

No. 765,105.

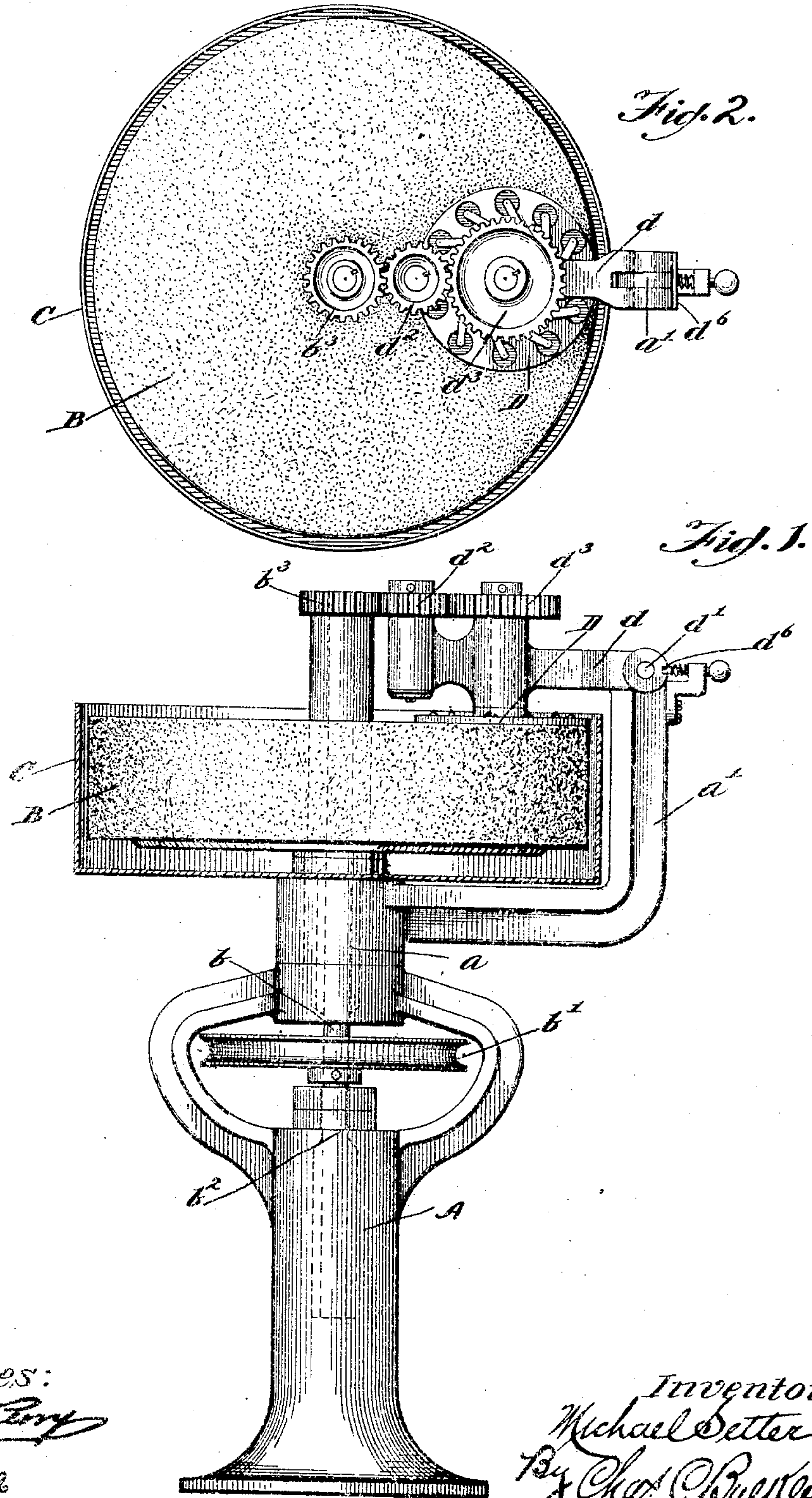
PATENTED JULY 12, 1904.

