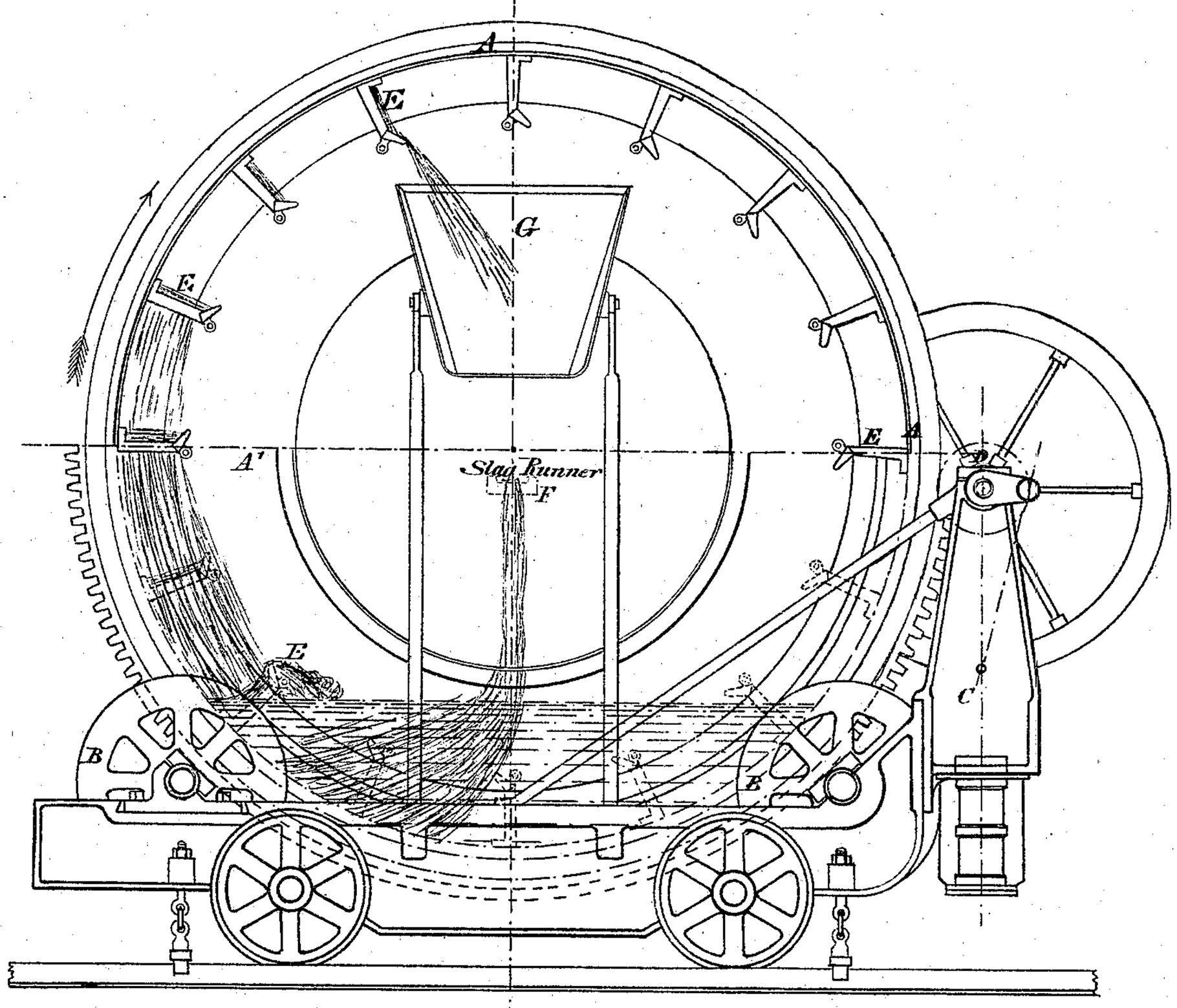
2 Sheets--Sheet 1.

C. WOOD.

Apparatus for Granulating Slag, Iron, &c.

