

## New Inventions.

### Michener's Valve for Steam Engines.

This simple and improved valve is of the circular or disciform kind, and is operated with a reciprocating circular motion. Its novelty consists in the arrangement of its ports and passages for the induction and eduction of the steam, whereby a large amount of opening is obtained by a small amount of motion, and it is relieved to a great extent from the pressure of the steam on its back side.

In our illustrations Fig. 1 is a vertical section through the center of the improved valve, steam chest, and a portion of the steam cylinder, and Fig. 2 is a horizontal section of the valve and steam chest.

Fig. 1

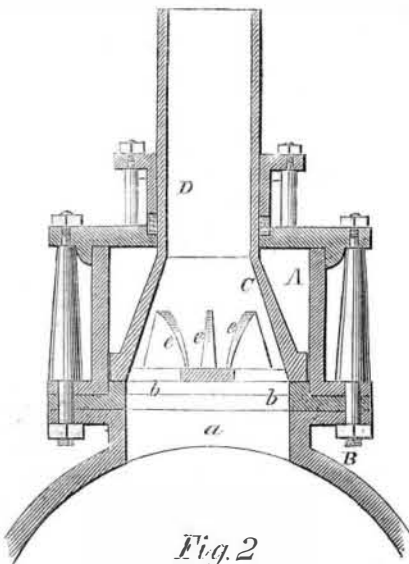
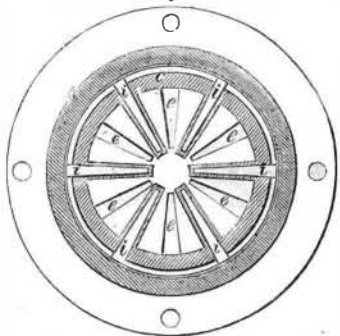


Fig. 2



A represents the valve chest, one of which is placed on either end of the cylinder, B, so as to provide each of the main cylinder ports with a separate valve. *a* is the main cylinder port, with which the valve chest, A, communicates through a series of equi-distant radially arranged ports, *b*, in the flat circular valve seat. *C* is the hollow valve having a circular face, and provided with a large hollow stem, *D*, which also serves as the exhaust pipe, said stem being perpendicular to its face, and working through a stuffing box in the chest, A. This valve contains a series of equi-distant radially arranged ports *i*, corresponding in number and width with the ports, *b*, said ports being in form of channels in the exterior of the valve, and communicating with the interior of the steam chest, A, and constituting the induction ports. Besides these, the valve contains a second series of ports, *e*, midway between spaces, *i*, and corresponding in number and size with the openings, *b*, said ports communicating with the hollow interior of the valve, and with the hollow stem, *D*, and constituting the eduction ports. The hollow stem, *D*, connects by a working joint with one of two branches of the main exhaust pipe of the engine.

The operation of the valves is as follows:— They receive motion through any suitable mechanical contrivance applied to their stems, the distance of said motion being inversely as the number of the ports, the valve shown having twelve ports, requiring to make one-twelfth part of a revolution, and one with six ports, requiring a sixth part, and so on. The motion takes place quickly, just before

