown in Fig. 1. When it is desired to convert the wrench into a vise, this bolt is drawn back, and the handle unscrewed from the bar and screwed instead into the heels of the fixed jaw of the wrench. The movable jaw is then operated by means of a lever rod, which is passed through an opening in the milled head of the adjusting screw, and, as shown in Fig. 2, the tool is thus converted into a small but powerful hand wrench. As a convenient and preferred means for converting the hand vise into a vise capable of being readily fixed upon a stationary bench or the like for holding work, a bracket plate is provided. As shown in Fig. 3, this plate consists of a flat sheet of metal, having an open slot formed therein and adapted to receive the heel of the fixed jaw of the wrench. The side walls of the slot fit snugly into a pair of channels formed in the fixed jaw, thereby securely holding the device against turning, as indicated in Fig. 4. The bracket is held by screws to the edge of the work bench, and thus the tool is converted into a bench vise. Mr. W. P. Foster, of Jacumba Hot Springs, Campo, Cal., has just procured a patent on this ingenious combination tool.

A PORTABLE PNEUMATIC DUSTER.

The use of suction apparatus for household cleaning is now so general that it no longer arouses comment. A form of apparatus in which the same principle is involved, has recently been brought out in Paris and will doubtless prove of interest, although the principle is not new. The contrivance in question is a portable

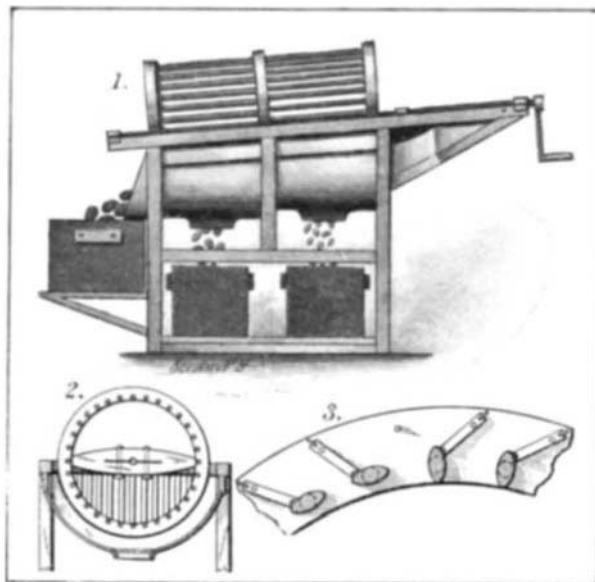


A PNEUMATIC DUSTER.

pneumatic duster, consisting of a bellows constructed somewhat after the fashion of an accordion. From the bellows a tube leads, by which an ordinary duster is carried. Within the bellows packing material is contained which retains the dust gathered. The duster is passed over the object to be cleaned in the ordinary way, and the dust which is displaced is drawn into the tube by operating the bellows. As soon as the dust is caught by the packing material, it cannot be discharged by compressing the bellows. When the packing is quite full of dust, it is taken out and thrown away and new packing is inserted.

FRUIT AND POTATO SORTER.

We illustrate herewith a very simple yet effective machine for sorting fruit or potatoes, which has recently been patented by Messrs. Dana W. Lamb and George Fair, of Pontiac, Mich. The machine comprises a frame in which the sorting cylinder is mounted to rotate. The sorting cylinder consists of two screen sections formed by two series of parallel bars connecting two outer head rings with a common intermediate ring. In the first section of the cylinder these bars are fixed, but in the other section, or the discharge end of the cylinder, the bars are so arranged that they can be adjusted to increase or decrease the screen openings formed between them. This arrangement is indicated in Fig. 3. The bars are oval in cross section, and turn in bearings in the head ring and intermediate ring. Each bar is provided at the outer end with an operating lever, of spring metal, which lies against the face of the head ring. By means of these levers the bars may be turned with the longer axes of the ovals in vertical position, or with these axes in horizontal position, as shown, being held in these two positions by pins on the head ring. It will be evident from Fig. 3 that when the bars are upright, the widest possible space is obtained between them.



