

No. 737,621.

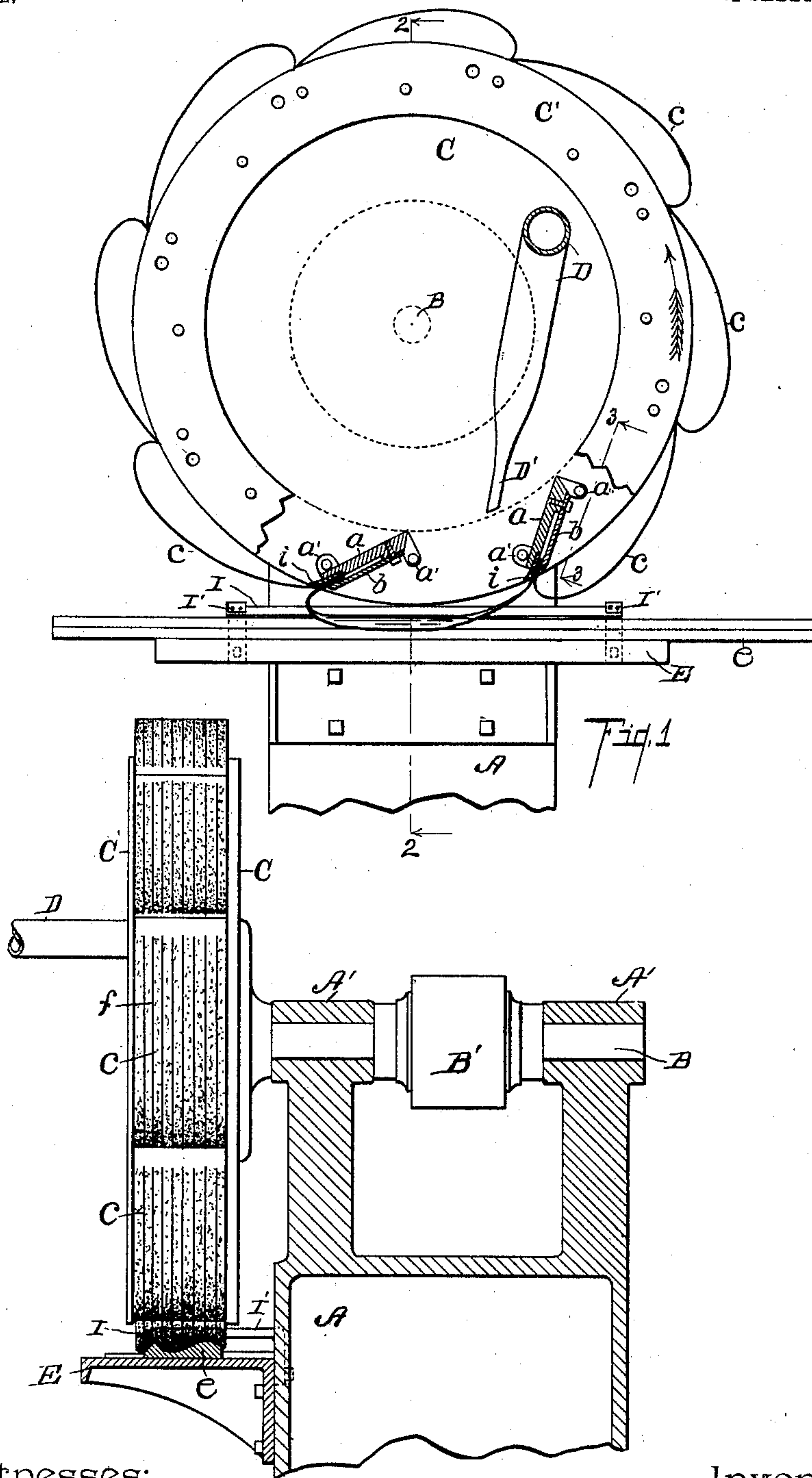
PATENTED SEPT. 1, 1903.

H. L. HASKELL.
POLISHING MACHINE.

APPLICATION FILED FEB. 27, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:

