

No. 765,197.

PATENTED JULY 19, 1904.

W. V. ROBINSON.
GRINDING MACHINE.
APPLICATION FILED MAY 4, 1903.

NO MODEL.

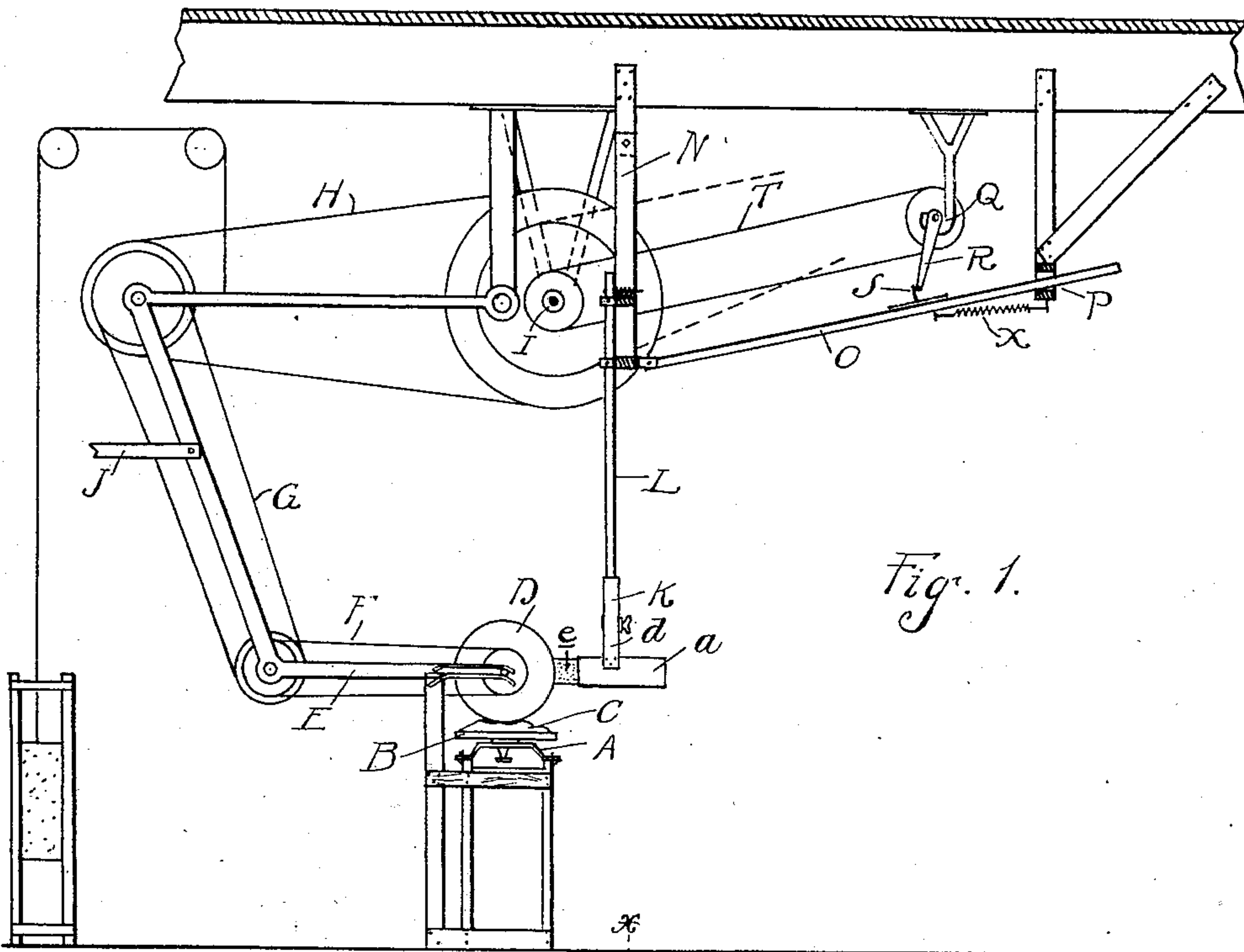


Fig. 1.

