

## NEW INVENTIONS.

## Improved Steam Boiler.

Measures to secure a patent for the above have been taken by Benjamin Irving, of Greenpoint, L. I. This form of boiler has great merits in the essential point—of considerable heating surface in a small compass, whilst a small quantity of water suffices to cover the heated plate, and in consequence steam is rapidly generated. But although quick in operation it is emphatically a safe boiler, as the system of circulation, which is one of its leading traits enables a very small quantity of water to keep the flue plates from injury. It is, however, almost impossible for the water level to be reduced by accident to such a degree as to be dangerous, and moreover the form is so strong that braces or stays are not required. The outer shell consists of a vertical cylinder containing a smaller one nearly as high, the annular space thus formed is closed at each end by a plate, whilst a series of flue tubes are arranged inside the annular space. Each cylinder terminates at the top in a dome, that of the outer cylinder touching the inner dome (which is the steam chamber) near the vertex. A smaller cylinder is situated inside the two just described, and it is united to the inner one some distance from the top, but the lower end does not reach to the bottom; this contains a fourth cylinder united to it at the bottom, and ending in a dome at the top. The fire grate is circular and lies below the two latter cylinders. Two coils of pipe are placed within the smallest cylinder, and communicate with the lowest part of the two outer cylinders, their upper ends passing through the dome to the steam chamber. That space between the outer shell and contained cylinder, which is not engrossed by the flue tubes, is used as a "water jacket," and a similar water space exists between the two inner cylinders, these water spaces being connected. A coil of pipe, led through the above spaces, will serve either to dry or to generate the steam. The gases, as they rise from the fuel, proceed up the innermost cylinder, thence between the two others, whilst the products of combustion descend and from a circular passage escape through the flue tubes into a space that conducts to the chimney.

## New Reaping Machines.

Frederick Nishwitz, of Williamsburgh, N. Y., has taken measures to secure a patent for improvements in Reapers or Harvesting Machines. These improvements consist in a peculiar construction and arrangement of the cutters and in the manner by which the grain is laid in proper order upon the ground after being cut. The cutters are placed in pairs in a spiral curve round a shaft, being set at right angles to it, and are carried round as the shaft rotates, cutting the grain in their revolution. Directly behind the shaft is the front board of the machine, on the upper part of which are affixed a series of pointed fingers, which are slotted to receive the cutters as the shaft revolves, and are set at such an angle that the grass or grain is bent in a suitable direction for the cutters to operate with the greatest ease and certainty. The grass or grain on being cut falls against a number of belts provided with spikes, for the purpose of retaining it, and which pass around pulleys having a flange on each side. As they are carried along the grass or grain is thrown from the spikes and falls upon curved guides, by which the butt of the straw or grass is placed towards the machine as it falls upon the ground.

## Sawing Machine.

Measures to secure a patent for an improved construction of the above, by which it is rendered more suitable for certain kinds of work have been taken by Thomas J. Alexander, of Westerville, Ohio. The advantage of this plan is that logs can be sawn directly into broom handles, chair rounds, &c., without having been previously sawn into planks, thus economising an important item of expense. One horizontal and two vertical saws adjusted in relative positions, serve to cut the sticks from the logs, the vertical saws being placed underneath the horizontal saw and nearly touching it. The log is secured between screw rods passing through the cross-

piece of a reciprocating frame, and which are raised or depressed by turning a crank so that the log can be adjusted with facility.

