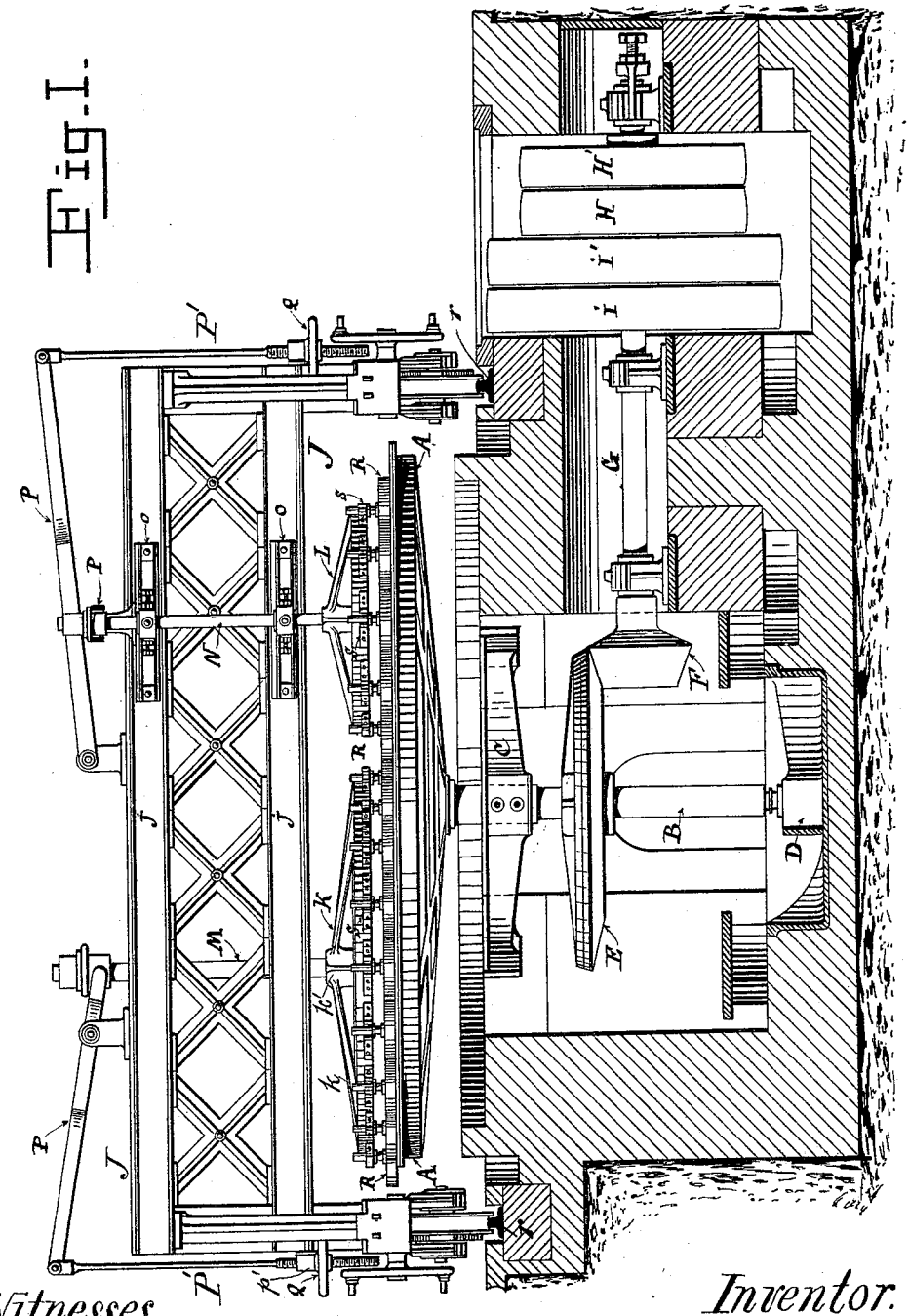
(No Model.) 3 Sheets—Sheet 1.

C. DELRUE.

MACHINE FOR SOAPING AND POLISHING GLASS.

