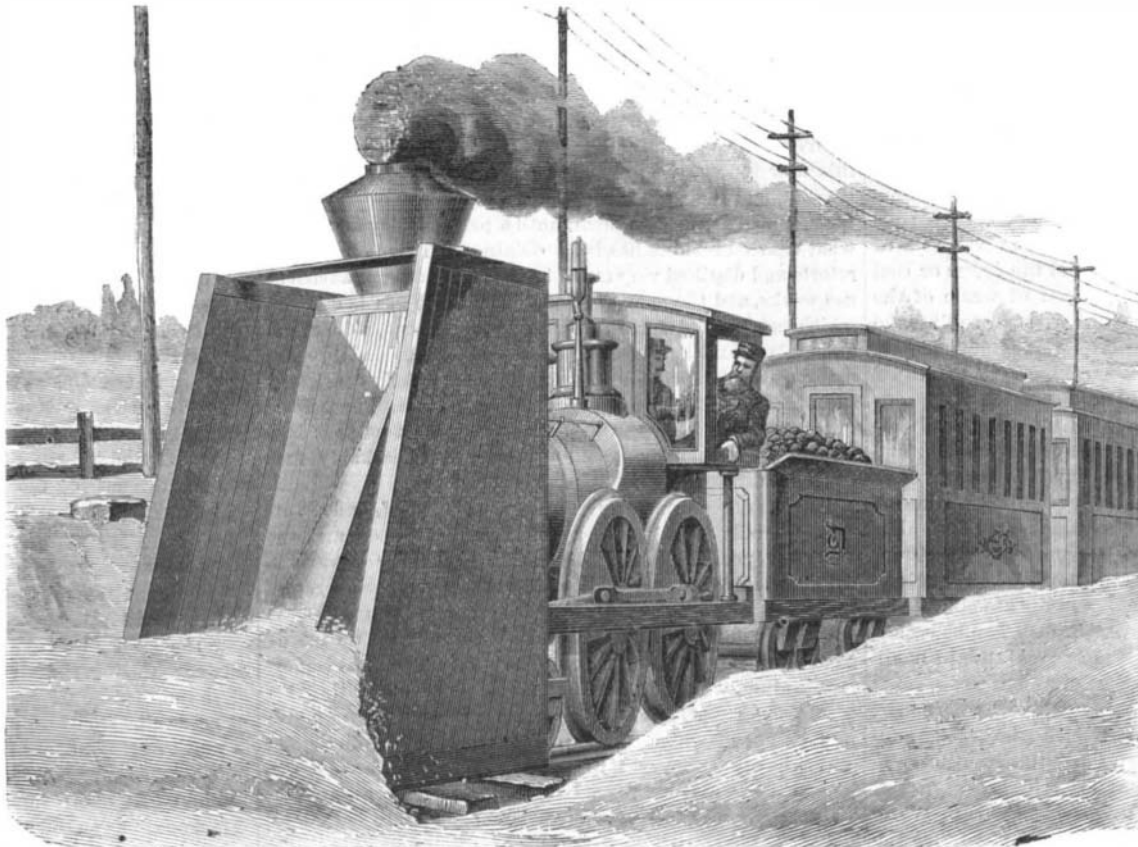


**COMBINED SNOW AND EARTH SHOVEL AND PLOW.**

An efficient railway snow plow, by means of which a locomotive may be enabled to push its way through heavy drifts, is unquestionably an invention for which there is a great necessity. Not a winter passes but that scores of trains are blockaded, and hundreds of passengers subjected to prolonged inconvenience, by the tedious delay incident to digging out the tracks by hand shovels; while, in some instances, as that of a construction train on one of the Pacific railroads last year, people are placed in actual peril from starvation or continued exposure to the inclemency of the weather. Snow plows of the ordinary construction are moderately efficient in light drifts; but when attempts are made to force them through banks that have become packed or heaped up by the wind as high as the body of the locomotive itself, they speedily prove their inadequacy for the severe work.

