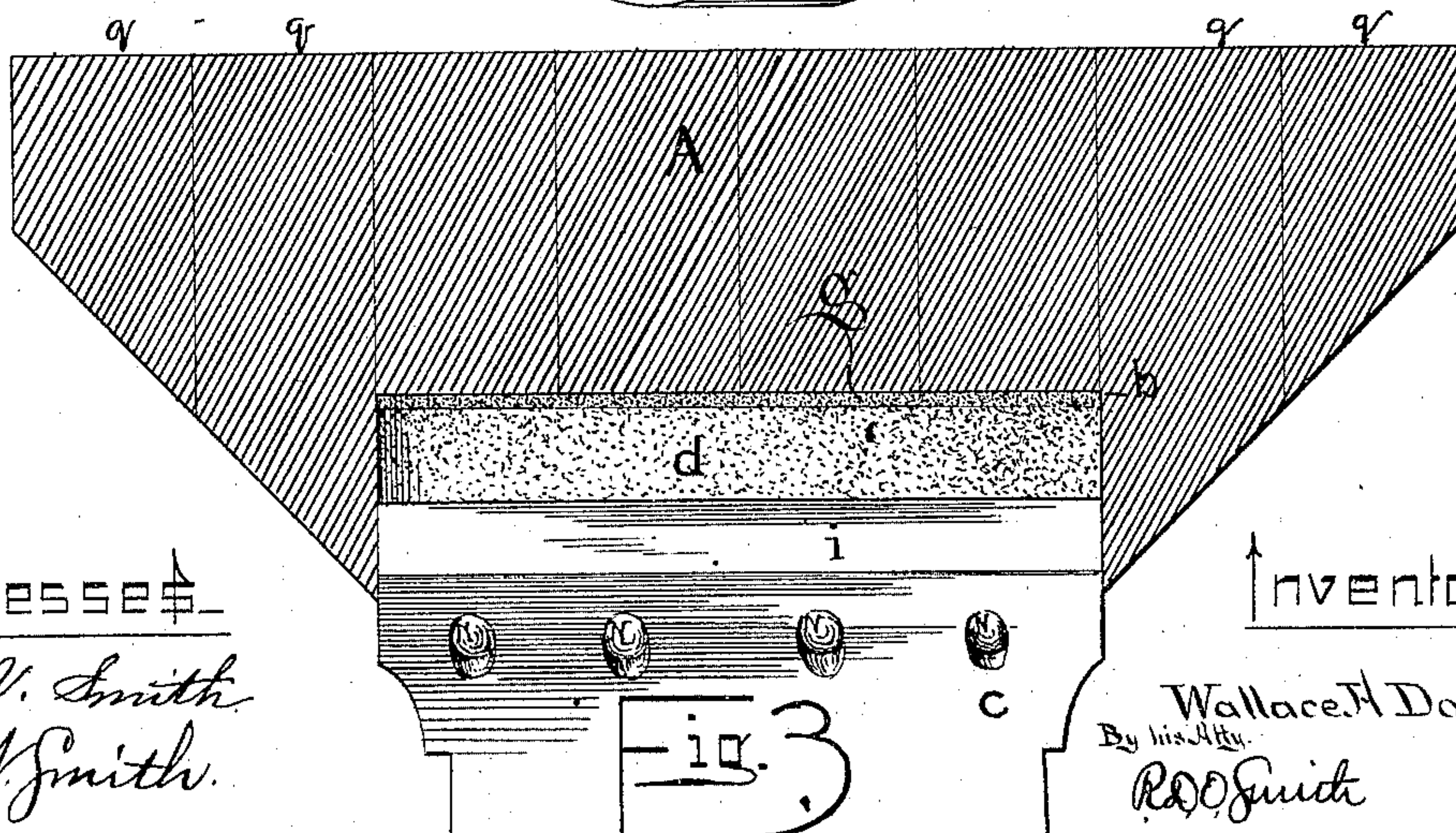
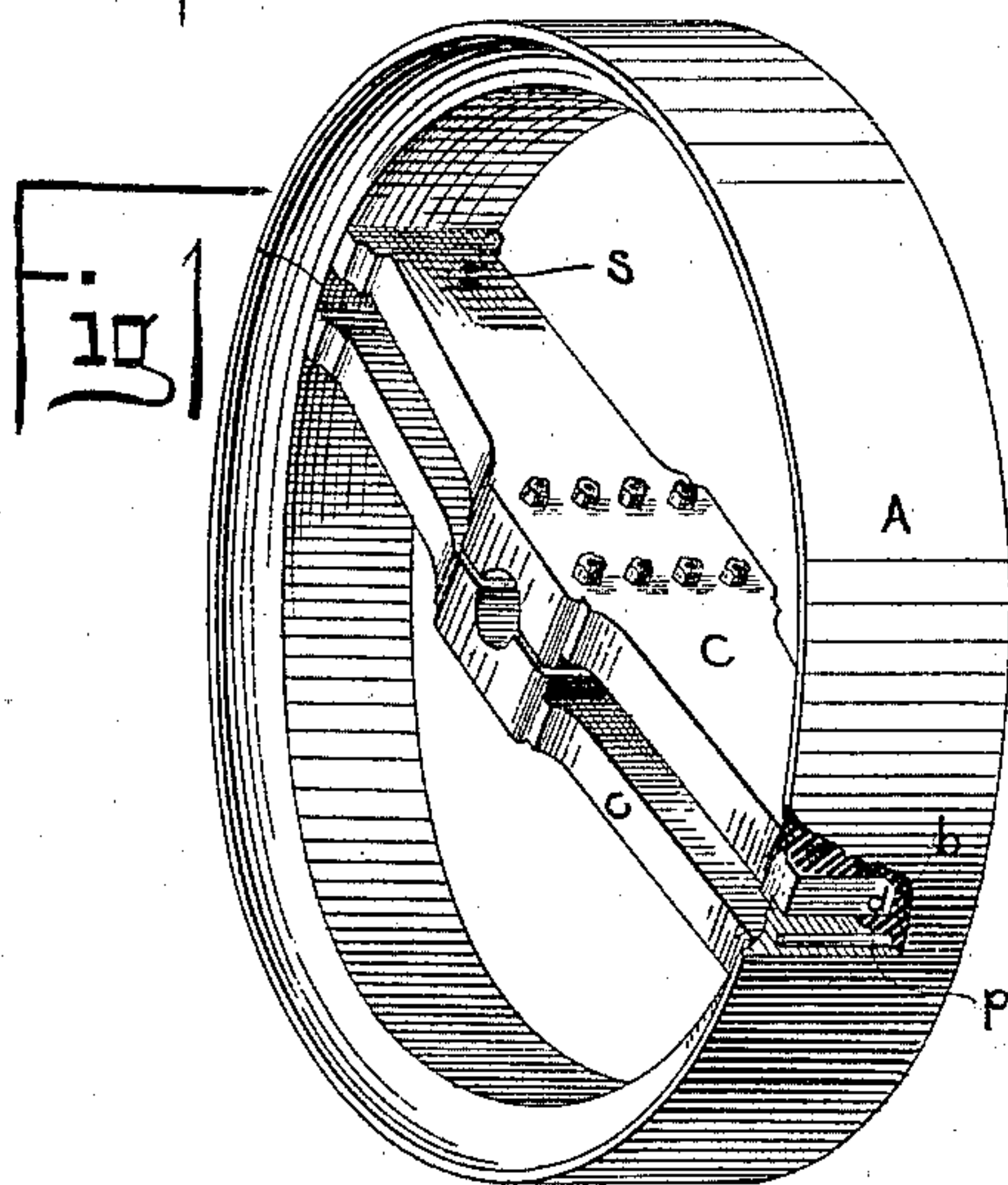
