(No Model.)

E. F. ROBERTS.

DUST PROOF JOINT.

No. 425,050. Patented Apr. 8, 1890.

Fig. 1.

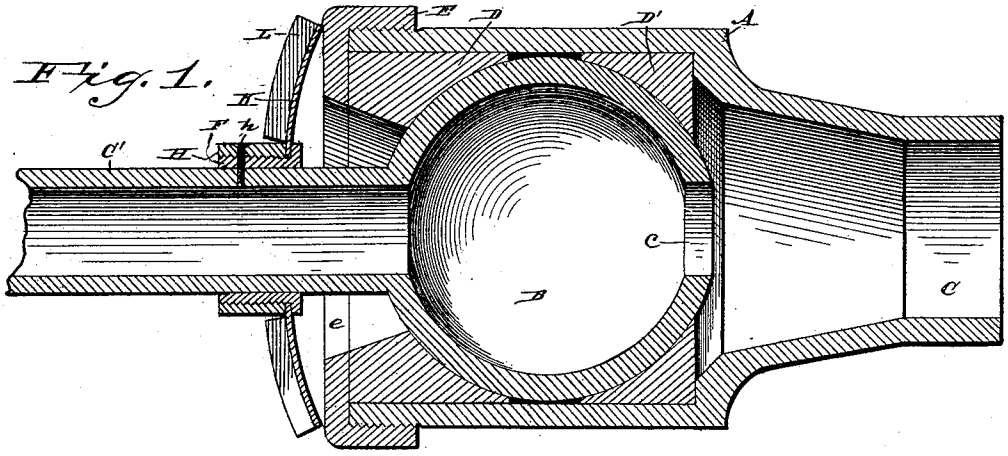


Fig. 2

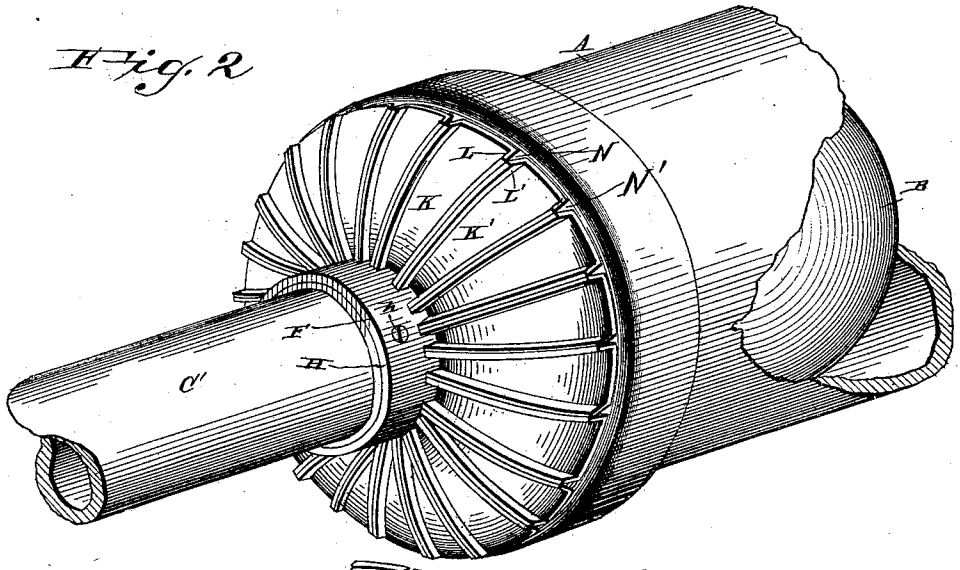
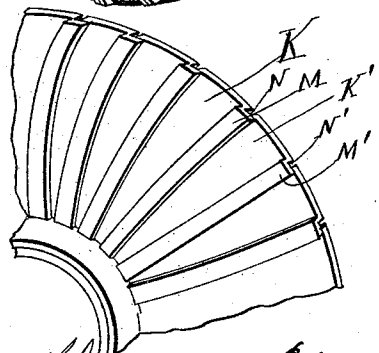


Fig. 3.