Otto B. Carl
Evel A. Teller

Fig. 2

Inventor,

H. L. Haskell
By *Fred L. Chappell*
Att'y.

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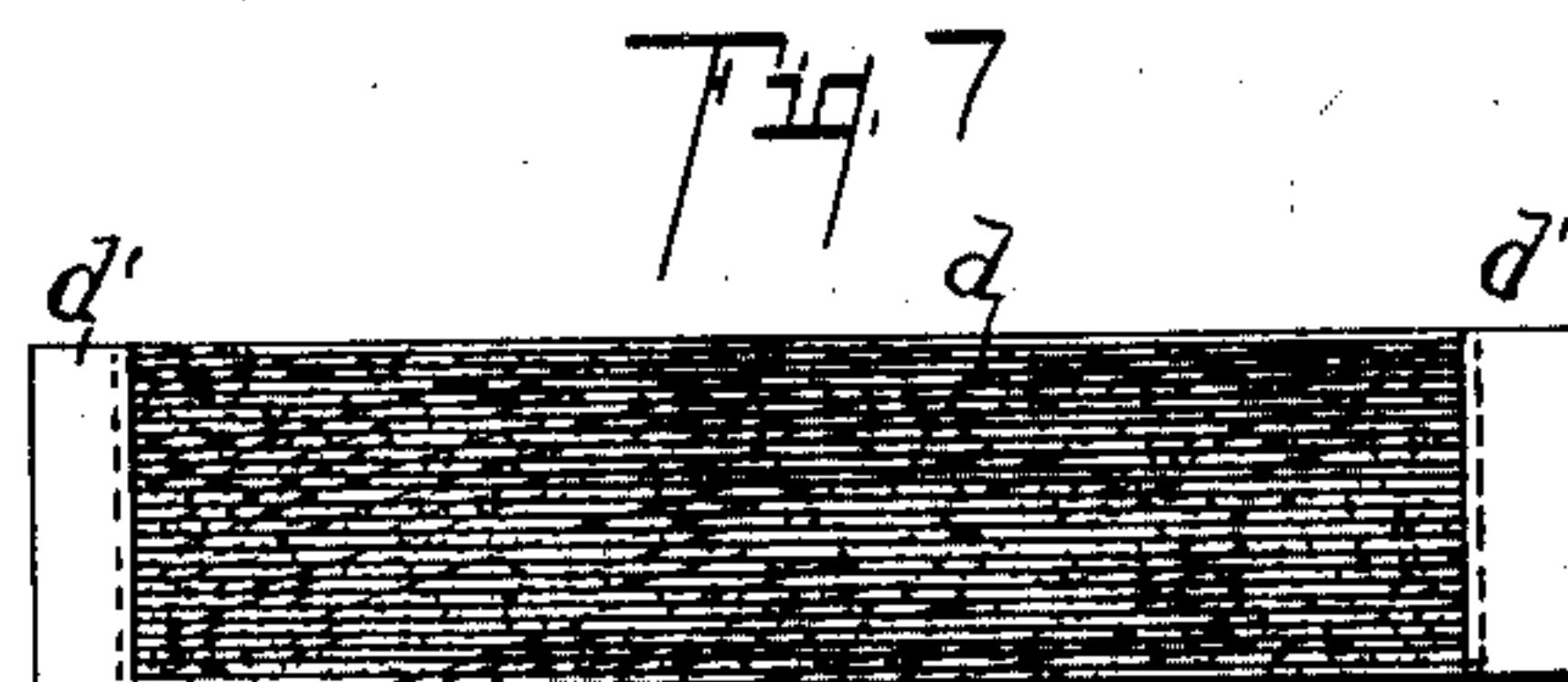
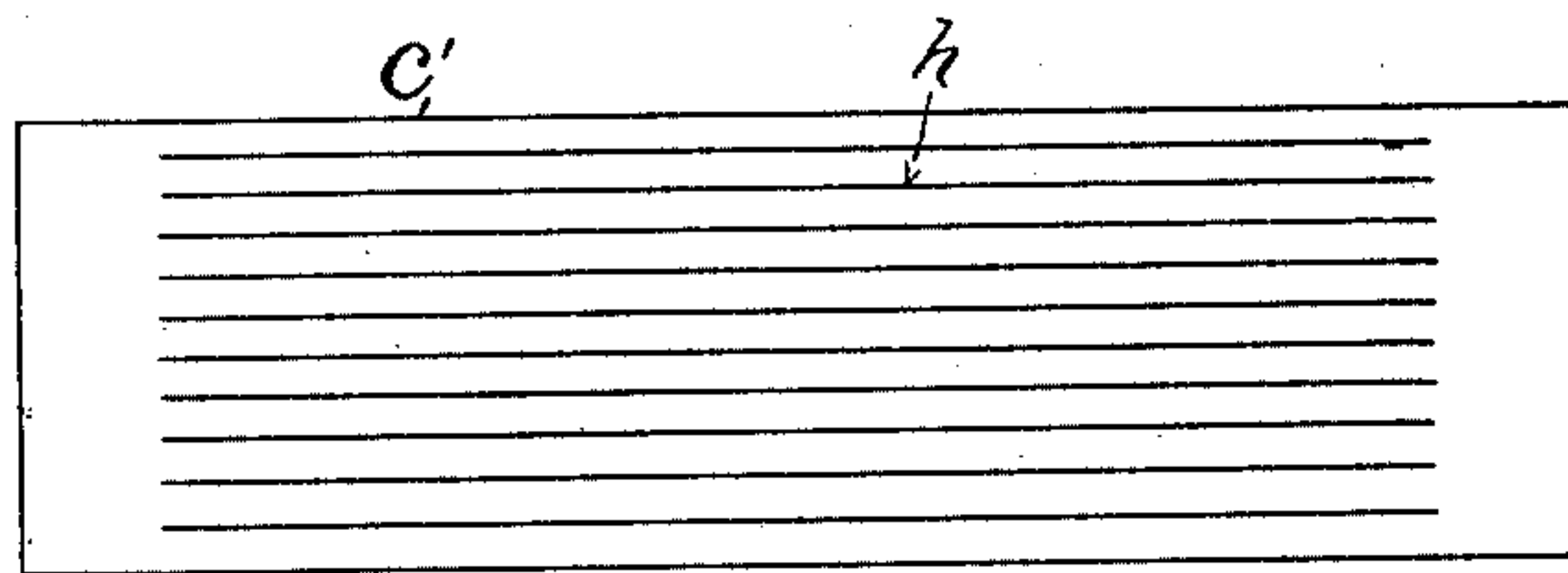