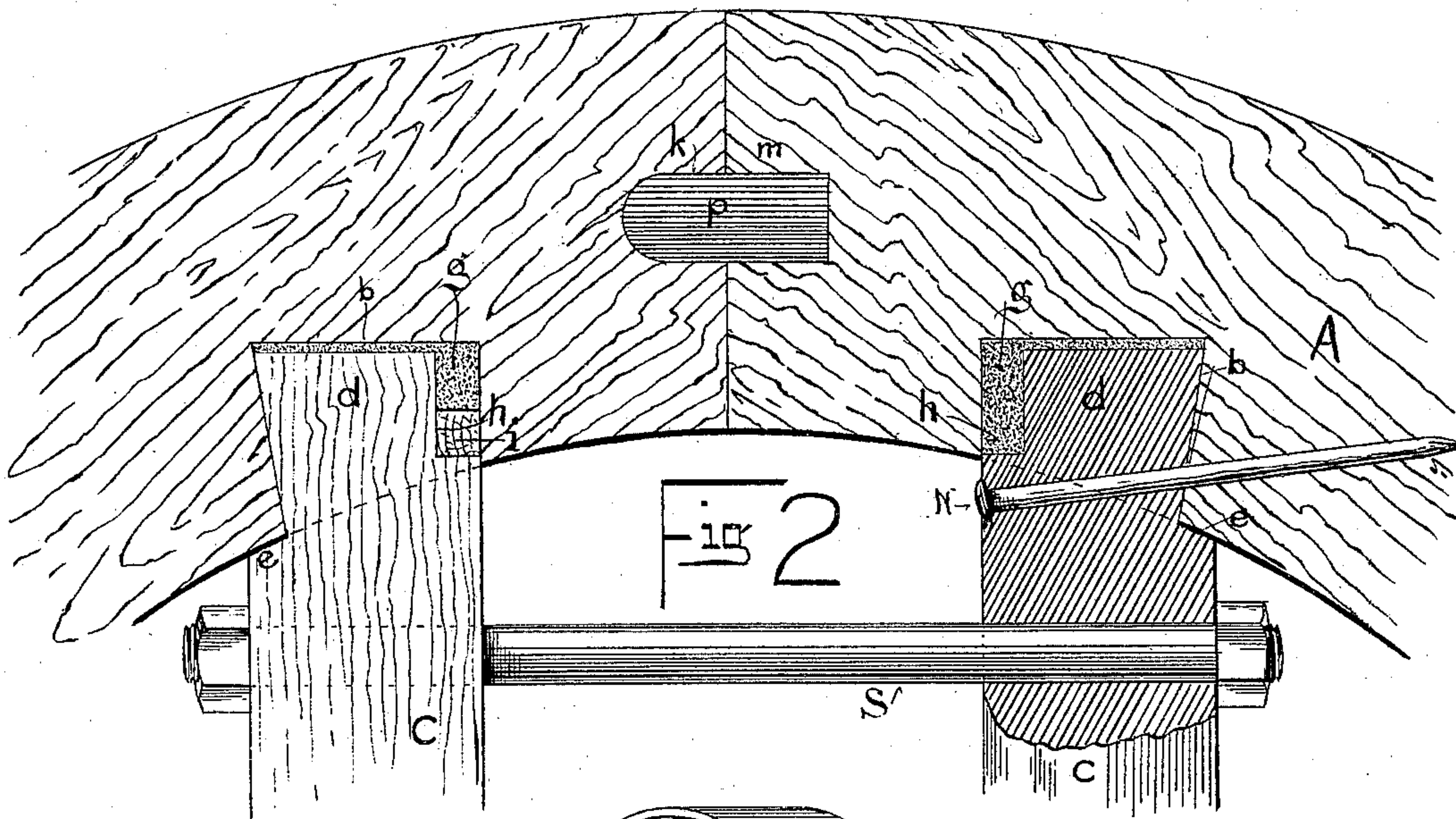


