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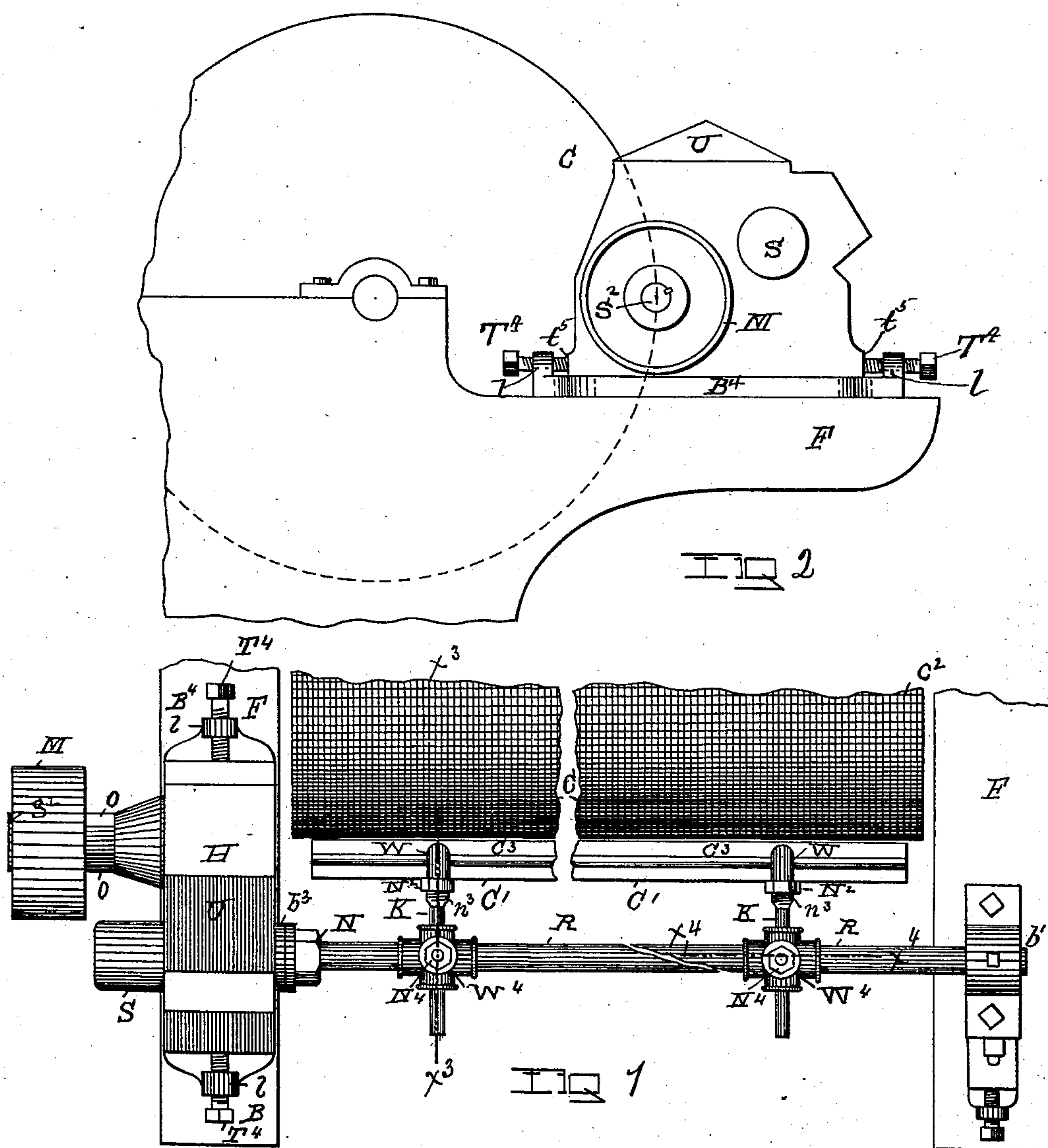
3 Sheets—Sheet 1.

C. G. REILLY.

DOFFER COMB FOR CARDING MACHINES.

No. 548,788.

Patented Oct. 29, 1895.



