

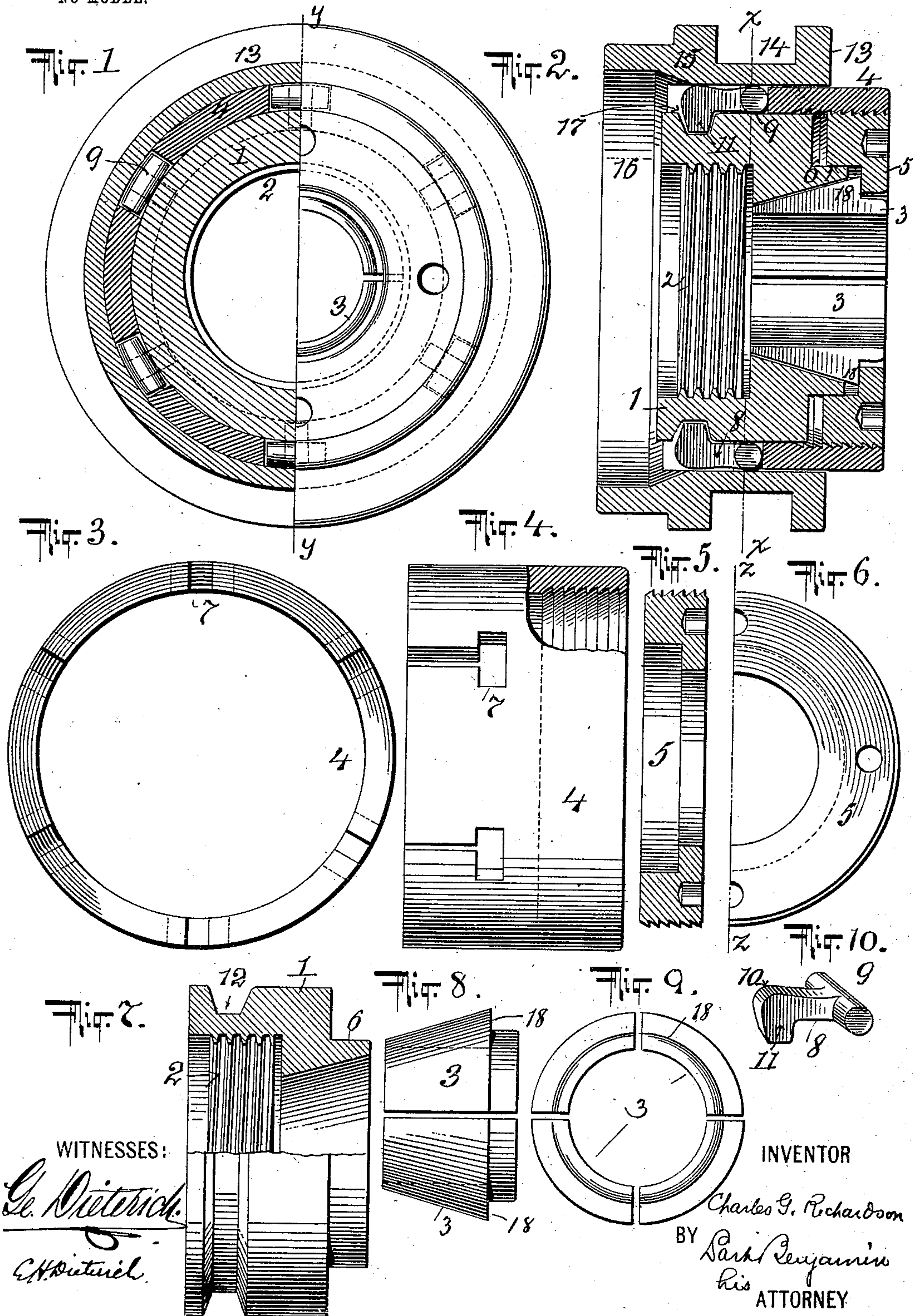
No. 725,774.

PATENTED APR. 21, 1903.

C. G. RICHARDSON.
LATHE CHUCK.

APPLICATION FILED OCT. 31, 1902.

NO MODEL.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES G. RICHARDSON, OF SPRINGFIELD, VERMONT, ASSIGNOR TO DE LAVAL STEAM TURBINE COMPANY, A CORPORATION OF NEW JERSEY.

LATHE-CHUCK.

SPECIFICATION forming part of Letters Patent No. 725,774, dated April 21, 1903.

Application filed October 31, 1902. Serial No. 129,543. (No model.)

To all whom it may concern:

Be it known that I, CHARLES G. RICHARDSON, of Springfield, Windsor county, Vermont, have invented a new and useful Improvement in Lathe-Chucks, of which the following is a specification.

My invention relates to a lathe-chuck; and it consists in the construction and combination of parts, as more particularly set forth in the claims.