No. 460,632. Patented Oct. 6, 1891.

Fig. 1.



Witnesses.

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B. W. Sommers.

Inventor.

Charles Delrue

by Henry Orth

atty.

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(No Model.) 3 Sheets—Sheet 2.

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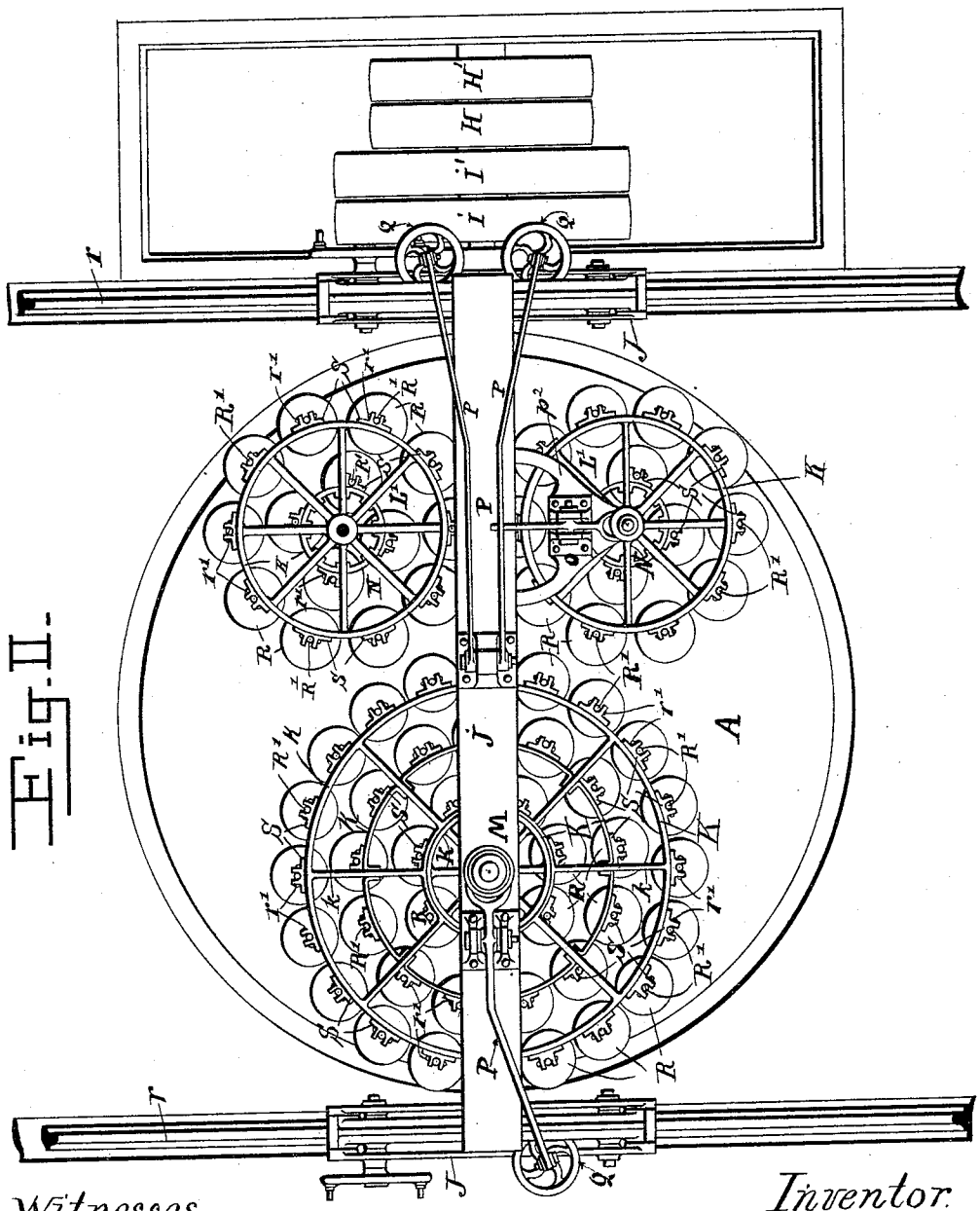

Fig. II.