The apparatus to which our engravings refer is claimed to combine the advantages of both plow and shovel, together with the merits of efficiency, simplicity, and cheapness. Its especial adaptation is to clearing snow from tracks, but we are informed that it may also be used in loose sandy soils for removing earth in the construction of railways, or for taking up snow from street car rails in cities, and carrying the same to a convenient dumping place.

Fig. 1 represents the device attached to a locomotive and in action. From Fig. 2 a clear idea of the working parts will be obtained. A is the shovel, the bottom of which is made slightly wider at the rear than in front, and which is provided with flaring sides. The front edges of the latter, as well as the corresponding portion of the bottom, are plated with steel. B is a truck which supports the rear part of the shovel, the front portion of which rests upon steel shoes, C, which fit over the rails. At D is the plow, the shape of which is clearly indicated, provided on each side with a cleat, E, running in a groove formed in the side of the shovel, so that it is thus prevented from being raised up by the snow or other cause when being pushed back or pulled forward. To the underside of the plow is secured a rope, F, which runs forward in a groove in the bottom of the shovel over a pulley, and thence back under the shovel to the engine.



**COMBINED SNOW AND EARTH SHOVEL AND PLOW.**

The dimensions of the apparatus are 16 feet high, 23 feet long, and 10 feet wide; and allowing for the space occupied by the plow at the back, it has a cubic capacity of 3,500 feet. As the machine compresses the snow while excavating this large quantity at every ram, it is probable that there are few snow banks which it would not speedily demolish.

Patented July 8, 1873. For further particulars relative to sale of rights, etc., address Lieutenant Colonel W. F. Baker, Decorah, Winneshiek county, Iowa.

**To Clean Files.**

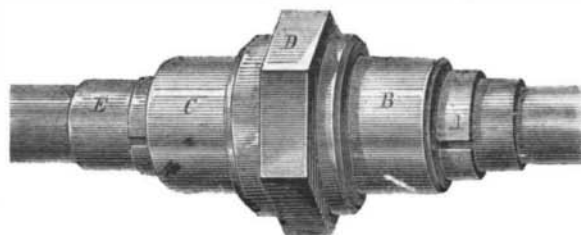
A correspondent, L. D. D., sends us the following recipe:

"Boil the files in a solution of water and saleratus until they are thoroughly cleansed of outside dirt; after which, wash them in warm water. Put a pint of warm water in a wooden dish, in which stand as many files as the water will cover. Add to this, 2 ounces of borax and 2 ounces of blue vitriol finely pulverized together. Stir up the files well, and add 2 ounces of sulphuric acid by weight, and then ¼ ounce of vinegar. The files will turn red at this point in the process. When they again resume their natural color, take them out and wash them in cold water; after which, oil with sweet oil, and wrap singly in brown wrapping paper, which will absorb the oil from the files.

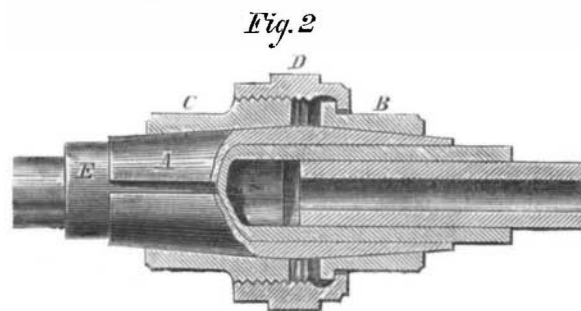
The files will be clean by this mode, in about half an hour after they are put in. Large mill files can be cut by making more solution, and using a dish narrow and tall, so that the files can stand on the shank to let the scales fall away from them."

**DUNNING'S IMPROVED PIPE COUPLING.**

This invention, perspective and sectional views of which are represented in the annexed engravings, is claimed to provide a simple and cheap union or coupling for gas, steam, and water tubes, which may be applied even in long lengths of continuous straight pipe. It will also serve as a sliding or compensating joint to allow for contraction and expansion, and will, besides, prove useful when it is desirable to con-



*Fig. 1*



*Fig. 2*

nect the ends of pipe in situations where threads cannot be conveniently cut thereon.