No. 143,485. Patented Oct. 7, 1873.

Fig. 1.



Witnesses
W. L. Bernard.
W. H. Isaacs.

Inventor
Charles Wood
by his Atty
C. L. Lemmick

2 Sheets--Sheet 2.

C. WOOD.

Apparatus for Granulating Slag, Iron, &c.

No. 143,485. Patented Oct. 7, 1873.

Fig. 2.

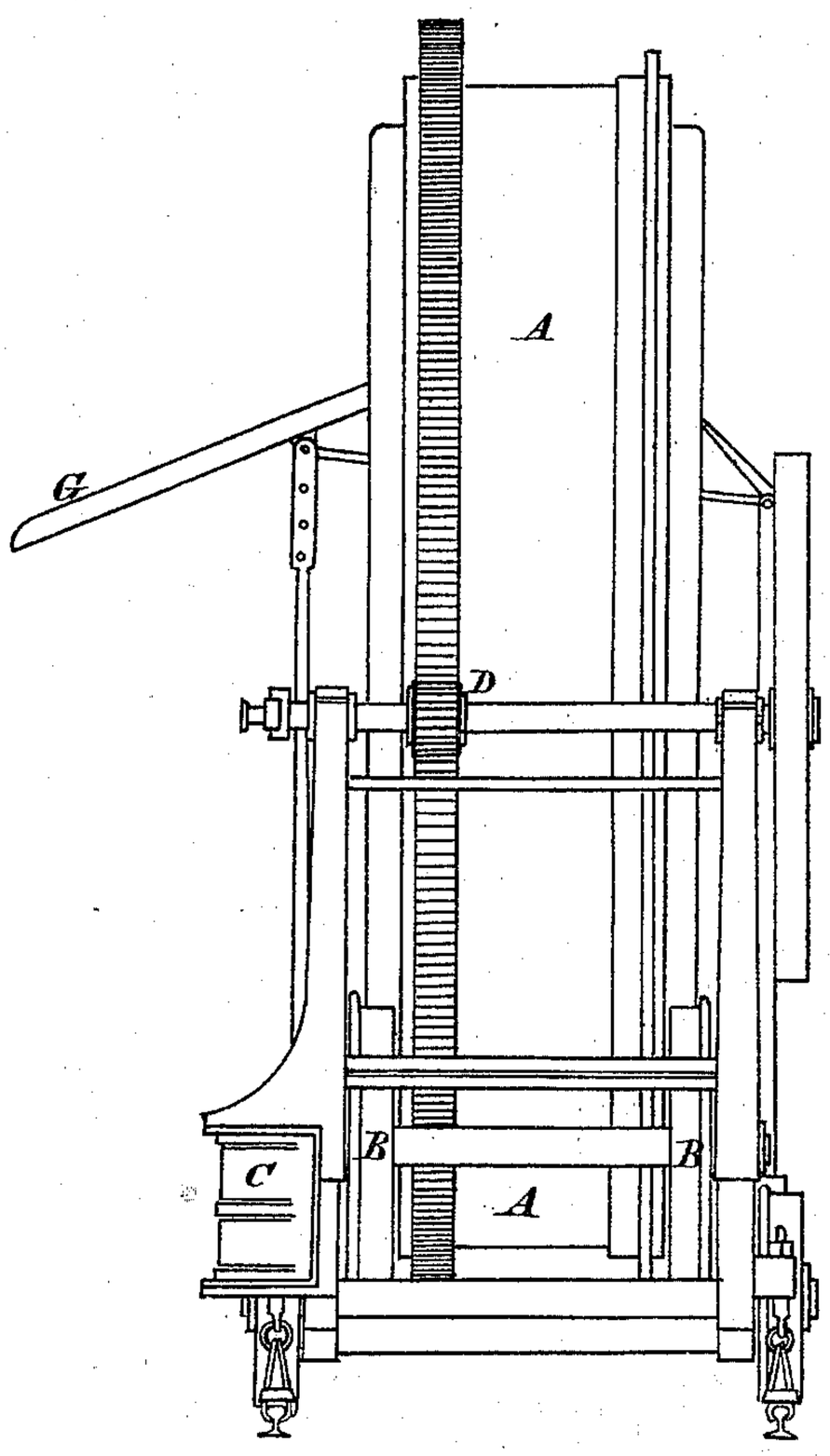
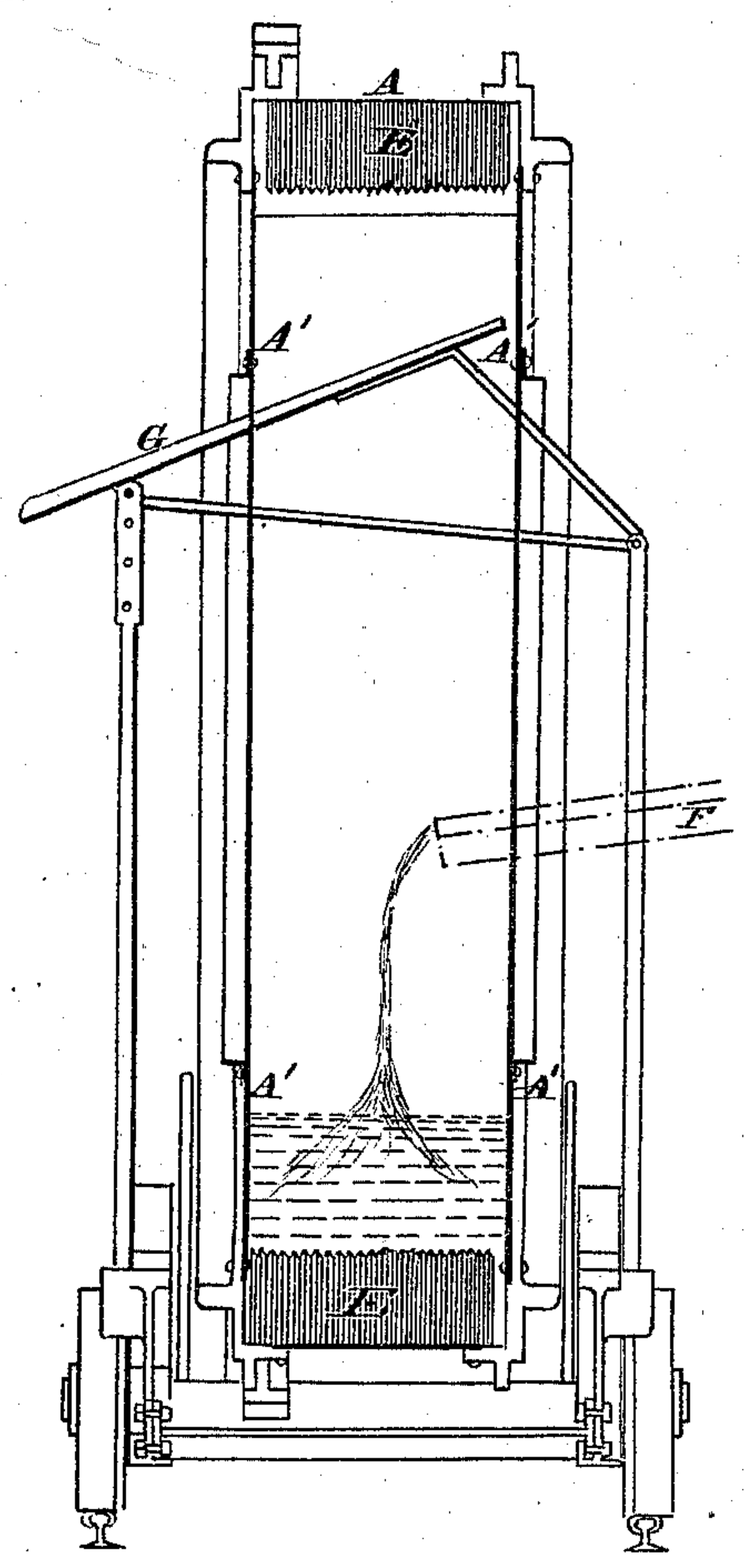


Fig: 3.