WITNESSES

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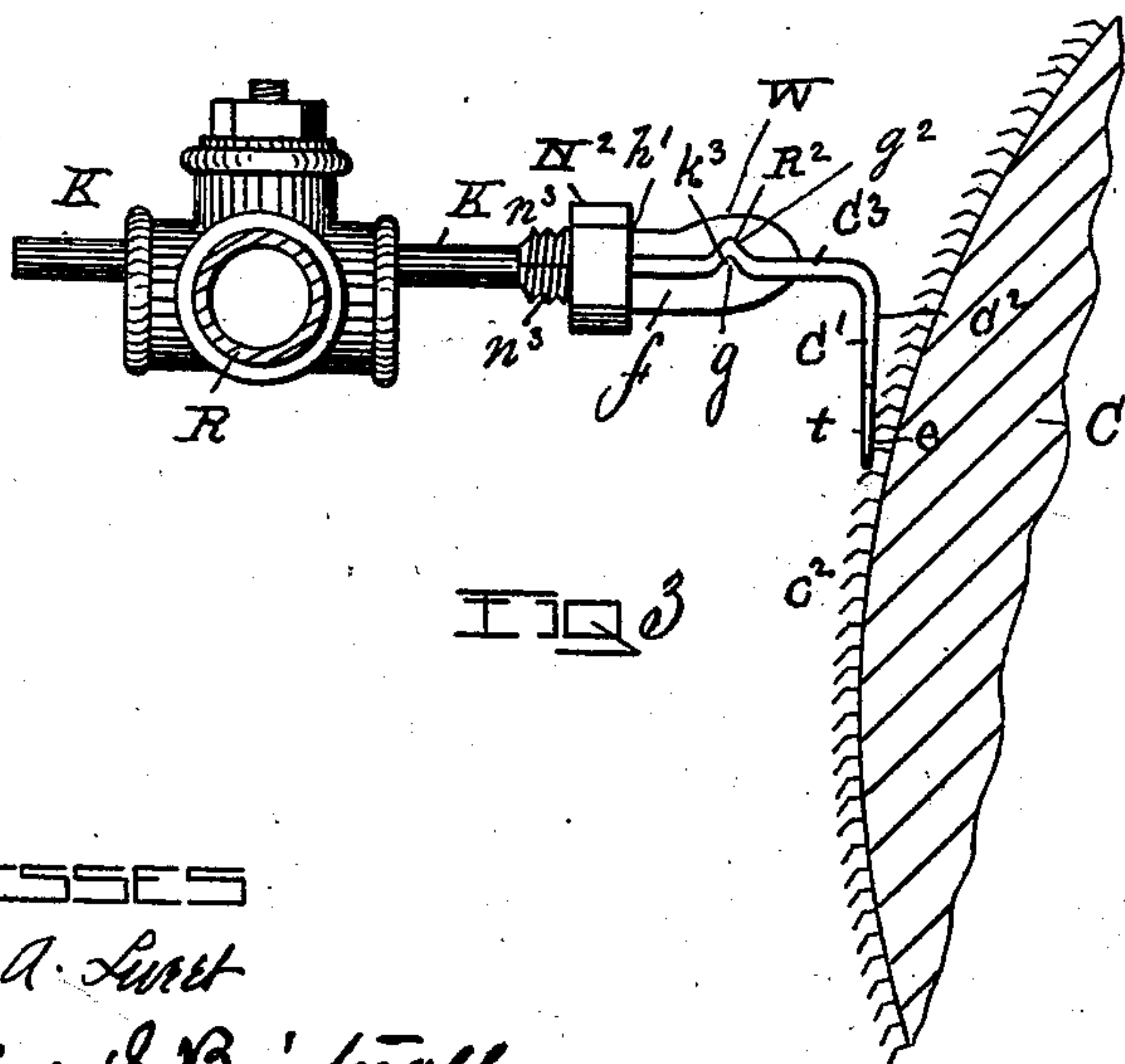