A is a conical sleeve, cut from end to end, as represented in Fig. 1, or, if desired, divided longitudinally into two separate portions. It is bored out somewhat larger toward the

center, so as to insure a bearing at the ends around the pipe when closed by the collars, B C, which are also bored to correspond with the conical shape of the sleeve. The collar, B, is flanged to receive the threaded coupling ring, D, to which it is swiveled, as indicated in the sectional view. Collar, C, is provided with a thread upon which the ring screws. The joint between the ends of the pipe is thoroughly packed by a section of rubber, E, or other suitable tubular packing.

To adjust the device, the extremities of the tube are thrown out of line, and the sleeve, A, containing the packing, E, and upon which the collars and ring have been placed, is applied to one end. The pipe is brought in line, and the rubber tube,

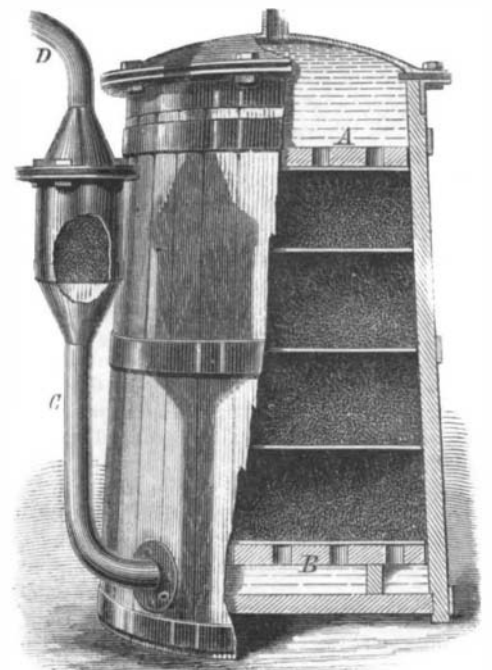
with the other portions, is brought over the joint so as to overlap the two extremities equally. The ring, D, is then screwed up, drawing the two collars together upon the inclined surfaces of the conical sleeve, thereby compressing it firmly against the packing.

This coupling can be manufactured very cheaply of malleable iron, as all the parts can be cast of the necessary form and size for different pipes, and require no finishing or fitting except cutting the screw. It is claimed to cost no more than the ordinary union coupling, except the expense of the pliable hose for the packing. It makes a perfect slip joint as well as a good coupling, and will be found very useful for plumbers in repairing split pipe in places where a die cannot be used to cut threads on the pipes, or where the latter are close to the walls or among joists in buildings.

Patented September 30, 1873. For further particulars regarding sale of patents or rights under the same, address the inventor, Mr. Wm. B. Dunning, New York Central Iron Works, Geneva, N. Y.

**APPARATUS FOR FILTERING AND RECTIFYING SPIRITS.**

Mr. Christian W. Ackerman is the inventor of a novel device, herewith illustrated, for filtering and rectifying spirits, by means of which he claims to effect a saving of material from the usual loss by evaporation, a more perfect elimination of fusel oil, and also that by the apparatus a greater quantity of spirits can be treated in a given time than by the old process.



A receptacle of the form shown in the engraving is provided with two inner diaphragms, A and B. The lower one rests upon joists, and may be made in halves, to admit of easy removal when desired. Upon it is laid a circular piece of blanket of one thickness, then a stratum of powdered charcoal, equal to one fourth the distance between the diaphragms; then a double thickness of blanket, and so on for two more layers of coal and blanket, until the upper partition, A, is reached, beneath which a single piece of blanket is placed. The charger, which should be placed in the upper part of the building, communicates with the apparatus by the pipe at the top. The spirits therefrom enter with sufficient force to penetrate down through the diaphragms, which are perforated, and the layers of charcoal and blankets, leaving in the latter the fusel oil and other impurities. Finally, emerging beneath the false bottom formed by B, the liquor escapes by the pipe, C, and passes into another and smaller receptacle, in the interior of which are two wire gauze screens, the intermediate space being filled with cotton batting and blanket. Here the last rectification takes place, and the fluid, in a pure condition, is led away by the pipe, D.