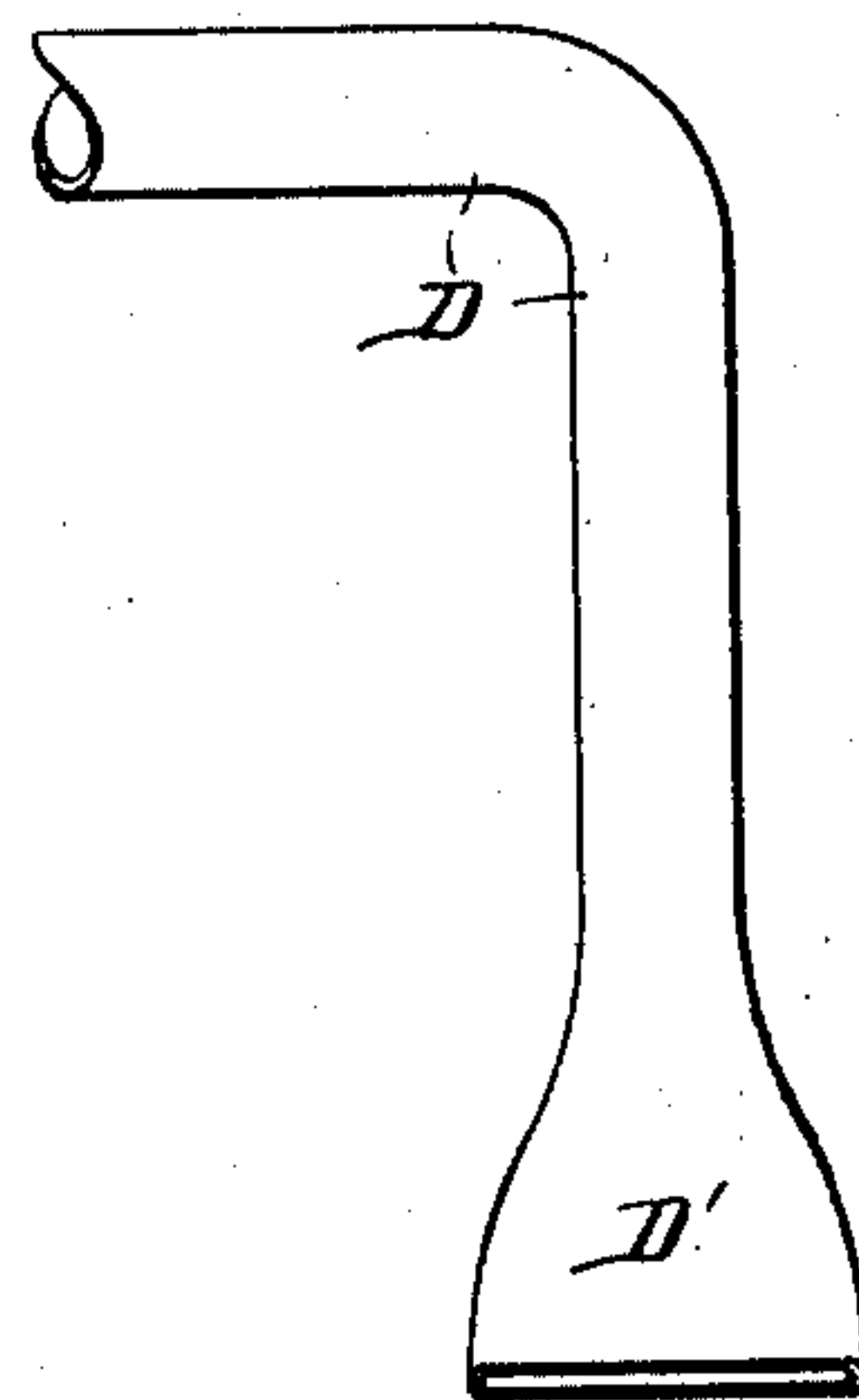
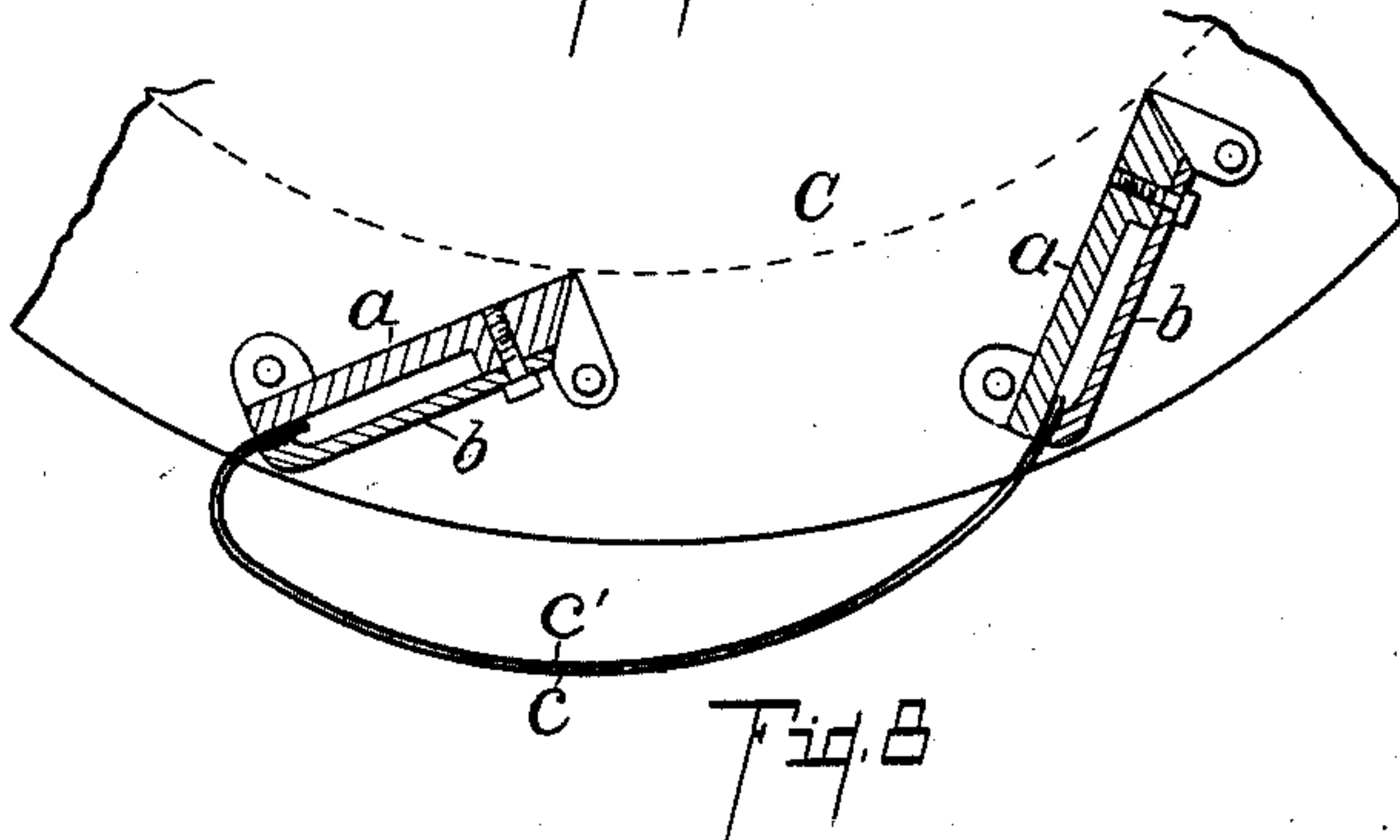
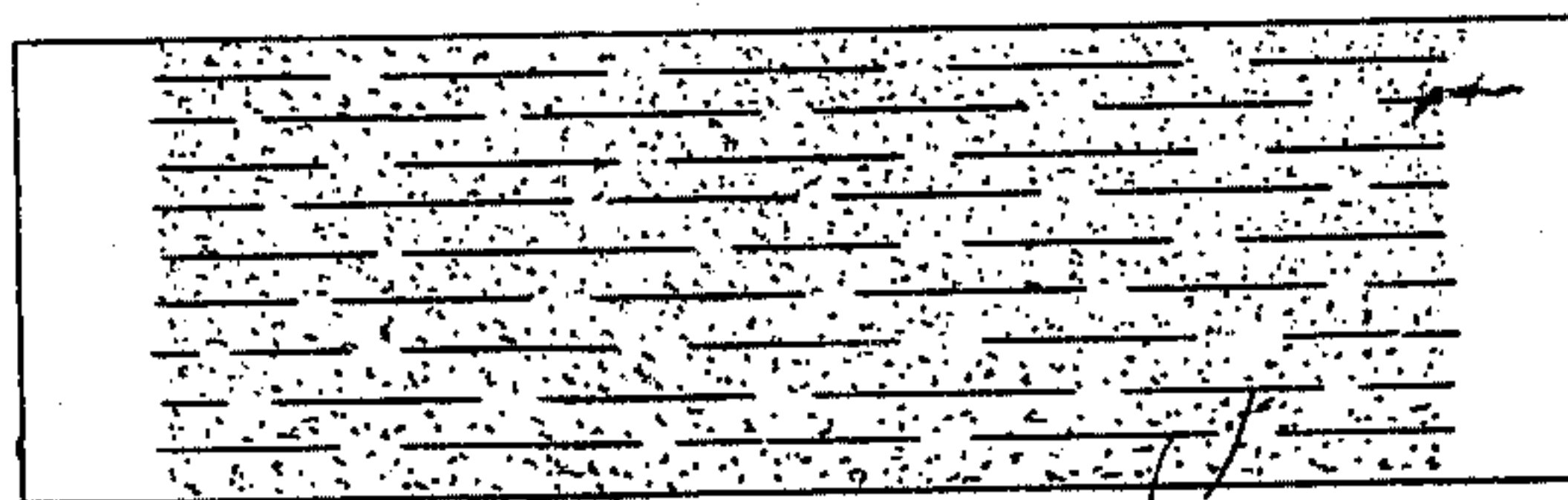
