

No. 733,831.

PATENTED JULY 14, 1903.

S. H. FRIST.
WORK HOLDER FOR ENAMELING.
APPLICATION FILED FEB. 17, 1903.

NO MODEL

2 SHEETS—SHEET 1.

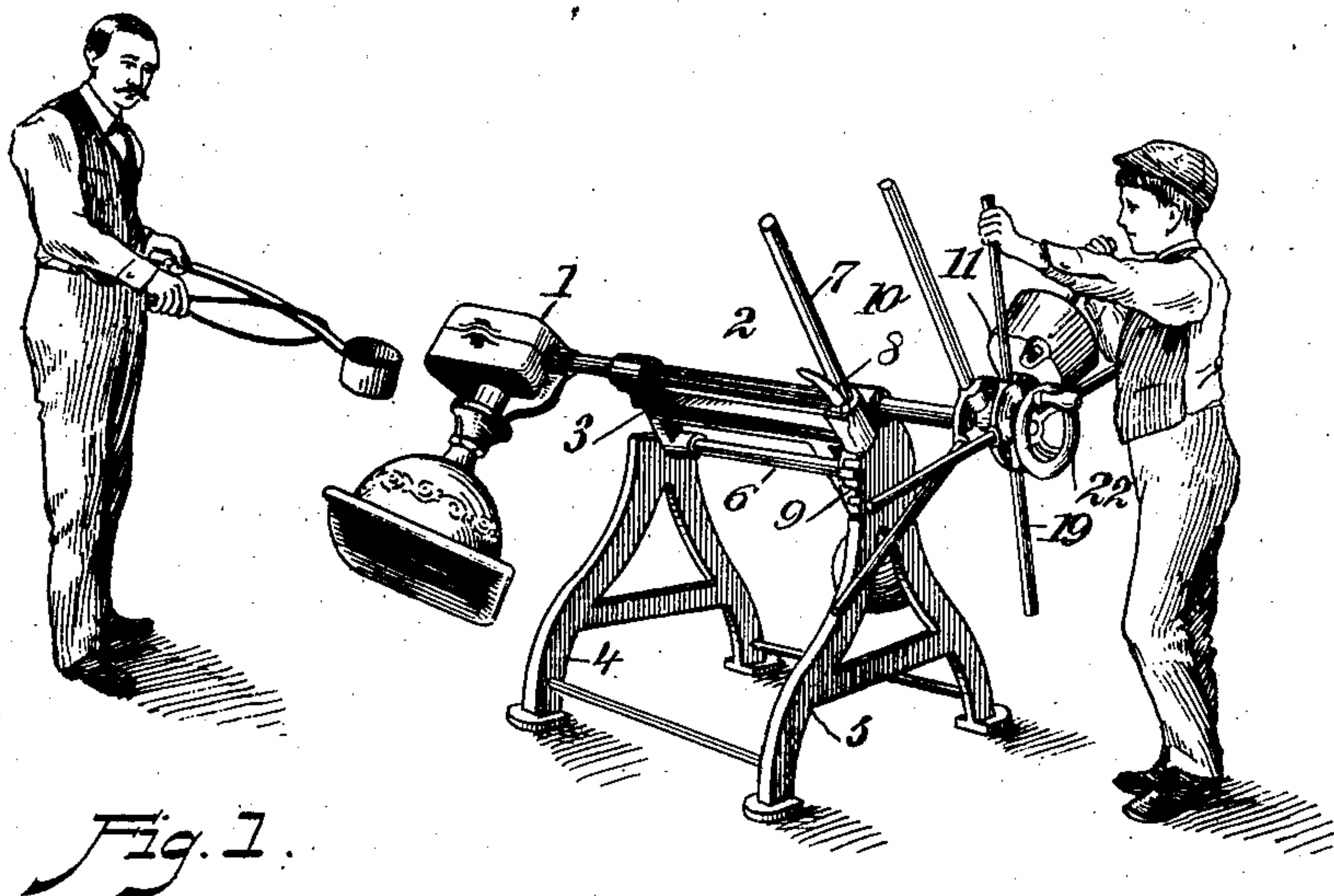


Fig. 1.

