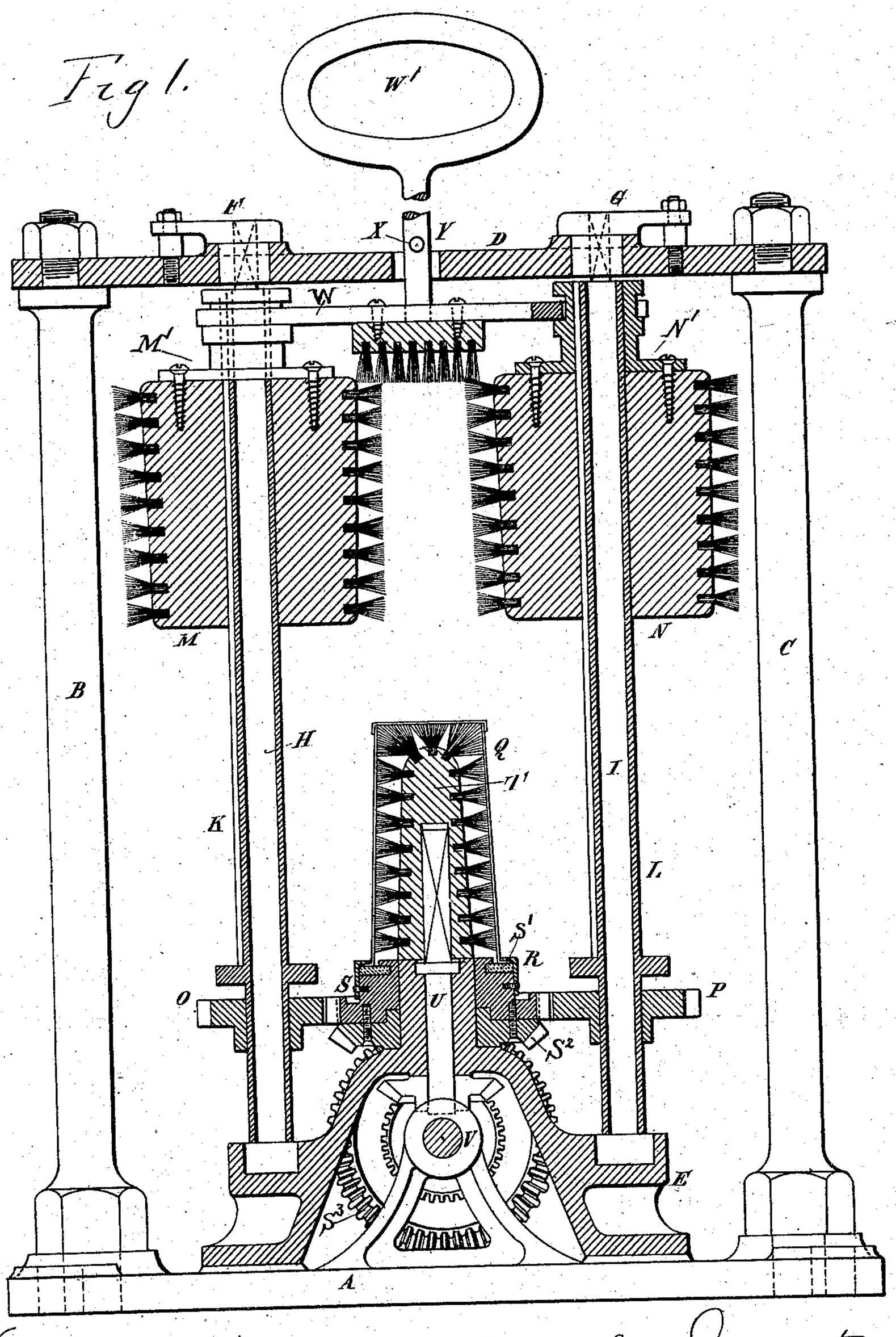
(No Model.) 2 Sheets—Sheet 1.

G. GROSSMANN.

MACHINE FOR CLEANING WIRE GAUZE CYLINDERS OF SAFETY LAMPS.

No. 559,171. Patented Apr. 28, 1896.

Fig 1.



Witnesses.
J. Green.
Jr. V. Bidgood

Inventor:
Gottfried Grossmann
By Knight Bros Attys.

(No Model.) 2 Sheets—Sheet 2.

