

No. 632,147.

Patented Aug. 29, 1899.

C. S. ROBINSON.
BLAST FURNACE.

(Application filed June 25, 1898.)

(No Model.)

Fig. 1.

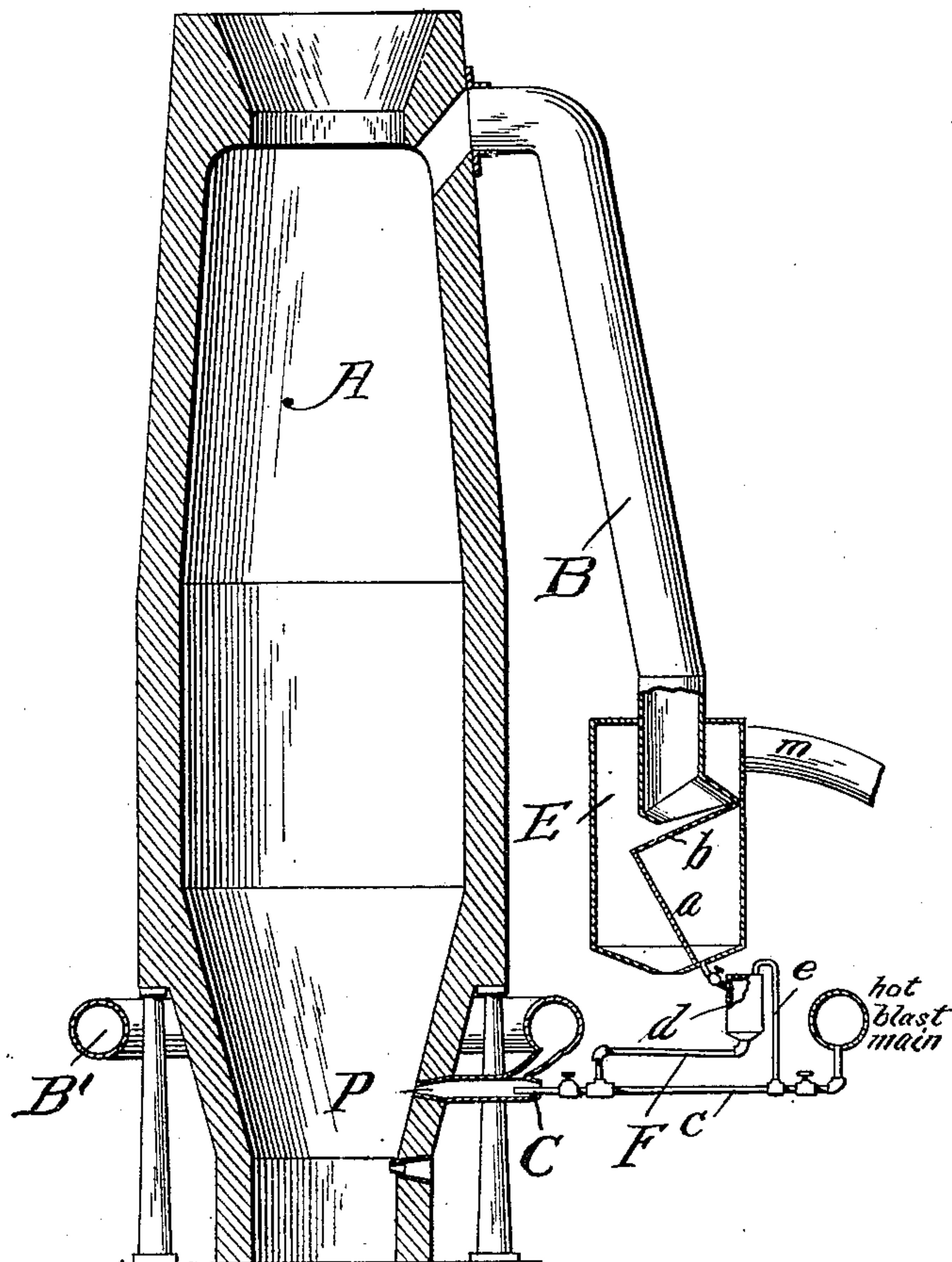
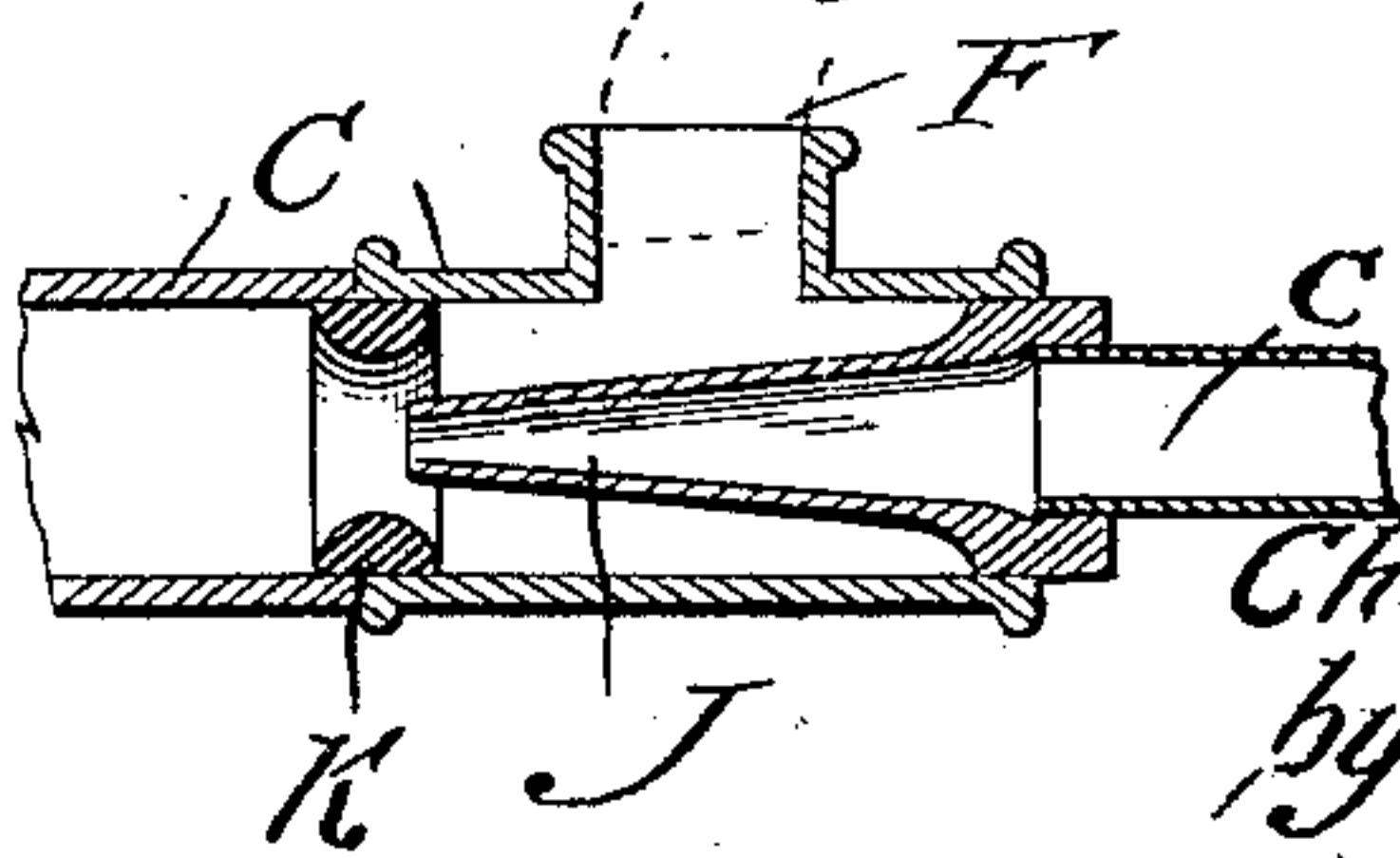