## Portable Gas Light.

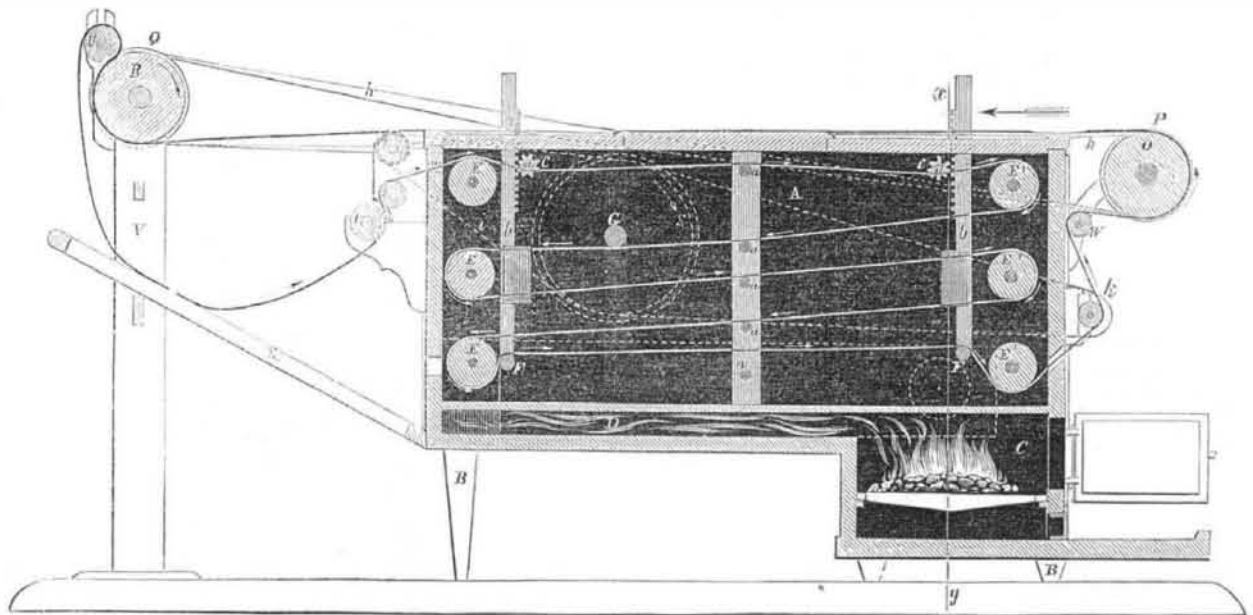
An improved apparatus of the above description has been invented by John Power, of Brooklyn, N. Y., who has taken measures to secure a patent. The improvement con-

sists in the use of an elastic coupling for joining a flexible tube of any material that conducts the gas from the ordinary burner to a portable article of the same kind. The coupling is compressed tightly between two metallic discs, and has a hole in its centre to allow of the insertion of differently sized burners, which are held firmly in their place by the above-mentioned means.

## Catawba Grapes.

The "Boston Transcript" has received some Catawba grapes in an excellent state of preservation that were kept by being laid on a table, in a cool airy place, and covering them with cotton batting. This is a simple and easy process and worth remembering by cultivators of this excellent variety of the grape the coming season.

