

(No Model.)

S. H. ST. JOHN.
PULLEY.

2 Sheets—Sheet 1.

No. 516,688.

Patented Mar. 20, 1894.

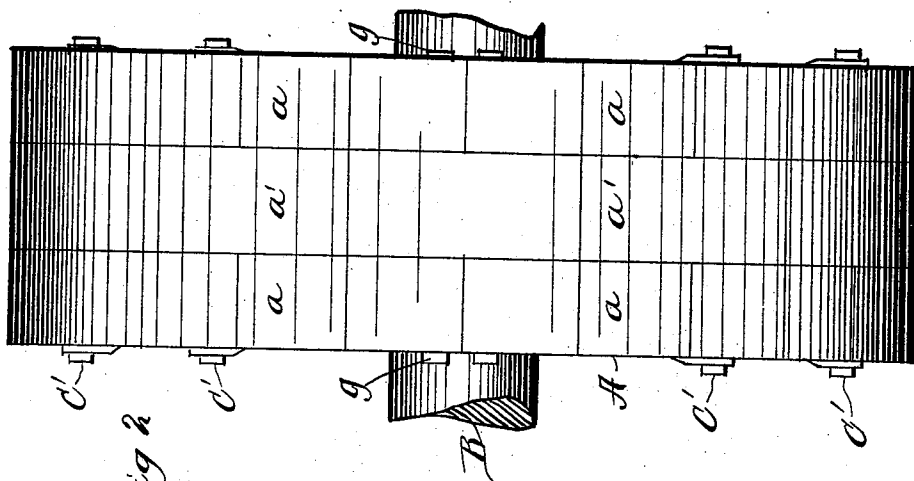


Fig 2

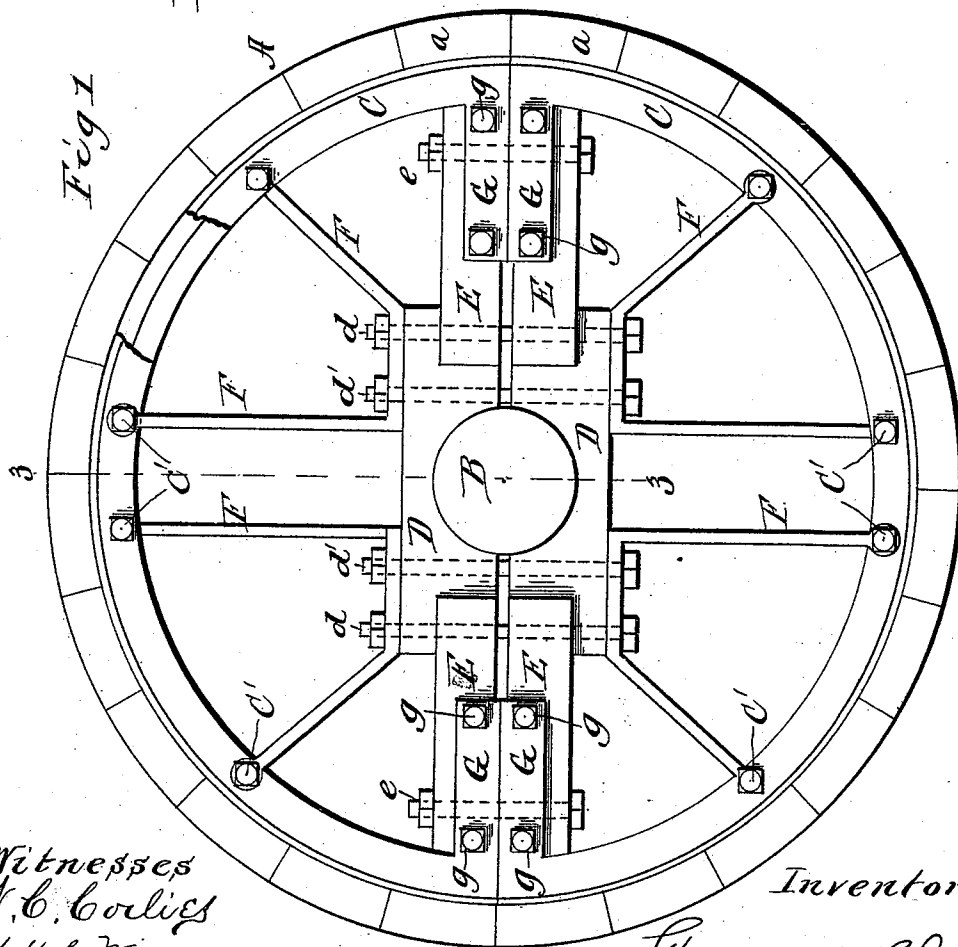


Fig 1

Witnesses
