

## CALCULATING CHIMNEY DRAFT.

To find the draft of a chimney, says the *Northwestern Mechanic*, the best way is to attach a bit of rubber hose terminating in a water-line glass bent into the shape of the letter U. This is filled with water and the hose attached to one end, the other end of the hose being connected to the base of chimney. Twice the difference in level between the water in the legs of the U glass, will be the draft of chimney in inches of water.

Another method of obtaining the result in fractions of a pound, is to subtract weight of cubic foot of air in the chimney, from the weight of the same quantity of air outside, and multiply the product by the height of chimney or stack in feet. The result will be the value of the draft. The following table of the weight of a cubic foot of air at different temperatures will be necessary for obtaining the weight of air from the outside and inside of chimney. The temperature being known by the use of a pyrometer and a thermometer, this may readily be ascertained.

TEMPERATURE AND PRESSURE OF AIR.

TEMPERATURE	WEIGHT OF ONE CUBIC FT.	TEMPERATURE	WEIGHT OF ONE CUBIC FT.
0	.086331	360	.048476
32	.080728	380	.047323
40	.079439	400	.046223
50	.077884	425	.04492
62	.076094	450	.043686
70	.07494	475	.04252
80	.073565	500	.041414
90	.07223	525	.040364
100	.070942	550	.039365
120	.0685	575	.038415
140	.066221	600	.03751
160	.064088	650	.035822
180	.06309	700	.03428
200	.06021	750	.032865
210	.059313	800	.031561
212	.059135	850	.030358
220	.058442	900	.029242
240	.056774	950	.028206
260	.0553	1000	.027241
280	.05371	1500	.020295
300	.052297	2000	.016172
320	.050959	2500	.013441
340	.049686	3000	.011499

## THE MOTOR-MAN.

I would like to sing in a pleasing strain,  
Yet, I fear I'll end in a sad refrain,  
For the subtle forces of nature now  
Are employing many a thoughtful brow,  
In the field of progress, day and night,  
To gather them in and hold them tight,  
"Till steam shall yield to the lightning plan,  
And the engineer to the motor-man.

Let the sceptics scoff on every hand  
Let them doubt when they cannot understand;  
But the mighty forces of steam must yield  
To a mightier force, now scarce concealed  
From the public view, but the gauzy veil  
May be soon pulled off, and upon the rail  
There will come a change in time's briefest span,  
When we all must bow to the motor-man.

When Galileo preached his creed,  
But few of his listeners did him heed;  
When Watts saw the lift on the kettle's lid,  
He knew underneath there were forces hid;  
When Fulton first launched his tiny boat,  
Who'd dream of the palaces now afloat?  
And when Morse his wires o'er the house-tops ran,  
Who'd think of the coming motor-mann.

Alas, alas! for the engineers,  
How their bones will bleach in a few more years  
In the boneyards over the country wide,  
Where we'll all be thrown, bereft of pride,  
We may then sit down, and our cuds can chew,  
Telling stories of days when we filled the view  
Of the public eye, when we lead the van,  
Ere we heard a word of the motor-man.

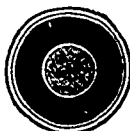
What a mass of song in our simple way  
I have chorused up for many a day!  
How I tickled the ribs of the engineers,  
And won pleasing smiles from their comely dears.  
As I sung the joys of their railway life,  
And I pictured pains of our daily strife,  
As we forward marched in the labor van,  
But I cannot sing for the motor-man.

I am now too old to begin anew,  
I shall end my days with the engine's crew;  
For the dynamos and the Leyden jars  
I no more could catch than the distant stars.  
In the cabs we reigned with a swing supreme  
In the glorious days of the age of steam;  
We must march in a ghostly caravan  
When we're crowded out by the motor-man.

—Locomotive Engineering Journal.

## THE "CLARK" WIRE.

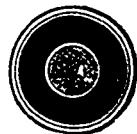
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