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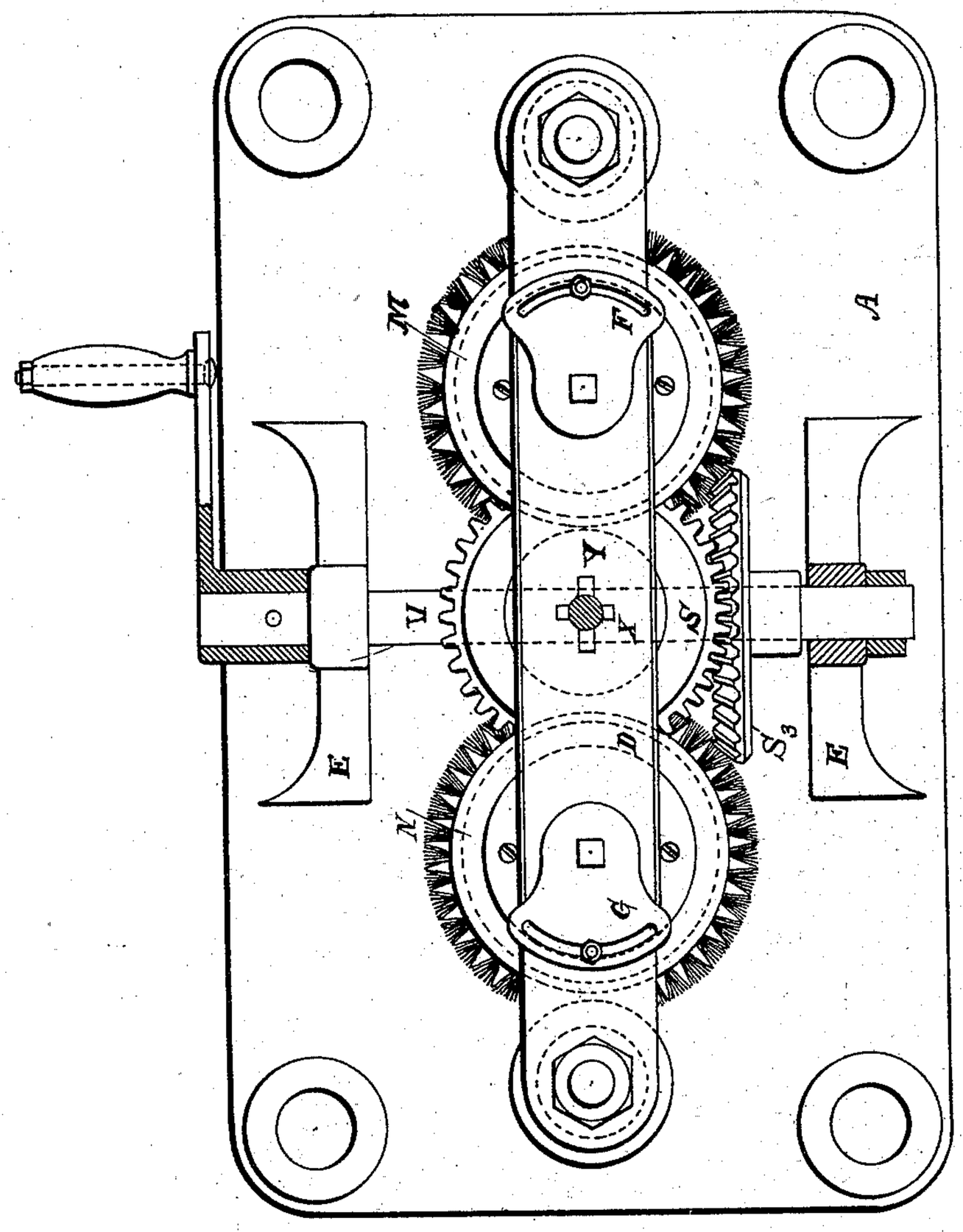
Fig 2



Witnesses.
J. Green.
M. V. Bidgood

Inventor
Gotfried Grossmann
By Knight Bros
Attys.

UNITED STATES PATENT OFFICE.

GOTTFRIED GROSSMANN, OF DORTMUND, GERMANY.

MACHINE FOR CLEANING WIRE-GAUZE CYLINDERS OF SAFETY-LAMPS.

SPECIFICATION forming part of Letters Patent No. 559,171, dated April 28, 1896.

Application filed April 16, 1895. Serial No. 545,916. (No model.)

To all whom it may concern:

Be it known that I, GOTTFRIED GROSSMANN, engineer, a subject of the King of Prussia, residing at 12 Schutzenstrasse, Dortmund, in the German Empire, have invented an Improved Machine for Cleaning the Wire-Gauze Cylinders of Safety-Lamps, of which the following is a specification.

This invention relates to miners' safety-lamps; and it consists in an improved machine for cleaning the wire-gauze cylinders of said lamps.

The safety of the workmen employed in mines and of the whole mining industry depends, as far as explosions of fire-damp are concerned, in a high degree upon the perfect condition of the wire-gauze of the safety-lamps. The object of this invention is to facilitate the keeping of said wire-gauze cylinders in a perfect condition by cleaning these cylinders, which are greatly exposed to dirt, by mechanical means in a quicker and more thorough manner, while saving the wire-gauze, than is possible by cleaning them by hand, as hitherto done, because in cleaning by hand they run very great risk of being crushed in, and the cleaning, although requiring a much longer time, is defective compared with that which can be obtained by means of a machine.

