

(No Model.)

F. C. ROCKWELL.
TENPIN.

No. 573,797.

Patented Dec. 22, 1896.

Fig. 1

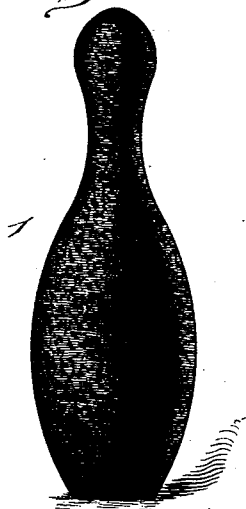


Fig. 2

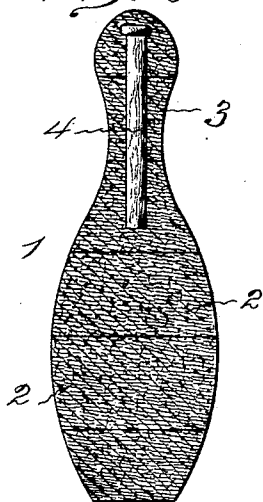
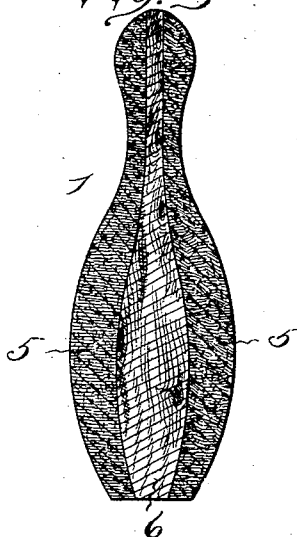


Fig. 3



Inventor:

Witnesses:

E. J. Hyde.

C. E. Buckland.

Frederick C. Rockwell,
Harry R. Williams
attys.

UNITED STATES PATENT OFFICE.

FREDERICK C. ROCKWELL, OF HARTFORD, CONNECTICUT.

TENPINS.

SPECIFICATION forming part of Letters Patent No. 573,797, dated December 22, 1896.

Application filed December 7, 1895. Serial No. 571,356. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK C. ROCKWELL, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Tenpins, of which the following is a specification.

The invention relates to the class of pins that are set up to be knocked down by balls bowled at them, as in playing tenpins, ninepins, and similar games.

The object of the invention is to provide a light and easily-made pin for such games which while strong, durable, and satisfactory will have a firm yet soft and somewhat yielding exterior that will so cushion when hit by a ball or knocked against the floor or other part of the alley that but little sound will be emitted, thus reducing the noise resulting from the playing of the game.

To this end the invention resides in a pin composed of a factitious compound molded and compressed to shape in such manner and of such materials as to have a firm yet comparatively soft and cushioning exterior of equal density and without grain throughout its entire extent, so that it will not check, split, or chip when subjected to hard usage or under atmospheric influences.

Referring to the accompanying drawings, Figure 1 is a side view of one of the pins. Fig. 2 is a central section of one of the pins. Fig. 3 is a central section of one of the pins constructed in a modified manner.

The body 1 of the pin shown in the drawings is formed to the ordinary regulation size and shape and is composed of compressed cork and a binding-gum. In forming this body particles of broken or ground cork are given a thin coating of a binding-gum, as liquid rubber or shellac, and then placed in molds of suitable outline and subjected to heat and pressure and given the proper shape and finish.

In making the pin shown in Fig. 2 particles of ground or broken cork can be sprayed with or mixed into the liquid binding-gum, as dissolved rubber or shellac, so as to become thoroughly coated therewith and then allowed to dry. A quantity of these dry gum-coated particles of cork may then be placed in a circular mold and subjected to the necessary

pressure to properly compact them and subjected to the necessary heat at the same time to solidify and firmly set the binding-gum. The disk thus formed may then be removed from the mold and the process repeated until the desired number of disks of this material are produced. If desired, these disks may be provided with a central opening or may be made in the shape of rings. A number of these sections are cemented and placed under sufficient pressure, with or without heat, to strongly bind them together into a homogeneous mass, which mass may be turned in a cutting-lathe to the final shape or polished by sandpaper or other means to give an attractive finish.

A portion of the sections may be made in the form of disks 2 of any suitable thickness and a portion may be made in the form of rings 3. It is very desirable to use rings for the smaller portions of the pin and to place a core 4, of wood or a suitable strong material, in the opening in the rings before the sections are cemented together, so as to strengthen the neck and avoid any liability of the pin breaking at the weakest part when it receives a hard knock. If the pin is made in sections of disks, each section can be made of the same density, so that the body will have a uniform density throughout the entire pin. If it is desired, however, the body of the pin may be formed in longitudinal sections 5, and these sections can be cemented together longitudinally under heat and pressure, or they may be cemented to a central longitudinal core 6, of wood or other material, that may extend entirely through the center of the pin, as shown in Fig. 3. In this case the core will stiffen and strengthen the entire pin but leave the exterior of sufficient thickness to form the proper cushion that is desired for deadening the concussion and sound of the striking ball and the blow and noise of a knock against the floor or wall of the alley.

In forming the body in sections in the manner described and binding these sections together, as illustrated, a construction is insured which will result in a hard, firm, strong mass of soft cushioning material, which will be of equal density throughout its entire extent, and with this insured a pin for the purposes

set forth can be produced of such a light and cheap material as cork.

This pin is light in weight, although it can be made of any desired weight by adding
5 foreign material, as pulverized earth or fine metal particles, to the body before it is compacted or by applying greater or less pressure to the material in forming the pin in the molds.

10 The pin is strong, for the material is firmly compacted and solidly held together by the hardened gum. It will not be affected by atmospheric changes or moisture. It does not
15 check, crack, or chip, for there is no grain, and the pressure applied in making the body is sufficient to very firmly compress and compact the cork particles, but of course this pressure is not sufficient to entirely destroy
20 the texture of the cork and eliminate all of its elasticity. The material has sufficient yielding or cushioning qualities, so that the pin will receive the blow of a striking ball with but slight sound and will fall on the
25 floor or against the walls of the alley when knocked with but little noise. On account of the lack of grain in this material when molded in this manner and resulting from the cushioning qualities of the material the

wear is such that the pins do not chip. Splinters do not come off so as to reduce the
30 size of the pins and litter the alley and cause a deflection of the balls, and when this pin is used with a cork ball, as invented by me and described in my application for patent
35 filed in the Patent Office on December 4, 1895, a game of tenpins can be carried on with such little noise that an alley is not objectionable in thickly-populated localities.

I claim as my invention—

1. As a new article of manufacture, a pin
40 for bowling games having an elongated body, neck and head formed of superimposed circular disks of molded and compressed broken particles of cork and shellac cemented and
45 united by pressure, substantially as specified.

2. As a new article of manufacture, a pin
for bowling games having an elongated curved
body, neck and head formed of molded and
compressed sections of broken particles of
cork and shellac cemented under pressure
50 about a central core of wood, substantially as specified.

FREDERICK C. ROCKWELL.

Witnesses:

HARRY R. WILLIAMS,
E. J. HYDE.