

AN IMPROVED WOOL DRYING MACHINE.

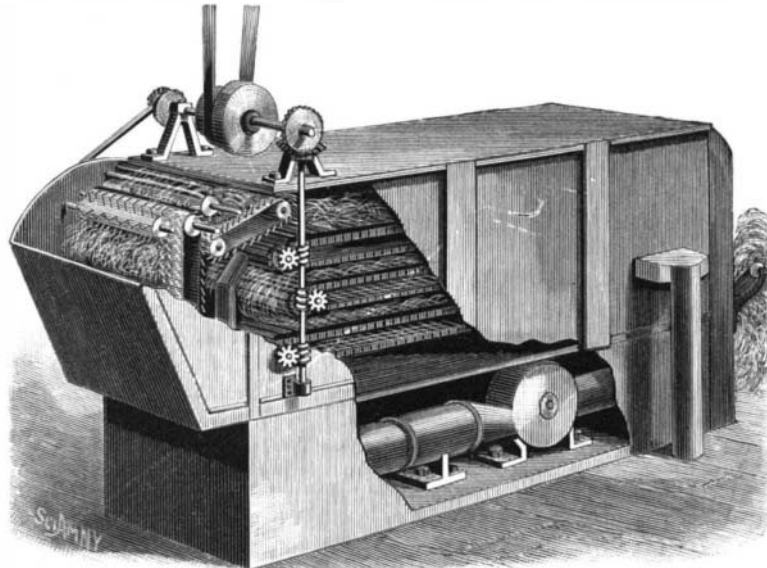
A simple, easy running, and compact machine is shown in the illustration, which is designed to thoroughly dry a large quantity of wool, lightening up the wool and drying it in such a manner that its fiber will not be injured, the machine being kept at the required temperature with only a small consumption of steam. This improvement has been patented by Messrs. John R. Mellor, of No. 227 E. Cambria Street, Kensington, Philadelphia, Pa., and James M. Mellor, of Clifton Heights, Pa. The machine has at one end a hopper, in which is a common form of vertically arranged spike apron, to feed the wool into the machine, and in the front side of the hopper, near the apron, is a comb, consisting of a roller and three series of curved teeth, to lighten up the fibers of the wool. A little above the feed apron, and between it and the main case, is a brush which takes the wool from the apron, this brush being just above an opening in the main case, extending through which is an intermediate carrying apron, running on the usual rollers, and its inner end being above the upper main carrying apron. This is a simple form of apron carried by revoluble sprocket wheels, and delivers to a similar apron immediately beneath it, and the latter delivering on another apron in the lower portion of the case. The aprons are driven by differential gears, so that their speed may be regulated, and they travel in different directions to give a continuous movement to the wool, from the feed opening to the outlet, at the rear end of the machine, beneath the end of the lower apron, where a carrying apron receives and carries out the dried wool. Beneath the floor of the case is an exhaust blower, by which the moist air is drawn out, the blower also forcing a fresh supply of air over heating coils, so that a constant stream of hot air is being passed into the machine as the cool moist air is passed out. The machine may, with but slight changes, be readily adapted to drying a great variety of fibers and other material.

TWELVE-WHEELED FREIGHT LOCOMOTIVES.

The Brooks Locomotive Works, of Dunkirk, N. Y., have recently furnished the Great Northern Railway with fifteen of the heaviest locomotives in use in this country. The general appearance of these engines may be seen by reference to the accompanying illustration. The cylinders of the first ten of these engines are 20 by 24 in., five of the ten having wagon top and five Belpaire boilers. The other five have Belpaire boilers and cylinders 20 by 26 in., which is the engine shown in our illustration. The general dimensions of the engine, as given in the *Railway Review*, are as follows:

Driving wheels, eight in number.....	.55 in. diameter
Fuel.....	bituminous coal
Rigid wheel base.....	9 ft. 8 in
Total wheel base of engine.....	25 ft. 2½ in
Total wheel base of engine and tender.....	52 ft. ¾ in
Diameter of boiler at smoke box end.....	.68 in
Boiler material, homogeneous steel plates.....	¾ and 9-16 in. thick
Throat sheet, thickness.....	.11-16 in
Longitudinal seams, quadruple riveted, lapped.....	1 in. rivet

Waist connection seams and junction of waist with fire box.....	double riveted
Smoke box diameter.....	.69 in
Front flue sheets, thickness.....	¾ in
Rivets, in single riveted seams, diameter.....	1 in. not over
Rivets, in double riveted seams, diameter.....	2¼ in. center to center
Rivets, in double riveted seams, diameter.....	1 in. not over
Rivets, in double riveted seams, diameter.....	3½ in. center to center
Dome, diameter.....	.31 in
Dome, height.....	.34 in
Boiler pressure, tested.....	220 lb
Mud ring, double riveted, thickness.....	3¼ in
Water space tapers from 3½ in. at mud ring to 5 in. at crown sheet	



MELLOR'S WOOL DRIER.

