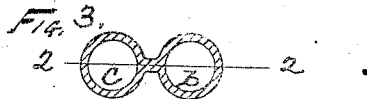
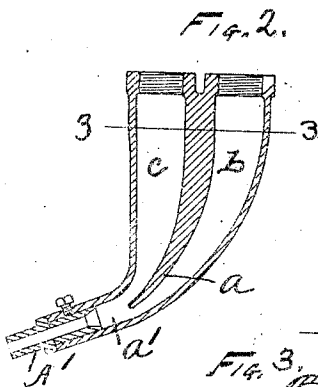
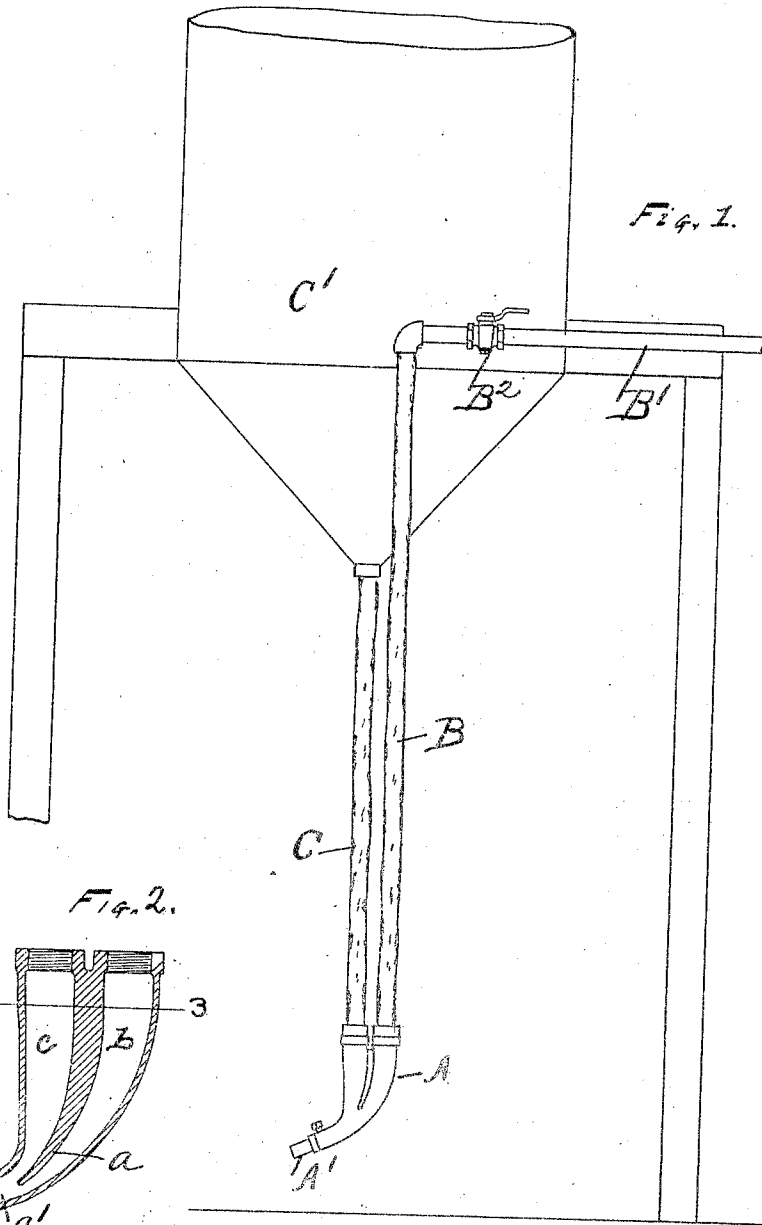


No. 879,102.

PATENTED FEB. 11, 1908.