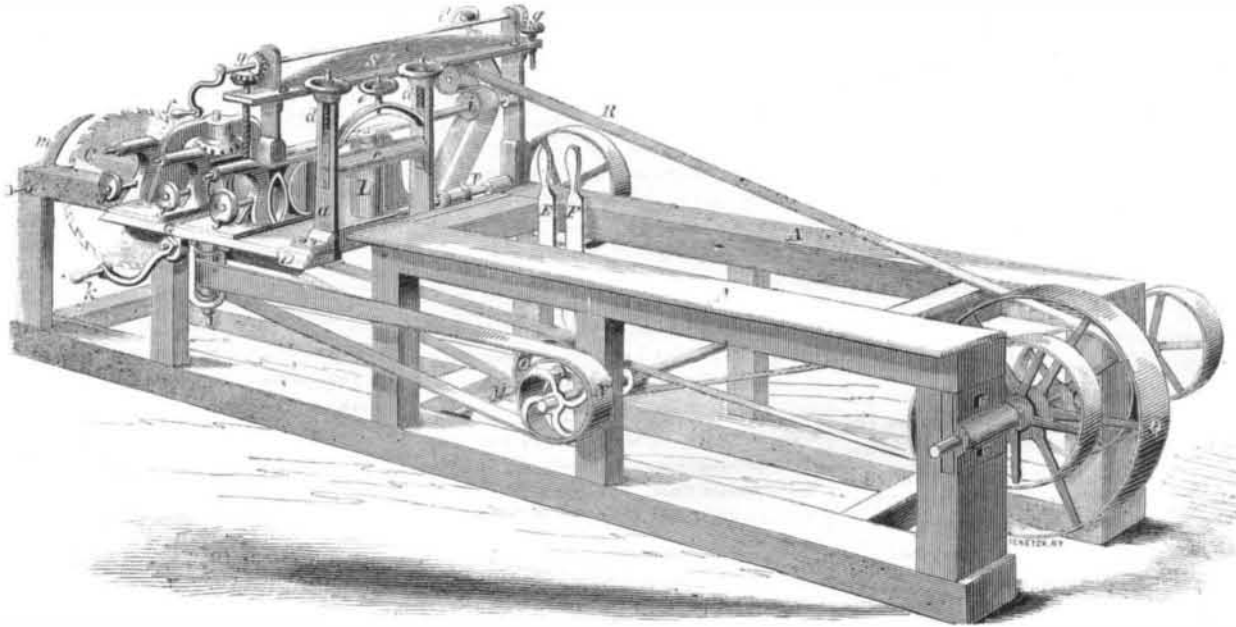
the piston arrives at the end of its stroke, and the valve at that end of the cylinder which the piston is approaching, moves to such a position that the ports, *e*, which have been in communication with *b*, move to a position opposite to the middle of the spaces between *b*, and the ports, *i*, to a position opposite to the ports, *b*, thereby opening communication from the valve chest to the cylinder, and at the same time as the valve at the one end of the cylinder makes this movement, that at the opposite end of the cylinder makes a movement precisely the reverse, and changes its

position from that last described to that previously described, thus permitting the exhaust of the steam from that end of the cylinder through the ports, *b* and *e*, and through the hollow stem, *D*, of the valve. When the piston arrives near the other end of the stroke each valve has the same movement its fellow had at the end of the previous stroke, that is to say, moves back to the position it previously occupied. In this manner the movement continues, the valves being stationary the greater portion of the stroke, and moving in opposite directions alternately, as the piston

arrives at the end of its stroke, and through the employment of several ports in the valve and seat, a very small amount of movement is necessary to produce a given aggregate amount of openings in the ports, and by making the valve with a hollow stem of large diameter, a large portion of its surface is relieved from the pressure of the steam.

This improved valve was patented the 12th of January, 1858, and any further information desired may be obtained by addressing the inventor, W. R. Michener, of Marlboro', Stark co., Ohio.

## TITUS & SHARP'S SAWING MACHINE.



This machine is intended for re-sawing boards of any thickness into "siding," and planing, jointing and sawing the "siding" or lapboards at one operation.

In our engravings, Fig. 1 is a perspective view of the machine, and Fig. 2 a transverse vertical section, both combined fully illustrating the invention.

The whole of the parts are enclosed in a frame, A, the saw, C, being at one end with its guard, *m*. *D* is a frame, which is placed transversely on the frame, A, and attached to

it by pivots, on which it can oscillate freely, and underneath *D* a shaft, *E'*, is placed, having two cams, *b*, upon it, these cams causing the table to assume any desired bevel upon being operated by the handle, *F*, where the frame can be secured by a pawl and ratchet. On the frame, *D*, two sliding plates, *G* *H*, are placed, and they can be adjusted by two screw rods, *I* (as shown in Fig. 2), or by a crank handle and screw, *k* (as seen in Fig. 1). On the plate, *G*, there are placed three vertical rollers, having bearings in suitable frames

distance between the horizontal cutters, and the hand wheels, *d* *e*, in the frame, *a*, with their roller, *c*, all tend to keep the stuff rigid and straight while being operated. The hand wheel, *i'*, tightens the band, *R*, when necessary.

