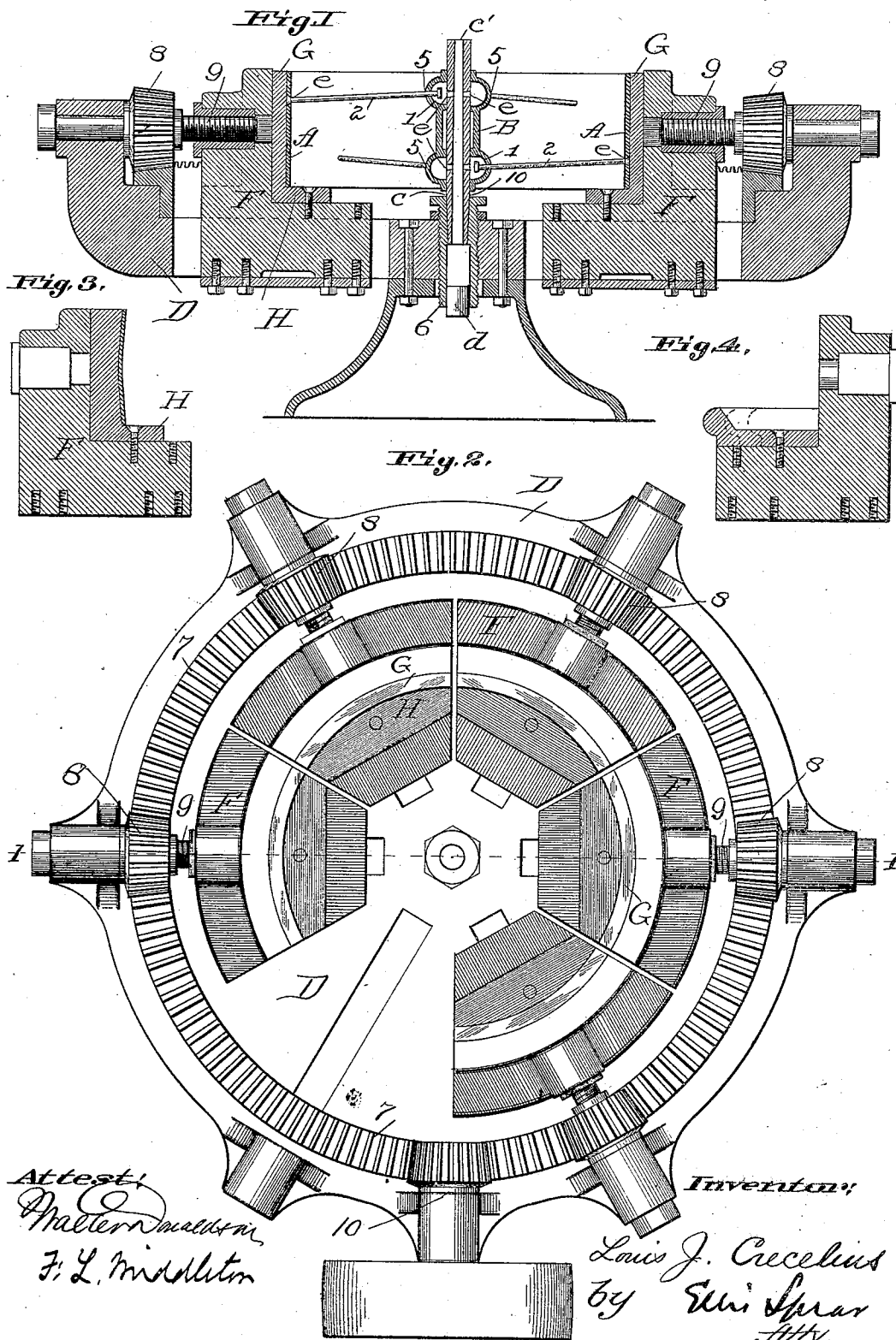


(No Model.)

E. J. CRECELIUS.
MACHINE FOR MAKING WHEELS.

No. 511,876.

Patented Jan. 2, 1894.



Attest:
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UNITED STATES PATENT OFFICE.

LOUIS J. CRECELIUS, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO
CHARLES E. PEARCE, OF SAME PLACE.

MACHINE FOR MAKING WHEELS.

SPECIFICATION forming part of Letters Patent No. 511,876, dated January 2, 1894.

Application filed March 15, 1893. Serial No. 466,039. (No model.)

To all whom it may concern:

Be it known that I, LOUIS J. CRECELIUS, a citizen of the United States of America, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Machines for Making Wheels, of which the following is a specification.

My invention relates to the forming of wheels, and is designed principally to be used in the shaping of wheels in accordance with Letters Patent of the United States granted me on the 9th day of July, 1889, numbered 406,705, and on the 26th day of April, 1892, numbered 473,728.