M. SETTER.  
GRINDING OR POLISHING MACHINE.

APPLICATION FILED FEB. 21, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:  
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*J. B. Weir*

Inventor:  
*Michael Setter*  
By *Chas. E. King*

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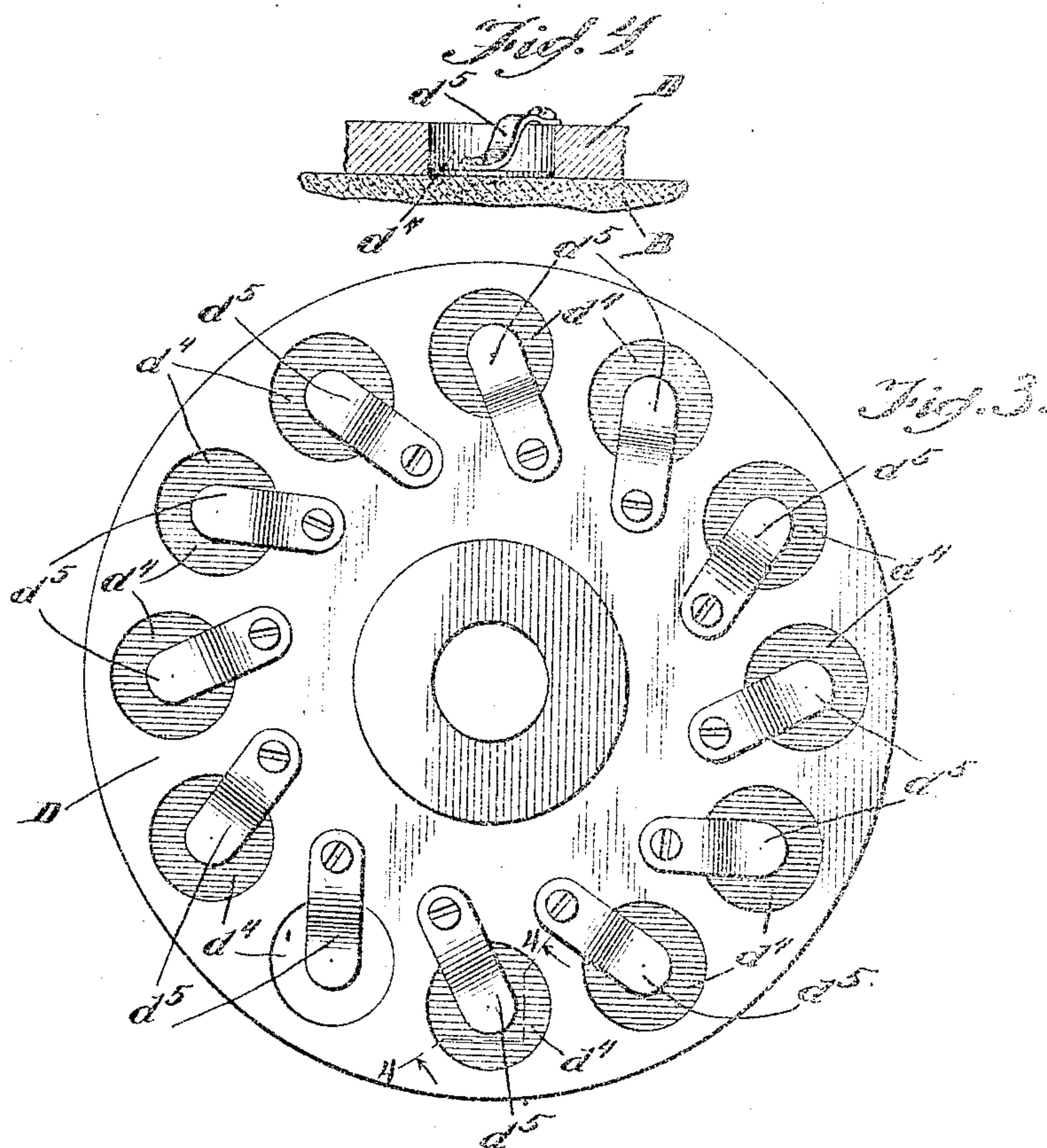
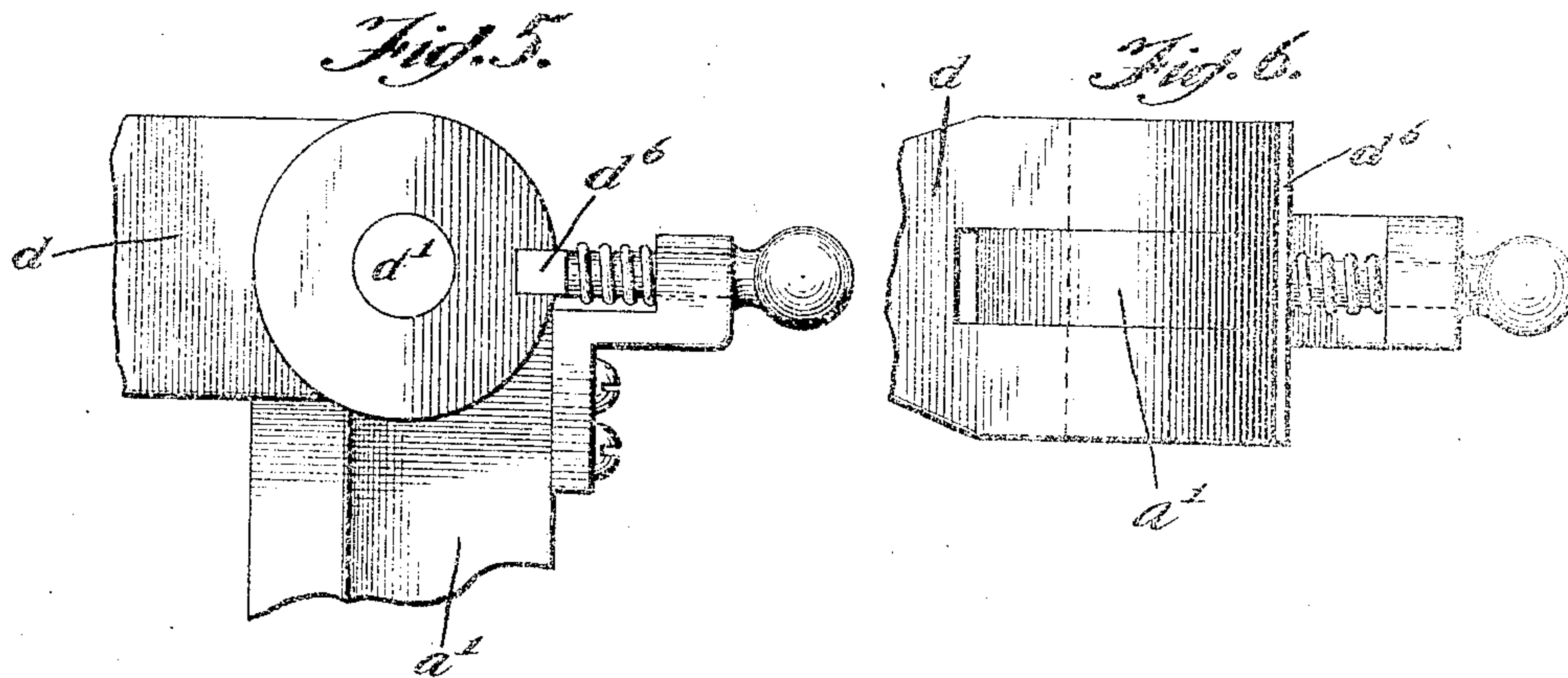
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Witnesses  
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# UNITED STATES PATENT OFFICE.