WITNESSES

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EDWARD F. ROBERTS, OF ROCHESTER, NEW YORK.

DUST-PROOF JOINT.

SPECIFICATION forming part of Letters Patent No. 425,050, dated April 8, 1890.

Application filed July 11, 1889. Serial No. 317,140. (No model.)

To all whom it may concern:

Be it known that I, EDWARD F. ROBERTS, a citizen of Great Britain, residing at Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Dust-Proof Joints; 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 appertains to make and use the same.

My invention consists of an improved flexible cap or shield, and a combination of the same with a ball-and-socket joint, forming thereby a dust-proof joint or pipe-coupling.

In the drawings, Figure 1 is a longitudinal sectional view of a ball-and-socket joint with my improved cap attached. Fig. 2 is a perspective view of the same. Fig. 3 is a modification.

One of the great drawbacks to the employment of the ball-and-socket joint in certain cases where it would otherwise be of great advantage has been the fact that a certain portion of the wearing-surfaces of the joint are exposed and accumulate dirt and gritty matters, which rapidly cut out the faces of the joint, and thereby render it leaky. It is my object to avoid this action by the following apparatus, in which—

A is the cup of the ball-and-socket joint, having the packing-pieces D D′, within which is the ball B, attached to the pipe C′ and provided with the opening *c*, whereby communication is afforded from the pipe C′ to the pipe C. The cap E, screwing onto the cup A, holds the packing D D′ in place. To prevent the dirt entering through the opening *e* in the cap E and accumulating on the ball B, I employ the flexible cap composed of the spring-sections K K,′ which are provided with the abutting spring-flanges L L′, which are set in the sleeve or ring F by means of the surrounding sleeve or jam-nut H, which latter is held in place by the set-screw *h*.

As the pipe C′ is twisted to one side or the other, the flexible cap, composed of the sectors K K′, maintains contact with the face or edge of the screw-cap E and prevents the admission of dirt to the working part of the ball-and-socket joint.

In the modification shown in Fig. 3 the spring-sections K K′ are provided with overlapping portions M M′, which serve the same purpose as the abutting spring-flanges L L′ in Fig. 2. They prevent any opening between the sections of the cap through which dust can enter.

It is evident that when the pipe C′ is in its normal position with reference to pipe C the sections K and K′ should be in a position of medium adjustment, so that whichever way the joint is bent there will be an opportunity for an opening or closing action of the spaces N N′ without either leaving an opening in the face of the flexible cap or causing its sections to close together and prevent further adjustment in that direction. It is evident that other equivalent constructions might be employed to accomplish this result, and I wish it understood that I do not confine myself to those illustrated.

The advantages of the use of my invention in positions where, as in car-couplings, there is a great deal of flying dirt and dust are obvious, and the manner of its operation plain.

Having therefore described my invention, what I claim as new, and desire to protect by Letters Patent, is—

1. A dust-proof metallic cap for ball-and-socket couplings, which consists of the adjacent but independently-movable spring-sections which are attached to that member of the joint which terminates in the ball and which bear against the face of the socket, substantially as described.

2. A dust-proof metallic cap for ball-and-socket couplings, which consists of the independently-movable spring-sections which are attached to that member of the joint which terminates in the ball and which bear upon the socket, together with the abutting spring-flanges upon said sections, substantially as described.

3. A dust-proof metallic cap for ball-and-socket couplings, which consists of the adjacent but independently-movable spring-sec-

tions which are attached to that member of the joint which terminates in the ball and which bear against the face of the socket, together with the sleeve on which said sections are mounted, and the jam-nut by which they are held in place upon said sleeve, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD F. ROBERTS.

Witnesses:
G. W. BALLOCH,
A. P. SMITH.