Stay bolts in top row and corners of sides and back, 1 in. in diameter, double pitch.....	
Number of tubes.....	250
Diameter of tubes.....	2¼ in
Length of tubes.....	13 ft. 10 in
Spacing of tubes.....	vertical rows
Water space between tubes.....	not less than 15-16 in
Gauge of tubes.....	No. 11 B. W. G
Length of fire box.....	.114 in
Width of fire box, at inside ring at bottom.....	.32 in
Width of fire box at crown sheet.....	.62 in
Fire box material.....	homogeneous steel
Crown sheet, thickness.....	¾ in
Side and back sheets, thickness.....	5-16 in
Flue sheets, thickness.....	¼ in
Water space at back and sides.....	¾ in
Water space in front.....	4 in
Stay bolts, diameter.....	¾ in. and 1 in
Center to center of stay bolts, not over.....	4¼ in
Center to center of Belpaire direct stays, not over.....	4¼ in
Stays on crown sheet fitted with 1 in. nut.....	on fire box end
Smokestack, diameter.....	.17 in
Smokestack, material.....	steel, taper pattern
Grate, rocker.....	arranged to shake in two sections
Throttle and dry pipes, diameter.....	.7 in
Safety valves, three in number.....	set to 180, 181, and 182 lb
Steam ports, length.....	.18¾ in
Steam ports, width.....	.15 in
Exhaust ports, length.....	.18¾ in
Exhaust ports, width.....	.3 in
Bridges, width.....	.1½ in
Valve seat, distance raised above steam chest seat.....	.1½ in
Piston rods, diameter.....	.3¾ in
Piston rods, material.....	cold rolled steel
Piston and valve steam packing.....	the Jerome
Guides, material.....	hammered iron, case hardened
Guides, top, width.....	.6¾ in
Guides, bottom, width.....	.4¾ in

Crosshead pins, diameter.....	4½ in
Crosshead pins, length.....	.3¾ in
Center to center of link eyes.....	13 in., links to be made solid
Valves.....	Richardson's balanced
Engine truck, type.....	Rigid center
Engine truck wheels.....	Krupp No. 1, O. H. tire
Engine truck axles.....	best hammered iron
Engine truck journals, length.....	.10 in
Engine truck journals, diameter.....	.5 in
Tires, thickness.....	.3¾ in
Tires flanged.....	second and fourth
Width of tires flanged.....	.5¾ in
Tires, plain.....	first and third
Width of plain tires.....	.6¾ in
Driving axle journals, diameter.....	.8 in
Driving axle journals, length.....	.9 in
Driving axle material.....	steel
Wrist pin, main.....	.6 by 6 in
Wrist pin, material.....	cast steel
Coupling rod pin.....	.7 by 5 in
Coupling rod pin.....	.5 by 5 in
Coupling rod pin.....	.4¼ by 4¼ in
Tender wheels, diameter.....	.33 in
Tender wheels, type.....	Krupp No. 1, O. H. steel tires
Tender truck axles.....	M. C. B. 60,000 lb
Tender truck axles, material.....	hammered iron
Capacity of tender tank.....	4,000 gal
Boiler lagging.....	wood
Boiler jacketing.....	planished iron
Cylinder lagging.....	wood
Cylinder jacket.....	sheet iron, painted
Brakes.....	New York Air Brake Co.'s schedule N. Y. 8
Brake shoes.....	Ross-Meehan
Weight on each driving wheel.....	about 17,000 lb
Weight on all driving wheels.....	136,000 lb
Weight on engine trucks.....	about 20,000 lb
Total weight of engine.....	about 156,000 lb
Average weight of engine and tender.....	.115 tons