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Fig. III.

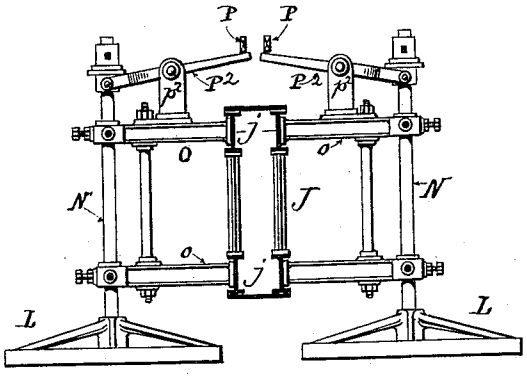


Fig. IV.

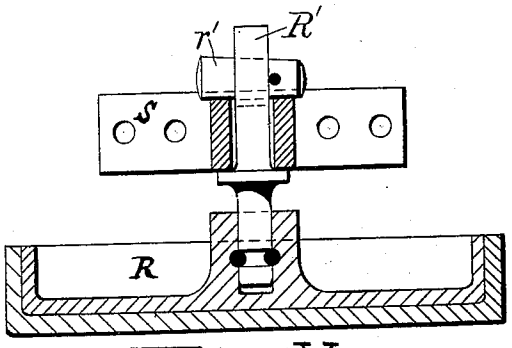
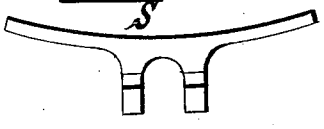


Fig. V.



Witnesses.
Ella S. Johnson
B. W. Sommers.

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UNITED STATES PATENT OFFICE.

CHARLES DELRUE, OF BRUSSELS, BELGIUM.

MACHINE FOR SOAPING AND POLISHING GLASS.

SPECIFICATION forming part of Letters Patent No. 460,632, dated October 6, 1891.

Application filed February 5, 1891. Serial No. 380,353. (No model.) Patented in Belgium November 13, 1890, No. 92,708; in France November 17, 1890, and in England November 29, 1890, No. 19,498.

To all whom it may concern:

Be it known that I, CHARLES DELRUE, a citizen of the Kingdom of Belgium, residing at Brussels, Belgium, have invented certain new and useful Improvements in Machines for Soaping and Polishing Glass and other Materials, (for which I have obtained Letters Patent in the following countries: Belgium, November 13, 1890, No. 92,708; England, November 29, 1890, No. 19,498, and France, November 17, 1890;) and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The invention relates to improvements in grinding or abrading and polishing machines, and more especially to machines for grinding and polishing glass, and has for its object means whereby these operations are performed more effectually and more expeditiously than is the case with machines of this class as heretofore constructed and with which I am acquainted.

The invention consists, essentially, in the combination with the revoluble table, of a plurality of revoluble grinding or polishing disks, and in other structural features and combinations of parts, as will now be fully described, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal sectional elevation; Fig. 2, a sectional top plan view. Fig. 3 is a detail sectional view of a portion of the carriage and two of the vertical shafts in which the frames that support the polishing-disks are loosely mounted. Fig. 4 is a sectional view of one of the bearings for the spindle of a polishing-disk detached from its supporting frame or ring, and Fig. 5 is a top plan view of the said bearing.

As is well known, the operation of polishing plate-glass as now generally conducted consists, first, in grinding down the plate of glass, then soaping and polishing the same, the latter operation being performed by means of felt-covered disks.

In the grinding and polishing machines as heretofore constructed the grinding devices, as well as the polishing devices, consist of a comparatively small number of grinding or polishing disks having bearing upon the plate of glass that is connected to a revoluble table, said disks being revolved by frictional contact with the plate of glass. These disks have their bearings in two gravital frames supported from the cross-girt of a bridge or carriage adapted to travel on rails. It takes at least four hours to polish a plate of glass by the means described, irrespective of the time necessary to grind the same down before soaping and polishing. My invention is designed to and does reduce the time required to polish a plate of glass by one-half, while the time necessary to grind the plate is correspondingly reduced.

