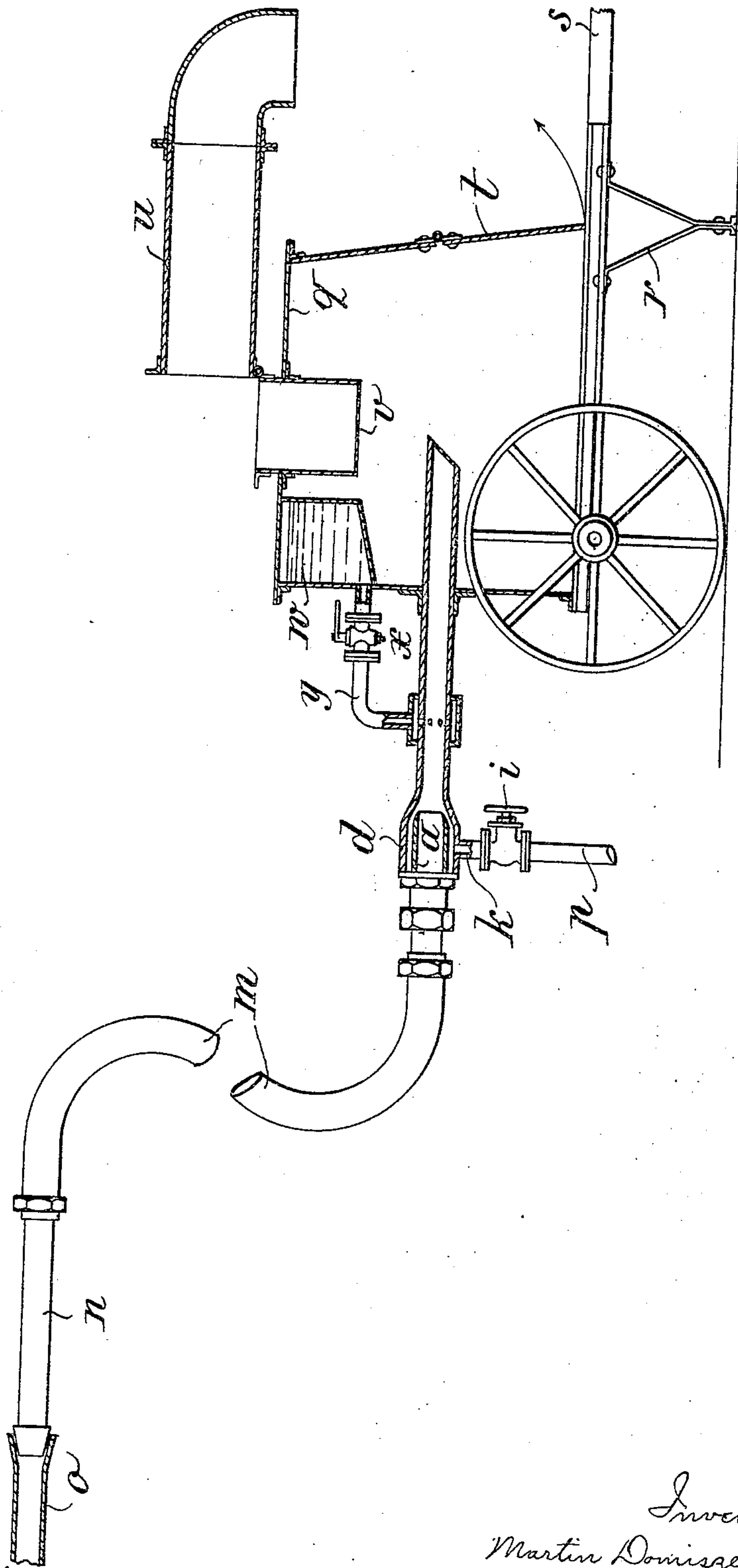


M. DOMISZEWSKI.
 APPARATUS FOR CLEANING FIRE TUBES OF BOILERS.
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958,376.

Patented May 17, 1910.



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MARTIN DOMISZEWSKI, OF KOLOMEA, AUSTRIA-HUNGARY.

APPARATUS FOR CLEANING FIRE-TUBES OF BOILERS.

958,376.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed October 25, 1909. Serial No. 524,487.