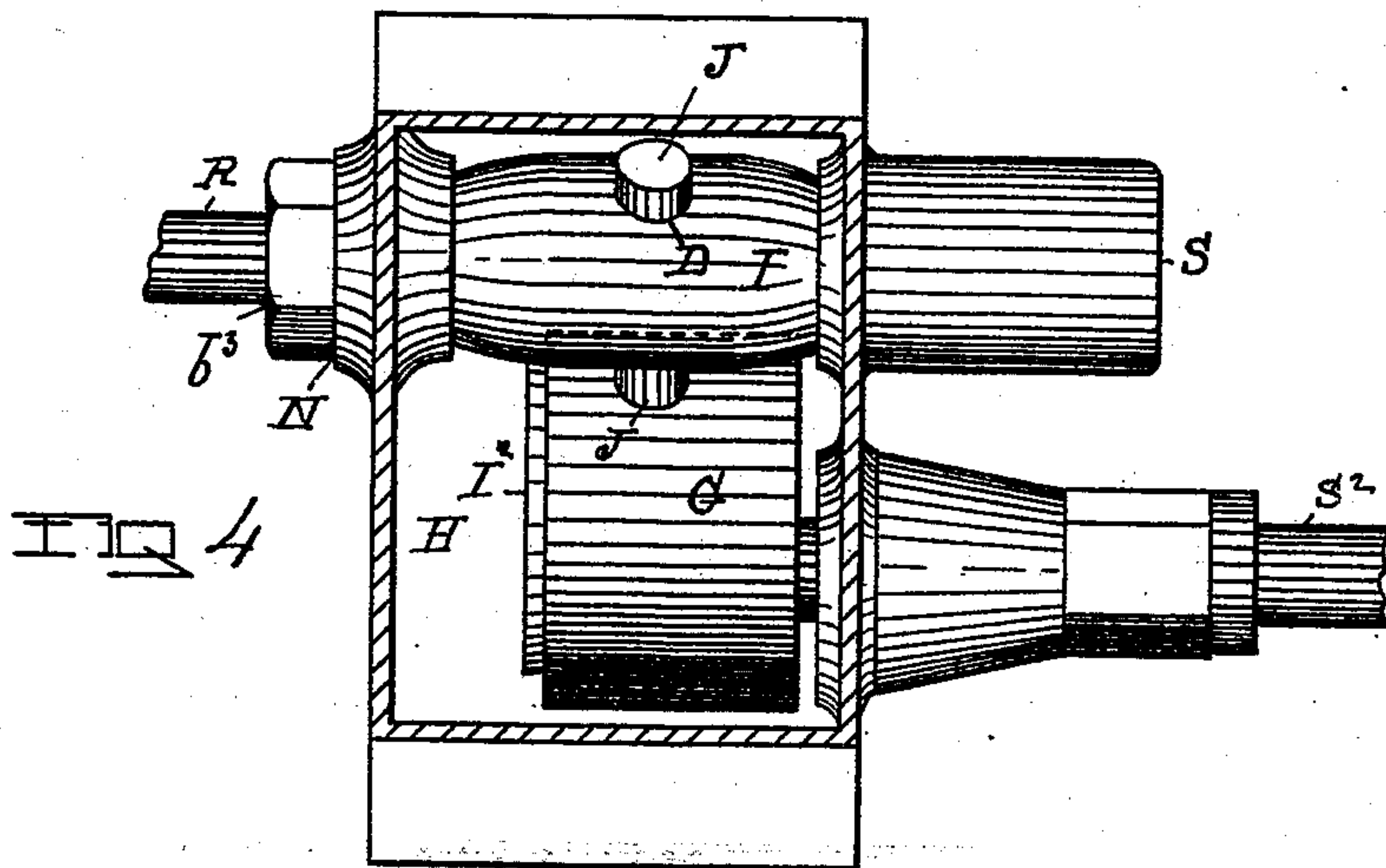
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