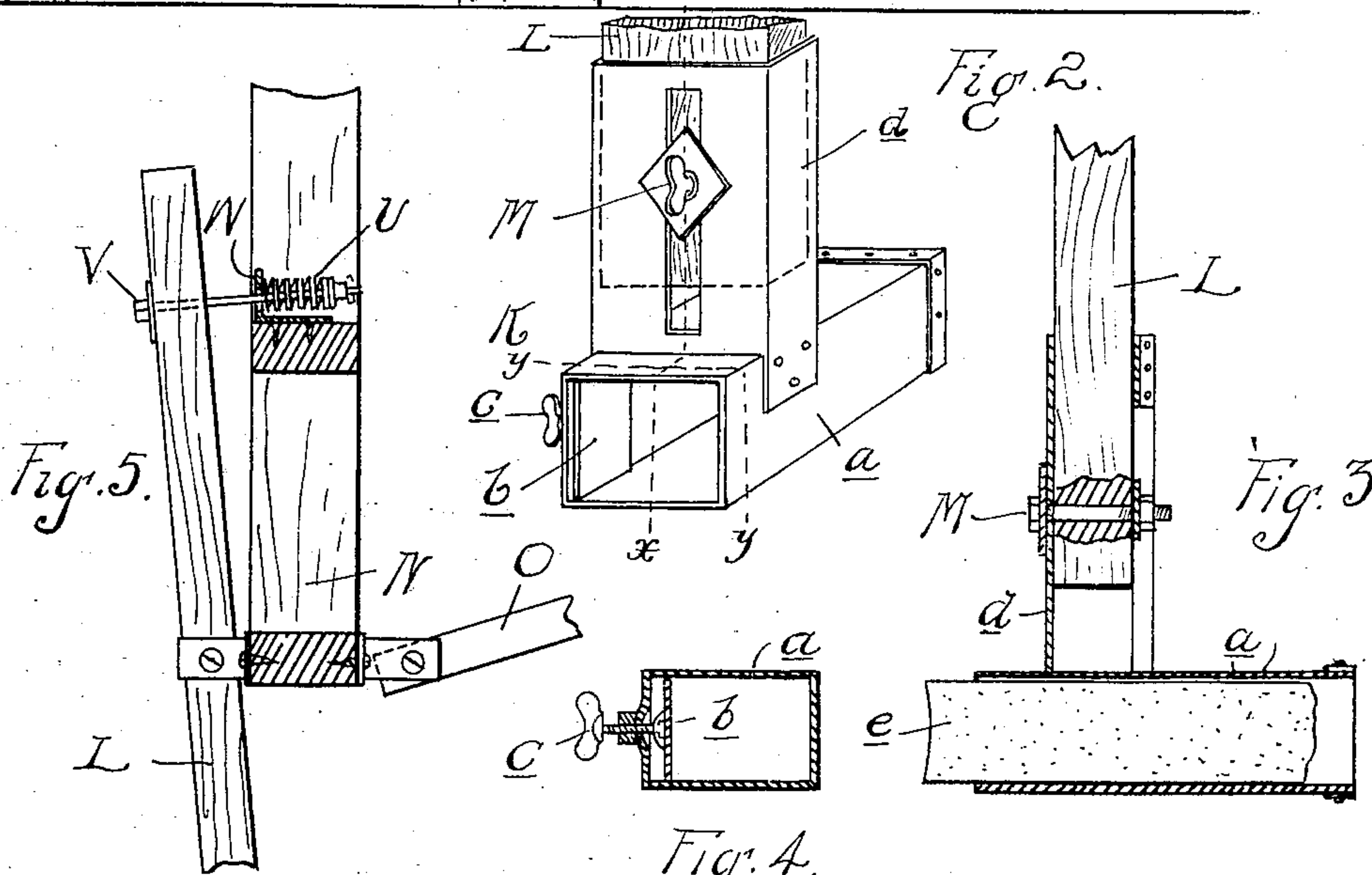


Fig. 5.

Fig. 2.

Fig. 3.

Fig. 4.

Witnesses.
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WILLIAM V. ROBINSON, OF DETROIT, MICHIGAN.

GRINDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 765,197, dated July 19, 1904.

Application filed May 4, 1903. Serial No. 155,671. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM V. ROBINSON, a subject of the King of Great Britain, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Grinding-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to machines for grinding and polishing castings—such, for instance, as those used in the manufacture of stoves.

More particularly, the invention relates to that type of machine in which the grinding-wheel is reciprocated across a carrier upon which the work is secured, so that in the fitting of said carrier the separate pieces of work are successively brought in contact with said reciprocating grinder.

The invention consists in the means employed for periodically coating the grinding-wheels with the abrasive substance and in the peculiar construction, arrangement, and combination of parts, as hereinafter set forth.

Figure 1 is a side elevation, partly in section, of the machine. Fig. 2 is a perspective view of the holder for the abrasive material. Fig. 3 is a longitudinal section therethrough on the line *x x*. Fig. 4 is a cross-section on the line *y y*, and Fig. 5 is a detail of the yielding connection between said holder and its actuating mechanism.

A is a traveling work-carrier provided with holders B for supporting the work C.

D is the grinding-wheel, which is carried by the free end of a reciprocating articulated frame E. The wheel D is driven by suitable belt connections F, G, and H upon the various jointed sections of the frame E and deriving their motion primarily from the shaft I.

J is a rod for reciprocating the frame E, which is actuated by mechanism not shown.

The parts thus far described constitute the general construction of the grinding-machine, which forms no essential part of the present invention and may be variously modified.

The grinding-wheels D are usually formed with a peripheral portion which is coated with

the abrasive material. This material needs to be frequently renewed, and to accomplish this automatically I have provided the following mechanism.

K is a holder for a cake or bar of the abrasive material *a*. As shown, this is formed by an open-ended tube *a*, having one or more clamping-plates *b* therein operated by clamping-screws *c*. The holder K has a tubular shank *d*, adjustably secured to the rod L by a clamp M. The rod L extends vertically and is connected to a swinging link N.

O is a rod connected to the link N and extending laterally therefrom, being slidingly secured at its opposite end in a bearing P.