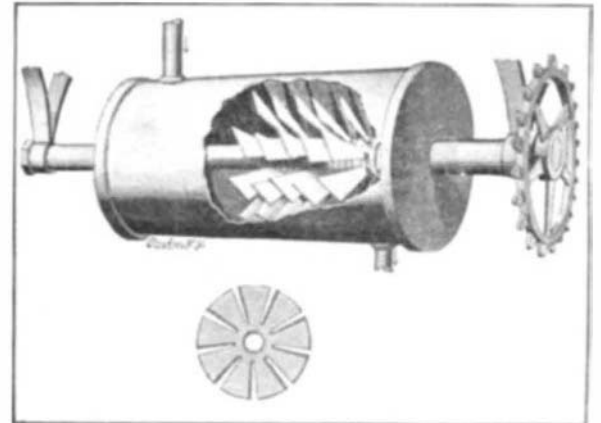
FRUIT AND POTATO SORTER

In operation the potatoes or fruit are fed into the cylinder from a hopper, shown at the right in our drawing, and the screen is rotated by means of a crank on the end of a shaft, which is secured to the intermediate ring of the cylinder, as illustrated in the cross section, Fig. 2. The cylinder is slightly tilted to assist the potatoes in traversing its length. Below each screen section and at the end of the cylinder is a chute leading to a suitable receptacle. The smallest potatoes will fall through the opening in the first section, and the seed potatoes through the second or adjustable section, while the large or marketable potatoes pass out at the end of the cylinder.

DEVICE FOR MUFFLING THE EXHAUST FROM ENGINES.

A patent has recently been granted to Mr. William J. Hewitt, of Del Monte, Cal., for an improved muffler adapted to muffle the exhaust from engines, particularly explosive engines. As shown in the accompanying engraving, the muffler consists of a cylinder within which a series of circulating wheels are mounted to rotate. Each circulating wheel comprises a number of blades inclined like fan blades and arranged in circular series about a hub. A face view of one of these wheels is shown in the engraving. The circulating wheels are suitably spaced apart, on the shaft which carries them by means of collars. The heads of the cylinder are formed with projecting sleeves terminating in brackets which provide suitable support for the muffler. Ball bearings are formed in these brackets for the shaft of the muffler. The shaft is rotated by means of a sprocket wheel at one end. In operation, the exhaust passes into the cylinder through the inlet pipe shown at the left in the engraving. The circulating wheels, it will be observed, are located near the outlet end of the cylinder, and the exhaust is permitted to expand in the space between the inlet and the circulating members, thus losing a portion of its energy.

It then impinges against the moving blades, whereby additional force is absorbed, while the revolution of these blades produces a suction which tends to draw out the burned gases from the exhaust valve and considerably decreases the back pressure, thereby increasing the speed of the engine. The exhaust is now discharged through the outlet pipe with hardly audible sound. If it is desired, the circulating members may be so positioned upon the shaft that the space between



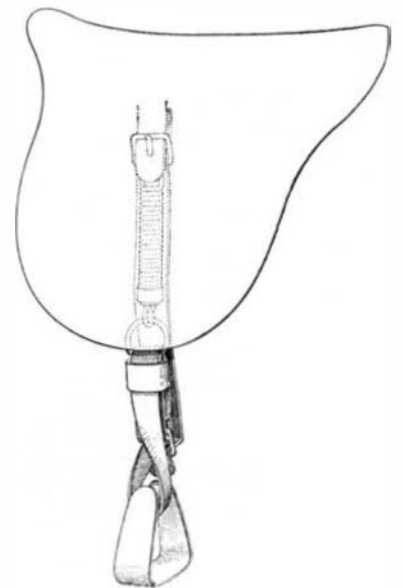
MUFFLER FOR EXPLOSIVE ENGINES.

them gradually increases as they approach the outlet, thus giving the gas a better opportunity to expand.

ODDITIES IN INVENTION.

SADDLE.—Pictured in the accompanying engraving is a saddle provided with stirrups so constructed as to ease the jolts of horseback riding.

Instead of the stirrup straps usually employed, a spring hanger is substituted, which, as shown by dotted lines, consists of a heavy coil spring, concealed under the side flap of the saddle. In use the rider bears his weight on the straps, and the uneven or sudden movements of the horse are taken up by the springs, which thus cushion



SADDLE WITH SPRING STIRRUP STRAP.

the jolts. This renders horseback riding much less fatiguing, particularly to those who are not accustomed to this sport.

SULKY.—It is difficult to classify the novel vehicle shown in the accompanying engraving. It is in reality a cross between a saddle and a sulky. The seat of the sulky occupies the position of the ordinary saddle, and the feet of the driver are supported in stirrups. But the saddle, instead of resting on the horse, is supported on a yoke frame, that carries a pair of sulky wheels, which run along the ground on either side of the horse. Coil springs are interposed between the posts which carry the wheels and the yoke piece to which the saddle is secured, so as to take up any unevenness in the road. With this type of sulky the driver is afforded all the facilities of a riding jockey in the con-



SULKY.