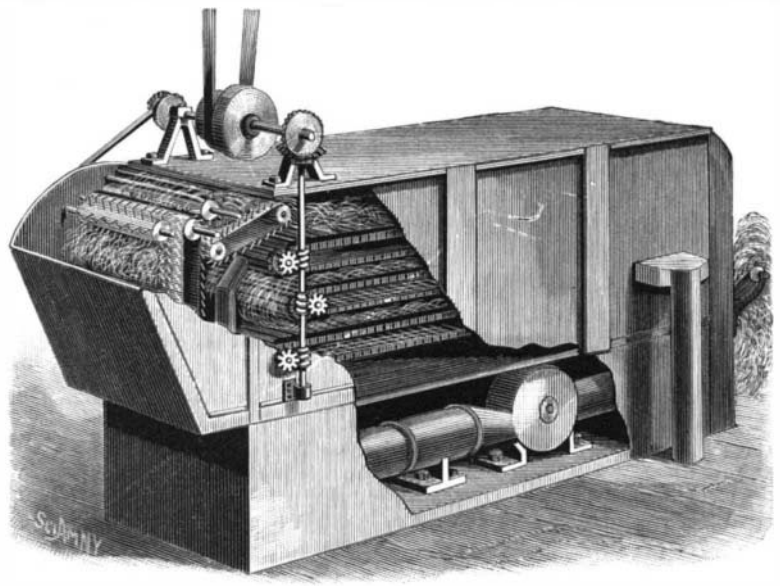
AN IMPROVED WOOL DRYING MACHINE.

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.



MELLOR'S WOOL DRIER.

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	⅝ 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	⅝ in
Rivets, in single riveted seams, diameter	1 in. not over 2¼ in. center to center
Rivets, in double riveted seams, diameter	1 in. not over 3½ in. center to center
Dome, diameter	31 in
Dome, height	34 in
Boiler pressure, tested	220 lb
Mud ring, double riveted, thickness	3½ in
Water space tapers from 3½ in. at mud ring to 5 in. at crown sheet	
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	⅝ in
Side and back sheets, thickness	5-16 in
Flue sheets, thickness	½ in
Water space at back and sides	3½ in
Water space in front	4 in
Stay bolts, diameter	⅞ in. and 1 in
Center to center of stay bolts, not over	4¼ in
Center to center of Belpaire direct stays, not over	4¾ 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	18½ in
Steam ports, width	1⅝ in
Exhaust ports, length	18½ 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	6½ in
Guides, bottom, width	4½ in
Crosshead pins, diameter	4½ in
Crosshead pins, length	3½ 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	3½ in
Tires flanged	second and fourth
Width of tires flanged	5½ in
Tires, plain	first and third
Width of plain tires	6½ 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

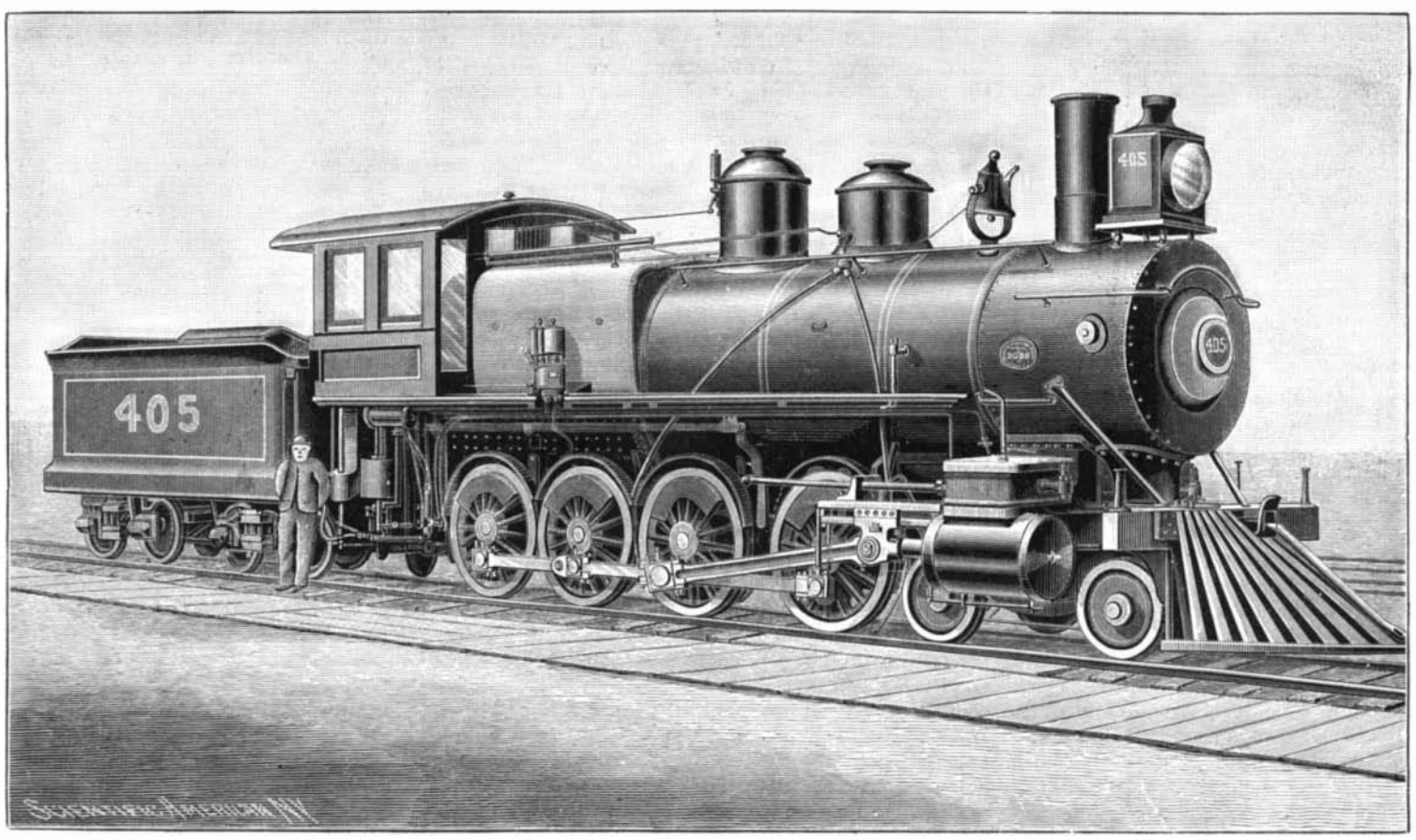
This locomotive will haul, in addition to its own and the weight of the tender, the tracks being in good condition and comparatively free from curves:

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.