

(No Model.)

2 Sheets—Sheet 1.

F. W. COY.  
ABRADING MACHINE.

No. 294,766.

Patented Mar. 11, 1884.

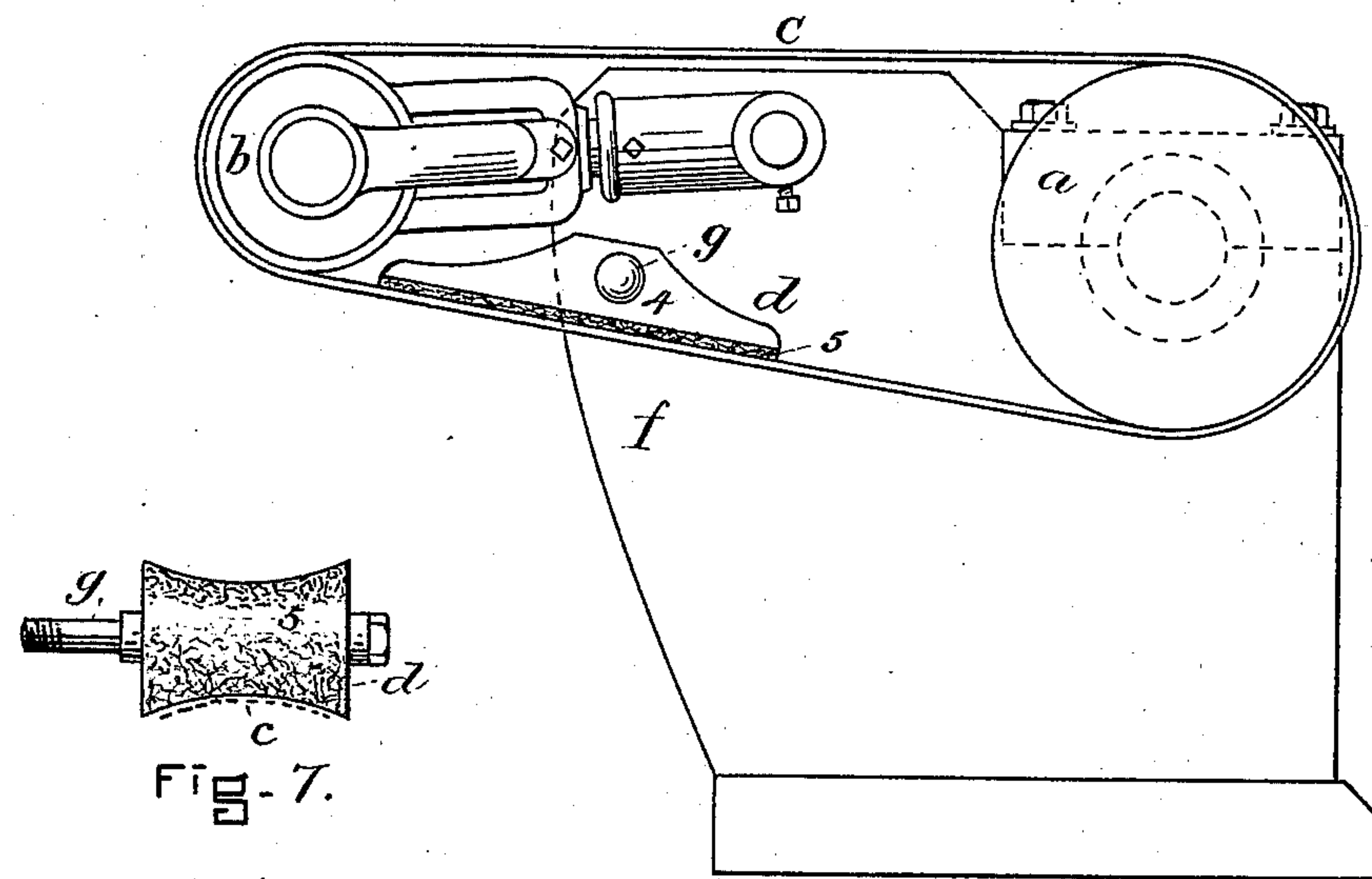