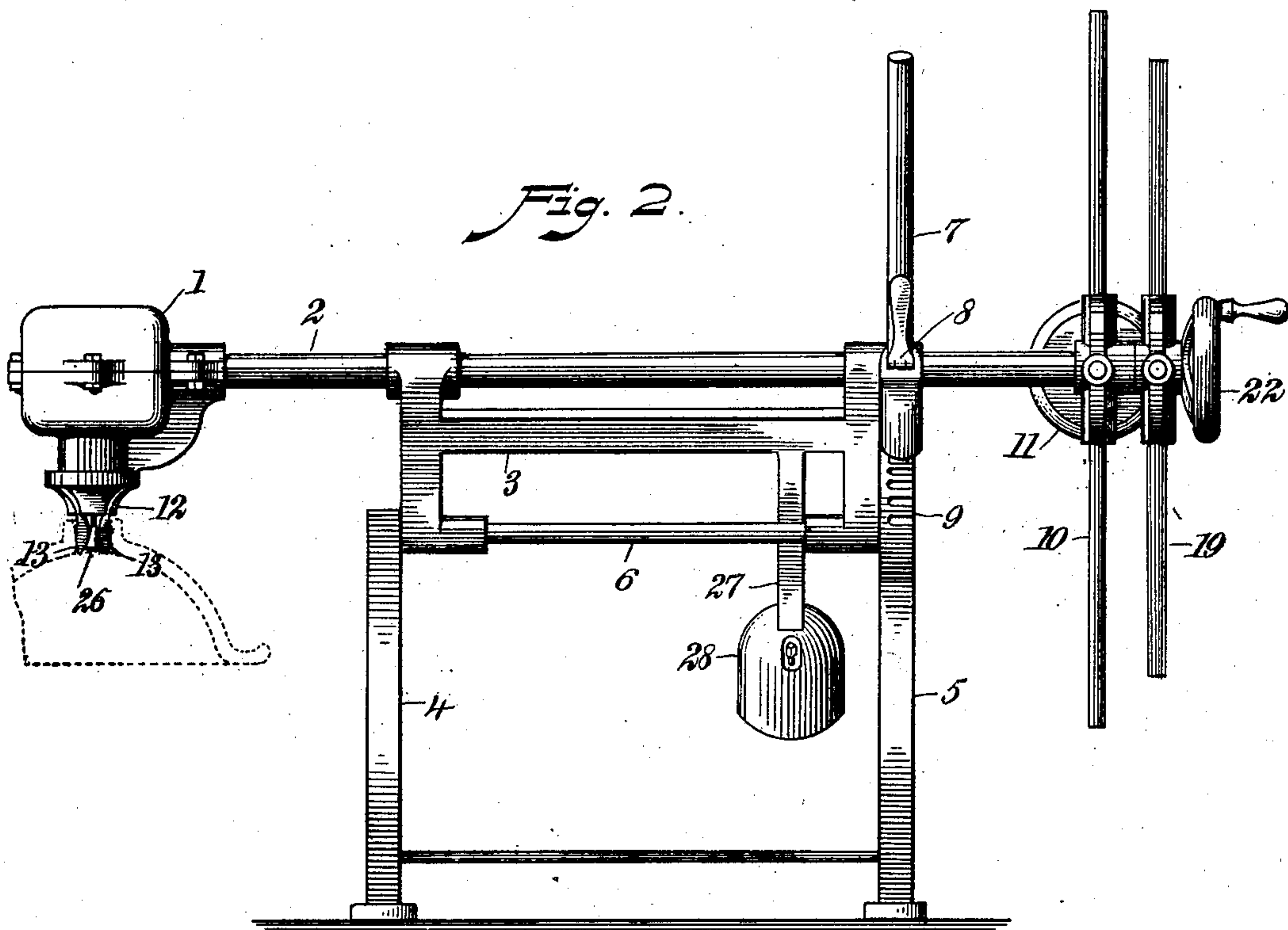


Fig. 2.