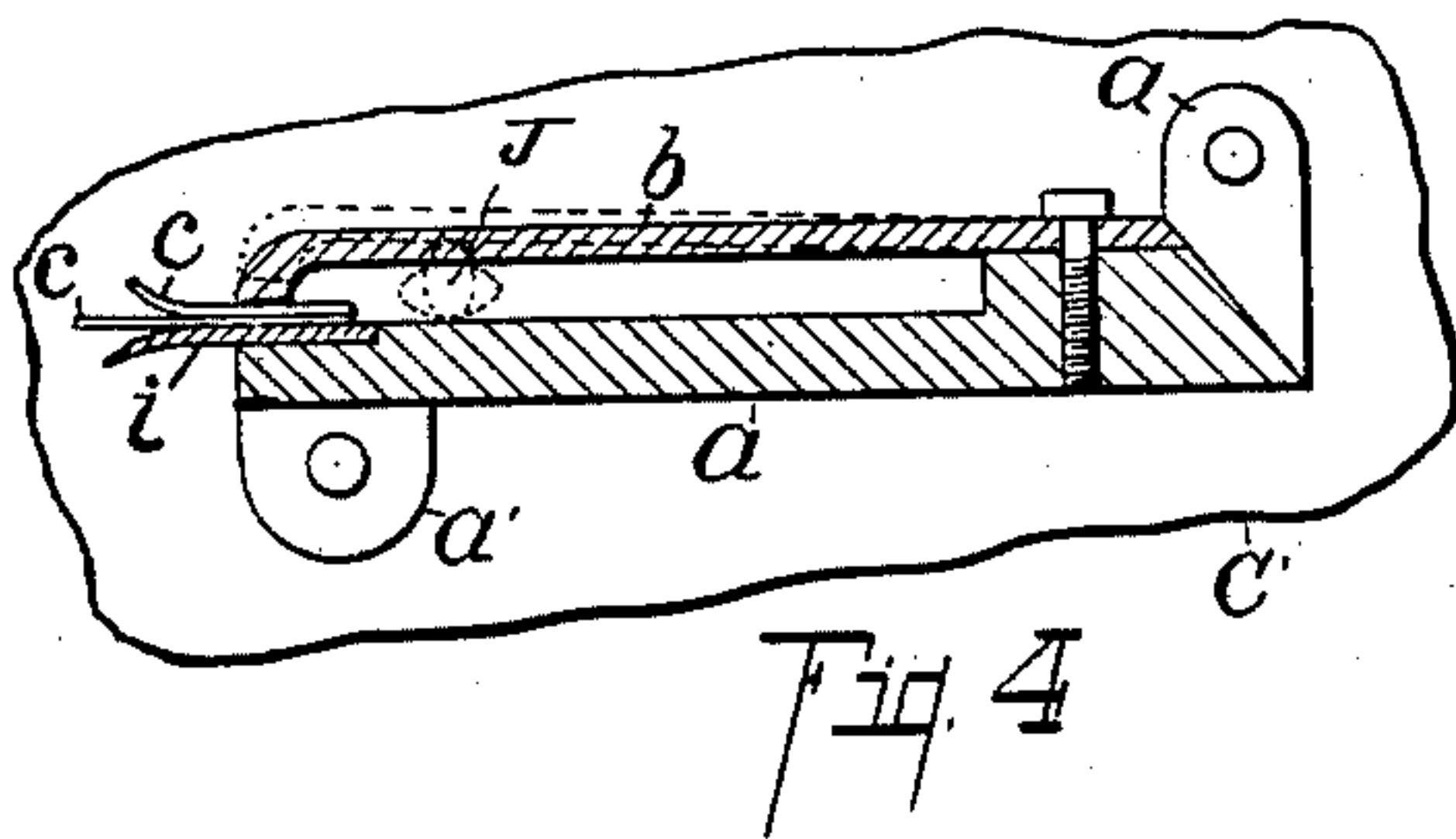
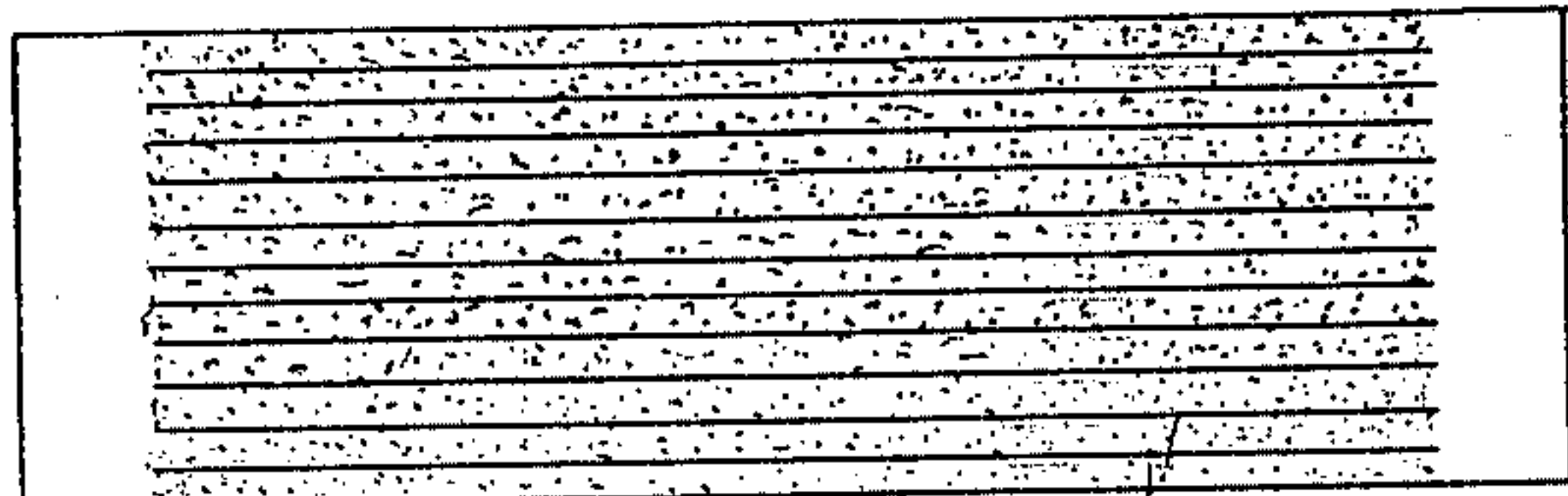
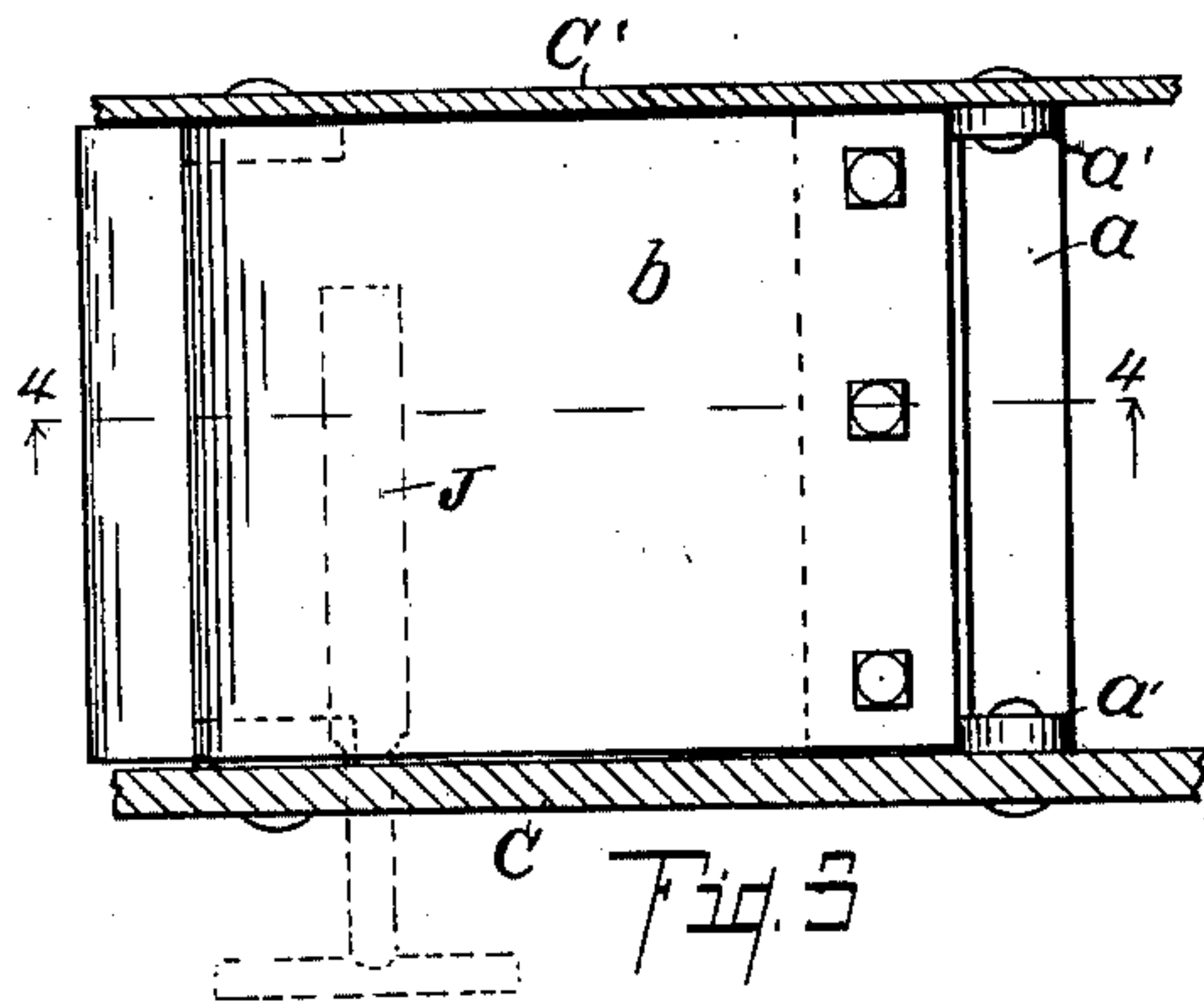