If desired, the usual grinding-disks may be used to first grind down the plate of glass, which may then be polished by means of my improved devices, or both the grinding and polishing may be effected by my improved devices by substituting polishing-disks for the grinding-disks after the operation of grinding is completed, the disks being detachably connected with their supporting-frames.

In the above-described drawings I have shown a machine for polishing plate-glass of a well-known general construction; and it consists of a revoluble table A, that carries the plate of glass, said table being secured to a spindle B, adapted to revolve in a bearing C and in a step D. The spindle carries a bevel friction-wheel that is in contact with and revolved by a like pinion F on a horizontal shaft G, on which are mounted two pairs of fast and loose pulleys I I′ and H H′, respectively, the pulleys I I′ being of greater diameter than the pulleys H H′, so that the table may be revolved at different speeds in the operation of grinding and subsequent polishing, the former operation being effected under a less speed of revolution of the table than the latter.

J indicates the carriage, which is adapted to travel on suitable rails *r*, and K, L, and L′ indicate the frames that support the grinding or polishing disks. The frame K, which is of greater diameter than the frames L and

L′, is composed of three concentric rings connected to arms *k*, radiating from a hub *k′* on a spindle M, that has its bearings in the cross-girts *j j* of the carriage J, said spindle being adjustable vertically by means of a forked lever P, fulcrumed in a bracket bolted to the upper cross-girt of said carriage and having its longer arm connected to a rod P′, the lower end of which is screw-threaded and extends through a tubular bracket *p′*, the said rod carrying a hand-wheel Q, the hub of which is screw-threaded interiorly and has bearing on the under side of the tubular bracket *p′*, as shown in Fig. 1. The rings *k* carry each a number of disks R, mounted so as to revolve on a spindle R′, which latter is secured by a key *r′* in a bearing formed on a segment S, (see Figs. 4 and 5,) that is bolted to the rings *k*. It will be observed that the disk-spindles may be readily removed from their bearings by elevating the frames and withdrawing the keys *r′*, so that grinding and polishing disks may be interchangeably used.

The smaller frames L and L′ are each secured to a spindle N, adjustable vertically in brackets *o*, bolted to the opposite sides of the cross-girts *j* of the carriage J, the adjustment being effected by means of levers P^2, fulcrumed in brackets p^2, bolted to brackets *o*, the free end of said levers extending under levers P, similar to those described in reference to the frame K and as shown at the right of Figs. 1 and 2.

In the drawings I have shown forty-one disks on frame K and fourteen disks on each frame L and L′, or sixty-nine disks in all. In practice the total number of disks R will, however, not be less than seventy-two, which is a greater number than has heretofore been employed in this class of machines, either in grinding or polishing. On the other hand, by grouping the disks as described I dispense with at least one-half the number of frames necessary to carry the number of disks arranged in the usual manner. Finally, by grouping the disks in close relation I provide a practically-continuous polishing device, which may be said to be composed of independently-movable sections.

Instead of the friction-gearing E F, described for imparting motion to the table A, toothed gearing may be employed.

Having thus described my invention, what I claim is—

1. In a machine for polishing plate-glass, a support for the polishing-disks, comprising a plurality of concentric rings and a hub connected with said rings by radial arms, said rings being provided with bearings, in combination with polishing-disks, spindles on which said disks are mounted so as to revolve, and a locking device to lock the spindles against revolution in their bearings, for the purpose set forth.

2. In a machine for polishing plate-glass, a support for the polishing-disks, comprising a plurality of concentric rings and a hub connected with said rings by radial arms, said rings being provided with bearings, in combination with polishing-disks, spindles on which said disks are mounted so as to revolve, said spindles having a circular flange or collar abutting against the under side of the spindle-bearing and a transverse slot above said bearing, and keys or wedges for locking the spindle against revolution in their bearings, for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES DELRUE.

Witnesses:
HENRI RAELOTS,
EDOUARD LABARQUE.