

(No Model.)

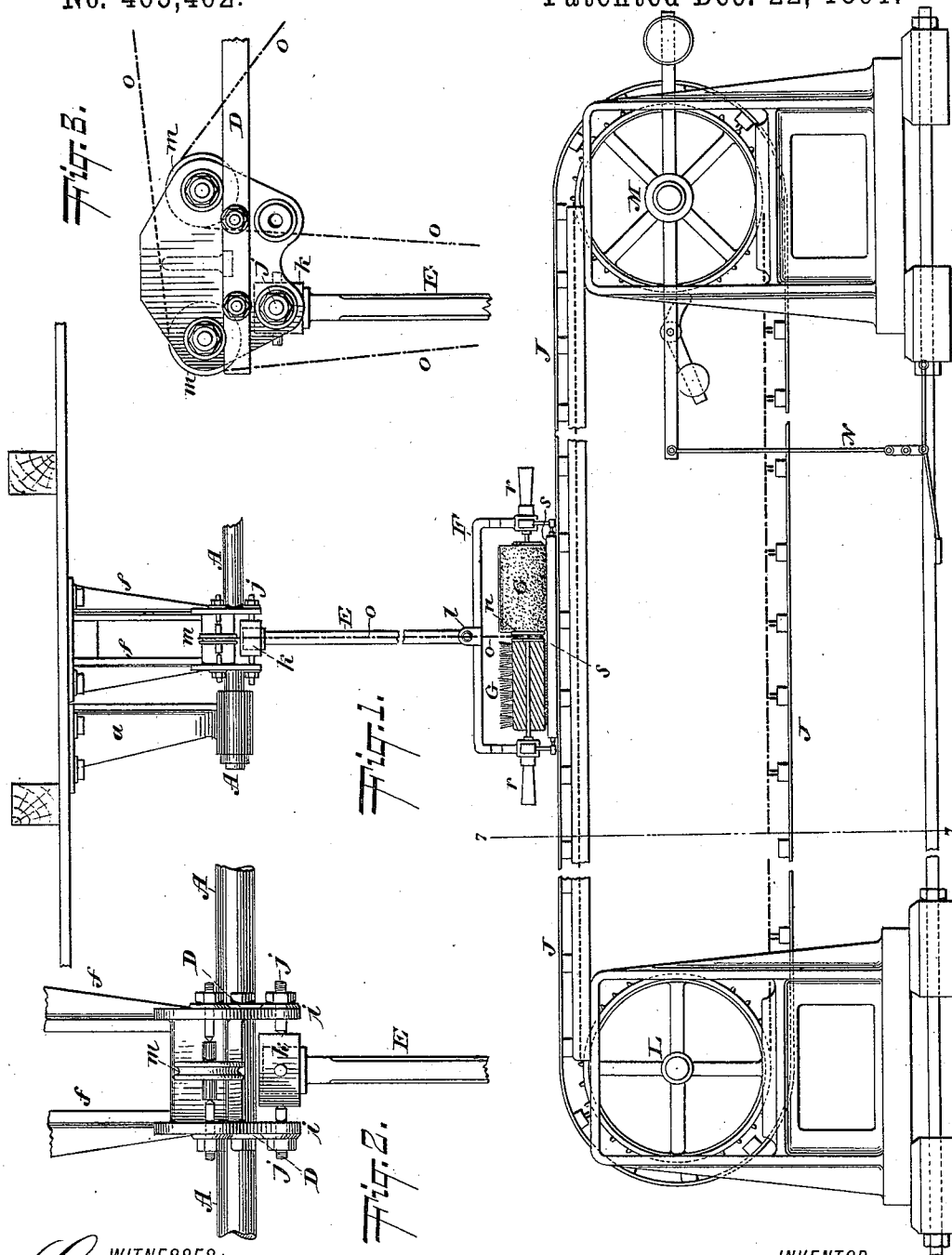
3 Sheets—Sheet 1.

H. CLAUS.

MACHINE FOR BRUSHING ENAMEL, &c., OFF PLATES.

No. 465,462.

Patented Dec. 22, 1891.



WITNESSES:
Gustave Dietrich
Harry M. Smith

INVENTOR
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(No Model.)

3 Sheets—Sheet 2.

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Fig. 4.

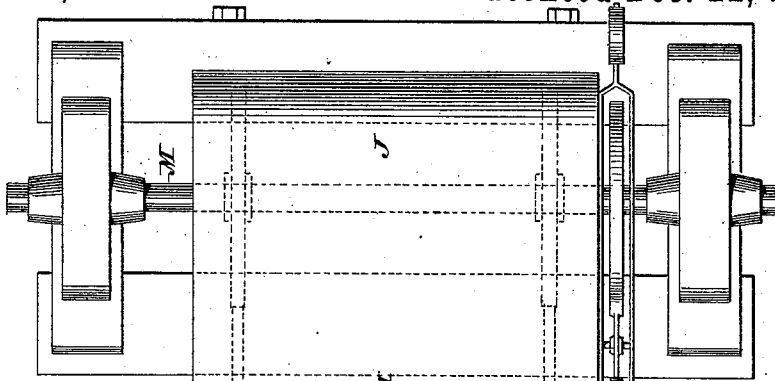


Fig. 5.