The operation is very simple. The stuff is fed to the saw, cut the desired thickness, then the cutters, *t*, as the rollers move it between them, joint its top and bottom edges, while the vertical planer, *k'*, smoothens its side, thus turning out a clapboard ready for use by one operation.

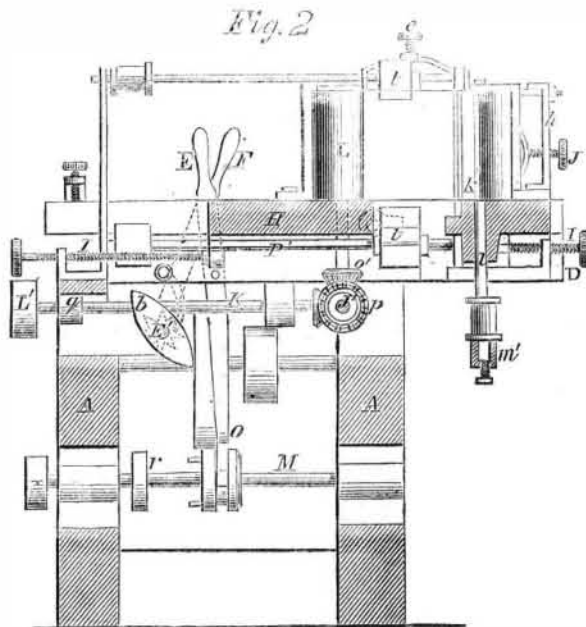
It is a very valuable and perfect machine, and is the invention of E. H. Titus & John Sharp, of Phillipsburgh, Pa., who patented it June 29th, 1858, and who may be addressed for any further information.

### Sleeping Car Seat.

A good arrangement of sleeping car seat was patented a few weeks ago by Mr. J. N. Forrester, of Fairfax Court House, Virginia. In this car seat the bottom and back are adjustable to an inclined position, and an auxiliary back and bottom, which are adjustable, and used in connection with the same, said auxiliary back and bottom being arranged below the main bottom and back of the seat. By this arrangement, each of the main bottoms and backs answer for day use, and at night can be extended on an inclined plane, and thus serve in connection with the auxiliary bottoms and back as comfortable sleeping couches. On the fronts and backs of the seat ratchet teeth and spring pawls are provided so that the backs and bottoms can be adjusted very speedily and retained in whatever position they may be adjusted.

### Car Couplings.

Mr. J. W. Corey, of Crawfordsville, Ind., has invented a car coupling which provides for the automatic disconnecting or uncoupling of the cars in the event of the train running off the track. We regard this as a very simple and perfect arrangement, and by its use many of the sad accidents at draw-bridges, &c., will be prevented, as the preceding car cannot draw the others into the river after it. It was patented last week.



supported by uprights, *h*, and each is pressed against the stuff by a spring and screw and hand wheel, *J*. On the plate, *G*, is a vertical cutter head, *K'*, provided with the necessary cutters, and forming a rotary planer. The lower end of the shaft of this planer, *l*, is stepped in a stirrup, *m'*, which is attached to the underside of *G*. On the plate, *H*, are a series of rollers, *L*, fitted in suitable bearings, the lower end of the axes pass through the plate, *H*, and terminate in a bevel wheel, *o'*; these gear into corresponding wheels, *p*, placed on a shaft, *J'*, and rotated from the band wheel, *L'*, the shaft, *K*, of which is supported

in bearings, *q*. *L'* is driven by the belt, *M* (Fig. 1), from *O*, that derives its motion from one of the band wheels, *Q*, *M* (Fig. 2), being the band wheel shaft, the wheel, *r*, on which is geared by the lever and sliding wheel, *O*.

*P* *P'* are shafts placed one above the other, and having on them the cutters, *t*, which are rotated by the belt, *R*, passing partly around rollers or belt wheels, *i*, upon their shafts. *N* is a band, which rotates the vertical cutter or cutters (for there may be two) to smoothen each side as desired. The handle, *f*, and bevel wheels, *g*, in the frame, *S*, regulate the