Fig. 9

Fig. 11

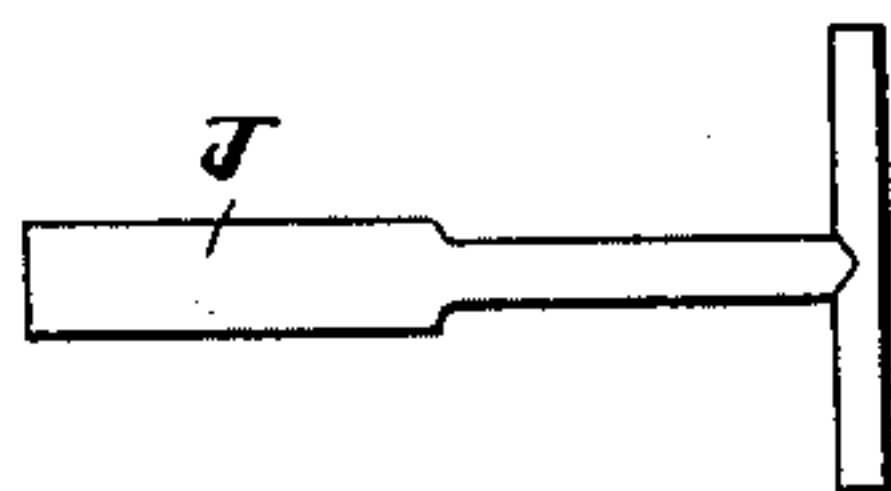


Fig. 10

Witnesses:

Otto A. Earl
Ethel A. Teller

Inventor,

Henry L. Haskell
By Fred L. Chappell
Att'y.

UNITED STATES PATENT OFFICE.

HENRY L. HASKELL, OF LUDINGTON, MICHIGAN.

POLISHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 737,621, dated September 1, 1903.

