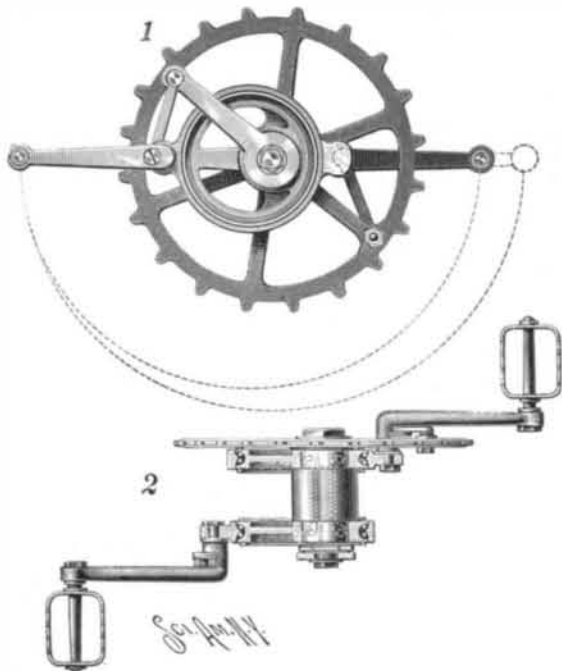


## AN IMPROVED POWER CRANK.

The illustration represents a crank designed for use in any machine driven by a crank, from a coffee mill to a locomotive, its use giving greater leverage without increasing the circle traveled by the crank pin or handle. In the engraving the improvement is represented as adapted for bicycle propulsion, Fig. 1 being a side view and Fig. 2 a view looking down from above, showing the different distances of the

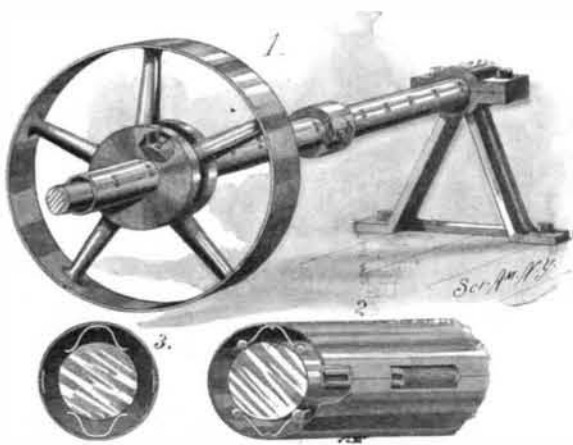


POTTS' POWER CRANK APPLIED TO A BICYCLE.

pedals from the hub of the sprocket wheel in their downward and upward movement. The improvement has been patented by Joseph C. Potts, of Berwyn, Pa., and the applicability of the principle to any machine used to transmit power will be readily seen. Forming a part of or rigidly secured to the bearings of the sprocket wheel shaft are projecting bearings for rings which carry the cranks, and which have circular peripheries that are eccentric in respect to the axis of the shaft. The opposite cranks are so secured to the rings as to constitute rigid extensions of them, and both the rings and central shaft are preferably provided with ball bearings. To each end of the shaft is secured an arm whose outer end is connected by a link to the crank, the crank being in advance of the arm, or preceding it in the direction of rotation, whereby the pull of the crank is imparted with most directness during the time the crank is passing through the operative half of its stroke. It will be observed that the gain in leverage is obtained without the use of slotted cranks, slides or other operative elements such as would cause excessive friction. As applied to a bicycle, it will be readily seen that the increased leverage, without any increase in the travel of the foot, which is a true circle, enables the use of higher gear to increase speed or results in less labor of propulsion if the gear is not increased. Where weight is carried, as in the case of delivery bicycles, this is designed to be of great advantage, and the bicycle rider will also probably appreciate any device that gives him greater speed or less exertion. In the drawing the increase in leverage and consequent power is one-seventh. By using larger eccentric rings to carry the cranks, a considerably greater increase can be obtained.