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M. H. L. Wing

Inventor

Spencer H. St. John
By Louis R. Nelson
Attorney

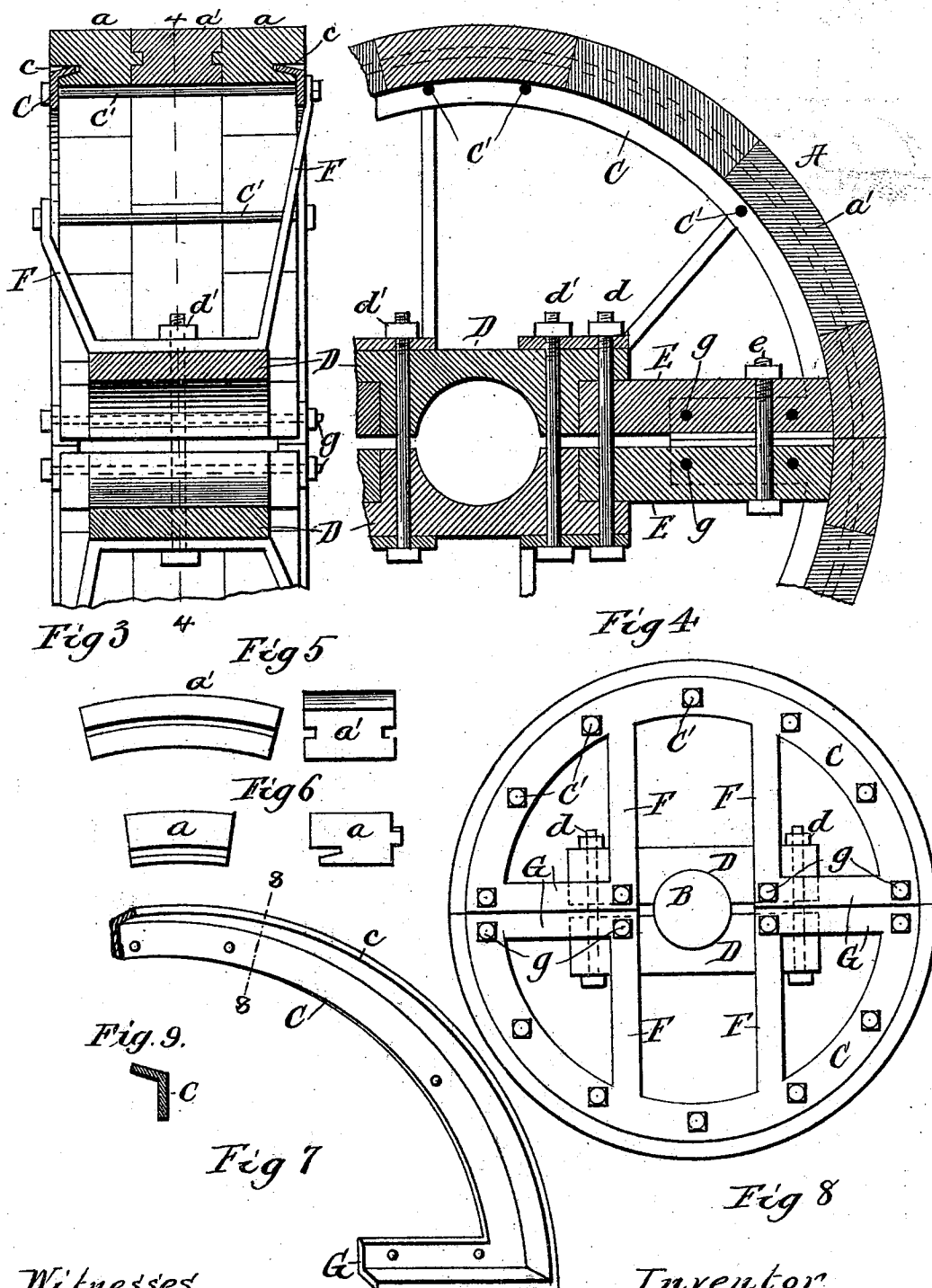
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His Attorney

