

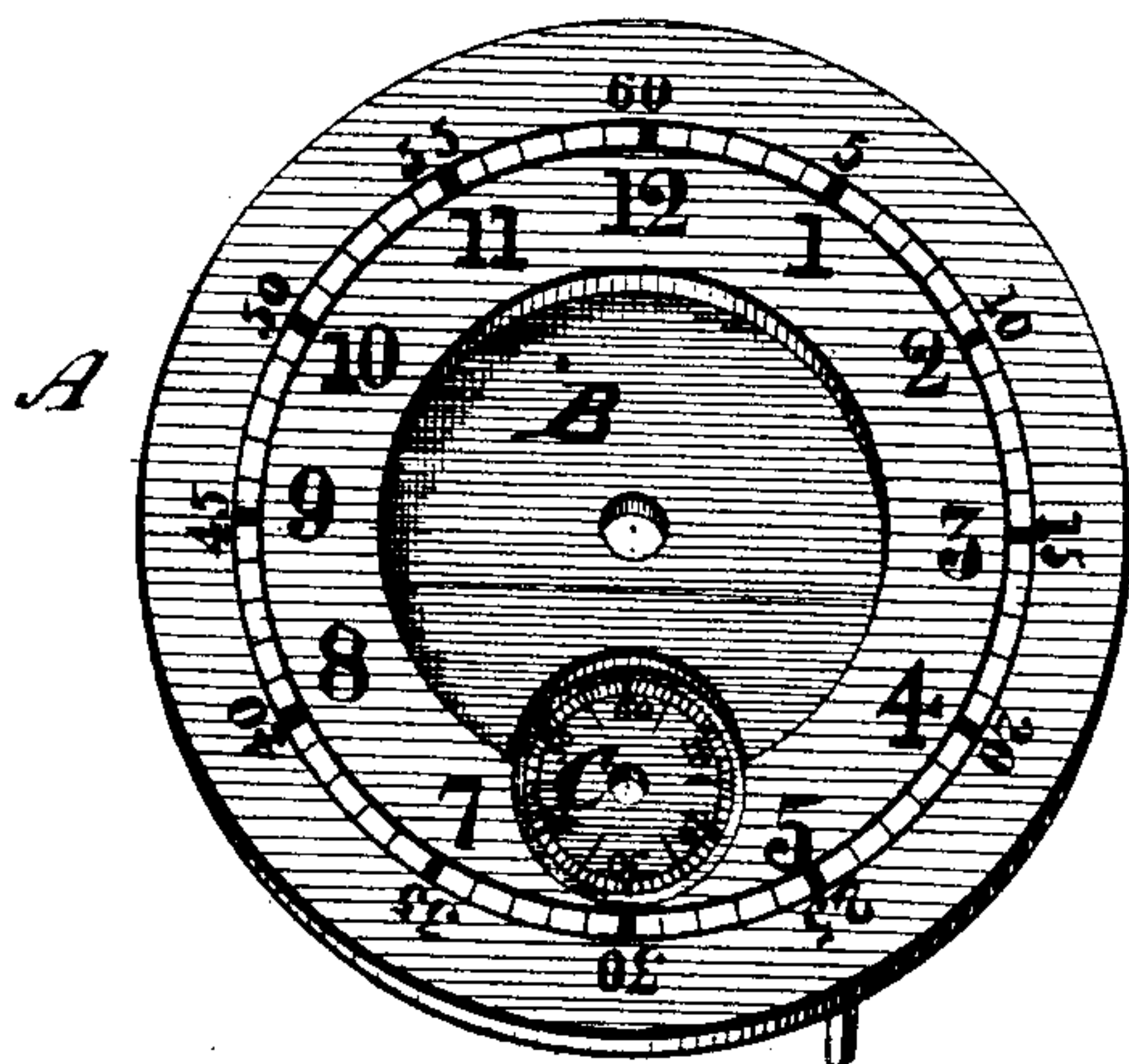
(No Model.)