J. F. HAY.
SAND BLAST APPARATUS.
APPLICATION FILED OCT. 17, 1904.

2 SHEETS—SHEET 1.



Witnesses

W. H. Sullivan
M. C. Sullivan

Inventor

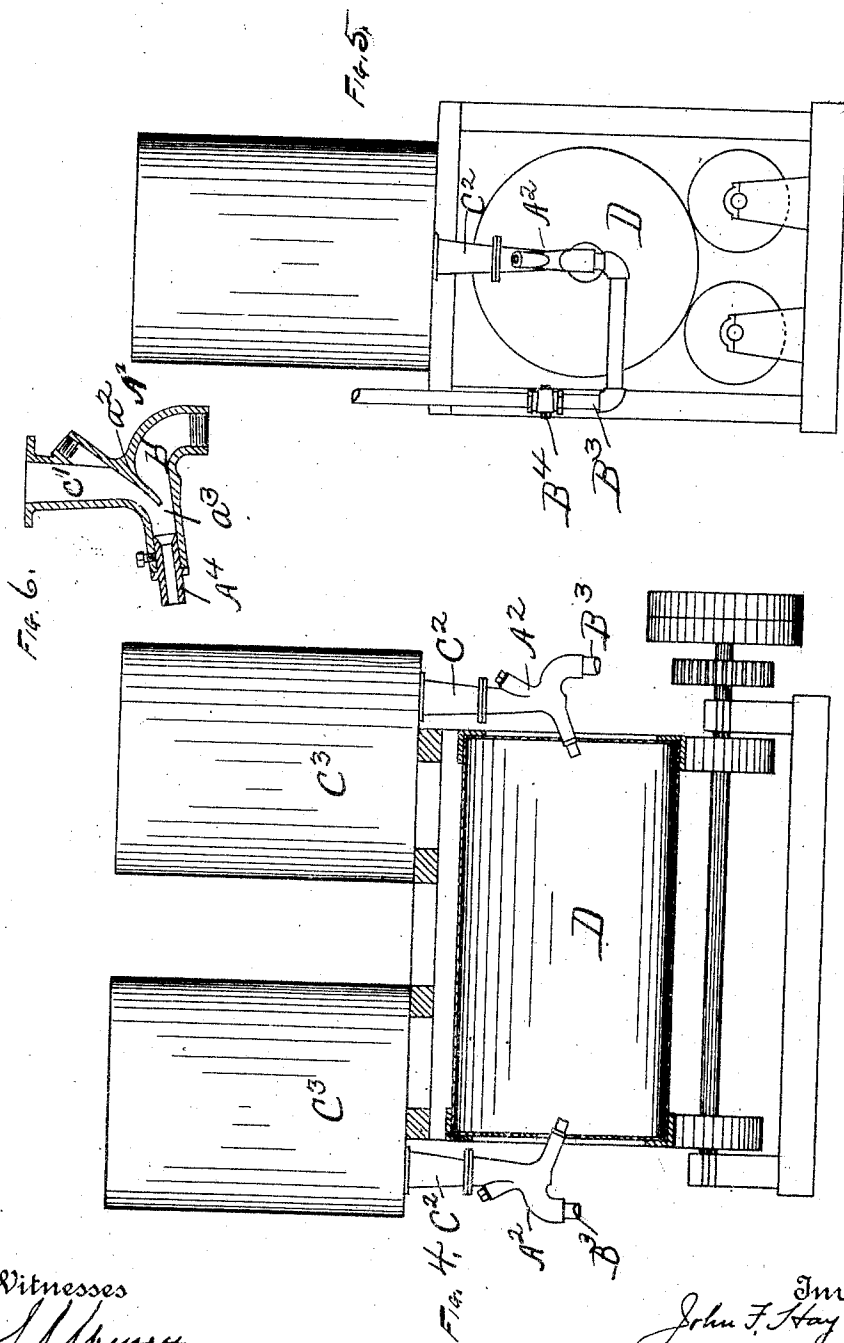
John F. Hay
by W. H. Sullivan
Attorney

No. 879,102.

PATENTED FEB. 11, 1908.

J. F. HAY.
SAND BLAST APPARATUS.
APPLICATION FILED OCT. 17, 1904.

2 SHEETS—SHEET 2.



Witnesses

W. H. Sullivan
W. C. Sullivan

Inventor
John F. Hay
by *N. C. Lord*
Attorney

UNITED STATES PATENT OFFICE.

JOHN F. HAY, OF ERIE, PENNSYLVANIA, ASSIGNOR TO ERIE MALLEABLE IRON COMPANY,
OF ERIE, PENNSYLVANIA, A CORPORATION.

SAND-BLAST APPARATUS.

No. 879,102.

Specification of Letters Patent.

Patented Feb. 11, 1908.

Application filed October 17, 1904. Serial No. 228,896.

To all whom it may concern:

Be it known that I, JOHN F. HAY, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented new and useful Improvements in Sand-Blast Apparatus, of which the following is a specification.