UNITED STATES PATENT OFFICE.

SPENCER H. ST. JOHN, OF CAÑON CITY, COLORADO.

PULLEY.

SPECIFICATION forming part of Letters Patent No. 516,688, dated March 20, 1894.

Application filed March 1, 1893. Serial No. 464,173. (No model.)

To all whom it may concern:

Be it known that I, SPENCER H. ST. JOHN, a citizen of the United States, residing at Cañon City, in the county of Fremont and State of Colorado, have invented certain new and useful Improvements in Pulleys; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to wood pulleys and has for its object the construction of a pulley having a wooden face, its various parts being held together without the use of glue, and in such manner as to be perfectly secure.

The invention consists, in the construction of a wheel of this character, of the use of a series of segmental blocks secured together by metallic frames which are firmly united to the hub.

In the accompanying drawings, Figure 1 is a side elevation of my improved pulley, a portion of the retaining frame being broken away. Fig. 2 is a face elevation of the pulley. Fig. 3 is a transverse section on the line 3, 3, of Fig. 1. Fig. 4 is a longitudinal section on the line 4, 4, of Fig. 3. Figs. 5, 6, and 7, are details; and Fig. 8 is a side elevation of a portion of the pulley, showing a modification for use upon pulleys of small size. Fig. 9, is a transverse section of the frame for binding the segmental blocks together.

The periphery of the pulley is shown at A, and the shaft at B.

At C, C, is shown a pair of semicircular metallic frames adapted to be located upon opposite sides of the rim of the pulley, and having inwardly projecting flanges c, c, slightly flaring.

The rim or face of the pulley A, consists of a number of short segments of wood which I prefer to form with the grain parallel to the circumference of the pulley and which are narrower than the pulley so that the face of the latter is composed of a multiple number of rings formed of such segments. In the two drawings I show three such rings, the two outer ones being marked a, and the middle one a', the adjacent edges of which are matched

similarly to ordinary flooring boards. The outer edges of the outer blocks are grooved so as to receive the lateral flanges c, of the frames C. The frames C, have their ends turned inwardly toward each other and continued a short distance as indicated at G. The configuration in cross section of the inwardly projecting ends varies from that of the curved portion only in that the flange c, is exactly perpendicular to the portion lying in the plane of the circle.

The hub of the pulley consists of two blocks D, having their adjacent sides recessed to fit upon the shaft and being drawn together by means of the bolts d, d'. The ends of the blocks D, are rabbeted across their adjacent sides and within the socket thus formed are placed a pair of blocks E, which extend to the frame C, and fit within the angle of the inwardly projecting ends G. It will be seen that the two frames upon each half of the pulley will provide a chair for the reception of the end of the block or spoke E.