FIG- 1 -

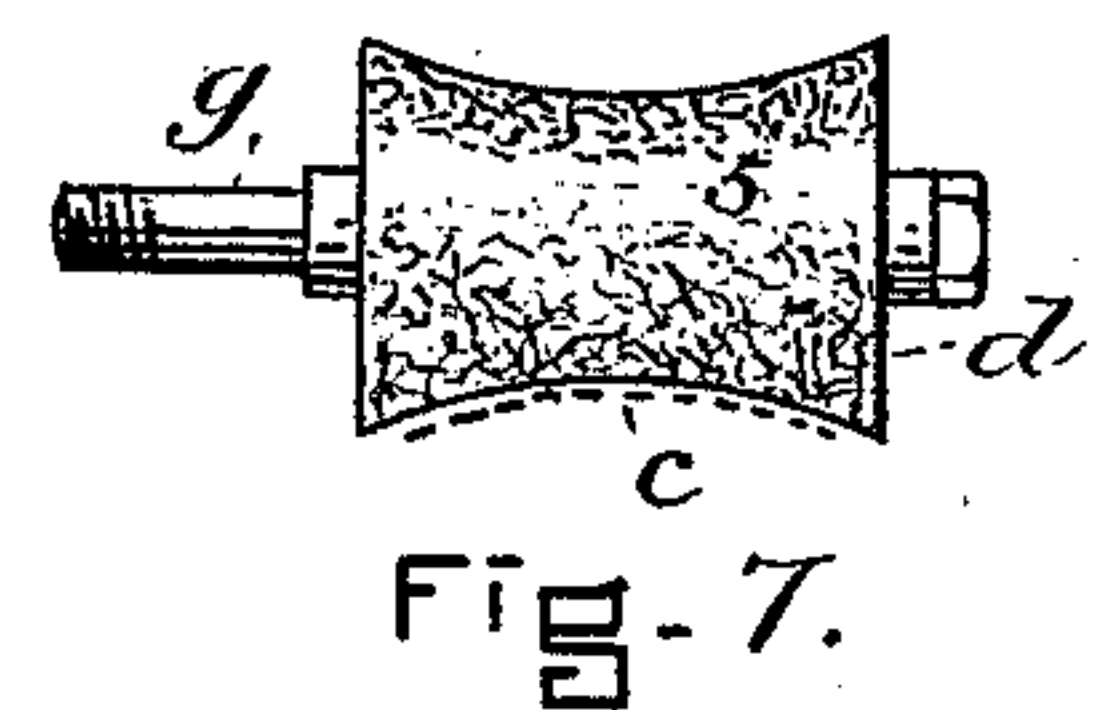


FIG- 7.

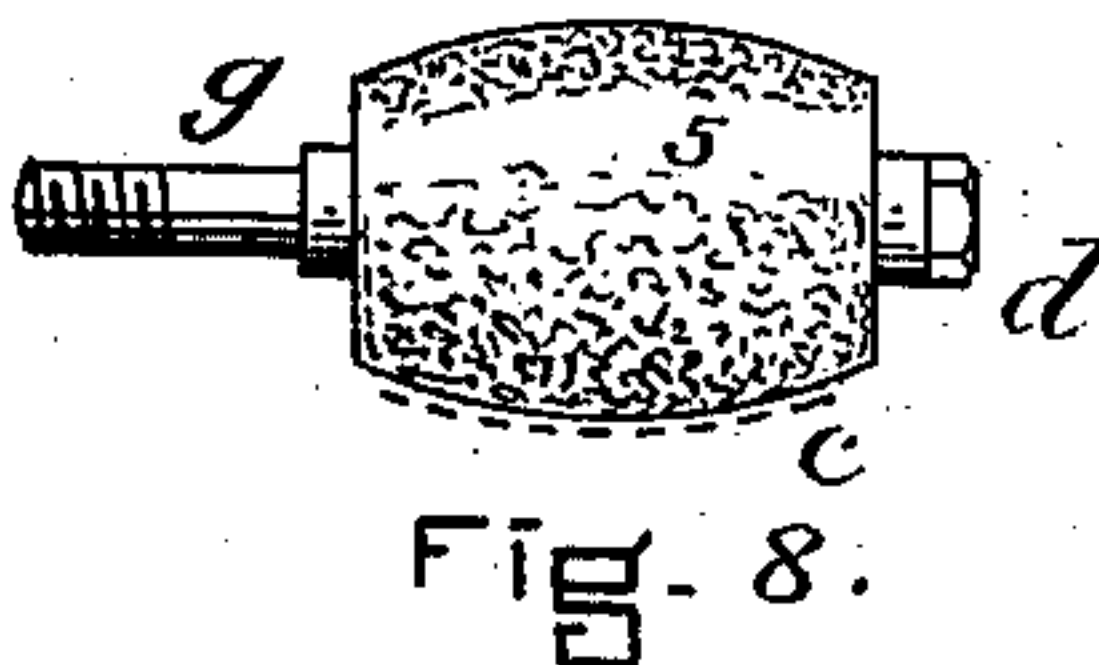


FIG- 8.