To all whom it may concern:

Be it known that I, MARTIN DOMISZEWSKI, subject of the Emperor of Austria-Hungary, residing at Kolomea, in the Province of Galicia, Austria-Hungary, have invented certain new and useful Improvements in Apparatus for Cleaning Fire-Tubes of Boilers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to an improved apparatus for cleaning fire-tubes of boilers comprising a tubular piece in the shape of a suction-nozzle which is adapted to be put in communication with the individual fire-tubes and is surrounded by a casing through which can be introduced a current of steam that may preferably be regulated by means of a valve. The suction of the steam jet produces in the interior of the fire-tube a current of air which carries off the impurities accumulated within the tube.

The characteristic features of the present invention chiefly consist in: (1) that the tubular casing of the apparatus communicates with a removable and exhaustible collecting box provided with a steam-discharge; (2) that the tubular piece in the shape of a suction nozzle is adapted to communicate with each individual fire-tube by means of a tubular plug the latter being connected with the suction tube by a pipe or hose. In this manner the applicability of the apparatus is essentially increased because by means of the collecting box the cinders and flue dust exhausted from the fire tubes may be collected on the spot while the tubular plug connected by a hose to the suction tube affords the facility to rapidly connect the apparatus to the fire tubes.

The collecting box may be provided with a water receptacle from which water is fed into the tubular casing. The water moistens the coal dust and combines with it so as to form a pulp whereby all formation of dust or dirt in cleaning the fire-tubes is avoided.

The drawing illustrates by way of example one form of the present invention partly in side elevation and partly in section.

The suction pipe *a* of the apparatus is connected by means of a hose *m* with a tubu-

lar plug *n* the conical end of which may be introduced into the enlarged or flared end *o* of each fire-tube. The casing *d* provided with a branch or connecting pipe *k* communicating with a steam tube *p* and having a steam valve *i* opens into a collecting box *q* to the front wall of which it is fixed. The collecting box *q* is mounted on a movable frame or carriage *s* provided with supports *r* and possesses a trap *t* fitted on its rear wall as also a hinged exhaust steam pipe *u*, a sound damping device *v* and a water receptacle *w* from which a tube *y* provided with a stop-valve *x* carries water to the tubular casing *d*.

When not in use the apparatus may conveniently be stored in a shed or in some other place in which case the exhaust steam-pipe *u* may be let down and the hose *m* and *p* wound up around the carriage.

Whenever the fire-tubes of a boiler are to be cleaned an operation which in accordance with the improved arrangement can be performed by a single attendant the exhaust steam-pipe is raised and the steam-tube *p* is connected with the connecting pipe *k* of the boiler. Thereupon the attendant opens the valves *i* and *x*, posts himself upon the collecting box *q* and introduces the conical end of the tubular plug successively into each individual fire tube. The cleaning is accomplished instantly and in this way a skilled stoker is able to clean about 300 boiler-tubes in 10 to 15 minutes.

If the fire-tubes are tightly choked it will be necessary to scrape them with a wire-brush and to apply repeatedly the suction pipe to the same. The waste or ejected particles of coke coal and cinders are carried into the collecting-box the coal dust moistened on its way by the water jet forms in the box a pulp so that it cannot be whirled up by the steam exhaust. The coal-dust will therefore be prevented from vitiating the air of the workshop and from exerting a prejudicial effect on the health of the workman. The accumulated flue dust, cinders, etc. are then carried away to a suitable place provided for the same and the apparatus is cleaned.

From the above it will be evident that the cleaning of the fire tubes can be performed without stopping the engine or allowing it to cool down, that is to say while at full steam, because the suction tube sucks up hot gases out of the fire-box so that there will

be effected no cooling of the boiler tubes. By the sucking-up of hot gases the boiler-tubes are spared and the cinders and flue-dust are exhausted from all parts of the boiler tubes which are inaccessible to hand and scraper. The cleaning of the boiler may be performed with its own steam or some other cold boiler can be cleaned by the apparatus.

10 Claims:

1. An apparatus for cleaning fire-tubes of boilers, comprising a suction nozzle adapted to be connected with a fire tube, a casing surrounding the nozzle, means to introduce a current of steam into the casing, a receptacle communicating with the latter provided with a steam exhaust, and a water supply communicating with the casing between the nozzle and receptacle.

2. An apparatus for cleaning fire-tubes of boilers, comprising a suction-nozzle, a tubular plug adapted to fit said tubes, a flexible hose connecting the plug and nozzle, a receptacle having an exhaust conduit, a casing connecting the nozzle and receptacle, means to regulate the admission of steam to the casing, a water reservoir mounted on the receptacle, and a conduit connecting the reservoir with the casing between the nozzle and receptacle.

In testimony that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

MARTIN DOMISZEWSKI.

Witnesses:

JOSEF RUBRASCH,
AUGUST FUGGER.