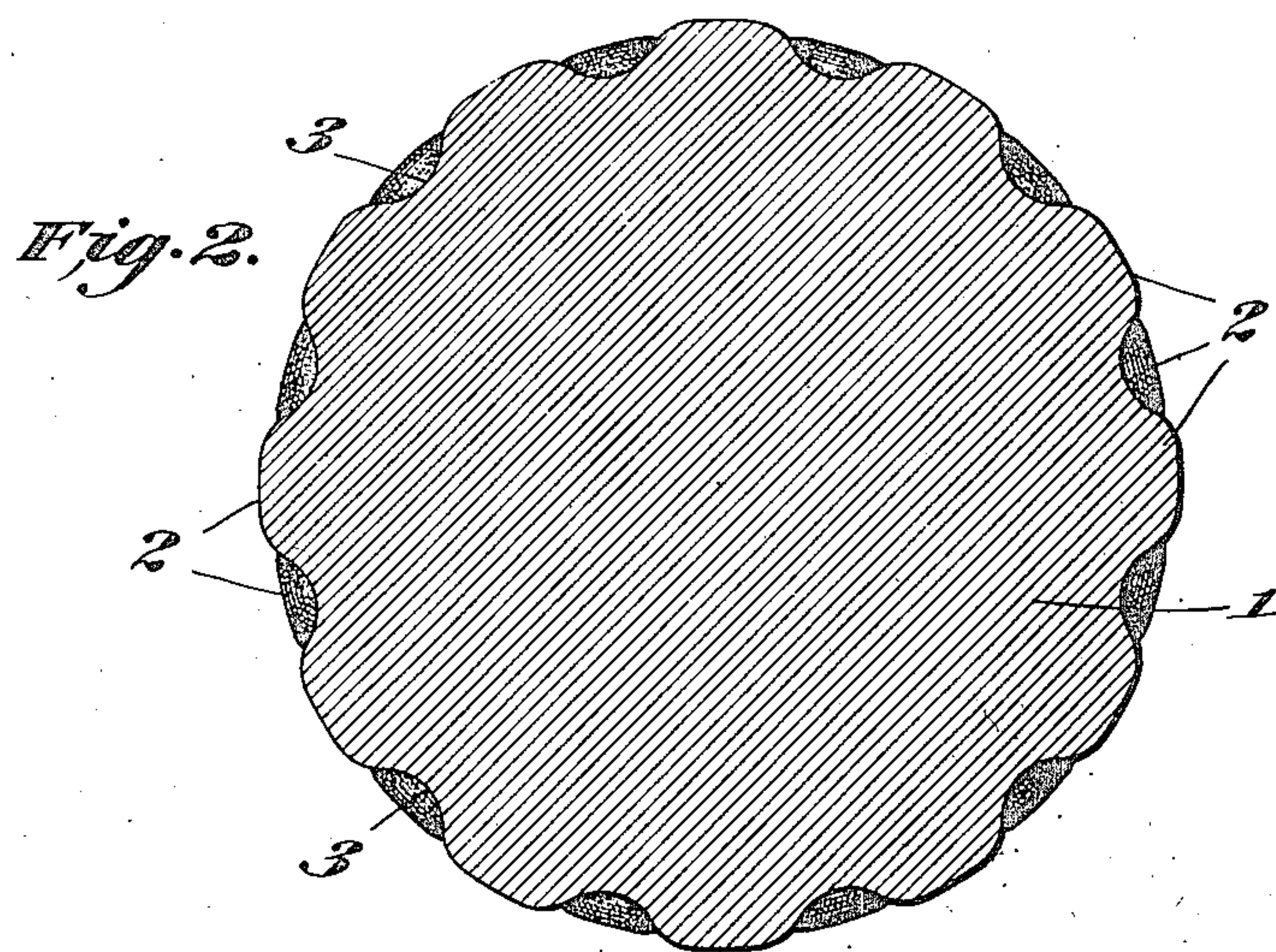