On the drawings appended hereunto the improved cleaning-machine is shown in Figure I in sectional elevation and in Fig. II in plan.

The machine consists of a base-plate A with two pillars B C or their equivalents screwed thereto, upon the upper end of which the top plate D is fixed. This top plate and the pedestal E are formed with bearings for eccentrics, which are fitted upon the upper squared ends of the vertical spindles H and I, the position of the eccentrics being fixed by means of the slotted sectoral plates J and G, respectively, also fitted upon squared ends of spindles and working in conjunction with the pins or studs, as shown. Upon the spindles H and I two hollow shafts K and L are respectively mounted loose on said spindles and fitted with feathers, by means of which they rotate the brushes M and N, the shafts being driven by spur-wheels O and P, gearing with a central wheel S. The two spindles H and I are arranged at different distances from the central spindle U, which is supported in a boss of the pedestal E and carries a rotary brush T, over which the cylinder Q of the safety-lamp to be cleaned is placed. By means of the eccentrics at their ends the spindles H and J can be approached nearer to the central spindle and cylinder as the brushes M and N wear off, and when this no longer suffices the brush most worn is removed and the other one placed upon the shaft L nearest to the central spindle, while a new brush is placed upon the other shaft, K, which is farther from the spindle, so that a complete using out of the brushes is rendered possible. The cylinder Q is fixed upon the boss of the wheel S by being pressed upon an india-rubber washer S′ by means of an annular cap R, which is attached to the boss of wheel S by means of a bayonet-lock or equivalent means. The wheel S is connected to a bevel-wheel S^2, rotated by means of another bevel-wheel, S^3, on the handle-shaft V, a second pair of bevels V′ (driven by the same shaft) rotating the spindle U with brush T when the handle is turned. The gearing may be arranged to rotate the cylinder Q and brush T in opposite directions or in the same direction at different speeds, the brushes M and N being rotated in the opposite directions to the cylinder Q.

The brushes M and N are fixed to flanges M′ and N′, respectively formed with bosses having circular grooves into which the forked ends of a transverse bar W enter. A flat brush Z is fixed to this bar and a handle W′, a pin X, put through the handle-shank, holding up the bar W and brushes when in the position shown on the drawings. After fixing the cylinder Q over the brush T in the manner hereinbefore described the handle W′ is turned by a quarter-turn so as to to bring the pin X into the direction of the slot Y. On the handle being released the brushes Z, M, and N descend upon the cylinder Q, and with few turns of the handle-shaft V the cylinder is perfectly cleaned, while deformation of the same cannot take place.

Obviously the details of the machine and gearing may be varied or replaced by their mechanical equivalents. More than two lateral brushes may be used.

Having thus described my invention, the

following is what I claim and desire to secure by Letters Patent:

1. In a machine for cleaning the wire-gauze cylinders of safety-lamps, the combination of suitable means for supporting the gauze cylinders against the action of the brushes, a brush adapted to operate inside of the cylinders, one or more brushes adapted to act on the exterior surface of the gauze cylinders and suitable means for operating the brushes, substantially as set forth.

2. In a machine for cleaning the wire-gauze cylinders of safety-lamps, the combination of a rotary brush over which the cylinder is adapted to be placed, means for supporting the cylinder over the brush, one or more vertically-movable rotary brushes adapted to act upon the exterior surface of the cylinder, and means for operating the brushes, substantially as set forth.

3. In a machine for cleaning the wire-gauze cylinders of safety-lamps, the combination of a vertical rotary brush over which the cylinder is adapted to be placed, a rotating plate having means for fastening the cylinder thereon, a plurality of vertical rotary brushes adapted to act on the sides of the cylinder, a flat brush adapted to act on the top of the same, and means for rotating said brushes and cylinder in opposite directions or at different circumferential speeds.

4. In a machine for cleaning the wire-gauze cylinders of safety-lamps by revolving brushes, the combination of a plurality of hollow shafts having rotary brushes for cleaning the outside of the cylinder and stationary spindles for said shafts placed at different distances from the wire cylinder and adjustable relatively thereto.

5. The combination of base-plate A, standards B, B, top plate D, pedestal E, spindles H, I having adjusting-plates J, G, hollow shafts K, L, brushes M, N, Z, adjustable bar W, shaft U, brush T and suitable driving mechanism, all constructed and adapted to operate substantially as set forth.

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

GOTTFRIED GROSSMANN.

Witnesses:

ERNESTINE ANDRÉ,

WILLIAM ESSENWEIN.