W. R. REECE.

Coal Breaking Roll.

No. 39,835. Patented Sept. 8, 1863.

Fig. 1

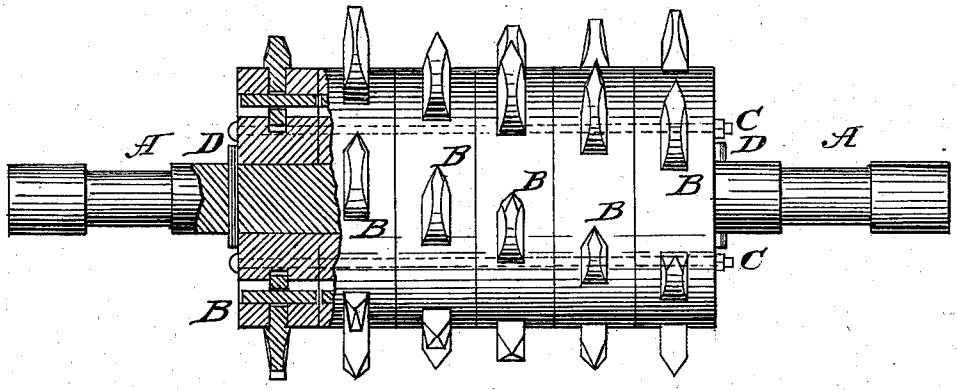
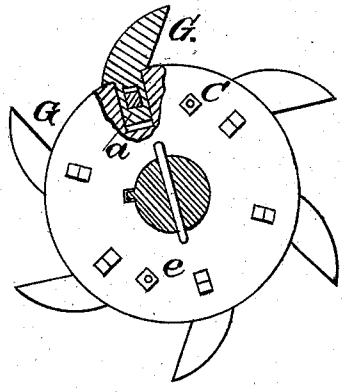


Fig. 2



Witnesses
Charles E. Foster
Charles Howson.

Inventor
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Atty for W. R. Reese

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM R. REECE, OF TREMONT, PENNSYLVANIA.

IMPROVEMENT IN COAL-BREAKING ROLLS.

Specification forming part of Letters Patent No. **39,835**, dated September 8, 1863; antedated January 16, 1863.

To all whom it may concern:

Be it known that I, WILLIAM R. REECE, of Tremont, Schuylkill county, Pennsylvania, have invented an Improvement in Coal-Breaking Rolls; and I do hereby declare the following to be a full, clear, and exact description of the same, referance being had to the accompanying drawings, and to the letters of reference marked thereon.

My improved coal-breaking roll consists of a number of cast-iron sections bolted together and confined to a shaft, each section having recesses for the reception of the shanks of malleable-iron or steel teeth, which are held by keys passing through each section, the keys of one section being retained in their proper position by the adjacent section, and the whole being arranged substantially as described hereinafter, so that the teeth can be readily detached and sharpened or replaced with new ones when damaged, the roll being thus maintained in an efficient condition for acting on the coal, and the expense and delay incurred in replacing the usual rolls in which the teeth are cast either on the rolls or on sections of rolls being obviated.

In order to enable others to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a front view, partly in section, of one of my improved rolls for coal-breaking machines; and Fig. 2 an end view, also partly in section.

Rolls for coal-breaking machines usually consist of solid cylinders of cast-iron with teeth projecting from and forming a part of the cylinders, so that when one or more teeth break the entire roll becomes useless and must be abandoned. In some instances the rolls are made in sections, a number of teeth being cast to and forming a part of each section, so that if one of the teeth be broken an entire section must be replaced by a new one. The cast-iron teeth too are apt to become blunt at the points from constant use, in which case they perform their duties imperfectly.

In the accompanying drawings, A is the shaft for receiving my improved coal-breaking roll, which consists of a number of sections, B B, each section having a slot or keyway adapted to a permanent key or feather on the shaft, and the whole of the sections being connected together by any suitable number of bolts *c c*, the roll thus constructed being confined longitudinally to the shaft by transverse pins.

The teeth G are made of malleable iron or steel, or partly of iron and partly of steel, and each tooth has a shank, *a*, fitting snugly in, but so as to be readily withdrawn from, a recess in one of the sections, the tooth being confined to the section by means of a key, *e*, driven transversely through the shank of the tooth and through the section.

When it is desirable to detach one or more of the teeth, the nuts are unscrewed from the bolts C C, one of the pins *d* is withdrawn from the shaft, and the sections of the roll drawn apart from each other so that the keys *e* may be withdrawn, after which the teeth can be detached, repaired, sharpened, and reinserted, the sections being finally restored to their proper relative position, the nuts screwed onto the end of the bolts and tightened, and the pin *d* driven into the shaft. It will be observed that the keys *e* of one section are retained in their proper position by the adjacent section, and that they cannot be withdrawn or loosened until the several sections are separated from each other.

It is important that the teeth of coal-breaking rolls should be maintained in a sharp condition in order to take a proper and decided effect on the coal. It will be seen that my improvement affords facilities for for readily removing, sharpening, and replacing the teeth; that the latter being made of malleable iron or steel, or partly of iron and partly of steel, they must be much more durable than those which are cast on the rolls or sections of rolls, and that the expense incurred in abandoning the ordinary rolls when a few teeth are broken is avoided.

I claim—

A coal-breaking roll, made in sections B, when each section has recesses for the reception of the shanks of the teeth G and re-

cesses for the reception of keys *e* for confining said teeth to the sections, and when the keys of one section are retained in their places by the adjacent section, the whole being arranged substantially as and for the purpose herein set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WM. R. REECE.

Witnesses:
WILLIAM GLUNDIG,
W. H. WILLIAMS.