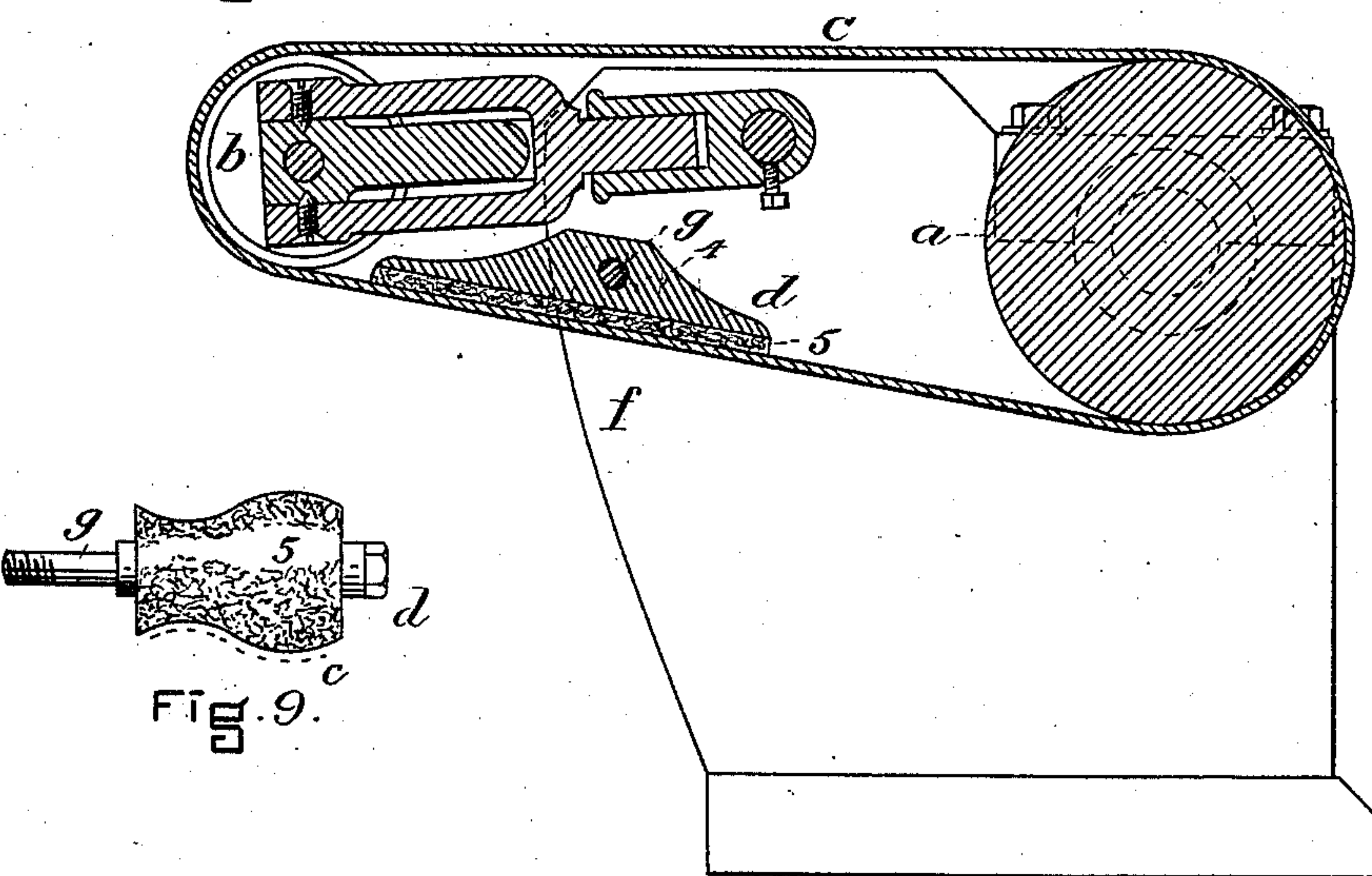


FIG- 2 -

WITNESSES

A. L. White  
Chas. V. Gooding

INVENTOR

F. W. Coy  