The said invention consists essentially of a frame, provided with a central supporting stud having filling orifices; of circumferential clamping and shaping sections, and connected mechanism for operating the same evenly and simultaneously.

It also consists of a special construction of the parts constituting the apparatus. All these parts are shown, and thereby the general construction and principle illustrated, in the accompanying drawings, in which—

Figure 1 shows a vertical cross section of the apparatus. Fig. 2, is a plan view of the apparatus with one of the side heads removed. Fig. 3, shows a movable die head with concave removable die blocks for making crown wheels. Fig. 4, shows a section of a similar head with removable die head for bicycle rims.

In the drawings the wheel rim is shown at A. It may be of metal or any suitable material. The hub B, has a chamber or chambers 1, to receive the headed ends of the spokes and the filling which holds these ends. The spokes 2, pass through holes *c*, in the periphery of the shell. The spokes are inserted as shown in Fig. 1, and fixed to the rim, and the filling holds the spoke ends. There are openings in the walls of the chambers as shown at 5.

The wheel when put together as shown in section in Fig. 1, is substantially as shown in my patent and ready to be placed in the apparatus. It will be understood that the outer ends of the spokes are fixed and the inner ends loose, so that the compression in the shaping may force these ends in, and some

play is allowed, so that the spokes need not be cut with perfect accuracy.

The apparatus contains a frame D of circular shape mounted upon a suitable base. In the center of this frame is set vertically adjustable hollow stud or socket 6, the upper end of which is open at *c* fitted to receive a hollow mandrel 10, and the lower end closed by a plug *d*. This hollow mandrel is removable and a set of different sizes is provided for different sizes of hubs and the hollow stud may be vertically adjusted for different wheels. The mandrel has lateral passages *e*, extending from the interior to the exterior arranged, when the wheel is in place, to form communication from the interior of the mandrel to the chambers in the hub. Preferably the box of the mandrel is tapering from the bottom to the top. In the frame, in radial slots, are set blocks F, arranged to move radially. The frame has upward projecting standards adapted to form bearings, and in a circular way formed on the frame is an annular rack bar, arranged to turn in the frame. Its upper gear surface is in mesh with pinions 8, on threaded spindles 9. The outer ends of these bolts are held and revolve in the upturned flange, in radial position, and the inner ends are threaded and engage with holes tapped in the blocks F. These blocks carry the segments or die heads G, whose inner faces are all formed on the same curve and when combined, as shown in Fig. 2, form a true circle, capable of expansion and contraction, as the blocks are moved in and out. The blocks are rabbeted on their inner faces, and on the bottom flange rest the segments H, on and against which the rim of the wheel rests. On one side of the frame is a shaft 10, mounted radially in bearings on the frame. The inner end has a pinion which is in mesh with the ring 7, the outer end having driving pulleys, and this pinion turns the ring or circular rack on its bearing, and the ring, gives rotary motion to the pinions 8, which turn the threaded spindles, and advance or retract the block. The wheel being in place, as shown in Fig. 1 and the spokes fixed in the rim, but loose in the hub, the blocks are advanced, and the segments carried thereon are pressed against the rim of the wheel. This forces the

wheel into shape, giving the rim a true circular form. The pressure forces the ends of the spokes more or less into the hub, and they are held in this position while the filling is poured in. The filling, such as an easily fusible metal or alloy, when it has filled the cavity and hardened therein, fixes and holds the inner ends of the spokes and the wheel is formed and may be removed. The filling is poured in at *c'*, and rises from any suitable plug in the lower end of the hollow mandrel, and flows laterally through holes *e*, into the chambers in the hub. This operation completes the wheel.

The inner faces of the segments, which bear against the periphery of the wheel may be plain or hollowed so as to make the said periphery plain or crowning, as may be required. It will be understood reverse movement of the driving pinion will draw back the segments and release the wheel.

With this press a wheel can be formed and finished perfectly round, with a true center, without grinding or turning; thus saving material and labor, and insuring a stiffer and stronger wheel, as it will leave the mill finish on the periphery, that finish being, as is

well known, the most durable part of the rim material. It also leaves an even weight of material at all points. Also wheels of different diameters and width of face can be made by means of removable and interchangeable die-blocks. A series of sets of such die-blocks is necessary for various diameters of wheels.

I claim—

1. In combination with the frame and its central hollow stud having lateral passages, the segments fitted to form the wheel, and mechanism for moving said segments radially, substantially as described.

2. In combination with a frame having radially moving die blocks, a central mandrel and a vertically adjustable plug adapted to hold the mandrel, substantially as described.

3. In combination with a frame having radially moving die blocks, a central hollow mandrel held removably by an adjustable support, substantially as described.

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

LOUIS J. CRECELIUS.

Witnesses:

C. D. GREENE, Jr.,
ART D. GREENE.