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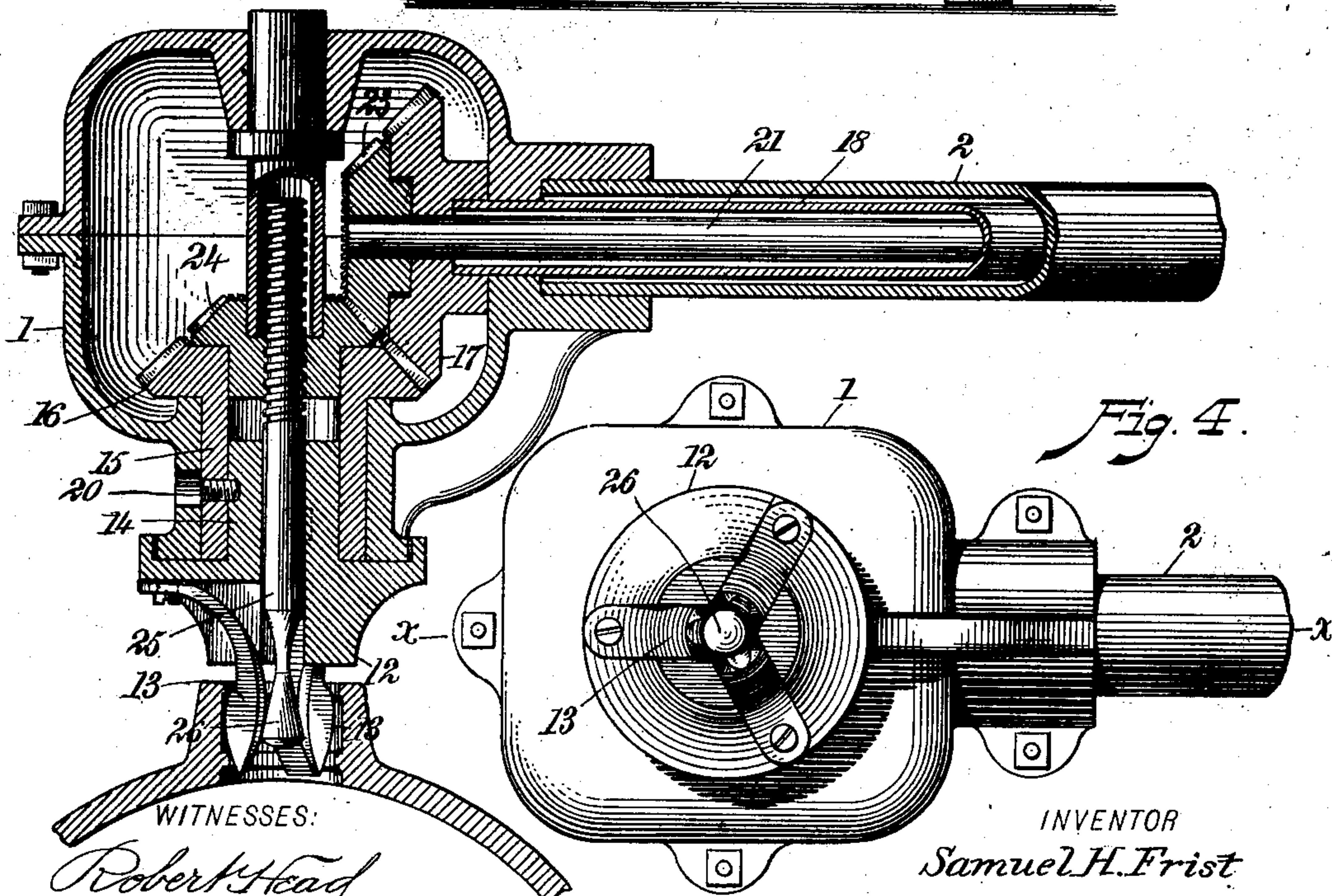
