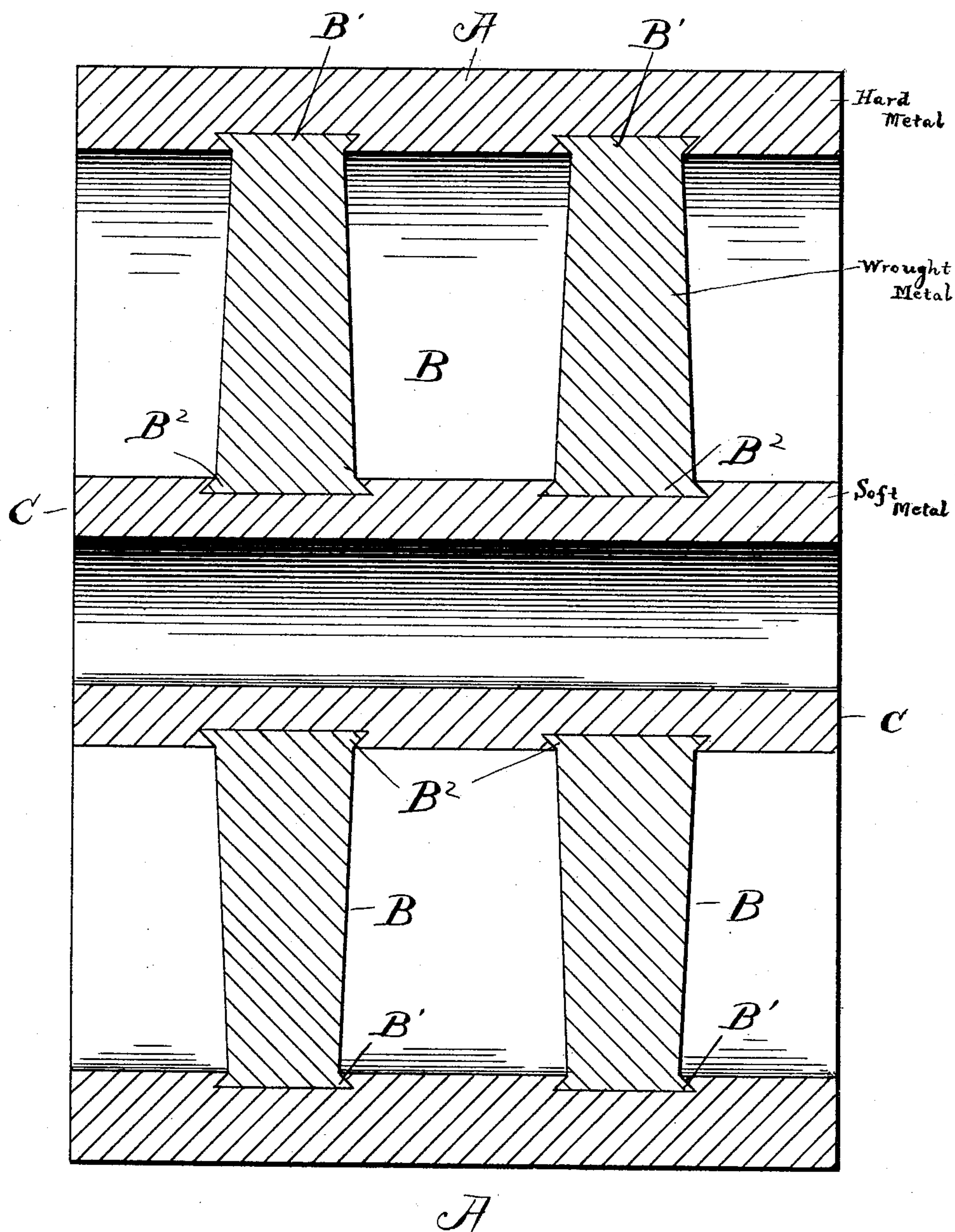


(No Model.)