by Wright & Brown  
Atty

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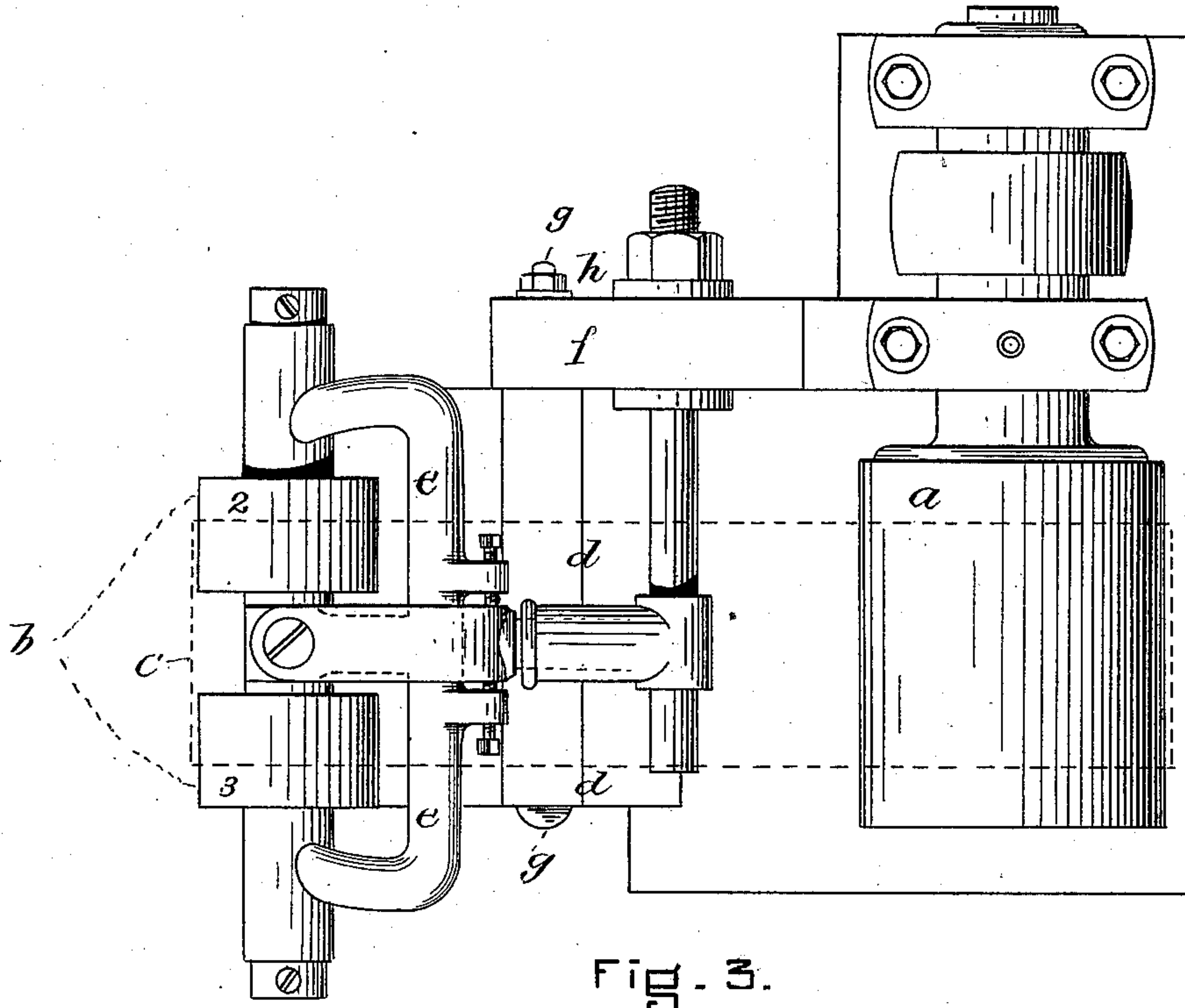


Fig. 3.