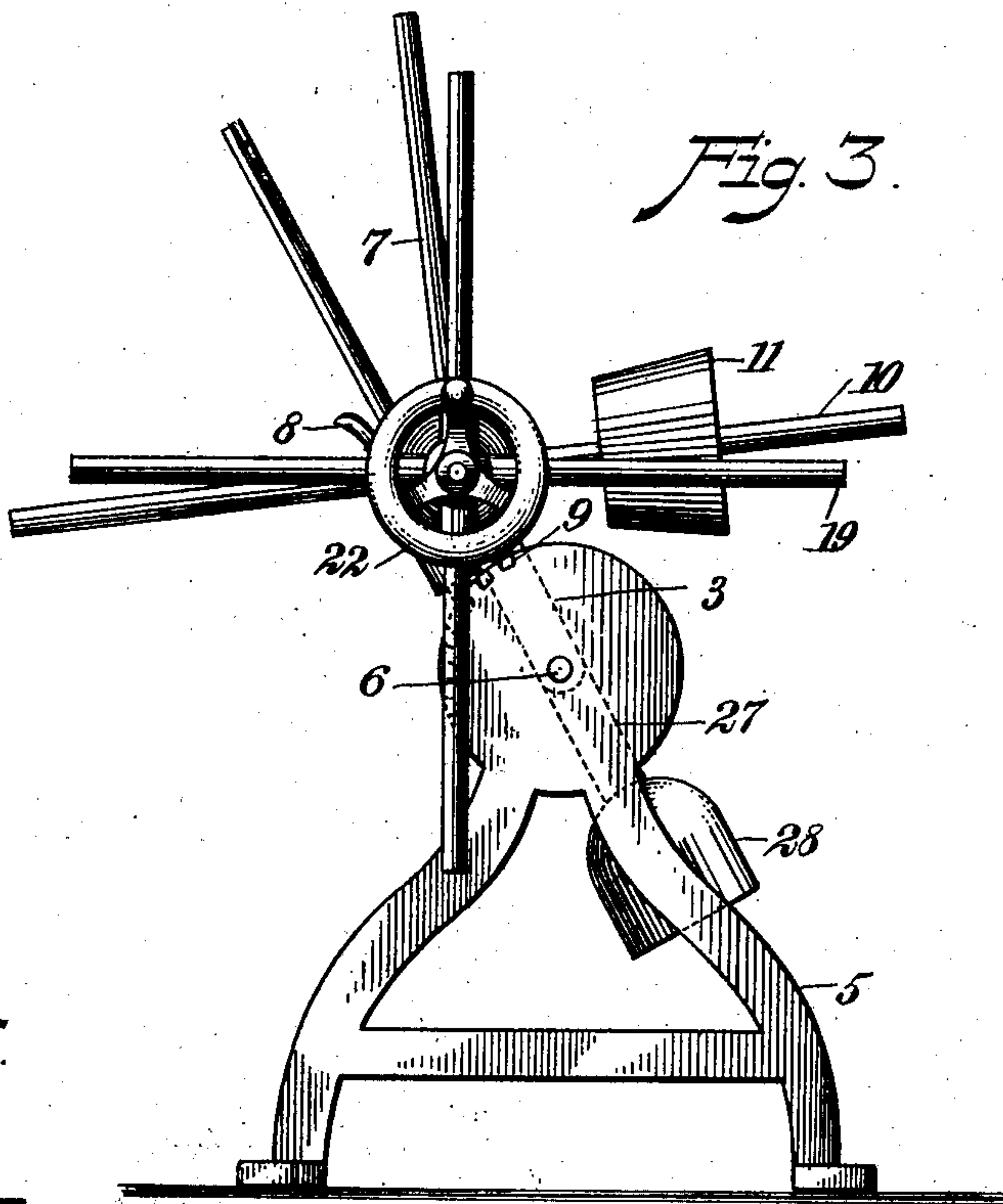
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UNITED STATES PATENT OFFICE.

