J. A. Alter,

Spark Arrester,

No. 21,309. Patented Aug. 31, 1858.

Fig. 1

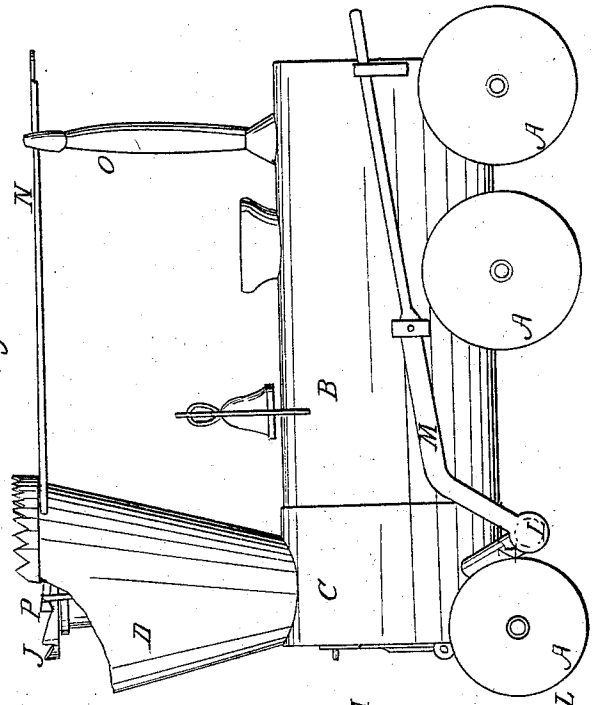


Fig. 2

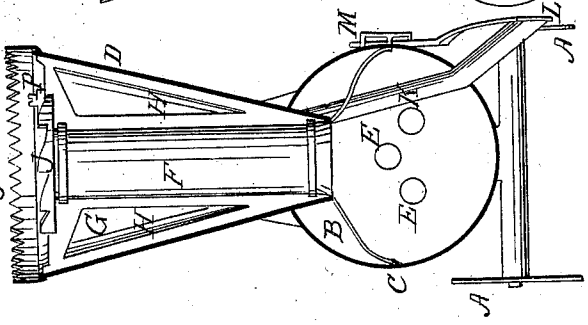
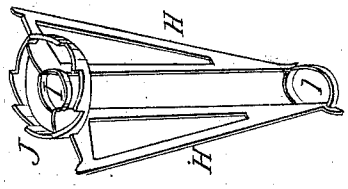


Fig. 3.



N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JACOB A. ALTER, OF JOHNSTOWN, PENNSYLVANIA.

SCRAPER FOR REMOVING SPARKS FROM THE SMOKE-STACKS OF LOCOMOTIVE-ENGINES.

Specification of Letters Patent No. 21,309, dated August 31, 1858.

To all whom it may concern:

Be it known that I, JACOB A. ALTER, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Scraper for Cleaning the Spark-Arresters, Smoke-Stacks, and Chimneys of Locomotive-Engines and other Furnaces; and I do hereby declare that the same is described and represented in the following specification and drawings.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation referring to the drawings in which the same letters indicate like parts in each of the figures.

Figure 1, is an elevation of such parts of a locomotive engine as are necessary to show my invention. Fig. 2, is a section through the smoke box and stack. Fig. 3, is a perspective view of the scraper.

The nature of my invention consists in a scraper so constructed and arranged as to scrape such parts of the spark arrester, smoke stack and chimney of locomotive engines and other furnaces, as require cleaning of soot and sparks, which would otherwise accumulate and stop the draft. And in applying to said scraper a ratchet wheel and pawl, or such equivalent device, as will enable the fireman to operate said scraper by hand, or connect it to some part of the engine so that it will be operated by it and remove the soot and sparks without stopping the engine. Also in connecting a pipe or spout to the bottom of the smoke stack, or spark arrester to conduct the sparks and soot down, and deliver either between, or outside of the tracks as may be preferred.

On some of the railroads in Pennsylvania, and perhaps elsewhere where coal is used for fuel in the locomotive engines, the soot and sparks and cinders collect so fast in the spark arrester or smoke stack, and in such quantities as to seriously impede or obstruct the draft in running thirty or forty miles, so that the engineer is compelled to stop the train and remove the accumulated soot, sparks, etc., the best way he can: which has induced me to make the following invention.

In the accompanying drawings A, A, are the wheels of the locomotive engine, B, the boiler, C, the smoke box, D, the spark arrester or smoke stack constructed as shown in the drawing. This smoke stack may be covered with a screen of woven wire, or perforated metal, to prevent the escape of the sparks which have passed through the tubes or flues E, E, of the boiler, and through the chimney F, so that they fall in the space G, between the chimney and smoke stack, where they soon accumulate in such quantity, as seriously to obstruct the draft of the furnace under the boiler, and compel the engineer to stop and remove them, and delay the train while doing so.

In order to remove the soot and sparks in the smoke stack while the locomotive is running, and save the train from delay, I make a scraper shown in perspective in Fig. 3, and in place in Fig. 2, consisting of the two frames H, H, fastened to the rings I, I, which rings are fitted to turn freely on the chimney F, as the scraper is turned by the ratchet wheel J, fastened to the tops of the frames H, H. These frames are made just large enough to move freely in the space G, between the chimney and smoke stack, so as to remove or scrape off any soot or sparks that may adhere to them and carry them around with the sparks that collect in the space G, to the spout K, which conducts them out by the side of the track, so as to leave them by the side of the road. The spout K, is provided with a valve or gate L, on the end of the lever M, which extends back to the rear end of the boiler where the fireman can reach and operate it when necessary.

N, is a rod arranged to traverse in the top of the standard O, fastened to the boiler, and in a hole in the smoke stack and carries the vibrating pawl P, which catches the teeth in the ratchet wheel J, and moves it around with the scraper, as the rod is traversed back and forth for that purpose, by the fireman, or by being connected to the eccentric or crank of the engine.

My invention is very simple and cheap, and of great practical utility, and calculated to obviate the delays heretofore made in stopping the train to remove sparks, and perhaps get it out of its proper time, so as to cause a collision with a train coming in an opposite direction.

I contemplate that skilful artisans will be able to modify my invention and adapt it to the circumstances in which they wish to use it without detracting from its merits.

I believe I have described and represented my invention, so as to enable any person skilled in the art to make and use it.

I will now state what I desire to secure by Letters Patent—

1. I claim a scraper constructed and arranged so as to scrape such parts of the spark arrester, smokestack and chimney of locomotive engines and other furnaces as require cleaning and clean them of the soot and sparks substantially as described.

2. I also claim in combination with said scraper a ratchet wheel and pawl or such equivalent device as will enable the fireman to operate said scraper by hand, or connect it to some part of the engine so that it will be operated by it substantially as described.

3. I also claim the pipe or spout K for conducting the soot and sparks from the spark arrester or smokestack substantially as described.

JACOB A. ALTER.

Witnesses:
J. DENNIS, Jr.,
W. S. CLARY.