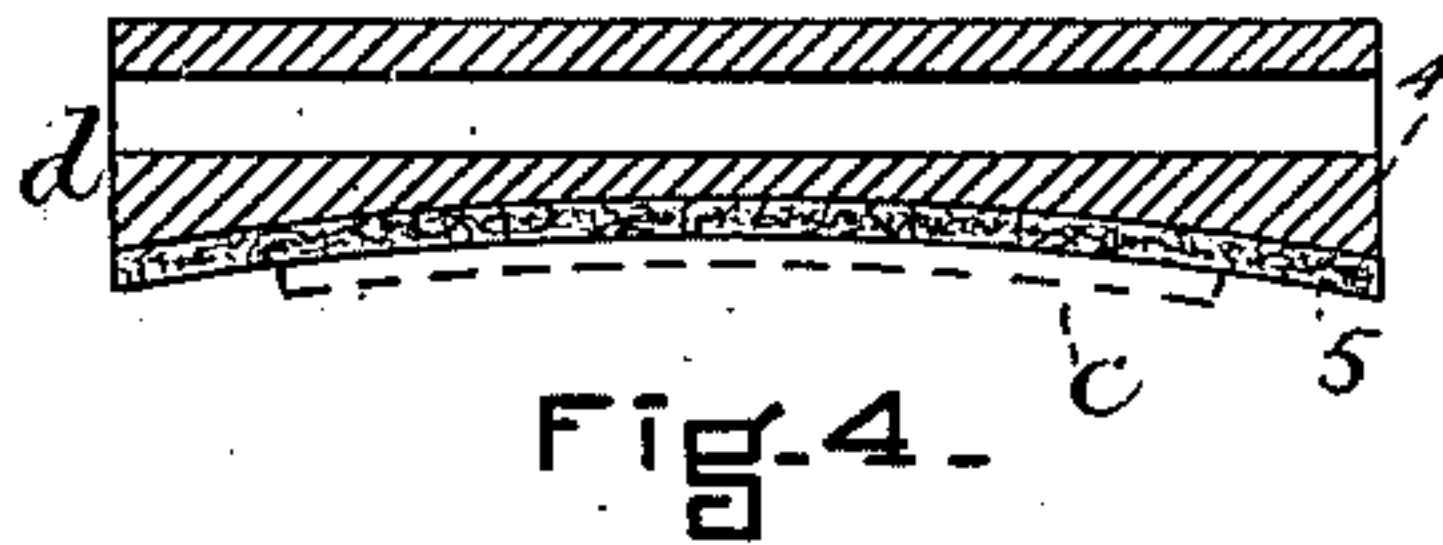


Fig. 4.