Witnesses
W. L. Bennem.
W. H. Isaacs.

Inventor
Charles Wood
by his atty
C. L. Semmicksp

UNITED STATES PATENT OFFICE.

CHARLES WOOD, OF TEES IRON WORKS, MIDDLESBOROUGH-ON-TEES, ENGLAND.

IMPROVEMENT IN APPARATUS FOR GRANULATING SLAG, IRON, &c.

Specification forming part of Letters Patent No. **143,485**, dated October 7, 1873; application filed September 13, 1873.

To all whom it may concern:

Be it known that I, CHARLES WOOD, of the Tees Iron Works, Middlesborough-on-Tees, in the county of York, England, a subject of the Queen of Great Britain, have invented or discovered new and useful Improvements in Machines for Cooling and Granulating Slag, or Scoria, or Iron; and I, the said CHARLES WOOD, do hereby declare the nature of the said invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof—that is to say:

This invention has for its object improvements in machines for cooling and granulating slag, or scoria, or iron as it flows in a liquid state from the blast or other furnaces. For this purpose the slag, or scoria, or cast-iron, as it flows in a uniform fine stream from a runner or spout, is received into water. This water is contained within a wheel or revolving tank, having floats, buckets, or agitators, and the water is thus kept in a continual state of agitation. The floats, buckets, or agitators also elevate the granules. The granulated slag, or scoria, or cast-iron then falls into a spout, whence it passes into a wagon. The action of the agitated water upon the stream of liquid slag, or scoria, or cast-iron is to reduce it into a state like coarse sand or gravel, the size of such sand or gravel varying according to the speed and other circumstances in connection with the working of the machine. A stream of water is kept continually running into the tank, so as to make up the loss by evaporation and waste.

Having thus stated the nature of my invention I will proceed to describe more fully the manner of performing the same.

Figure 1 shows a side elevation, and Fig. 2 an end elevation, and Fig. 3 a vertical transverse section, of the revolving tank and apparatus connected therewith.

The tank is composed of a metal cylinder, A, partially closed at its ends by rings of sheet metal A′, as shown at Fig. 3, so that a considerable quantity of water may be held in the lower part of the cylinder. The cylindrical tank is supported horizontally upon rollers B B, which are mounted upon a carriage, on which is also a small steam-engine, C, for imparting a revolving motion to the tank. The tank has for this purpose a ring of teeth formed around it, into which gears a pinion, D, on the crank-shaft of the engine. When the tank is revolved water is allowed to accumulate in its lower part to a depth of from one foot to two feet or more, and the water is kept in a violent state of agitation, not only by the revolution of the tank, but by the floats, buckets, or agitators, marked E, which are fixed around the inner circumference of the tank, as shown. The slag, or scoria, or cast-iron from the blast or smelting furnace is conducted, by a runner or spout, F, to the machine, and is allowed to drop into the water in the tank, as shown. The slag, or scoria, or metal is thereby disintegrated or granulated and falls to the bottom of the bath, and the floats, buckets, or agitators, which are perforated, as the tank revolves, carry upward the granulated slag, or scoria, or cast-iron and separate it from the water, and afterward deliver it to a spout, G, down which it slides into a wagon or other receptacle.

Having thus described the nature of my invention, and the manner of performing the same, I would have it understood that I do not confine myself to the exact construction of machinery herein described; but I claim—

1. The combination, substantially as before set forth, of the water-tank for receiving the slag, the elevating-floats, and the delivery-spout.

2. The arrangements of granulating apparatus, consisting of the revolving tank A, floats, buckets, or agitators E, runner F, and delivery-spout G, combined substantially as herein described.

CHARLES WOOD.

Witnesses:
MARY ALICE WOOD,
JOHN BREWSTER, Jr.