(No Model.)

W. H. DODGE.  
WOODEN PULLEY.

No. 368,820.

Patented Aug. 23, 1887.



Witnesses  
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R. M. Smith.

Inventor

Wallace H. Dodge  
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# UNITED STATES PATENT OFFICE.

WALLACE H. DODGE, OF MISHAWAKA, INDIANA.

## WOODEN PULLEY.

SPECIFICATION forming part of Letters Patent No. 368,820, dated August 23, 1887.

Application filed November 19, 1886. Serial No. 219,417. (No model.)

*To all whom it may concern:*

Be it known that I, WALLACE H. DODGE, of Mishawaka, in the county of St. Joseph and State of Indiana, have invented new and useful Improvements in Wooden Pulleys; and I do hereby declare that the following is a full and accurate description of the same.

In Letters Patent granted to me August 31, 1886, numbered 348,269, a wooden pulley-rim with metallic arms or spokes is shown and claimed. The exterior ends of said spokes are provided with projections which enter notches or recesses in the pulley-rim, and the intervening space is filled with some solidifying plastic, of which melted sulphur is mentioned as appropriate. While in that case a proper form of notch and entering arm are shown and a proper plastic filling is described, it differs from my present invention in this: the rim being of wood and the arm being of metal, there cannot be any effective adhesion established between the rim and metal arm, and the whole duty of jointure comes upon the plastic filling, which in that case serves simply as a packing.

In Letters Patent issued to me as assignee of Charles McNeal, October 19, 1886, No. 351,064, a pulley with wooden rim and wooden arms or spokes is shown and described. The spokes have dovetailed tenons at the ends, and these fit into dovetailed notches in the rim, and are glued therein, solid contact being secured by a wooden wedge driven in at the side of the tenon. In this case contact and adhesion are secured at the sides of the tenon; but it is practically very difficult to obtain any adequate contact and adhesion at the end of the tenon, and there is, therefore, always between the end surface of the tenon and the opposing surface of the notch a space not filled, or not adequately filled, and this spot constitutes a weak place in the pulley-rim. However solid the adhesion at the sides of the tenon may have been originally, the pulley-rim, if unsupported opposite the end of the pulley-arm, may, under heavy service, finally become loose and disabled. This place cannot safely be filled by a wedge, because of the liability of driving the rim outward from its proper position.