Fig. 2.



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CHARLEY S. ROBINSON, OF SHARPSVILLE, PENNSYLVANIA.

BLAST-FURNACE.

SPECIFICATION forming part of Letters Patent No. 632,147, dated August 29, 1899.

Application filed June 25, 1898. Serial No. 684,494. (No model.)

To all whom it may concern:

Be it known that I, CHARLEY S. ROBINSON, a citizen of the United States, residing at Sharpsville, Mercer county, Pennsylvania, have invented certain new and useful Improvements in Blast-Furnaces, of which the following is a specification.

My invention is designed to utilize the flue-dust from ordinary blast-furnaces so as to prevent waste and the accumulation of the dust in the hot blast and under the boilers and carry it back into the furnace.

The invention consists in means for carrying out this object and includes an injector for forcing the flue-dust into the furnace, a separator for the gases and dust, and details of construction relating to the means for carrying out the invention.

In the accompanying drawings a simple form of the invention is shown in Figure 1, Fig. 2 being a detail of the injector.

In Fig. 1 the ordinary stack of a blast-furnace is shown at A, and this is provided with a downcomer B, terminating in a dust-catcher E. I separate the dust and gases in this chamber E by discharging the dust and gas below the gas-outlet *m*, so that the gas must rise to pass out of the outlet. I also bend the mouth of the downcomer within the chamber E and form a supplemental hopper *a*, having a grating *b* at the top through which the dust passes; but the grating allows the gas to escape, but prevents the dust from following. I pass the dust as fast as it accumulates from the chamber E into the furnace by a siphon or injector. (Shown in detail in Fig. 2.)

A twyer (shown at P) has an outwardly-extending pipe C, terminating in a coupling which carries in one end a tapering nozzle J. A pipe connects this nozzle with the bustle-pipe B', and the pressure of air through this nozzle draws upon the dust in the chamber *d*, as this chamber is in connection with the

coupling by pipe F, and the result is that the dust is injected through the pipe C and twyer into the furnace. At the mouth of the coupling a reducer K is located having a rounded interior, and this serves to prevent any back pressure of air as it passes through. The pressure from the bustle-pipe is supplemented by pressure from the hot-blast main through the pipe *c*. The chamber E is used as a separator, and the dust passes to a supplemental chamber *d*, and a branch pipe *e* extends from the hot-blast main to the top of the chamber *d*, and thus applies a positive pressure to force out the dust.

What I claim is—

1. In combination with a furnace, a flue-dust chamber or collector connected therewith, a supplemental chamber connected with the main chamber to receive dust therefrom, means for applying pressure to the top of said supplemental chamber, an injector discharging into the furnace, a source of pressure connected therewith, and a pipe between the injector and the supplemental chamber, substantially as described.

2. In combination with a furnace, a flue leading therefrom, a dust-collecting chamber connecting with the said flue, means for separating the dust and air within the collecting-chamber, a supplemental chamber *d* connected with the main chamber to receive dust therefrom, means for applying pressure to the top of chamber *d*, an injector discharging into the furnace and a suction-pipe between the injector and chamber *d*, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLEY S. ROBINSON.

Witnesses:

A. W. WILLIAMS,
S. A. ROBINSON.