

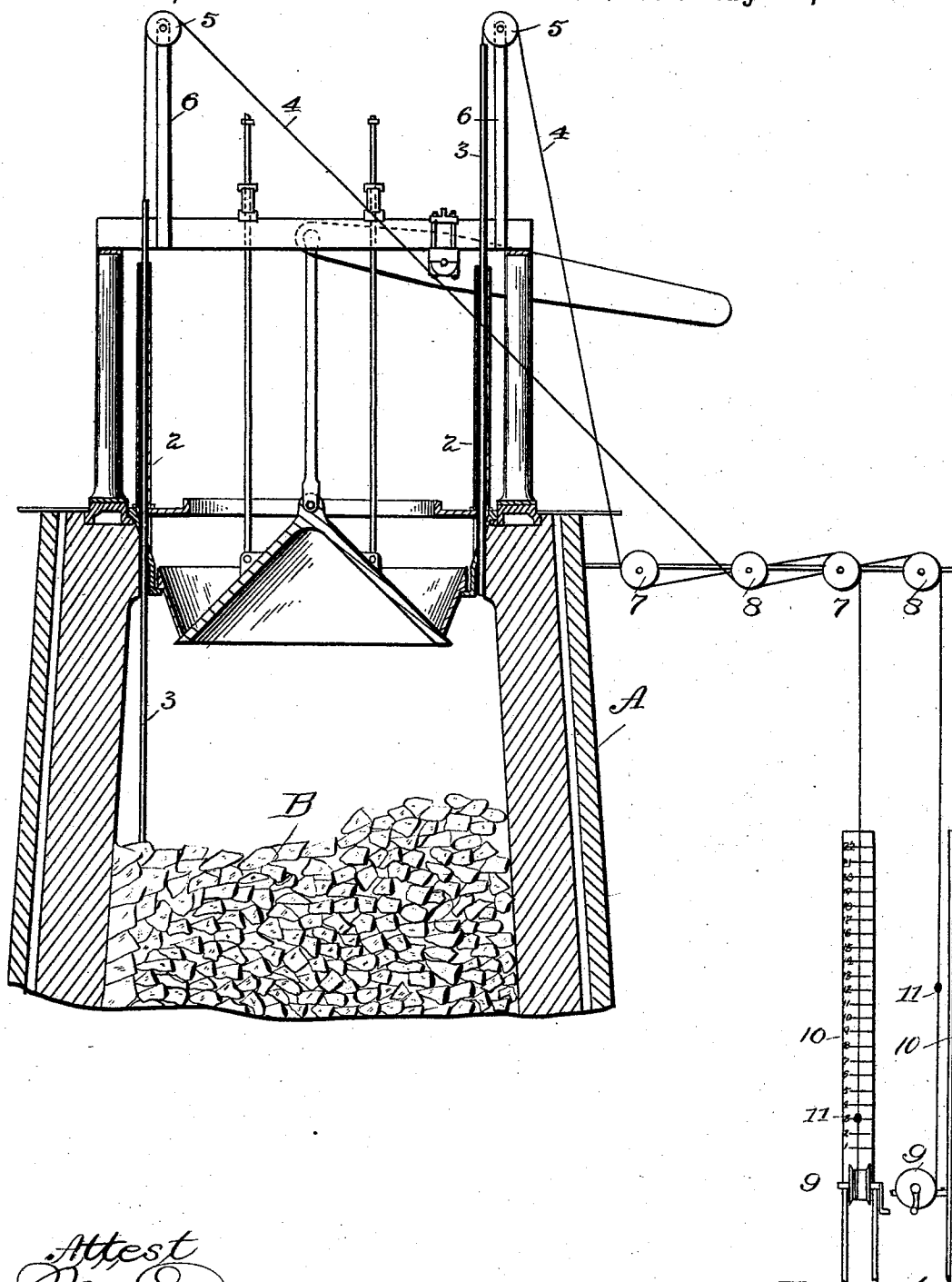
(No Model.)

S. McCLURE & C. F. PHILLIPS.

AUTOMATIC STOCK INDICATOR FOR BLAST FURNACES.

No. 498,676.

Patented May 30, 1893.



Attest
Malvern Malcom
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UNITED STATES PATENT OFFICE.

SAMUEL McCLURE AND CHARLES F. PHILLIPS, OF SHARON, PENNSYLVANIA.

AUTOMATIC STOCK-INDICATOR FOR BLAST-FURNACES.

SPECIFICATION forming part of Letters Patent No. 498,676, dated May 30, 1893.

Application filed November 8, 1892. Serial No. 451,317. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL McCLURE and CHARLES F. PHILLIPS, citizens of the United States of America, residing at Sharon, in the county of Mercer and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Stock-Indicators for Blast-Furnaces, of which the following is a specification.

Our invention is an automatic indicator for blast furnaces, and is designed to show the height of the stock in the heating chamber of the furnace. It is illustrated in the accompanying drawing, in which the figure shows a central vertical section of the stock of the furnace, and its ordinary attachments, with the indicating apparatus in side elevation.

In the drawing, A, represents the stack in which is the stock B. At the mouth is the usual landing. Through the top are tubes 2, 2, made vertical and set near the side walls, preferably directly opposite each other and forming an open passage to the interior of the stack. In these are set the indicator rods 3, which have free vertical movement in said tubes, and are thereby arranged to rest upon the upper surface of the stock. The tubes serve as guides for the rods, and to convey the gases above the heads of the workmen, as they stand upon the platform. To the upper end of the rods are attached ropes 4 which extend over pulleys 5, on standards 6, and under and over guide pulleys 7 and 8 down to drums located at or near the base of the stack,

or at any convenient place. The drums 9 have cranks and are adapted to wind the ends and raise the rods. When allowed to turn freely, the cords are slackened, and the weight of the rods causes them to descend, and rest upon the stock. Along side the lower end of the cords are graduated scales 10 over which an index 11, fixed to each rope, passes up and down with the movement of the rods. These indexes mark at all times on the scale and show to the attendant the height of the stock in the furnace, heretofore ascertained by personal examination of the mouth of the furnace.

We have shown the apparatus in duplicate, but the number is not material.

We claim—

In combination with a furnace, a tube extending from the top thereof, an indicator rod located in said tube, a supporting pulley arranged above said tube on a vertical standard, a rope or cord attached to the upper end of the indicator rod, passing over said pulley and over other pulleys to a drum, an index on the lower end of the cord or rope, and a scale extending upwardly from the drum support, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

SAMUEL McCLURE.

CHARLES F. PHILLIPS.

Witnesses:

A. W. WILLIAMS,
W. K. NAYLOR.