

2. Sheets, Sheet 1.

J. K. Sax,

Casting Car Wheels.

No. 104,777.

Patented June 28, 1870.

Fig. 2.

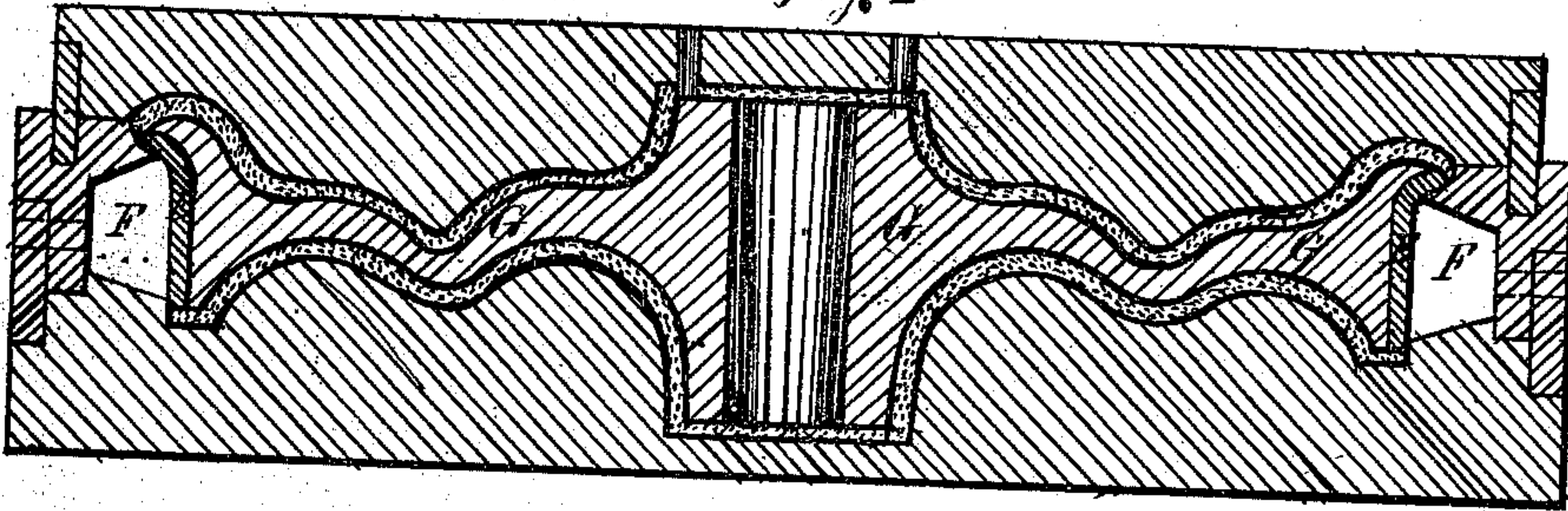


Fig. 1.