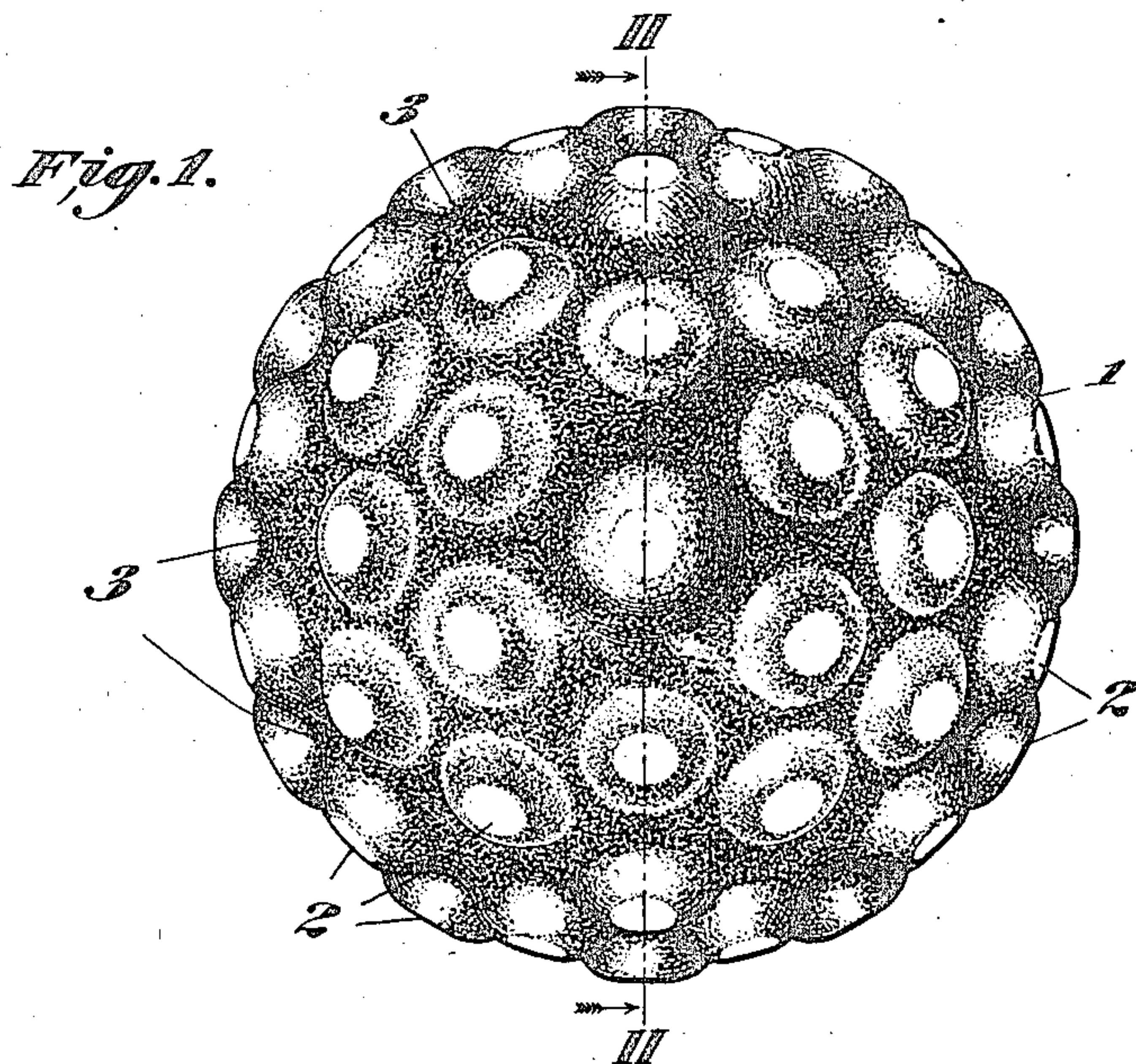