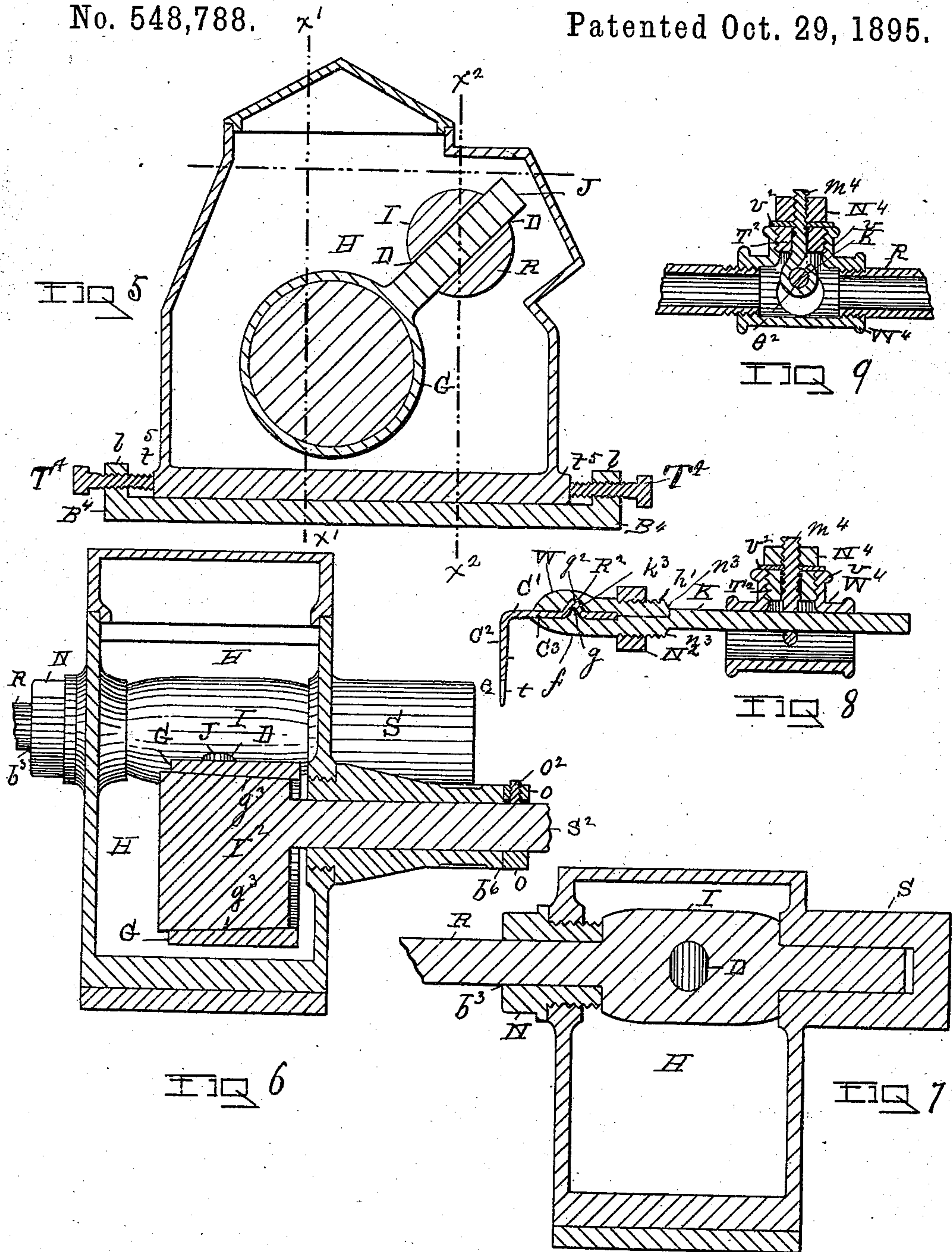
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UNITED STATES PATENT OFFICE.