In putting the pulley together the segmental blocks a, a', are laid between the frames C, C, and the latter are drawn together by means of bolts c'. As the nuts are screwed up on these bolts, the flanges c, c, are forced into the grooves in the sides of the segmental blocks and as they enter them at an oblique angle they draw them toward the center of the circle and bind them firmly together. The spoke blocks E, are laid between the inwardly projecting arms of the frames C, and secured thereto by bolts g. The two semicircular sections of the pulley formed in this manner are secured together by means of bolts e, passing through adjacent spoke blocks E, and the inner ends of the latter are inserted within the sockets of the hub D, which has previously been secured to the shaft by the bolt d'. The spokes are secured to the hub by means of the bolts d, which pass through both the hub and the spokes.

The pulley is further strengthened by the use of braces F, extending from the hub to the rim and being secured to the former by means of bolts d, d', and to the latter by means of the bolt c'. The face of the pulley may be turned up after it has been put together.

It will be seen that in the construction of a pulley as described, the use of glue is entirely

obviated, the parts being locked together securely and held by bolts as shown. In the event of shrinkage there is no danger of the pulley falling to pieces and the parts are again drawn tightly together by turning up the nuts on the bolts.

In the modification shown in Fig. 8, the spoke blocks E, are dispensed with—the inwardly projecting ends G, of the metal frames being continued so as to be bolted to the blocks D, forming the hub. Braces F, are cast integrally with the metal frames. This form of construction will be found especially adapted to use in connection with small pulleys.

I do not desire to limit myself to the precise form of metallic frames shown as any form which, as it is forced into the annular groove in the sides of the pulley rim tends to draw the segmental blocks toward the center will serve to bind the wheel together.

I claim as my invention—

1. A wood pulley having an annular rim composed of segmental blocks having their exposed sides grooved to form annular channels, segmental metallic frames having flaring flanges for engaging the annular channel, said flanges extending inwardly beyond the rim, and bolts uniting the frames on opposite sides of the pulley and being located interiorly to the rim, so that the drawing of the frames together by the action of the bolts draws the blocks together radially, substantially as described.

2. In a pulley the combination of a multiple number of wooden segmental blocks for forming the rim, said blocks having their exposed sides or edges grooved so as to form continuous annular channels, semicircular metallic frames having flaring flanges for engaging the circumferential channels, bolts for drawing together the frames upon opposite sides of the pulley, a hub for adjustment to the shaft and means for binding together abutting ends of the metallic frames and for securing them to the hub, substantially as described.

3. In a wood pulley the combination with a rim formed of a multiple number of segmental blocks of wood, and having annular channels in its sides, of segmental metal plates or frames located upon opposite sides of the rim and having flaring flanges adapted

to engage the annular channels, and arms G, projecting inwardly from said frames, bolts for connecting the frames on opposite sides of the rim a sectional hub, spokes secured to the arms G, and to the hub and bolts for uniting the several sections of the pulley, substantially as described.

4. In a wood pulley the combination with a rim formed of a multiple number of segmental blocks and having annular channels in its sides of semicircular metallic plates adapted to act in pairs to clamp the sides of the rim, each of said plates having its ends turned inwardly and its outer edge turned over to form a flaring flange adapted to engage the annular channels, such flange being continued to the ends of the plates, and bolts for drawing cooperating plates together, whereby the blocks are drawn toward the center and securely locked between the flanges of the end portions of the plates, substantially as described.

5. In a wood pulley consisting of two rigid semicircular parts adapted to be secured together upon a shaft, the combination with a divided hub, of semicircular plates or frames adapted to form the sides of the rim and secured in pairs to the two parts of the hub, a multiple number of wooden segmental blocks for forming the rim and adapted to fit between the plates, the exposed sides or edges of the blocks being channeled in line with the circumference of the pulley, flaring flanges at the outer edges of the plates and adapted to fit within the block channels, said flanges being turned inwardly toward the center of the pulley at the ends of the plates to form abutments for the blocks, and bolts for drawing the cooperating plates together whereby the flaring flanges are forced into the block channels and the blocks are drawn toward the center and securely bound between the end flanges of the plates, substantially as described.

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

SPENCER H. ST. JOHN.

Witnesses:

EDWIN A. EMERY,
JAMES J. CONE.