E. E. SLICK.  
DROP BALL.  
APPLICATION FILED JULY 14, 1915.

1,154,734.

Patented Sept. 28, 1915.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

EDWIN E. SLICK, OF WESTMONT BOROUGH, PENNSYLVANIA.

## DROP-BALL.

1,154,734.

Specification of Letters Patent. Patented Sept. 28, 1915.

Application filed July 14, 1915. Serial No. 39,756.

*To all whom it may concern:*

Be it known that I, EDWIN E. SLICK, a citizen of the United States, residing in the borough of Westmont, in the county of Cambria and State of Pennsylvania, (whose post-office address is Johnstown, Pennsylvania,) have invented certain new and useful Improvements in Drop-Balls; 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 relates to drop balls which are made of metal, such as cast steel, cast iron or other suitable metal, and are used by lifting the same to considerable or suitable heights and allowing them to drop on scrap metal, old ingots, blooms, rails, or other material, in order to break them up into sizes suitable for charging into blast furnaces, cupolas, or for any purpose for which such materials can be used.

Prior to my invention, drop balls have been made with smooth, and preferably general rounded exteriors, either spherical, pear shaped, or otherwise, but I have discovered that these break very readily, owing to the stretching or peening action caused by the impact of the ball upon the heavy pieces of metal when it strikes them. This causes the exterior surface of such smooth balls, to be stretched up to or beyond the elastic limit of the material, causing stresses and strains which quickly lead to the entire rupture of the ball. I have discovered by actual trial on a full size scale, that a ball provided with teats or projections upon its outer or general surface, will last much longer, owing to the fact that the free space around these projections will allow the metal of the projections to expand, when stretched by the heavy blows which it receives from time to time, without causing stresses in the body of the ball.

My drop ball is ordinarily lifted by a magnet attached to a suitable frame or derrick and when raised to the height necessary for breaking the article upon which it is to be dropped, the current of electricity is switched off and the ball drops upon the material to be broken, the impact of course being very severe. These drop balls, as used around steel works, blast furnaces, foundries, scrap yards, etc., frequently weigh as much as six or seven tons or more.

Having thus given a general description of my invention, I will now, in order to make the matter more clear, refer to the annexed sheet of drawings forming part of this specification and in which like characters of reference indicate like parts.

Figure 1 is an elevation or view of my drop ball and Fig. 2 is a cross sectional elevation thereof on line II—II of Fig. 1.

Referring now to the characters of reference on the drawings:—1 represents the drop ball in general, 2 are the projections thereon, and 3 are the valleys between said projections. Although I have illustrated the projections in general as truncated cones with fillets at their bases and roundings at their upper corners, I may make these projections of any form such as a rectangular prism, rectangular pyramid, triangular prism or pyramid, all of these being preferably truncated so as to form considerable areas on their outer ends, and I prefer to arrange these projections in such a manner that the lines or valleys between them are of irregular outline and of greater length than a great circle drawn on the sphere so that these points of smallest cross section through the bottom of the valleys, shall be of greater length than the outline of a plane section, whereby breakage of the body of the ball is also prevented, for the reason that this arrangement prevents natural lines of cleavage. I may, however, arrange the projections otherwise in concentric circles or various patterns as may readily be understood.

Although I have described and illustrated my invention in considerable detail, I do not wish to be limited to the exact and specific details thereof, as shown and described, but may use such modifications in, substitutions for, or equivalents thereof, as are embraced within the scope of my invention, or as pointed out in the claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. A metal drop ball provided with a plurality of integral projections disposed on its surface.

2. A metal drop ball provided with a plurality of integral projections of the general shape of a truncated cone with fillets at their bases and roundings on their exterior edges.

3. A metal drop ball provided with a plurality of integral projections of the general

shape of a truncated cone with fillets at their bases and roundings on their exterior, irregularly disposed on the surface of the ball.

- 5 4. A metal drop ball provided with a plurality of integral projections irregularly disposed on the surface of the ball.

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

EDWIN E. SLICK.

Witnesses:

F. A. STABL,  
OLIVER B. HICKOX.