Application filed February 27, 1903. Serial No. 145,373. (No model.)

To all whom it may concern:

Be it known that I, HENRY L. HASKELL, a citizen of the United States, residing at the city of Ludington, in the county of Mason and State of Michigan, have invented certain new and useful Improvements in Polishing-Machines, of which the following is a specification.

This invention relates to improvements in polishing or sanding machines.

The objects of the invention are, first, to provide an improved polishing or sanding machine in which the sanded paper or polishing material is held yielding in contact with the surface to be polished; second, to provide an improved polishing or sanding machine by which irregular surfaces may be satisfactorily smoothed or polished; third, to provide an improved polishing or sanding machine by which irregular surfaces may be polished or smoothed satisfactorily without special adjustment of the machine for the particular work in hand; fourth, to provide an improved polishing or sanding machine by which irregular surfaces may be smoothed or polished without injury thereto or destroying the sharp outlines thereof; fifth, to provide an improved sanding or polishing machine which is simple and economical to produce and use.

Further objects relating to details of construction will fully appear in the detailed description to follow.

The devices and means by which the objects of my invention are accomplished will fully appear from the detailed description to follow.

The invention is definitely pointed out in the claims.

A structure embodying the features of my invention is fully illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a detail side elevation view of my improved polishing or sanding machine, portions being broken away and sectioned to show the arrangement of the parts. Fig. 2 is an end elevation view, partially in section, taken on a line corresponding to line 2 2 of Fig. 1. Fig. 3 is an enlarged detail sectional view taken on a line corresponding to line 3 3 of Fig. 1. Fig. 4 is a detail sectional view

taken on a line corresponding to line 4 4 of Fig. 3. Fig. 5 is an enlarged plan view of a strip of the abrasive material *c*. Fig. 6 is an enlarged plan view of a modified form of the abrasive strip *c*. Fig. 7 is an enlarged view of the air-delivery device. Fig. 8 is an enlarged detail view showing the manner of supporting the abrasive material. Fig. 9 is an enlarged view of a backing-strip *c'* for the abrasive strips. Fig. 10 is an enlarged plan view of the wrench or tool *J* for use in placing the abrasive strips in the machine. Fig. 11 is a plan view of a modified form of abrasive strip wherein sanded strings are utilized.

In the drawings the sectional views are taken looking in the direction of the little arrows at the ends of the section-lines, and similar letters of reference refer to similar parts throughout the several views.

Referring to the lettered parts of the drawings, a suitable base or frame *A* is provided. The shaft *B* is supported in suitable bearings *A'* on this base. This shaft *B* is provided with a suitable driving-pulley *B'*. This portion of the machine may be of any desired form to suitably support the parts. On the shaft *B* is a wheel *C*. This wheel is made up of a disk-like plate *C'* on the inner side and a disk-like ring *C''* on the outer side, which are secured together by blocks *a*, arranged at intervals, so that the periphery of the wheel is divided into a series of open-ended chambers. A pipe *D* is arranged to deliver air under pressure into the inner ends of the chambers successively as the wheel is revolved. The blocks *a* are preferably castings and are provided with oppositely-projecting ears or lugs *a'*, perforated to receive bolts or rivets, by means of which the blocks are secured in position.

Secured to the partition-blocks *a* toward their inner ends are spring-jaws *b*, which are adapted to clamp upon the strips of abrasive material *c*, preferably of sandpaper, whereby these strips are retained in position upon the periphery of the wheel. The strips *c* are of somewhat greater length than the chambers, so that they form a bagging cover therefor. To prevent unnecessary wear upon the abrasive material, I clamp strips *i* of leather or other flexible material into the jaws *b* along with the abrasive material. As a convenient

means of opening the spring-jaws *b* I provide a tool *J*, which has a blade of oval shape, so that it may be inserted between the jaw *b* and its supporting-block *a* and twisted to open the jaw. When the sanded paper is inserted, the tool may be removed, and the jaw clamps down upon the same.

The work is supported upon the bracket or table *E*, which is preferably adjustably supported upon the side of the frame *A*, so that the work, as *e*, may rest thereon and be fed under the polishing-wheel. (See Figs. 1 and 2.) The sanded paper or other abrasive material is held in contact with the work as the polishing-wheel is revolved by a blast of air, which is delivered through the pipe *D* into the peripheral chambers of the wheel, so that the sanded paper is held yieldingly in contact with the work thereby. The air-delivery pipe is preferably provided with a flat nozzle *D'*, adapted to deliver air the full width of the chamber.

The partition-blocks *a* are preferably arranged at an angle, as illustrated in Fig. 1, as they offer less resistance to the air as they are revolved under the delivery-nozzle. The abrasive material is slitted into strips, as at *f*, (see Fig. 5,) so that it readily adjusts itself to the contour of the work. To strengthen and add to the durability of the abrasive material, I provide a backing-strip *c'*, which is clamped by the jaws *b* along with the abrasive material. To protect sharp or fine projections on the work, I provide guard-strips *I*, which are adjustably supported above the same by suitable brackets, as *I'*, as appears in Figs. 1 and 2. These guards are preferably narrow strips of metal and while they satisfactorily protect the sharp projections do not interfere with the polishing of the sides and the balance of the work. I have illustrated but one guard; but it is evident that a number could be used or the abrasive material could be secured or formed in a manner to accomplish the purpose of the guards, as by slotting the same or leaving blank spaces therein.