MICHEAL SETTER, OF CHICAGO, ILLINOIS, ASSIGNOR TO AMERICAN ELECTRIC TELEPHONE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION.

## GRINDING OR POLISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 765,105, dated July 12, 1904.

Application filed February 21, 1902. Serial No. 95,042. (No model.)

*To all whom it may concern:*

Be it known that I, MICHEAL SETTER, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Grinding or Polishing Machines, of which the following is a specification.

My invention relates to machines for polishing various substances or materials and different articles of manufacture, and particularly to machines for polishing carbon. For example, in the manufacture of telephone-transmitters it is the practice to provide these instruments with highly-polished electrodes, usually in the form of small disks of carbon, having their opposing surfaces, as stated, highly polished. It is important that these disks or carbon electrodes be given a high polish and also that the polished surfaces be perfectly flat and even and without flaws or scratches.

It is the object, therefore, of my invention to provide an improved machine whereby any substance or article of manufacture can be given a smooth and evenly-polished surface, and particularly to provide an efficient machine for polishing the said carbon electrodes for telephone-transmitters.

A special object is to provide an improved construction and arrangement whereby a number of these carbon disks or electrodes can be polished or operated upon at the same time.

Another object is to provide an improved construction and arrangement whereby the disks or electrodes can be readily inserted in and removed from the machine.

A further object is to provide an improved construction and arrangement of relatively movable members whereby the direction of the abrasive or polishing action on the carbon is constantly changed, so as to insure highly polished surfaces without scratches or grooves.

It is also an object to provide certain details and features of improvement tending to increase the general efficiency; and to the foregoing and other useful ends my invention

consists in matters hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a polishing-machine embodying the principles of my invention, the receptacle for holding the water and which incloses the polishing-wheel being shown in section. Fig. 2 is a plan of the machine shown in Fig. 1. Fig. 3 is a detail plan of the rotary holder which carries the carbon. Fig. 4 is a detail section through the said holder on line 4 4 in Fig. 3. Figs. 5 and 6 are large detail views showing the pivotal connection between the body of the machine and the arm upon which the rotary holder is mounted.

As thus illustrated, my invention comprises, preferably, an upright standard or body structure A, adapted to support the operative parts in a suitably-elevated position. The rotary polishing or abrading wheel B is preferably mounted on top of this standard or body structure and arranged to rotate about a vertical axis. As a simple and efficient arrangement for rotating this polishing or abrading wheel, the latter can be provided with a downwardly-extending spindle *b*, and this spindle can be provided with a belt or pulley *b'*. This spindle has a bearing *a* in the upper portion of the standard or body structure and is provided with a step-bearing *b*<sup>2</sup>. This step-bearing is adjustable, so as to permit the wheel B to be raised and lowered slightly. Preferably the said wheel is inclosed by a receptacle C, which is adapted to hold the water usually employed in grinding and polishing operations of this character. The rotary holder D is also arranged for rotation about a vertical axis, and is preferably carried by a swinging arm *d*, which is a part of the standard or body structure. As a means for communicating power and motion from the driven polishing-wheel to said rotary holder the upper end of the spindle *b* can be provided with a pinion *b*<sup>3</sup>, adapted to engage an idler *d*<sup>2</sup>. This idler, it will be observed, is also carried by the swinging arm *d* and is arranged to engage the gear-



wheel  $d^3$ , mounted on the upper end of the spindle which carries the holder D. The said holder, it will be observed, has a flat under side adapted to rest upon the upper surface of the rotary or abrading wheel B. When the abrading or polishing wheel is driven, power is transmitted through the said gearing to said holder, and the latter is rotated about its axis. The said holder is preferably provided with carrying pockets or openings  $d^4$ , adapted to receive the carbon disks or electrodes, and also with springs  $d^5$ , which are adapted to bear upon and hold the said disks or carbon electrodes firmly in contact with the polishing or abrading wheel. The arm carrying the holder can be locked in the position shown in the drawings by the locking-pin  $d^6$ , which is adapted to engage a socket in the pivoted end of the said swinging arm. It will be readily understood that the rotary abrading or polishing wheel B can be of any suitable substance or material, according to the degree of polish desired and in accordance with the materials or substances to be operated upon. Thus constructed the machine can be employed for grinding or polishing different articles—as, for example, the disks or carbon electrodes involved in the construction of certain kinds of telephone-transmitters. These disks or carbon electrodes, as stated, are placed in the pockets  $d^4$ , and the belt around the pulley  $b'$  is then started for the purpose of rotating the abrading or polishing wheel B. The rotation is also communicated to the carrier or holder D, and in this way the direction of the abrasive or polishing action on the carbon is constantly changed. This prevents the abrading or polishing wheel from scratching or cutting grooves in the surface of the carbons and insures a perfectly smooth and flat surface having a high polish.