A. BITNER.  
Paper Watch Dial.

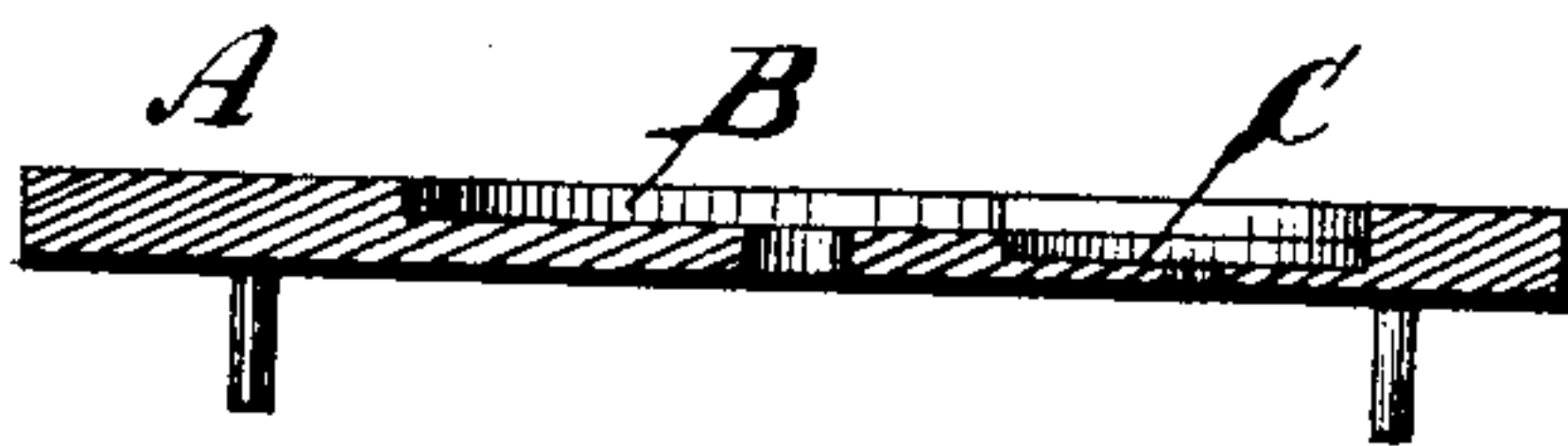
No. 239,643.

Patented April 5, 1881.

*Fig. 1.*



*Fig. 2.*



*Witnesses:*

*Fred. G. Dietrich*

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# UNITED STATES PATENT OFFICE.

ABRAHAM BITNER, OF LANCASTER, PENNSYLVANIA.

## PAPER WATCH-DIAL.

SPECIFICATION forming part of Letters Patent No. 239,643, dated April 5, 1881.

Application filed January 27, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, ABRAHAM BITNER, a citizen of the United States, residing at Lancaster, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in the Manufacture of Watch-Dials, of which the following is a specification.

My invention has relation to the manufacture of watch-dials from compressed paper-pulp, vulcanized fiber, or analogous material, and has for its object to produce cheap, yet durable, dials, with sunken centers, and, when desired, with sunken "seconds," but with a perfectly plain or smooth back, without projections of any kind, as is usual in dials made from paper, sheet metal, or paper and sheet metal combined, in which the sunken centers and seconds are "struck up" and form a projection, on the reverse of the dial, of a depth or thickness equal to the depth of the sunken center, or sunken center and seconds, as the case may be.

In the accompanying drawings, which form a part of this specification, Figure 1 represents a perspective view of one of my improved dials, and Fig. 2 is a diametrical section of the same.

Similar letters of reference indicate corresponding parts in both the figures.

In the manufacture of my improved embossed dials I prefer to use white paper-pulp of a tough and tenacious nature; but other fiber or fibrous pulp, of any desired color, may be employed, if preferred. This pulp is placed in a die or mold with a flat or smooth polished face or bottom, and stamped or pressed by a counter-die so constructed as to depress the circular center B, which is encircled by the raised rim A, and make a further circular recess or depression, C, intersecting the parts A B, for the seconds. The dial is then removed from the die or mold, dried by natural or artificial heat, and lithographed, in one or more colors, with the second-marks, minute-marks, and divisions, and hours.

It is obvious that, if desired, the sunk center B may be omitted, making the dial with the sunken circular space C for the seconds only, or vice versa. In either case, after the dial has been molded and properly lithographed, it is coated with a film of any suitable translucent or transparent varnish of requisite hardness, such as silicate of soda, or potash, known as "soluble glass." After the varnish has dried the dial is finished and ready for use.

I am well aware that it is not new to make clock-dials of paper or pasteboard, and I am also aware that cheap toy watches have been made with paper or pasteboard dials; but to such I lay no claim.

The nature of my invention has specific relation to embossed watch-dials with one or two sunken recesses or depressions, but with a perfectly flat and smooth back, and I am not aware that dials of this class have been made heretofore from paper-pulp, or other fibrous pulp, in the manner described.

When the pulp is first placed in the mold it covers this to an equal depth or thickness, and by the insertion of the die into the mold the sunken parts B and C are, of course, compressed to a greater density of pulp than the surrounding rim A, this density of material of the parts B C compensating for their reduced thickness, and thus prevent weakness of the sunken center and seconds, as in the case where these (or either one of them) are produced by cutting circular portions out of the disk or dial and inserting disks of thinner material. Hence,

What I claim as my improvement, and desire to secure by Letters Patent of the United States, is—

1. A watch-dial composed of paper-pulp or analogous material, having lithographed hour and minute marks, a smooth flat back, and a sunken center, B, compressed to greater density than the encircling-rim A, as set forth.

2. A watch-dial composed of paper-pulp or analogous material, having lithographed hour, minute, and second marks, a smooth flat back, and a sunken seconds-dial, C, compressed to greater density than the body of the dial, as set forth.

3. A watch-dial composed of paper-pulp or analogous material, having lithographed hour, minute, and second marks, a smooth flat back, a sunken center, B, and a sunken seconds-dial, C, the said parts B and C being compressed to greater density or compactness than the body A of the dial-disk, as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ABRAHAM BITNER.

Witnesses:

LOUIS BAGGER,  
HENRY M. ROHRER.