This invention relates to sand blast apparatuses and consists in certain improvements in the construction thereof as will be hereinafter fully described and pointed out in the claims.

Sand blast apparatuses have heretofore been made. In the usual construction, a sand pipe is arranged at right angles to a horizontal air pipe and the mingled sand and air are conveyed considerable distances to the point of use. I have found that a deflecting partition at the outlet of the sand passage will effect a more even delivery of sand to the blast than with the construction just described. I have also found it desirable to mingle the air and sand adjacent to the nozzle, this giving a more satisfactory control than where the sand is carried by the air long distances. This also reduces the wear on the pipes or walls of the passage. In order that the nozzle so supplied may be readily handled for use on large castings, I have made the connections to said passage flexible, so that the nozzle may be directed as desired.

The invention is illustrated in the accompanying drawings as follows:—Figure 1 shows a side elevation of the preferred construction. Fig. 2, a vertical section of the mixer and nozzle on the line 2—2 in Fig. 3. Fig. 3, a section on the line 3—3 in Fig. 2. Fig. 4 is a side elevation partly in section showing some features of the invention adapted to a mill. Fig. 5, an end elevation of the same. Fig. 6, a section through the mixer and nozzle used with the mill.

The mixer A comprises the two passages *c* and *b*, the sand being delivered through the passage *c* and the air through the passage *b*. The deflecting partition *a* extends at an angle to the passage C into the outlet passage *a'* of the mixer. This partition is preferably arranged at an angle approximating 45 degrees to the general line of the sand passage. The usual nozzle A' is arranged in the outlet passage *a'*, the outlet passage forming the throat of the nozzle.

The flexible connection B extends from the supply pipe B', the supply pipe B' being con-

necting with any means of air supply. The valve B² controls the air delivered. The sand passage *c* has the flexible connection C extending to the sand receptacle C'. The flexible connections permit of the deflection and manipulation of the nozzle to direct the jet as desired. They also permit of the mixing of the air and sand adjacent to the nozzle. The deflecting partition assures a uniform flow of sand. The partition *a* should not be so extended as to prevent a ready delivery of sand or in other words to effect a choking of the sand.

In the alternative construction, shown in Figs. 4, 5 and 6 D marks the mill, A² the mixer in which is arranged the passages *b'* and *c'*, the passage *c'* being for the sand and the passage *b'* for the air, and the deflecting partition *a'* operating to deflect the air so as to prevent its direct action on the column of sand in the passage *c'*. The outlet passage *a'* forms the throat of the nozzle A⁴ as in the preferred construction. The operation of this is practically the same as in the preferred construction, the supply of air being controlled by a valve B⁴, and the jet being directed into the mill against the castings as the mill is revolved. This is termed a "sand blast apparatus" and the term "sand" where it occurs in the claims is meant to include any abrading material.

What I claim as new is:—

1. In a sand blast apparatus the combination of a mixer comprising a sand passage for delivering sand to the nozzle by gravity the end of the passage being deflected from the general direction of the sand passage to form a support for the sand with the passage arranged in a vertical direction and an air passage arranged beneath the deflected end of the sand passage with the sand passage back of the end in a vertical position; and a nozzle with which the mixer communicates, said nozzle being deflected to a direction more nearly 45 degrees to the sand passage back of the deflected end than to a direction in alinement therewith.

2. In a sand blast apparatus the combination of a vertically disposed flexible sand connection; a mixer secured to the flexible connection comprising a sand passage for delivering sand to the nozzle by gravity the end of the passage being deflected from the general direction of the sand passage to form a support for the sand with the passage arranged

in a vertical direction and an air passage arranged beneath the deflected end of the sand passage with the sand passage back of the end in a vertical position; and a nozzle with which
5 the mixer communicates, said nozzle being deflected to a direction more nearly 45 degrees to the sand passage back of the deflected end than to a direction in alignment therewith.

10 3. In a sand blast apparatus the combination of a mixer comprising the sand passage *c* and air passage *b* with the interposed partition *a* extending entirely across the nozzle and forming the deflected end of the passage

c, the air passage being beneath the deflected end with the passage *c* in a vertical position and extending upwardly from the end; and the nozzle *A'* having a direction more nearly 45 degrees to the passage *c* than in alignment therewith. 15 20

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN F. HAY.

Witnesses:

C. D. HIGBY,
B. J. WALKER.