In Fig. 6 I have illustrated a modified form of the abrasive material, it being there slitted, as indicated at *f'*. In Fig. 11 a further modification of the abrasive material is shown, consisting of a series of sanded strings *d*, which are secured to suitable end pieces *d'*, adapted to be clamped by the jaws *b*. I find sanded paper as the abrasive material to be entirely satisfactory, although other material might be preferred for particular uses.

I have illustrated and described my improved sanding or polishing machine in the form preferred by me on account of its simplicity and economy of manufacture and durability in use. I am aware, however, that it is capable of very great variation in structural details and arrangement without departing from my invention.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. In a polishing-machine, the combination of a suitable support; a shaft; a wheel *C* consisting of a disk-like plate *C'* and a disk-like ring *C''*; partition-blocks *a* secured between said plate and ring, whereby said wheel is divided into a series of open-ended chambers; an air-delivery pipe *D* adapted to deliver air into the inner ends of said chambers successively as the said wheel is revolved; strips of abrasive material slitted longitudinally; backing-strips for said abrasive material, also slitted; spring-jaws *b* carried by said partition-blocks *a* adapted to clamp the ends of said strips of abrasive material; a table adapted to support work beneath said wheel; and a work-guard *I* supported beneath said wheel, all coacting for the purpose specified.

2. In a polishing-machine, the combination of a suitable support; a shaft; a wheel *C* consisting of a disk-like plate *C'* and a disk-like ring *C''*; partition-blocks *a* secured between said plate and ring, whereby said wheel is divided into a series of open-ended chambers; an air-delivery pipe *D* adapted to deliver air into the inner ends of said chambers successively as said wheel is revolved; strips of abrasive material *c* slitted longitudinally; backing-strips for said abrasive material, also slitted; spring-jaws *b* carried by said partition-blocks *a* adapted to clamp the ends of said strips of abrasive material; and a table adapted to support work beneath the said wheel, all coacting for the purpose specified.

3. In a polishing-machine, the combination of a suitable support; a shaft; a wheel *C* consisting of a disk-like plate *C'* and a disk-like ring *C''*; partition-blocks *a* secured between said plate and ring, whereby said wheel is divided into a series of open-ended chambers; an air-delivery pipe *D* adapted to deliver air into the inner ends of said chambers successively as the said wheel is revolved; strips of abrasive material slitted longitudinally; spring-jaws *b* carried by said partition-blocks *a* adapted to clamp the ends of said strips of abrasive material; a table adapted to support work beneath said wheel; and a work-guard *I* supported beneath said polishing-wheel, all coacting for the purpose specified.

4. In a polishing-machine, the combination of a suitable support; a shaft; a wheel *C* consisting of a disk-like plate *C'* and a disk-like ring *C''*; partition-blocks *a* secured between said plate and ring, whereby said wheel is divided into a series of open-ended chambers; an air-delivery pipe *D* adapted to deliver air into the inner ends of said chambers successively as the said wheel is revolved; strips of abrasive material slitted longitudinally; spring-jaws *b* carried by said partition-blocks *a* adapted to clamp the ends of said strips of abrasive material; and a table adapted to support work beneath said wheel, all coacting for the purpose specified.

5. In a polishing-machine, the combination of a suitable support; a shaft; a wheel C consisting of a disk-like plate C' and a disk-like ring C''; partition-blocks secured between said plate and ring whereby said wheel is divided into a series of open-ended chambers; an air-delivery pipe D adapted to deliver air into the inner ends of said chambers successively as the said wheel is revolved; strips of abrasive material slitted longitudinally, and means for detachably securing the said strips of abrasive material over the outer ends of said chambers; and a work-guard I supported beneath said polishing-wheel, coacting as specified.

6. In a polishing-machine, the combination of a suitable support; a shaft; a wheel C consisting of a disk-like plate C' and a disk-like ring C''; partition-blocks secured between said plate and ring whereby said wheel is divided into a series of open-ended chambers; an air-delivery pipe D adapted to deliver air into the inner ends of said chambers successively as the said wheel is revolved; strips of abrasive material slitted longitudinally; and means of detachably securing said strips of abrasive material over the outer ends of said chambers, all coacting for the purpose specified.

7. In a polishing-machine, the combination of a suitable support; a wheel; a series of open-ended chambers in the periphery of said wheel; means for delivering air under pressure into the inner ends of said chambers successively as the wheel is revolved; strips of flexible abrasive material secured over the outer ends of said chambers; suitable means for supporting the material to be operated upon; and a work-guard I supported between

the work to be operated upon and said wheel, for the purpose specified.

8. In a polishing-machine, the combination of a suitable support; a wheel; a series of open-ended chambers in the periphery of said wheel; means for delivering air under pressure into the inner ends of said chambers successively as the wheel is revolved; narrow strips of flexible abrasive material secured over the outer ends of said chambers; and suitable means for supporting the material to be operated upon, coacting for the purpose specified.

9. In a polishing-machine, the combination of a suitable support; a wheel having a series of outwardly-opening chambers in its periphery; means for delivering air under pressure to said chambers; and strips of flexible abrasive material adapted to receive the air from said chambers, for the purpose specified.

10. In a polishing-machine, the combination of a suitable support; a strip of flexible abrasive material carried thereby; and means for delivering air under pressure against said abrasive material, whereby it is held in contact with the work.

11. In a polishing-machine, the combination of a suitable support; flexible abrasive material carried thereby; means for delivering air under pressure against said abrasive material whereby it is held in contact with the work.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

HENRY L. HASKELL. [L. S.]

Witnesses:

ARTHUR M. JOHNSON,
JESSIE WOOD.