CHARLES G. REILLY, OF TROY, NEW YORK.

DOFFER-COMB FOR CARDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 548,788, dated October 29, 1895.

Application filed November 26, 1894. Serial No. 529,921. (No model.)

To all whom it may concern:

Be it known that I, CHARLES G. REILLY, of the city of Troy, county of Rensselaer, and State of New York, have invented a new and useful Improvement in Doffer-Combs for Carding-Machines, of which the following is a specification.

My invention relates to doffer-combs, and more particularly to a method of connecting the comb to the rock-shaft, the object and purpose of my invention being to better adapt this class of apparatus to the uses for which it is designed, to connect the doffer-comb with the rock-shaft in a way to render the attachment secure and permanent, and to cheapen the cost of construction.

Accompanying this specification to form a part of it there are three plates of drawings containing nine figures illustrating my invention, with the same designation of parts by letter reference used in all of them.

Of the illustrations, Figure 1 is a top view of a part of a carding-cylinder, a doffer-comb containing my improvement, the rock-shaft which operates the latter, and the housing containing the mechanism operating the rock-shaft. Fig. 2 is an end view of a carding-cylinder, the housing which contains the mechanism operating the comb rock-shaft, and the pulley actuating the latter, showing, also, a part of the machine-frame. Fig. 3 shows a part of the carding-cylinder in section, an end view of the doffer-comb with the rock-shaft that operates the latter being shown in cross-section. Fig. 4 is a top view of the mechanism operating the comb rock-shaft, with the housing in which it is placed shown in transverse section. Fig. 5 is a cross-section taken through the housing, the driving-shaft eccentric, the eccentric-sleeve, the slide-bar on the latter, and the head of the rock-shaft in which the bar operates to reciprocatingly rotate the rock-shaft. Fig. 6 is a section taken on the line $x'x'$ of Fig. 5. Fig. 7 is a section taken on the line x^2x^2 of Fig. 5. Fig. 8 is a section taken on the line x^3x^3 of Fig. 1, and Fig. 9 is a section taken on the line x^4x^4 of Fig. 1.

The several parts of the apparatus thus illustrated are designated by letter reference

and the function of the parts is described as follows:

The letter F designates parts of the carding-machine frame, and C the carding-cylinder, having card-clothing c^2 on its cylindrical face.

The letter R designates the rock-shaft by which the doffer-comb is operated to vibrate. This rock-shaft has one of its end bearings at b' in the machine-frame, and at b^3 it passes through the flanged nut N into the housing H, and where within the latter it is made with a head I, and therefrom its outer end passes into a sleeve S, having a closed outer end, and which sleeve is made integrally with and offset from the housing H. To oscillate this rock-shaft R with reciprocating rotation, the head I is made with a cam-slide D, which is circular in cross-section and passes diametrically through the head, and this latter is caused to be rotated reciprocatingly by means of a cylindrical-form slide-bar J, which is formed integrally with and offset from a sleeve G, arranged on the eccentric-head I^2 of the driving-shaft S^2 , so that as the latter is actuated by the pulley M, it moves the sleeve G eccentrically and causes the bar J to slide back and forth in the passage D of the head I, and from the constantly-changing center of the eccentric on the driving-shaft head the head I of the rock-shaft R and the latter are caused to reciprocatingly rotate about half a turn, and the doffer-comb connected with said rock-shaft is operated to pick into and then move out from the material on the carding-cylinder carried along by its card-clothing.

The letter C' designates the doffer-comb, which is made of sheet metal, having teeth t cut in its lower edge e , as shown in section at Fig. 8. This doffer-comb is made with a vertical part C^2 and a horizontal part C^3 , thus formed by bending downwardly at right angles the teeth part from the horizontal part. The latter part of the doffer-comb is made with a raised rib on its upper surface, as indicated at R^2 , which is continued throughout its length, and has upon its under surface the groove g .

The letter K designates arms which at their

outer ends make adjustable connection with the rock-shaft, which will be described hereinafter. These arms K are on their inner ends made with a flat surface f , which is placed beneath and so as to be in contact with the horizontal comb part C^3 , and the flat surface f is made with a rib k^3 , adapted to interlock within the groove g on the under side of the comb part C^3 .

The letters W designate clamp-plates adapted to be passed on over the top of the horizontal comb part, and they are each made with a cross-groove g^2 for interlocking with the rib R^2 , made on the top of the horizontal comb part, and each of them is let into each of the arms K at h' , which thereat are both semicircular in form.

The letter N^2 designates a nut which is threaded onto the semicircular shank n^3 of each of the clamp-plates and the half-round part of each of the arms K, so that when the said nut is screwed onto the shank of the clamp and the adjacent arm K, as shown at Fig. 8, the comb is securely connected to the arm. The outer end of each of the arms K passes through the four-part tube-fitting W^4 of the tube-form rock-shaft, as shown at Figs. 8 and 9, and are each made adjustable thereon by means of a bar m^4 , made with an eye e^2 at its lower end for the insertion of each of the arms K where passing through the shaft, and which bar at its upper end in each instance is provided with a threaded nut N^4 , from which the bar passes through a bushing T^2 , screwed into a nipple v , by which the bar may be raised or depressed to raise or depress the arm K.