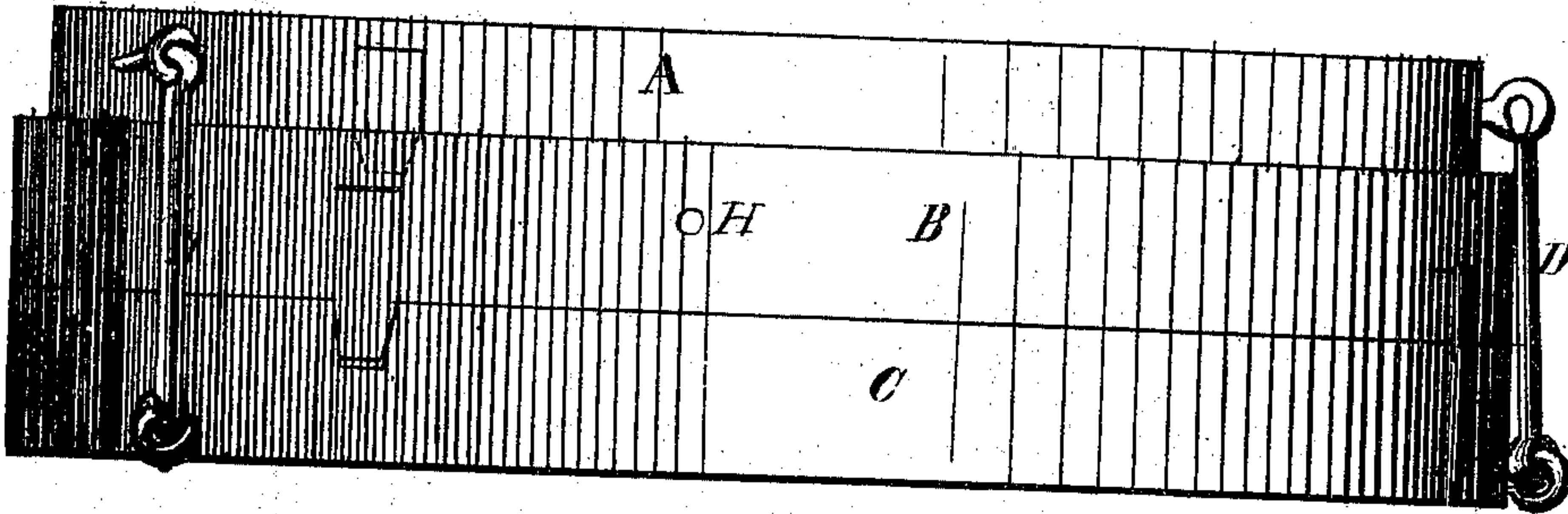
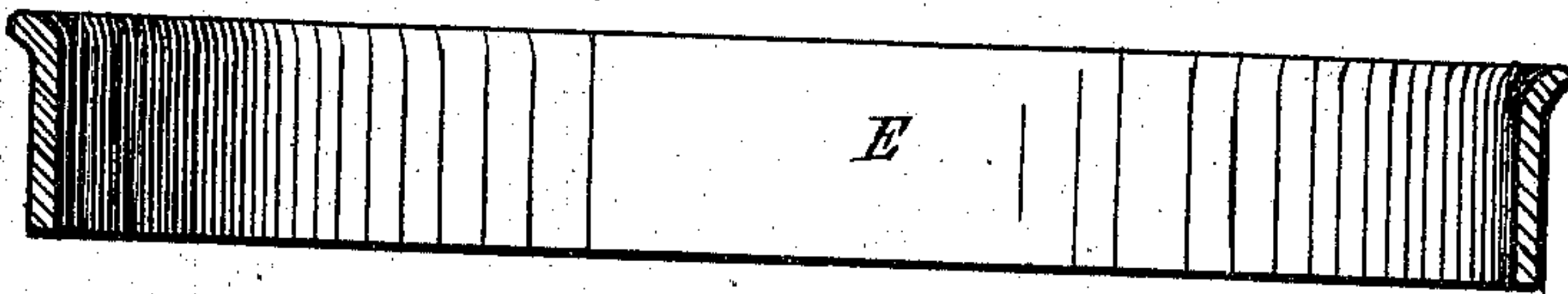


Fig. 3.



Witnesses

Wm. H. Seaman

Edw. A. Stevens.

Inventor

John H. Sax

Daniel Breed Atty.