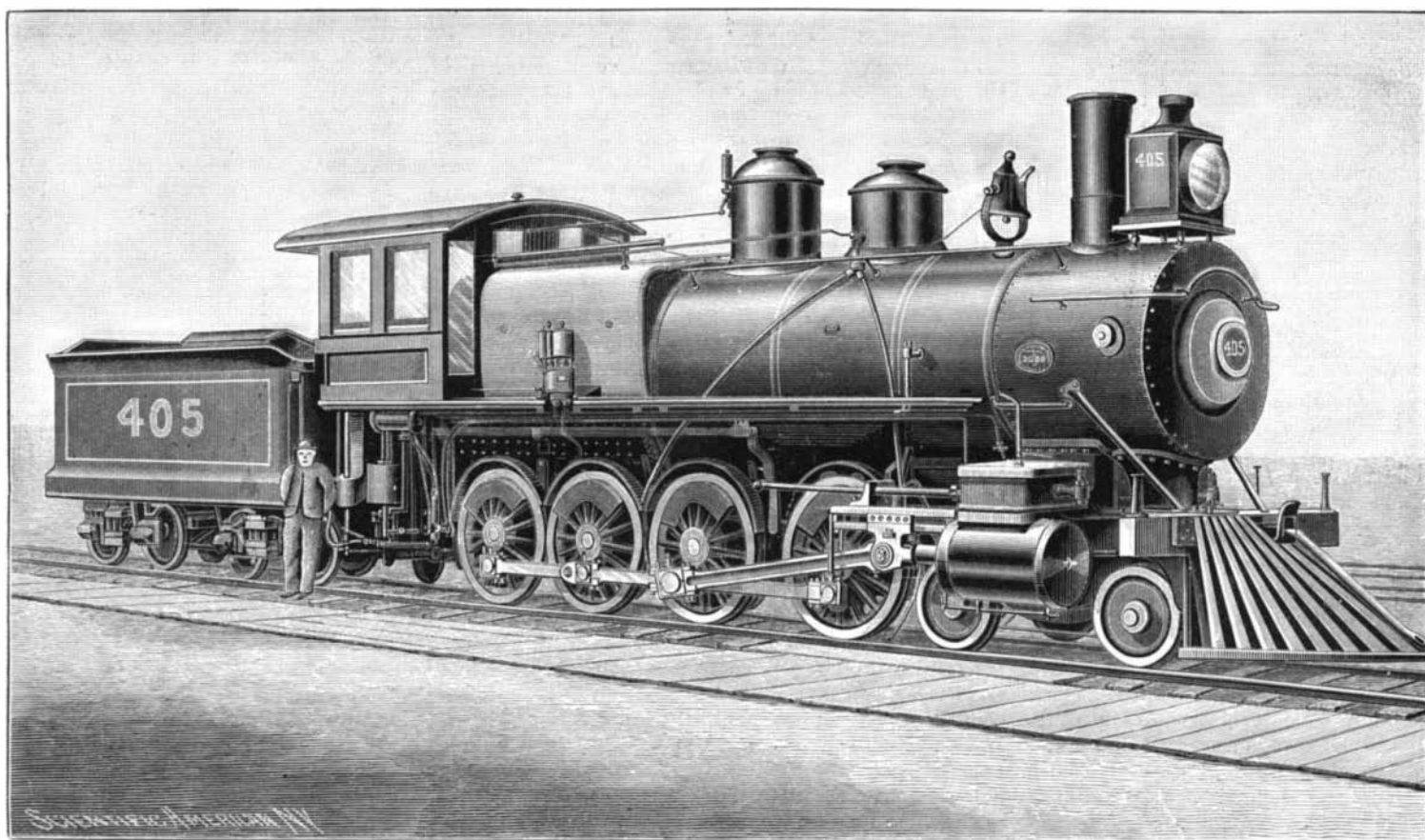
This locomotive will haul, in addition to its own and the weight of the tender, the tracks being in good condition and comparatively free from curves:

On a level.....	4,505 tons of 2,000 lb
On a 20 ft. grade.....	2,010 tons of 2,000 lb
On a 40 ft. grade.....	1,271 tons of 2,000 lb
On a 60 ft. grade.....	901 tons of 2,000 lb
On a 80 ft. grade.....	717 tons of 2,000 lb
On a 100 ft. grade.....	578 tons of 2,000 lb

Women's Inventions at the World's Fair.

Mrs. Potter Palmer, the president of the Board of Lady Managers of the World's Columbian Exposition, recently paid a visit to Commissioner Simonds, at the Patent Office, Washington, to ascertain what could be done in the way of exhibiting the inventive genius of women as shown by their patents on file. The commissioner suggested that the best plan would be to select from the 3,000 patents issued to women the ones that in the opinion of the Fair Committee seemed to be the most notable and worthy of exhibition. In cases where the Patent Office had models of those inventions, such models would be placed at the disposal of the committee.

THE Edison Company and the Thomson-Houston Company have coalesced—become welded together—with a view to making more money by a reduction of working expenses and probably by increase of charges. But now comes the news that the Siemens-Halske Company, of Germany, are soon to open an extensive branch of their electrical works in this country. They are able to compete with the Edison-Thomson-Houston combination or any other establishment.



TWELVE-WHEELED FREIGHT LOCOMOTIVE—GREAT NORTHERN RAILWAY.