Q is a shaft having a crank-arm R thereon, which is adapted in each revolution thereof to strike against a finger S on the rod O, so as to slide said rod in its bearing P. The shaft Q is driven by a suitable connection T from the shaft I.

With the arrangement just described rotation of the shaft I will not only impart rotary motion to the grinder D through the step-up drive connections therewith, but also rotates the shaft Q, so as to cause the arm R to periodically operate the rod O. This rod in turn will swing the link N, carrying the rod L, so as to press the abrasive material within the holder K against the grinding-wheel. In order to limit the pressure on said wheel and also to adjust the mechanism for wheels of different diameters, a yielding connection is arranged between the rod L and the link N. This, as shown, comprises the spring U, which is sleeved upon a rod V, connected to the rod L and abuts against bearing W on the link N. X is a spring for returning the rod O.

In operation the work carried by the holders B will be successively fed pass the grinder-wheels D, while the latter will be reciprocated across the work by the rod J. Periodically the holder K will be swung toward the grinder-wheel by mechanism above described and will press the abrasive cake against the wheel, so as to renew the grinding material thereon. The holder is then withdrawn and remains

out of contact with the wheel until a succeeding rotation of the crank R will again press it in contact.

What I claim as my invention is—

- 5 1. The combination with a continuously-operating grinder-wheel, means for reciprocating the wheel, automatic means for periodically renewing the abrasive material on said wheel during its reciprocation and continuous
10 rotation.
2. The combination with a reciprocatory grinder-wheel, of automatic means for periodically renewing the abrasive material on said wheel during its reciprocation and continuous
15 rotation.
3. The combination with a work-carrier of a grinder-wheel, mechanism for operating said wheel, a holder for abrasive material and means operatively associated with the oper-
20 ating mechanism for the grinder-wheel for periodically moving said holder into the path of said reciprocating grinder-wheel whereby said wheel will contact therewith irrespective of its reciprocatory movement to recoat its
25 grinding-surface.
4. The combination with a work-carrier of a grinder-wheel, means for operating the wheel, a holder, abrasive material adjustably mounted within the holder, a pivotal arm carrying said holder and timed mechanism asso-
30 ciated with the operating mechanism of the grinder for automatically and periodically actuating said arm to move the abrasive material into the path of the grinder.
- 35 5. The combination with a reciprocatory grinder, of means for automatically renewing abrasive material thereon, at predetermined intervals, irrespective of its reciprocation.
- 40 6. The combination with a reciprocatory grinder, of means for operating the grinder, and means controllable by said operating means for renewing the abrasive material on the grinder.
- 45 7. The combination with a reciprocatory grinder, of means for operating the grinder, and means controllable by said operating means for renewing abrasive material on the grinder at predetermined intervals, irrespec-
50 tive of its reciprocation.
- 55 8. The combination with a grinder, and a work-support, of means for operating the grinder, a holder for abrasive material, and means operatively associated with said operating means for moving the holder laterally in a substantially direct line into operative re-
60 lation to the grinder for renewing abrasive material thereon.
9. The combination with a grinder, and a work-support, of means for operating the grinder, a pulley operated by said means, a holder for abrasive material, and means on said pulley arranged to actuate said holder

laterally in a substantially direct line to bring the same into operative relation to the grinder for renewing the abrasive material thereon. 65

10. The combination with a grinder, and a work-support, of means for operating the grinder, a pulley operated by said means, a holder for abrasive material, and a crank on said pulley arranged to actuate said holder to bring the same into operative relation to the grinder for renewing the abrasive material thereon. 70

11. The combination with a grinder, and a work-support, of means for operating the grinder, a pulley operated by said means, a holder for abrasive material, said abrasive material being adjustably mounted therein, and a crank on said pulley arranged to actuate said holder at predetermined intervals to bring the same into operative relation with the grinder for renewing abrasive material thereon. 80

12. The combination with a grinder, and a work-support, of means for operating the grinder, a pulley operated by said means, a holder for abrasive material, a reciprocating arm associated with said holder, a projection on said arm, and a crank on said pulley arranged to engage said projection for imparting motion to said arm to bring the holder into operative relation to the grinder for re-
85 newing the abrasive material thereon. 90

13. The combination with a grinder, and a work-support, of means for operating the grinder, a pulley operated by said means, a holder for abrasive material, a reciprocating arm associated with said holder, a projection on said arm, a crank on said pulley arranged to engage said projection for imparting motion to said arm to bring the holder into operative relation to the grinder for renewing abrasive material thereon, and means for normally retaining said holder away from said grinder. 100 105

14. The combination with a grinder, and a work-support, of means for operating the grinder, a pulley operated by said means, a holder for abrasive material, a reciprocating arm associated with said holder, a projection on said arm, a crank on said pulley arranged to engage said projection for imparting motion to said arm to bring the holder into operative relation to the grinder for renewing abrasive material thereon, and resilient means for normally retaining said holder away from said grinder. 110 115

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

WILLIAM V. ROBINSON.

Witnesses:

HARRISON L. DAVIES,
FRANCIS H. BROWN.