The letter v^2 designates a washer placed between the nut N^4 and the bushing T^2 .

The rock-shaft R is preferably made of gas-pipe, and the connections between it and the arms K are in each instance of their use produced by means of four-way gas-pipe fittings having a threaded top opening containing a bushing made with a central passage for the bar m^4 , which hooks onto one of the arms K in each instance, and which bar is provided with an adjusting nut and washer.

While I have shown the rock-shaft as broken apart for convenience of illustration and with but one of the arms K applied to each part of the rock-shaft, there may be more of them used and applied in the same manner.

The eccentric-sleeve G is made with an interior surface g^3 , that tapers inwardly as extended outwardly, and the eccentric-head I^2 of the driving-shaft S^2 is made to exteriorly taper to correspond with the interior surface of the eccentric-sleeve G, as shown at Fig. 6, and the letter O designates a collar arranged on the driving-shaft S^2 to abut against its bearing b^6 , and this collar is provided with a set-screw O^2 , by the engagement of which with the collar and shaft S^2 the tapering surfaces of the eccentric sleeve and head are kept in contact, and by which, should they wear away

by use, they may be drawn to contact and so secured by this set-screw O^2 .

The letter U designates the cover of the housing H, and the latter is, when the machine is running, filled with lubricant.

The letter B^4 designates the bed in which the housing rests on the frame F, and the letters l designate lugs that are upcast from the bed at each side of the housing, and the letters T^4 designate set-screws threaded into each of these lugs and adapted to bear upon the projection t^5 on each side of the housing, whereby the latter, as adjusted laterally on the bed B^4 , may be secured in position by these set-screws, as shown at Figs. 2, 3, and 5.

The letter M designates the driving-pulley, which is arranged on the shaft S^2 .

As thus made and arranged, a doffer-comb can be operated to vibrate with great rapidity and with a steady and noiseless motion, and from the manner in which its parts, as well as those actuating it, are constructed, they may be made cheaply without impairing their efficiency.

I am aware that doffer-comb rock-shafts have been actuated by means of a driving-shaft having a head eccentrically arranged thereon and provided with a sleeve having a slide-bar projected therefrom which was adapted to move in a slideway formed on the head of the rock-shaft. My improvement on this older feature of mechanism relates to the tapering surfaces of the sleeve and eccentric-head, by which, as the bearing parts become worn, by means of a nut they may be brought to contact and held by the latter.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination in a doffer comb having a rib formed in the upper surface of its horizontal part, and a groove in its lower surface, of an arm made with a flat surface having a cross-rib adapted to enter the groove in the lower surface of the horizontal part, a clamping plate made with a cross-groove adapted to receive the rib on the upper surface of the horizontal part, and a nut threaded onto, so as to embrace said arm and clamp, substantially in the manner as and for the purposes set forth.

2. The combination with the doffer-comb C, made with the horizontal part C^3 , having the rib R^2 , on its upper surface and the groove g^2 , on its lower surface, and the down-cast comb-part C^2 , made with the teeth t ; of the arms K, each made with the flat face f , having the cross-rib k^3 , on its upper surface and arranged beneath the horizontal comb-part C^3 , and each of said arms provided with a clamp-plate W, that is let into each of the arms, and provided with a nut that is threaded onto, so as to embrace the shank of the clamp-plate and arm where underlapping the latter, substantially in the manner as and for the purposes set forth.

3. The combination with the rock-shaft R²,
made in a tube-form and having the four-way
fittings W⁴, arranged thereon; of the arms
K, each arranged to be passed horizontally
5 through one of said fittings at right angles to
said shaft and therein secured by means of a
bar having an eye on its lower end to receive
the arm, and which bar where passed up-
wardly through said fittings being provided

with a nut threaded thereon, substantially in
the manner as and for the purposes set forth.

Signed at Troy, New York, this 19th day of
April, 1893, and in the presence of the two
witnesses whose names are hereto written.

CHARLES G. REILLY.

Witnesses:

W. E. HAGAN,

CHARLES S. BRINTNALL.