R. C. PENFIELD.
DISINTEGRATING ROLLER.

No. 480,937.

Patented Aug. 16, 1892.



Witnesses.

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UNITED STATES PATENT OFFICE.

RAYMOND C. PENFIELD, OF WILLOUGHBY, OHIO.

DISINTEGRATING-ROLLER.

SPECIFICATION forming part of Letters Patent No. 480,937, dated August 16, 1892.

Application filed February 13, 1892. Serial No. 421,418. (No model.)

To all whom it may concern:

Be it known that I, RAYMOND C. PENFIELD, of Willoughby, in the county of Lake and State of Ohio, have invented certain new and
5 useful Improvements in Disintegrating-Rollers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use
10 the same.

My invention relates to improvements in disintegrating-rollers. Heretofore rollers of this variety were made either of hard or chilled metal or of soft metal. The surrounding wall
15 of the bore of the hub of disintegrating-rollers requires to be cut or trimmed in order to nicely fit the shaft upon which the roller is to be mounted, and to bring the periphery of the roller true with the shaft. It is quite appar-
20 ent, therefore, that with a roller made of hard metal the cutting or trimming of the bore of the hub is very laborious work, requiring much time, and consequently greatly enhancing the cost of the roller, whereas with
25 a roller made of soft metal the shell or periphery of the roller is not sufficiently durable for the work for which it is designed, but will soon wear away, thus rendering the roller comparatively short-lived. Furthermore, the
30 arms of such roller should be sufficiently strong to bear the strain to which they are subjected. I have therefore devised the roller illustrated in the accompanying drawing, that exhibits a side elevation of the same in cen-
35 tral vertical section.

A represents the cylindrical shell of the roller, B the arms, and C the hub. The roller illustrated has two sets of arms.

The shell and hub of my improved roller
40 are cast in a mold suitable for the purpose. The mold employed may be substantially the same as heretofore used; hence it is not considered necessary to illustrate the same. Previously to casting said parts of the roller, how-
45 ever, I take wrought-metal arms and place them in proper position in the mold, with the ends B' B² of the arms projecting into the chambers of the mold that are to receive the molten metal for forming the shell and hub
50 of the roller. The hub of the roller is cast of

soft metal, preferably cast-iron, whereas the shell of the roller is cast of hard metal, preferably such as is known by the name of "mottled iron," an iron that is obtained in the regions of Lake Superior and remarkable
55 for its whiteness and hardness. The shell and hub of the roller for obvious reasons are not, however, cast at the same time; but the wrought-metal arms having been placed in position in the mold, as hereinbefore de-
60 scribed, the molten metal is poured into the chamber of the mold for forming the shell of the roller, and the end of the wrought-metal arms projecting into said chamber will be embedded in said casting. The latter having
65 cooled, or become sufficiently cool to render it safe to proceed with the casting of the hub of the roller, the proper molten metal is poured into the chamber of the mold adapted to form the hub, and the end of the wrought-metal
70 arms projecting into said chamber, as hereinbefore described, will be embedded in the metal of the hub of the roller.

It will be observed that my invention re-
sides, essentially, in a disintegrating-roller
75 having a shell or periphery cast of hard metal, a hub cast of comparatively soft metal, and wrought-metal arms firmly united to the shell in the operation of casting the shell and hub
80 of the roller.

A disintegrating-roller embodying my invention possesses all the requisites for the purpose for which it is designed—viz., a hard shell or periphery, strong arms, and a hub the walls of the bore of which can be easily cut
85 or trimmed, as required.

What I claim is—

A disintegrating-roller having a shell or periphery cast of hard metal, a hub cast of comparatively soft metal, and wrought-metal
90 arms firmly united to the shell and hub in the operation of casting said hub and shell, substantially as and for the purpose set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 2d
95 day of January, 1892.

RAYMOND C. PENFIELD.

Witnesses:

L. W. PENFIELD,
C. L. GRAY.