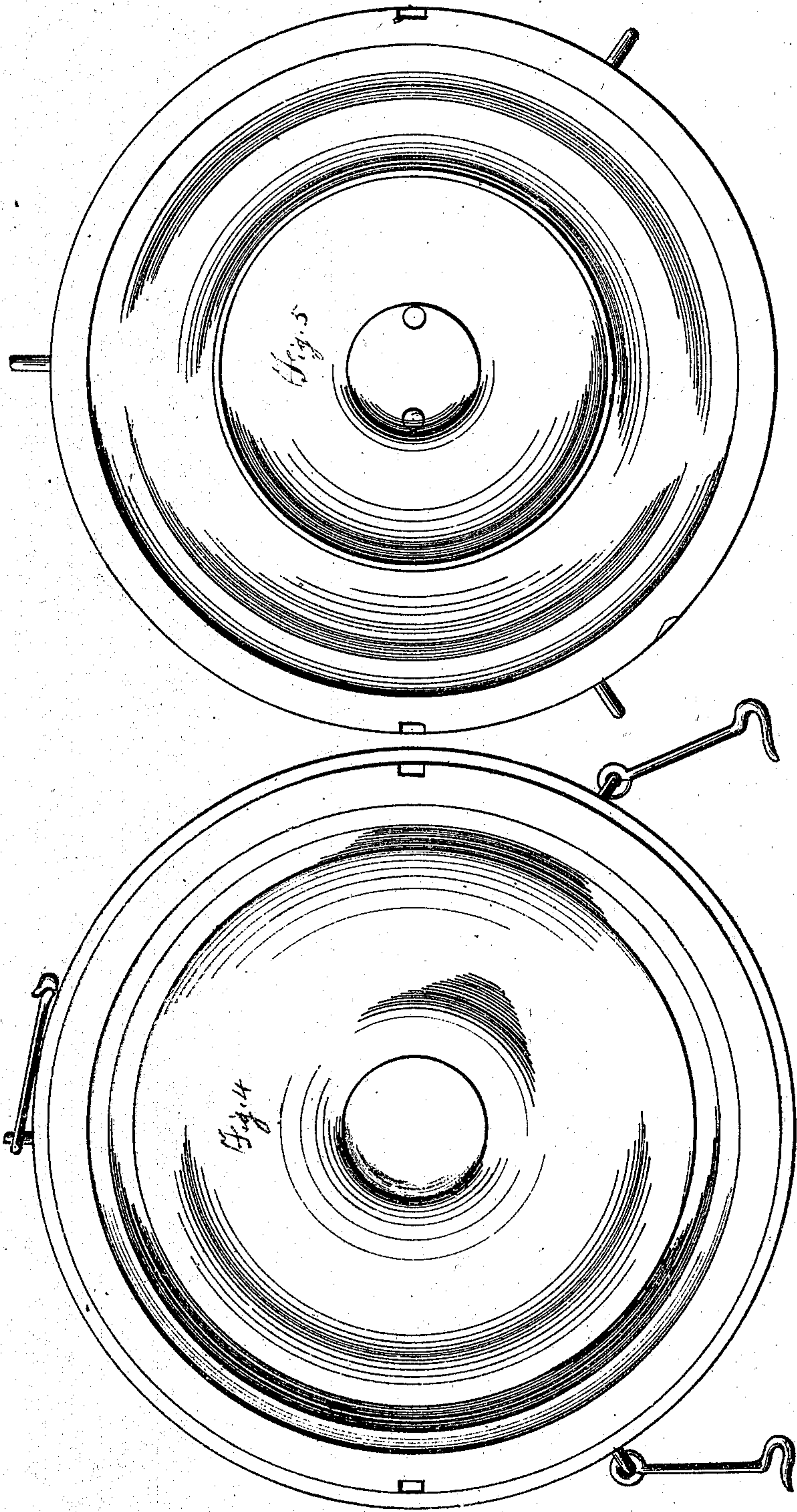
J. K. Sax,

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Witnesses
Wm. H. Seaman
Chas. C. Wilson

Inventor:
John H. Sax
Daniel Breed Atty.

UNITED STATES PATENT OFFICE.

JOHN K. SAX, OF PITTSBURGH, PENNSYLVANIA.

IMPROVEMENT IN MOLDS FOR CAR-WHEELS.

Specification forming part of Letters Patent No. 104,777, dated June 28, 1870.

To all whom it may concern:

Be it known that I, JOHN K. SAX, of Pittsburgh, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in the Manufacture of Car-Wheels; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

In the drawing, Figure 1 is a side view of my improved compress. Fig. 2 is a central cross-section of compress, the entire mold, and the wheel cast therein. Fig. 3 is a section of a steel band or tread of my wheel. Figs. 4 and 5 are views of the interior of the mold, including the compress.

My invention consists, first, in a peculiar novel circumscribing compress for holding and partially upsetting a steel band in the process of casting the body of a wheel and welding the same to the inner surface of the band; second, in a recess in said compress; and, third, in the mode or process of utilizing the expansive force of a heated steel band for upsetting or partially upsetting such band when confined in the above compress.

In my improved process or mode of manufacturing car-wheels, I employ an iron compress made in three parts or rings, as shown in Fig. 1. These rings may be held in place by hooks D, and then employed as part of the mold, the top and bottom of which may be made of green sand or other suitable material.

The complete mold, including the rings or compress, is shown in Figs. 4 and 5, Sheet 2, of the drawing.

While casting the body of the wheel, the rings form a rigid compress around the circumference of the wheel, operating as will now be explained.

In making my wheel I first make a steel band, as seen in Fig. 3. This is intended to form the tread of the wheel and part of the rim, and it is placed in the above compress, as seen at E, Fig. 2. This ring is now surrounded by a recess, F, in the compress, and molten iron is poured into the recess through the holes H, Fig. 1. The molten iron, by thus coming in contact with the outside of the ring, heats the same more or less, as desired, and accord-

ing to the size of the recess and the temperature of the molten metal when poured. When the band is sufficiently heated the molten iron is poured into the mold for casting the wheel. This molten iron comes directly in contact with the inner surface of the steel band, thus producing a welding-heat, and completely welding the steel band to the body of the wheel. At the moment of the highest temperature the steel band will have expanded to its greatest extent, and then in cooling it will contract equal to the contraction of the body of the wheel.

The steel band when first made is of a diameter greater than is necessary for the diameter of the finished wheel, allowance being made for shrinkage in cooling the body of the wheel. The band at first just fits the compress when both are cool, but in the process of casting the body the band is heated more than the compress; therefore it is partly upset, because it is confined in the compress. The expansive force increases the thickness and width of the band without increasing its outer diameter. Therefore, upon again cooling the band, its outer diameter is less than when the band was first put cold into the compress. This loss of diameter makes the band of the right size desired for the wheel when finished. The contraction of the steel band corresponds to the shrinkage of the whole wheel, so as to prevent any strain upon the metal.

I do not broadly claim a wheel made by welding a cast-iron body to a steel band or tread.

Having thus described my invention, I claim—

1. The above-described mold, provided with the compress for holding and upsetting the steel band re-enforce or tread of the wheel, while the body of the wheel is cast against and thus welded to the inner surface of the steel band, substantially as set forth.

2. The mold provided with the recess therein for receiving the molten iron outside of the steel band, substantially in the manner and for the purposes set forth.

JOHN K. SAX.

Witnesses:

DANIEL BREED,
CHAS. C. WILSON.