I claim as my invention—

1. The combination of a rotary polishing-wheel, a vertically-swinging arm, a rotary disk mounted upon said arm and arranged at one side of the center of said wheel and provided with devices for pressing the articles to be polished against the flat upper surface of said wheel, and gearing whereby the wheel and disk rotate in the same direction.

2. The combination of a rotary polishing-wheel, a rotary disk having openings adapted to receive the articles to be polished, springs mounted upon said disk and adapted to hold the said articles against the wheel, the disk being arranged at one side of the center of said wheel, a movable member for raising and lowering said disk, and power-transmitting connection for rotating said wheel and disk.

3. A grinding or polishing machine comprising a rotary abrading or polishing wheel arranged to rotate about a vertical axis, a vertically-adjustable step-bearing for raising and lowering said wheel, a rotary holder adapted and arranged to press the articles to be ground

or polished against the flat top or upper surface of said wheel, and power-transmitting connection between said wheel and said holder.

4. A grinding or polishing machine comprising a moving abrading or polishing member, a rotary holder adapted to press the articles to be ground against the flat surface of said member, a pivoted arm upon which said rotary holder is mounted, and power-transmitting connections for moving said abrading member and rotating said holder.

5. A grinding or polishing machine comprising a rotary abrading or polishing wheel, an adjustable step-bearing for raising and lowering the said wheel, a receptacle for inclosing the said wheel and holding a suitable quantity of water, a rotary holder having pockets and springs for holding and pressing the articles to be ground or polished against the flat upper surface of said wheel, a pivoted arm upon which said rotary holder is mounted, power-transmitting connection between said wheel and said holder, a locking device for locking the said pivoted arm against movement, and a belt or pulley wheel for rotating said abrading or polishing wheel.

6. The combination of a rotary polishing-wheel, a swinging arm, a rotary disk mounted upon said arm, said disk being adapted to carry the articles to be polished by the wheel, and power-transmitting connection between the disk and wheel including a gear-wheel carried by the arm and adapted to swing into and out of engagement with a pinion carried by the polishing-wheel.

7. The combination of a rotary polishing-wheel, a rotary and bodily-adjustable disk arranged at one side of the center of said wheel, said disk being adapted to carry the articles to be polished by the wheel, separable gearing for connecting said wheel and disk whereby the two rotate in the same direction, and means below the wheel for driving the latter.

8. In a grinding or polishing machine, the combination of a rotary abrading disk, a rotary and bodily-adjustable holding-disk arranged off-center relatively to the said abrading-disk, separable gearing above the said disks for connecting them, and means below the disks for driving them.

9. The combination of a vertical shaft, an abrading-wheel on said shaft, a pinion on said shaft, a short shaft arranged vertically at one side of the center of said wheel, a disk mounted upon the lower end of said short shaft, an idler between said pinion and gear-wheel, and means on the said first-mentioned shaft below the abrading-wheel for driving the latter, said idler and disk being bodily adjustable.

10. In a grinding and polishing machine, the combination of eccentrically-arranged rotary abrading and carrying members, gearing for connecting the said rotary members, and means for disconnecting the same without stopping the abrading member.

11. In a grinding and polishing machine,  
the combination of eccentrically-arranged ro-  
tary abrading and carrying members, means  
whereby said members may be driven, and  
5 whereby they may be connected and discon-  
nected at will.

12. In a grinding and polishing machine,  
the combination of a receptacle adapted to  
contain water, a shaft having a rotary abrad-  
10 ing member adapted to rotate within said re-

ceptacle, a bodily-adjustable rotary carrying  
member, and separable gearing by which the  
said carrying member is driven from said  
shaft.

Signed by me at Chicago, Cook county, Illi- 15  
nois, this 11th day of February, 1902.

MICHEAL SETTER.

Witnesses:

ARTHUR F. DURAND,

HARRY P. BAUMGARTNER.