## IMPROVED MACHINE FOR DRYING CLOTH.—Fig. 1.

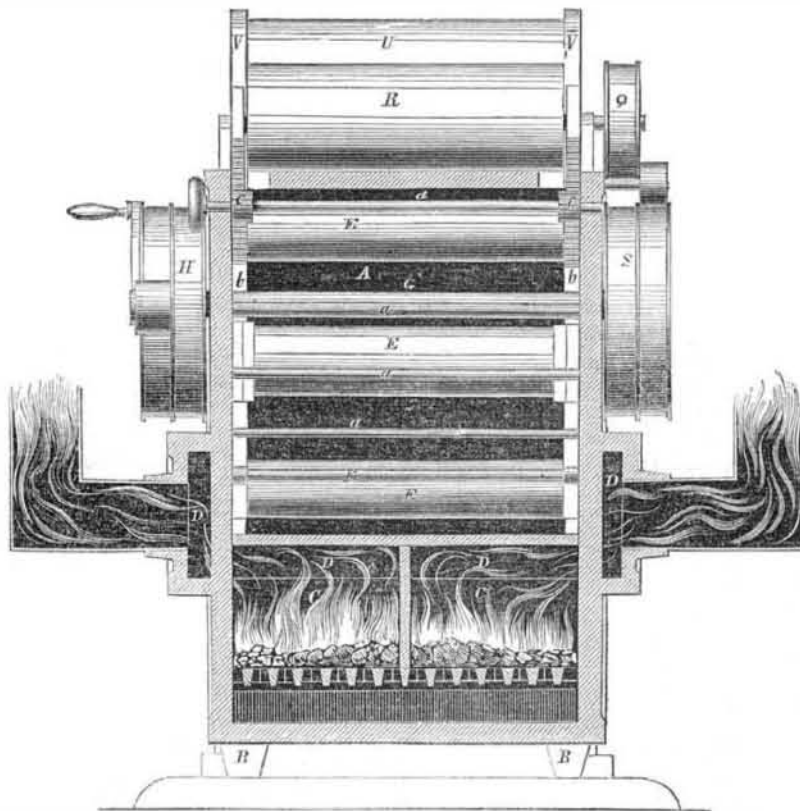


The annexed engravings are views of improved machinery for drying cloth, invented by Robert Preston, of North Pownal, Bennington Co., Vt., who has taken measures to secure a patent.

Fig. 1 is a longitudinal vertical section of the machine, and fig. 2 is a transverse vertical section, taken in the plane indicated by the line *xy*, fig. 1. The same letters refer to like parts.

At different stages in the manufacture of woolen cloth, the piece requires to be dried, which is done by stretching it on tenter frames, which are placed in the open air. Drying cloth in this manner is a tedious process, the object of this invention is to dry the cloth much faster. The cloth by this machine is dried within the factory, and saves much time and labor, and the nap, after drying, is left smooth.

Figure 2.



to a nap-laying card cylinder, I, also to a small pulley on the side, which, by a belt, moves three pulleys, but which are not shown in the figures. O is a large roller, in front of chamber A outside; it has a pulley, P, on one of its ends, which, by a belt, *h*, gives motion to pulley, Q, on the shaft of roller, R, secured in standards, V. On the shaft, G, is a double

pulley, S, which gives motion by a belt, *i*, to a brush cylinder, T, and by another belt to a smoothing roller, *k*. U is a roller, whose journals work in guides in the upper part of standards, V, and which is allowed to slide by its own weight down upon roller R. W is a roller below roller O, and Y is another small roller hung in bearings at the back of the

chamber; X is an inclined platform extending upwards from the lower part of the back of the chamber, and supported at its back or upper end by standards, V.

OPERATION—Fire is made in the furnaces to heat the chamber. The piece of cloth is passed between the rollers, R and U, then over the latter roller, from whence it is carried partly round the nap-laying card, then over roller Y, and through the opening, *m*, into the chamber, A, through which it passes several times back and forth round the rollers, E and E', and then passes out at *n*. While in the chamber the several layers are kept apart by the rollers, *r*, and the bottom layer is raised to a proper distance from the bottom of the chamber to prevent injury by too intense heat, but at the same time to get the full benefit of the heat by rollers, F, which are adjusted by the pinions, *c*, and racks. After leaving the chamber, the cloth is conducted over the outside of the smoothing roller, *k*, by which it is spread evenly, and then it is conducted over the roller, W, and round the roller, O, from whence it passes over the top of the chamber, A, and over brush T. It has now made the circuit of all the rollers, and the ends may be loosely stitched together. The revolution of the several rollers, as described, will cause the cloth to move continuously through the chamber, in the direction of the arrows, fig. 1, as long as may be required. When the piece is of greater length than the circuit of the rollers, the slack part falls on the inclined platform, X, the cloth, while passing through the drying chamber is kept at a proper tension, and always kept straight; the nap is properly laid by card, I, before it enters the chamber, and it is smoothed after leaving by the brush, T, the said card and brush revolving at a greater speed than that at which the cloth moves. The end of the piece is secured to belts running with the roller, which allow the end to be carried through the chamber without falling upon the flue.

This drying machine has been in operation for four months in the mills of R. Carpenter, Jr., & Co., North Pownal, Vt., who state to us, in a letter, that it dries from 12 to 1500 yards of satin cloth per day, and does its work well.

More information may be obtained by letter addressed to the inventor.

## The New York and Erie Railroad.

Benjamin Loder, Esq., President of the above railroad, has written a letter in answer to the charges of the "American Railroad Journal." His letter respecting the charges made against the management of that road, is perfectly satisfactory in our opinion. It appears to us that this railroad could not have been better managed.