## A CASING FOR SHAFTS, COUPLINGS, ETC.

The illustration represents a protector more especially designed for use on shafts at or near the floors or



PODEYN'S SHAFT PROTECTOR.

ground, and which is arranged to form a hood or cover over collars, flanges, couplings, set screws or other projecting parts, to prevent damage to clothing or bodily injury to persons. The invention has been patented by Henry F. M. Podeyn, of No. 980½ DeKalb Avenue, Brooklyn, N. Y. Fig. 1 represents the application of the improvement, Fig. 2 being a sectional

perspective and Fig. 3 a cross section of the protective casing in position on the shaft, parts being broken out to show the manner of attachment. The casing is supported from the shaft and held out of contact with it by springs, preferably arranged in pairs, the middle portions of the springs being attached to the casing and the free ends of the springs resting on the shaft, these free ends having balls thereon, to reduce friction, if desired. The casing is preferably made in sections, to be fastened together when placed in position on the shaft, by riveting or screwing together overlapping parts, or, as shown in Fig. 2, the sides of the sections have internal flanges to be engaged by a key slipped through an opening in the side of the casing.

## World's Gold Production in 1897.

The Director of the United States Mint, from information now in his possession, states that there is substantial evidence that the world's output of gold for the calendar year 1897 will approximate, if it does not exceed, \$240,000,000 in value, an increase of close to 20 per cent over 1896. Of this total the United States produced approximately \$61,500,000, an increase of \$8,400,000 over 1896; Africa, \$58,000,000, an increase of \$13,600,000; Australasia, \$51,000,000, an increase of \$6,800,000; Mexico, \$10,000,000, an increase of \$1,700,000; Canada, \$7,500,000, an increase of \$4,700,000; India, \$7,500,000, an increase of \$1,400,000; Russia, \$25,000,000, an increase of \$3,500,000.

The indications for the United States, says Director Preston, are that Colorado will lead in the production of gold for 1897, as it is estimated by former Governor Grant that it will not be less than \$20,000,000. California will follow with a product of probably \$19,000,000. With the exception of the States of the South Appalachian range, he believes that there will be an increase in every producing State and Territory of the gold products over that of 1896.

## Patent Decision on Street Car Cable Grips.

In the United States Circuit Court for the Southern District of New York, on February 19, Judge Wheeler handed down an opinion in favor of Charles I. Earll against the Metropolitan Street Railway Company, of New York City.

Earll was employed by the old Metropolitan Company as a draughtsman. He was assigned by the company to work on a grip mechanism for its use. He perfected the grip now in use on the cable cars of the Metropolitan Company, which was patented May 22, 1894. By the terms of his agreement with the company they were to have the right to the patent without payment of royalties or other considerations. In his complaint Earll contended that the present Metropolitan Company was not the company by which he was employed, and, therefore, had no right to the patents.

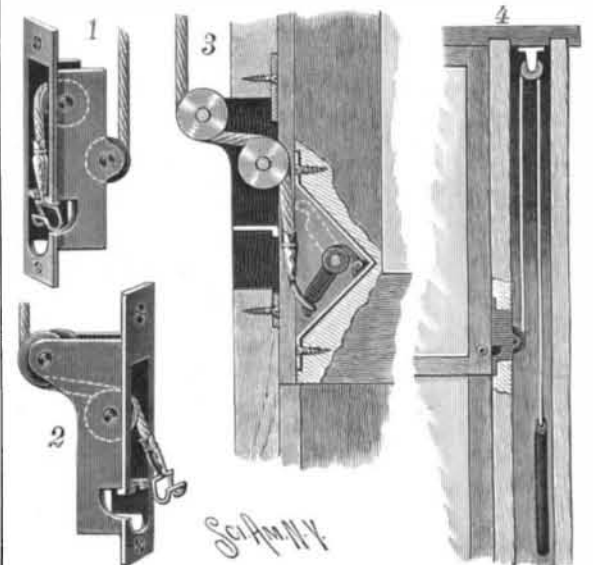
Judge Wheeler held that the present Metropolitan Company had acquired the Lexington Avenue and the Columbus Avenue lines since the time when Earll was employed by them, and that "a license to a company as such would not extend without its own limits to other roads after acquired from other corporations within their own limits or by new extensions. The defendant was not in existence at the time of the license, and its rights under the license must be such only as it has wholly acquired by succession from those who took the license in the first place."

