We have recorded the vibration-rotation spectra of gaseous $\text{MgH}$ and $\text{MgH}_2$ in emission using a furnace-discharge source. The molecules were generated at 650°C and 333 mA discharge current with magnesium and a mixture of argon and hydrogen gases. The recorded spectra contained several emission bands, as well as the absorption of atmospheric $\text{H}_2\text{O}$. The highest signal-to-noise ratio for $\text{MgH}$ lines was about 200. Three vibrational bands, $v=1$-$0$ to $v=3$-$2$, for $^{24}\text{MgH}$ and two vibrational bands for $^{25}\text{MgH}$ and $^{26}\text{MgH}$ were observed in the $^2\Sigma^+$ ground electronic state. The analysis of the infrared data combined with our previous data on the $B'$-$X$ electronic transition will lead to an improved potential energy curve for the ground state using a direct-potential-fit approach. In addition to $\text{MgH}$, we found the antisymmetric stretching mode ($\nu_2$) of $^{24}\text{MgH}_2$ and three hot bands involving $\nu_2$ and $\nu_3$ in our spectrum. The bands were rotationally analyzed and the spectroscopic constants were determined. The $\text{MgH}_2$ molecule has a linear structure with an $R_0\text{Mg-H}$ bond length of 1.703327(3) Å.