My invention, therefore, improves the pulley with wooden arms and wooden rim by se-

curing in the joint perfect contact and adhesion at the sides of the tenon and complete support of the rim over the end of the tenon; and it consists in a wooden rim and wooden arms united by a dovetailed tenon and corresponding notch firmly glued together as to the sides and the space at the end of the tenon filled with some suitable solidifying plastic.

In the accompanying drawings, Figure 1 is a perspective view of a pulley, partly in section, made in accordance with my invention. Fig. 2 is a plan of the same. Fig. 3 is a plan representing a modification.

A is the pulley-rim, "built up" or otherwise constructed in proper manner. The dovetailed or otherwise undercut notch *b* is cut with a proper tool. In practice I have marked out the same by means of a templet, and have then cut them with a band-saw. Any other proper and convenient way may be employed, however. The pulley arm or spoke *c* has cut upon its end a dovetailed tenon, *d*, adapted to fit the angles of the notch *b*, and, with a shoulder, *e*, to rest upon the interior surface of the rim A. I purposely cut the tenon somewhat shorter than the depth of the notch to leave a little space for free admission of the plastic filling *g*, and I prefer, also, to cut away the side of the tenon, as at *h*, to permit said filling to flow in behind said tenon also, as shown. The thickness of the arm should be such that the notch will be fully filled by it at the plane of the interior surface of the rim. When the tenon *d* is inserted in the notch *b*, the inclined surfaces are firmly cemented, preferably with glue, and may be forced into close contact by a wedge, *i*, or otherwise, if preferred, and said wedge may be temporarily used, or may also be glued in and suffered to remain, as preferred. My own preference is to make the wedge permanent by gluing it in, as thereby close and sound adhesion may be obtained on both sides of the tenon. In practice, and as a precautionary measure, the nails *N* are also driven through the end of the arm *c* into the rim; but the metallic fastenings which may be employed about the pulley do not enter into contemplation and are not concerned in the subject-matter herein claimed.

Subsequently the space around the end of the tenon is filled with solidifying plastic ma-



terial, melted sulphur being preferred. Thus the arm or spokes are firmly embedded in the rim and solidly joined to the material of the same, and the joint is made solid by having  
 5 all interstices between surfaces not in contact filled with a solid matter capable of preventing all yielding under any service suitable for the pulley.

Heretofore the adjoining ends of the separated rim of a separable pulley have been  
 10 provided with interlocking surfaces, usually formed by severing the pulley-rim on an irregular line, as shown in the above-mentioned patent, 351,064. It is not always convenient  
 15 to sever the rim in that way, especially in pulleys of very large size, and to substitute dowels is not satisfactory, as they must necessarily be small in proportion to the size of the rim, and besides require very nice measurements in locating them. To avoid the difficulties mentioned, I sever the pulley-rim with a straight  
 20 cut, and then cut transversely in the severed ends grooves *h m*. This is easy to do, because they can be marked in exact accordance on the  
 25 outside while the parts of the rim are in contact. I then fit the tongue *p* and glue it in one of said grooves.

It will be understood that subsequent to the operations hereinbefore detailed the face  
 30 width of the pulley is increased by the addition of wooden rings *q* to the sides of the rim A, and that said rings *q* cover and conceal the

notch *b* and tenon *d*, together with the filling *g* and wedge *i*, and that they thereby also restrain and render impossible any tendency to  
 35 lateral movement of the arm *c* in the rim A when the parts are clamped and bound together by the tension-bolts S.

Having described my invention, I claim—

1. A pulley-rim, A, provided in its inner  
 40 periphery with dovetail notches *b* at opposite sides of said rim as to the center, and a spoke-arm, *c*, having a dovetail tenon, *d*, on each end, adapted to enter said notches *b*, said arm being provided with a shoulder, *e*, at the base  
 45 of each tenon, to rest against the inner surface of the rim, combined with means for forcing one side of said tenon hard against one side of said notch while being glued thereto, and a solidifying plastic filling, *g*, to fill all the parts  
 50 of said notch not occupied by said tenon, as set forth.

2. The pulley-rim A, provided with the notch *b*, and the pulley-arm *c*, provided with the tenon *d*, corresponding in shape with the  
 60 notch *b*, the surfaces on one side brought into close contact and caused to adhere by cement, combined with a wedge, *i*, also cemented in place, and the solidifying plastic filling *g*, substantially as set forth.

WALLACE H. DODGE.

Witnesses:

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