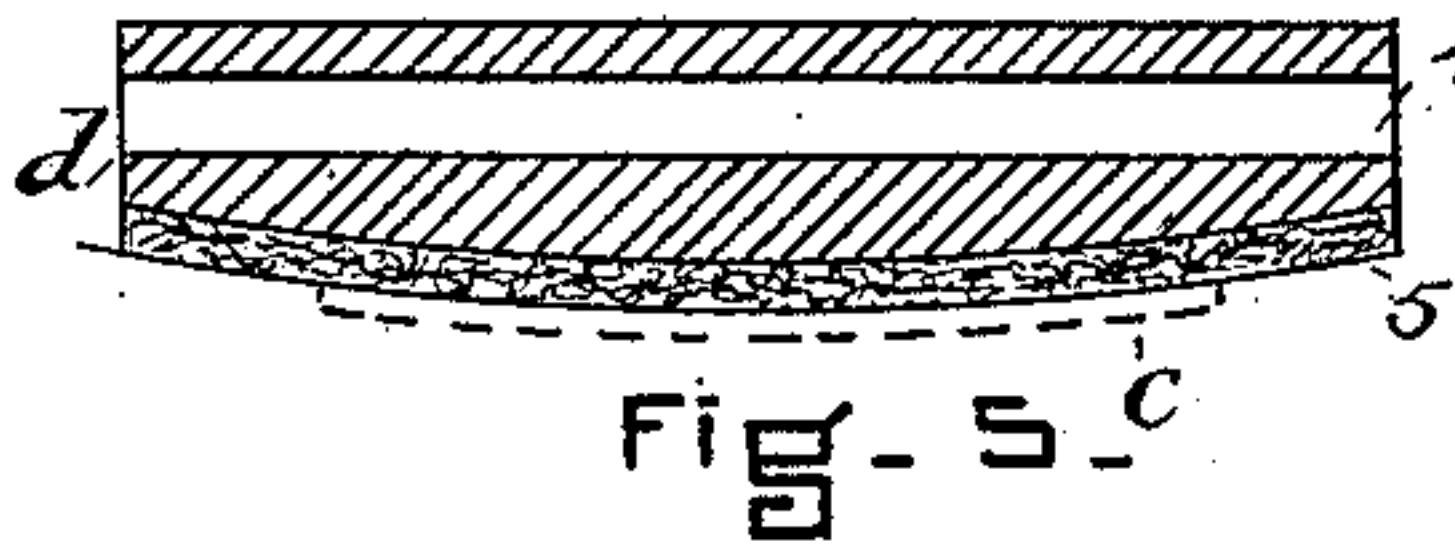


Fig. 5.

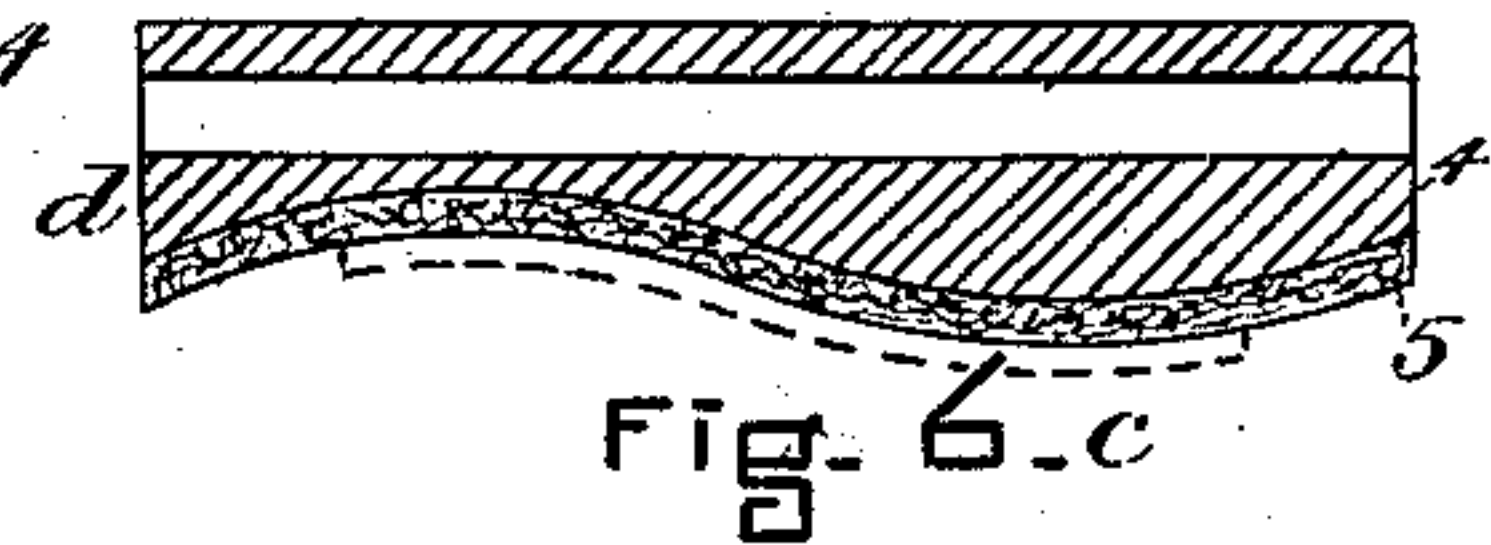


Fig. 6.

WITNESSES

*Chas. S. Gordon*  
*A. C. White*

INVENTOR

*F. W. Coy*  
*by M. H. Brown*  
*Att'y*



# UNITED STATES PATENT OFFICE.

FREDERICK W. COY, OF BOSTON, MASSACHUSETTS.

## ABRADING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 294,766, dated March 11, 1884.

Application filed December 1, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK W. COY, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Abrading-Machines, of which the following is a specification.

This invention relates to mechanism for smoothing or dressing variously-formed surfaces by the action of a belt having an abrasive surface and supported on suitable pulleys.

It has for its object to enable a portion of the belt between said pulleys to act on the article to be smoothed or dressed.