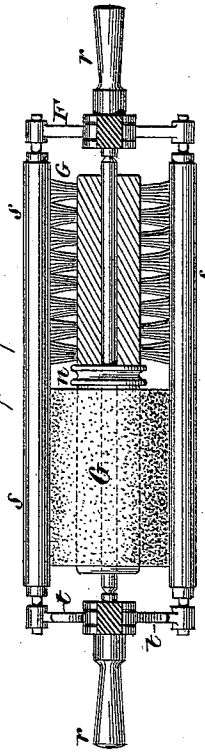
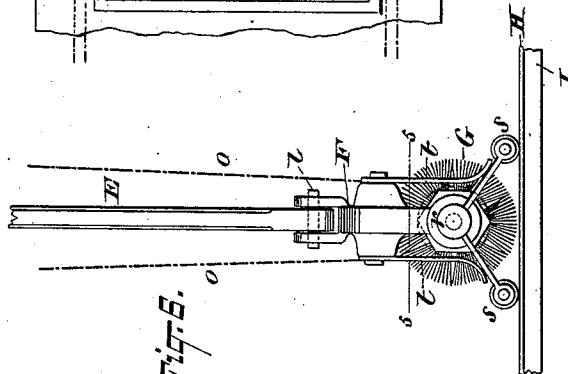


Fig. 6.



WITNESSES:

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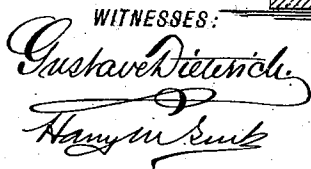
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3 Sheets—Sheet 3.

MACHINE FOR BRUSHING ENAMEL, &c., OFF PLATES.

Patented Dec. 22, 1891.



INVENTOR

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UNITED STATES PATENT OFFICE.

HUBERT CLAUS, OF THALE-IN-THE-HARZ, GERMANY.

MACHINE FOR BRUSHING ENAMEL, &c., OFF PLATES.

SPECIFICATION forming part of Letters Patent No. 465,462, dated December 22, 1891.

Application filed August 31, 1891. Serial No. 404,367. (No model.)

To all whom it may concern:

Be it known that I, HUBERT CLAUS, of Thale-in-the-Harz, Germany, have invented an Improved Machine for Brushing Enamel or other Matter Off Plates and the Like, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a front view of my improved machine. Fig. 2 is an enlarged front view, and Fig. 3 an enlarged side view, of the upper hanger for the brush. Fig. 4 is a plan or top view of one end of the machine; Fig. 5, an enlarged top view, partly in section, of the brush; Fig. 6, an end view of the brush; Fig. 7, an end view of the machine; and Fig. 8, a top view, partly in section, of the upper hanger.

This invention relates to a new machine for brushing enamel or other matter through stencils off metal plates or the like, being intended, mainly, to be used in the manufacture of enameled signs. Such signs are first covered over their entire surface with powdered enamel, and a stencil is then placed upon them, covering those parts which are to remain enameled and uncovering the parts which are not to remain enameled. The uncovered parts are to be brushed out with the assistance of my machine.

The invention consists of the novel arrangements and combinations of parts that are hereinafter more fully described.

The machine consists of two main portions—to wit, a lower portion for supporting the plate to be brushed and an upper portion for supporting the brush.

I will first describe the upper portion or brush-supporting contrivance. In suitable hangers *a*, (see Fig. 8,) which may be suspended from the ceiling or other part of the room in which the machine is set up, are the bearings of a shaft *A*. Upon this shaft is loosely hung a cone or other pulley *b*, which can be rotated by a belt *d* from the main driving machine or pulley *B*. (See Fig. 7.) A clutch *e* will when moved against the cone-pulley *b* throw the shaft *A* into action. From the ceiling or other support are also suspended hangers *f*, through which the shaft *A* passes loosely, and which hangers where they surround such shaft are made cylindrical to

