

(No Model.)

W. & C. L. CAIRNS.
CENTRIFUGAL EXTRACTOR.

No. 355,138.

Patented Dec. 28, 1886.

Fig. 1

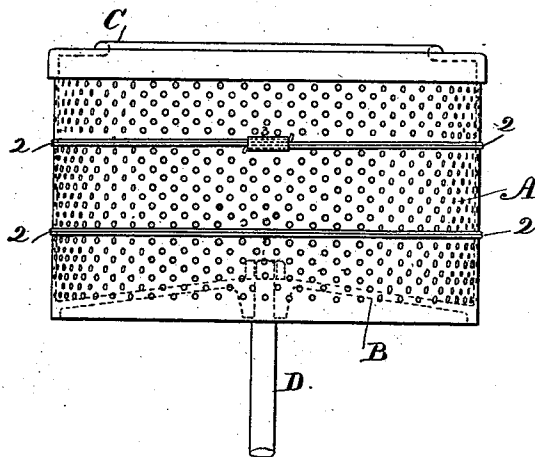


Fig. 2

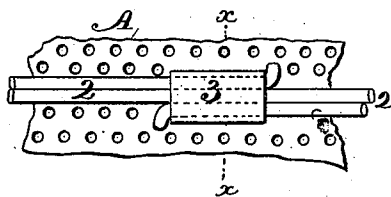
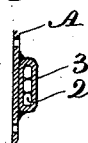


Fig. 3



Witnesses

Chas. H. Smith
J. Staib

Inventors

William Cairns.
Charles L. Cairns.

per Lemuel W. Serrell

ccy

UNITED STATES PATENT OFFICE.

WILLIAM CAIRNS AND CHARLES L. CAIRNS, OF JERSEY CITY, NEW JERSEY.

CENTRIFUGAL EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 355,138, dated December 28, 1886.

Application filed June 24, 1886. Serial No. 206,164. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM CAIRNS and CHARLES L. CAIRNS, of Jersey City, in the county of Hudson and State of New Jersey, have invented an Improvement in Centrifugal Extractors, of which the following is a specification.

Centrifugal extractors are preferably made with a basket of finely-perforated sheet metal, and this basket is upon a vertical shaft that is revolved at a high speed. These baskets are dangerous, because they frequently explode in consequence of the speed being suddenly augmented by inequalities in the running of the engine or of the load upon the same, and sometimes the contents of the basket are unequal and produce greater strain upon one side of the basket than upon the other, which increases the risk of the basket becoming ruptured. To guard against this danger, the basket is sometimes made of thicker sheet metal, but this increases the weight and the centrifugal action, and the risk of injury is not removed.

Bands or flanges have been applied around the centrifugal basket for supporting equalizing hoops or chains, and they strengthen the basket, but are expensive and difficult to attach.

To strengthen the basket, we apply around the exterior one or more bands, near the middle portion, made of wire, with the ends lapping past each other and secured by solder, and it is preferable to omit one or more ranges of perforations at the places where the bands are applied.

In the drawings, Figure 1 is an elevation of the basket, and the strengthening-bands applied to the same. Fig. 2 is an elevation, in larger size, showing the manner of securing the ends of the wires; and Fig. 3 is a section at the line *x x*, Fig. 2.

The perforated sheet-metal basket is represented at A, the metal bottom at B, the rim at C, and a portion of the shaft at D. These may be of any desired construction. The strengthening-band 2 is of metal, applied around the exterior of the basket, near the middle of its height, or there may be two of such bands, as represented, or more may be used if de-

sired. We make each band of strong copper or other wire, wrapped around the basket twice with the ends lapping past each other and secured by the clip-plate 3. This clip-plate is either in the form of a flattened tube adapted to receive the three parts of the wire as they lie side by side, or else it is a strip of metal bent up into the shape of such flattened tube. In either form such clip-plate is to be secured upon the exterior surface of the basket at the proper place, and then the wire is wound around such basket and the ends passed through the clip-plate in opposite directions and the wire subjected to the proper tension and secured by solder, and the ends of the wires are bent off at right angles, so as to catch upon opposite edges of the clip-plate; and it is generally preferable to solder the wires together and to the surface of the sheet metal of the basket throughout the entire length of the bands, and it is also preferable to omit one or more ranges of perforations where the band is applied.

If two bands are made use of, as represented, the clip-plates should be at opposite sides of the basket, so that the same will be balanced.

I am aware that wire has been used for bales, and that the ends of the wire have been passed through separate holes in a metal clip in opposite directions, and each end of the wire wound around the adjacent part of the wire. This could not be done after passing the wire around a metallic centrifugal basket. In our improvement we are able to apply a powerful tension upon the wire after it is drawn around the centrifugal basket, because the ends of the wire are bent off laterally in the form of hooks after passing through the clip-piece; but this alone could not be depended upon, because the hooks might straighten out under the severe tension to which the wire is subjected. We therefore draw the convolutions of the wire close together and bind them within the clip 3, and solder them, the solder connecting the convolutions of the wire directly to each other, thus obtaining the greatest strength and avoiding unnecessary weight.

We claim as our invention—

The perforated sheet-metal centrifugal bas-

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ket, in combination with the band of wire
passed twice or more around the outside of
the same, with the ends lapping past each
other and the sheet-metal clip through which
5 passes one convolution, and also the ends of
the wire in opposite directions, and to which
they are soldered, substantially as specified.

Signed by us this 22d day of June, A. D.
1886.

WM. CAIRNS.
CHARLES L. CAIRNS.

Witnesses:

GEO. T. PINCKNEY,
WALLACE L. SERRELL.