Judge Wheeler therefore found that the defendant had the right to use the device on the original property, namely, the Broadway and Seventh Avenue road, but that it had no free license to its use on its other roads, namely, the Lexington Avenue and the Columbus Avenue roads. Under the opinion Earll can collect royalties on his patent for its use on the Lexington Avenue and Columbus Avenue lines.

## AN IMPROVED SASH SUPPORTER.

In the accompanying illustration are represented improvements in sash-supporting devices designed to hide the cord and the opening through which it passes within the window casing, and also to facilitate the releasing of the cord from the sash and securing it when so released. The invention has been patented by Richard Bohrisch, of East Las Vegas, New Mexico, Figs. 1 and 2 representing slightly modified constructions of the pulley casing with the cord in place, Fig. 3 showing the manner of fastening the cord by its hook in the corner of the sash, and Fig. 4 being a sectional view indicating the operation of the device. The pulley casings are placed in the sides of the window casing, it being possible to employ a single pulley, although two pulleys are preferred, which permits the cord to be offset and carried within the vertical channel or casing within each side of the window casing, the cord being carried upward and over a pulley and attached to a weight which rises and falls in the channel. Near the bottom of the sash, at one edge, is a recess containing a casing in which is journaled a hook adapted to be turned by a crank or key inserted from the outside, the hook being adapted to engage a hook on the end of the cord. The hook in the sash casing has on its

hub end a lug adapted to be engaged by a dog, to hold the hook in the desired position, as shown in Fig. 3, and a finger of the dog, whereby the dog may be released as desired, projects through a slot in the casing. To free the sash from the cord, the dog may be released, or the hook may be turned back by the key or handle to the position indicated by the dotted lines, as shown in Fig. 3. When the cord is released from the sash, it is secured in the pulley casing by placing the shank of the hook at its end between lugs and the body of the hook in a recess in the front and side plates of the casing. The invention presents some modifications in the de-



BOHRISCH'S SASH SUPPORTER.

tails of the pulley casing, though the construction is in all essential points the same.

## CULTIVATING COTTON PLANTS.

On passing an ordinary plow between young cotton plants, in the cultivation of cotton, the cotton left standing needs more or less careful and immediate attention, and to leave the plants in better shape the invention illustrated herewith provides for the attachment to the ordinary plow of an auxiliary following share or blade designed to leave the plants on a tapering or beveled ridge, while also removing grass or weeds that would interfere with chopping out surplus plants. The improvement has been patented by George D. McElwee, of Gloster, Miss. A curved supporting beam, bolted at one end to the plow beam, has a downwardly extending member with a socket adapted to receive a shank arranged for attachment to a scraper, also shown in the small figure. The scraper is curved or dished on its front face, and its upper right hand corner is curved. The shank carries a hook bolt, and the hook with the bolt are arranged for locking engagement with the front upper face of the scraper. The scraper is located at the rear of the main share of the plow, and the arrangement is such that it may readily be given vertical or side adjustment or be adjusted at any desired angle to the ground. At the upper left hand end of the scraper is an eye which receives a rod whose opposite end passes through the eye of an eyebolt in a projection or lug on the forward end of the curved supporting beam, and over this beam a bracket rack is attached to the plow handle, preventing the beam from working upward and admitting of considerable range of lateral adjustment. In operation the scraper makes



McELWEE'S COTTON SCRAPER.

a furrow at an angle to that made by the plowshare, and the inclination of the scraper is such as to throw the dirt away from the roots of the plants being cultivated, while, should the scraper strike a stone or engage a root or other obstruction, it will yield slightly to avoid breakage, the parts being readily restored to their original position.