serve as bearings for rings *g*, that are part and parcel of a swinging and weighted frame *D*—that is to say, the weighted frame *D*, having the rings *g*, is swiveled by means of said rings onto the blocks *f*, so that it will be capable of vibrating on the axis of the shaft *A*. The weight *h*, which is attached to one end of the frame *D*, has the tendency to depress that end and to lift the other end. The other or non-weighted end of the frame *D* carries two cheek-pieces *i*, which, together with the mechanism they embrace, constitute what I would call the “upper hanger” for the brush. In these cheek-pieces is the pivotal support *j* of a universal joint *k*, that connects with the upper end of an upright rod *E*. The lower end of the rod *E* connects by another joint *l* with the frame *F* of the rotary brush *G*. The shields or cheek-pieces *i* also carry friction-pulleys *m*, for purposes to be hereinafter stated. The brush *G* is a cylindrical brush, and its shaft has pointed ends that lie in bearings of the frame *F*, as clearly indicated in Fig. 5. The shaft of this brush carries a little pulley *n*. Around this pulley passes a string-belt *o*, which runs over the friction-pulleys *m* and over a driving-pulley *p*, that is carried by the shaft *A*. All these pulleys *p*, *m*, and *n* should be grooved, as shown. The brush-frame *F* has handles *r*, by means of which it can be conveniently grasped and manipulated. The said brush-frame is also provided with two bearing-rollers *s*, which are pressed upon the stencil *H* by springs *t*, but which are capable of yielding to the downward pressure given to the brush by the operator when he has hold of the handles *r*. These little rollers *s* should be made of elastic material, and are intended to press on the stencil *H* before the brush reaches the same, so that any displacement of the stencil or bending thereof by the brush or its action will be avoided. The intention is that the operator at the proper time shall take hold of the handles *r* and force the brush down upon the stencil, which lies on the plate *I*, that is covered with the powdered enamel, and then to manipulate the brush, which is meanwhile being rotated, by means of the belt *o*, so that it will brush through the openings of the stencil and remove all the enamel that is exposed. As soon as the attendant lets go

of the brush the weight *h* tilts the frame D until the cheek-pieces *i* strike a suitable abutment *u*. (See Fig. 7.) By means of the universal joint *k* and joint *l* the brush can be manipulated in every direction and caused to perform its functions, whether held longitudinally with the underlying plate or transversely thereto, the joint *l* being particularly useful in enabling the operator to hold the entire length of the brush on the stencil.

I will now describe the lower part of the machine, which needs simply to be a table on which the plate *I* to be brushed lies, said plate *I* being covered by the stencil *H*. An ordinary table will answer for small articles, signs, and the like, whereas for larger plates I prefer to make the table, as in the drawings, of an endless apron *J*, moving over suitable sprocket-wheels *L M* and serving as a support for the plate to be brushed. A pedal or lever mechanism *N* for giving a short turn to one of the sprocket-wheels can be supplied, so that the operator can by means of said mechanism slightly advance the plate to be brushed from time to time.

Having now described the general construction of my machine, I will briefly state how it operates. The attendant puts the plate *I* to be brushed on the table, places a stencil onto it, and clasps it properly thereto. He then throws the clutch *e* so as to bring the pulley *b* and shaft *A* into rotary motion. This causes the brush *G* to revolve. He now takes hold of the handles of the brush-frame, presses the brush down upon the stencil, and while the brush revolves moves the same over the stencil in all sorts of directions until the interstices of the stencil have been thoroughly brushed out. If the plate is so large that the attendant cannot at one operation reach all its parts, he lets go the brush, which immediately by means of the weight *h* ascends and by the mechanism *N* or analogous means advances the plate the desired distance. He

then takes hold of the brush again, brushes out the new portion of the plate brought within its compass, &c., until the work has been completed.

In order to protect the workman from injurious effect of dust arising from the operation, the brush may be inclosed to a greater or less extent in a suitable metallic shield.

The invention is applicable, as heretofore stated, to the brushing of dry powdered enamel off the surface of plates, but may also be used for brushing other things off plates or other surfaces, and the surfaces to be brushed may be flat as a plate, or may be in relief, or of any other desired form.

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

1. The combination, with a table adapted to hold the article to be brushed, of the brush *G*, its brush-frame *F*, joint *l*, rod *e*, universal joint *k*, swivel-frame *D*, main shaft *A*, and mechanism for imparting rotary motion to said brush from the shaft *A*, all as hereinbefore specified.

2. The brush-frame *F*, carrying the rotary brush *G*, combined with the spring-pressed side rollers *s s*, substantially as and for the purpose specified.

3. The combination of the stationary hangers *a* and *f* with the shaft *A*, which is supported in the hangers *a*, but passes loosely through the hangers *f*, and with the swivel-frame *D*, having rings *g*, that embrace the hangers *f*, said swivel-frame *D* having weight *h* at one end and universal joint *k* at the other end, and with the rod *E*, joint *l*, brush-frame *F*, brush *G*, and means, substantially as described, for imparting rotary motion from the shaft *A* to the brush *G*, all as specified.

HUBERT CLAUS.

Witnesses:

G. WESEMYER,
W. EGGELENG.