In the accompanying drawings, Figure 1 is a face view and partial section on the line xx of Fig. 2. Fig. 2 is a section on the line yy of Fig. 1. Fig. 3 is a face view, and Fig. 4 a side view, with a part broken away and in section, of the dog-carrying sleeve. Fig. 5 is a section on the line zz of Fig. 6. Fig. 6 is a half-face view of the adjusting-ring. Fig. 7 is a side elevation, with a part broken away and in section, of the internally-tapered chuck-body. Fig. 8 is a side elevation, and Fig. 9 an end view, of the collet-jaws. Fig. 10 is a perspective view of one of the swinging dogs which engage with the chuck-body shown in Fig. 7.

Similar numbers of reference indicate like parts.

1 is the internally-tapered chuck-body, having a threaded portion 2, whereby it is secured upon the lathe-spindle. Fitting within the outer tapered portion of said body are the tapered jaws 3. Four jaws are here shown, each having a shoulder 18. Surrounding said body is another sleeve 4, which is internally threaded to receive the ring 5, which when in place, as shown in Fig. 2, forms a flange. The inner periphery of said ring surrounds the projecting outer portion 6 of the body 1 and has a flange which bears upon the shoulder 18 on the jaws 3. Around the rear end of the sleeve 4 are a number of T-shaped slots 7, each of which receives a dog 8. Each dog has a pivot-shaft 9, which lies in the transverse portion of the slot 7, and an upwardly-curved or rounded back 10. The downwardly-projecting hook 11 of each dog lies in a groove 12, formed around the chuck-body 1. Finally surrounding the sleeve 4 and fitting upon the rounded backs of all the dogs 8 and movable longitudinally thereon is an operating-collar 13, provided with the usual external groove

14 for the reception of any suitable device for imparting to it longitudinal movement. Said collar internally has a flared portion 15 and a portion of greater diameter 16.

The operation of the chuck is as follows, it being remembered that the movement of the jaws in opening and closing and so releasing and engaging the work is very small: Referring to Fig. 2, it will be observed that the hook 11 of each dog is downwardly tapered and that the sides of said hook do not both bear upon the internal tapered surfaces of the groove. Thus in Fig. 2 it will be seen that there is a space or interval represented at 17 between the outer side of the hook and the internal surface of the groove 12, while the opposite side of the hook bears directly against the groove-surface, a slight space being left, however, in Fig. 2 for the sake of clearness. Assuming the parts to be in the condition of engagement—that is, when the jaws are closed tightly upon the work, which is introduced, as usual, in the substantially cylindrical space between them—in order to release the work the operating-collar 13 is moved to the right in Fig. 2. This brings the flared inner portion 15 of said collar over the upwardly-rounded backs of all the dogs 8, so that said dogs are then permitted to rise into said flared portion. The state of tension which exists between the pivot-shafts of the dogs 9 on one side and the bearing of the right-hand faces of the hooks of the dogs against the opposing surface of the groove 12 on the other side is relieved, and as a consequence the sleeve 4 moves over slightly to the right of Fig. 2. The taper of the jaws 3 and of their seat in the body 1 is such that when in the manner described the pressure of the flange of the securing-ring 5 upon the shoulders 18 of the jaws is relieved said jaws then automatically and collectively move longitudinally outward from the chuck, while the individual jaws separate radially, thus releasing the work contained between them. The reverse operation closes the jaws upon the work and brings the parts back to the positions shown in Fig. 2.

I claim—

1. The combination with the annularly-grooved chuck-body and its inwardly-movable jaws, of a jaw-operating sleeve surround-

ing said chuck-body, a series of movable hooks pivoted at their forward ends to the rear end of said sleeve with their inwardly-hooked rear ends entering said annular groove and by engagement with one wall thereof actuating the
5 said jaw-operating sleeve, and a longitudinally-movable hook-operating ring surrounding the said jaw-operating sleeve and engaging its hooks, substantially as set forth.

10 2. The combination in a lathe-chuck of the body 1, having a tapering jaw-seat and external groove 12, taper jaws adapted to enter said seat and provided with shoulder 18, sleeve 4
15 having slots 7 and surrounding said body 1, ring 5 received in said sleeve 4 and bearing upon said chuck-body and said jaw-shoulder, dogs 8 pivoted in said slots 7 and engaging with said groove 12 and operating-ring 13 hav-

ing internal flared portion 15, and surrounding said sleeve 4, substantially as described. 20

3. In combination with the internally-tapered chuck-body having the groove 12 and the taper jaws 3 seated in said body, the outer ring 4 having flange 5 bearing on said chuck-body and said jaws, the dogs 8 pivoted in said
25 ring and engaging in said groove 12, and an external sleeve coacting with said dogs to force them into said groove, substantially as described.

In testimony whereof I have signed my
30 name to this specification in the presence of two subscribing witnesses.

CHARLES G. RICHARDSON.

Witnesses:

WM. H. SIEGMAN,
I. A. VAN WART.