To this end my invention consists in the provision of a rigid support—that is, one composed of material incompressible in all directions under ordinary pressures—which may be formed in general outline to approximate the work to be abraded, said support having a yielding or compressible surface, arranged to bear against the inner side of the belt between the supporting-pulleys, the belt being caused by the pressure of the article acted upon to conform to the contour of said support, the support being, by preference, detachably secured to a fixed holder, so that differently-formed supports may be used interchangeably with the same belt.

The invention also consists in certain details of construction, all of which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side view of a machine provided with an embodiment of my invention. Fig. 2 represents a longitudinal section of the same. Fig. 3 represents a top view. Figs. 4, 5, and 6 represent transverse sections of differently-formed non-rotating supports. Figs. 7, 8, and 9 represent elevations of different forms of rotating supports.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* and *b* represent supporting-pulleys, on which a belt, *c*, is mounted, said pulleys being of any suitable construction. The belt is of the ordinary construction or form—viz., flat in cross-section—and may be coated with sand, emery, or any suitable abrasive material. I prefer to make one of said pulleys in two parts, 2 and 3, mounted

on a single arbor and separated from each other, as shown in Fig. 3, said arbor being supported by a pivoted yoke, *e*, so that it may be tilted slightly to properly center the belt. This construction is common, however, and forms no part of my invention. One of said pulleys is adapted to be rotated by a motor, and thus impart motion to the belt.

In carrying out my invention I interpose between the pulleys *a* and *b* an intermediate support, *d*, composed of a suitable body, 4, which is preferably of metal or other practically-incompressible material, and is molded to suit the form of the material to be operated on, and a compressible coating, 5, of felt or like material, said coating being arranged in close proximity to the inner surface of the belt, so that when the article to be acted on is pressed against the belt at a point under said support the belt will bear against the compressible surface of the support, and will be caused to conform to the contour of the latter. It will be seen, therefore, that if the support be formed to present a curved surface in a plane at right angles with the length of the belt, as shown in Figs. 4, 5, 6, 7, 8, and 9, the belt, when pressed against the support, will have a corresponding curvature, as indicated by dotted lines in said figures, so that the belt may be adapted to act on differently-formed articles. I prefer to provide several differently-formed supports for the same belt, said supports being detachably connected to a fixed standard or holder, *f*, by any suitable means, the means employed in this instance being a bolt, *g*, passing through the support *d* into an orifice in the holder *f*, and secured by a nut, *h*, the different supports being interchangeable.

The forms of the support above described are non-rotating or fixed when applied to the holder *f*. If desired, however, the support may be a roller journaled on the bolt *g* and molded to any desired form, as shown in Figs. 7, 8, and 9. The last-described form has the advantage of reducing the friction attending the pressure of the belt against the support, but does not present so large an extent of bearing-surface as the non-rotating support.

It will be seen that my invention differs from a permanently-molded belt running on corre-



spondingly-molded supporting-pulleys, the belt being normally flat and the support being independent of the pulleys, and therefore applied and removed or adjusted without interfering with the relation of the belt to the pulleys.

My invention is adapted for use on wood-work of various kinds, and for polishing or scouring metal castings and other articles.

The supporting-pulleys *a b* may be entirely of rigid material; or one of them may be surfaced with yielding material—such as felt—to enable the work to be presented to the portion of the belt that is backed by said yielding-surfaced pulley, as in ordinary buffing or sand-papering machines. The operator would thus be enabled to present the work either to a part of the belt backed by one of the supporting-pulleys, or by a part of the belt between said pulleys.

I claim—

1. The combination, with a belt having an abrasive surface, supporting-pulleys therefor, and an intermediate rigid support, of a surface of yielding material arranged between said rigid support and the belt, substantially as described.

2. The combination of a belt having an abrasive surface, supporting-pulleys therefor, an intermediate support of rigid material approximating the form of the article to be abraded, yielding material arranged, as described, between the rigid support and belt to support a portion of the belt, a fixed standard or holder, and means for detachably securing the intermediate support to said holder, whereby differently-formed supports are adapted to be used interchangeably, as set forth.

3. The combination of a belt having an abrasive surface, supporting-pulleys therefor, and an intermediate fixed support of rigid material, and an interposed surface of yielding material, arranged as described, to support a portion of the belt between the pulleys, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 27th day of November, 1883.

FREDERICK W. COY.

Witnesses:

C. F. BROWN,  
A. L. WHITE.