SAMUEL H. FRIST, OF CHATTANOOGA, TENNESSEE.

WORK-HOLDER FOR ENAMELING.

SPECIFICATION forming part of Letters Patent No. 733,831, dated July 14, 1903.

Application filed February 17, 1903. Serial No. 143,754. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL H. FRIST, a citizen of the United States, and a resident of Chattanooga, in the county of Hamilton and State of Tennessee, have invented a new and Improved Work-Holder for Enameling, of which the following is a full, clear, and exact description.

This invention relates to improvements in machines for holding work to which enamel is to be applied—such as washbowls, sinks, bath-tubs, and similar articles—an object being to provide a machine for this purpose by means of which the work while applying the enamel may be rotated axially and vertically or in two planes substantially at right angles to each other, so that the enamel may be applied evenly on all parts and much easier and faster than is possible by the ordinary methods of enameling.

Other objects of the invention will appear in the general description.

I will describe a work-holder for enameling embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of a work-holder for enameling embodying my invention. Fig. 2 is a side elevation thereof. Fig. 3 is an end view. Fig. 4 is a plan view showing holding-jaws employed, and Fig. 5 is a section on the line xx of Fig. 4.

The machine comprises a casing 1, rigidly attached to a tubular shaft 2, which has bearings in a frame 3, having swinging connection with legs 4 5. As here shown this frame is mounted to rotate or to swing on a rod 6, connecting the upper ends of the legs. The object of the swinging frame is to provide for adjustment as to height of the work-holder to accommodate it to the work in hand.

As a means for swinging the frame I attach to it a hand-lever 7, which carries a pawl 8, designed to engage in any one of a series of notches formed in a segment-rack 9 on the upper portion of one of the legs. As here shown the said rack is formed on the leg 5.

Attached to the end of the tubular shaft 2 opposite the casing 1 are radial arms 10, by

the means of which the shaft carrying the casing may be rotated in the bearings of the frame 3, and to assist in said rotation I have provided one of the arms with a counterbalance-weight 11, which is adjustably connected to the arm. Mounted for axial rotation in the casing 1 is a work-engaging member or clutch, consisting of a head 12, to which fingers 13 are attached. These fingers are slightly loose on their screws and are designed to pass into the opening in the bottom of the work and to be expanded against the wall thereof. As this wall is shown concave, the ends of the fingers 13 are slightly convex, as clearly shown in Fig. 5. The shank members of these fingers are guided in slots or kerfs formed in the head 12. This head 12 has a tubular hub portion 14, secured in a sleeve 15, on the inner end of which is a bevel-gear 16, meshing with a bevel-gear 17, attached to a tubular shaft 18, which passes through the head 12 and is provided on its outer end with radial arms 19, by which it may be turned.

As for different articles of work different holding devices must be provided, the head 12 is removably connected in the sleeve 15, as here shown, by means of a screw 20, the casing being provided with a perforation through which the screw may pass. Extending through the tubular shaft 18 is an adjusting-shaft 21, on the outer end of which is a hand-wheel 22. On the end within the casing a bevel-gear 23 is attached to said shaft 21, and this bevel-gear meshes with a bevel-gear 24, having a hub portion seated to rotate in the sleeve 15. This hub portion is tubular and is interiorly threaded to engage the thread of an expanding-rod 25, having a tapered head 26, which engages with the fingers 13. By moving this head inward the several fingers are forced outward against the wall of the opening into which the fingers expand.

When it is desired to remove the work, it is only necessary to rotate the shaft 21, which will operate the gearing to move the head outward, permitting the fingers to move toward each other and out of engagement with the work.

To facilitate the upward swinging movement of the frame 3, an arm 27 is extended from the said frame, and adjustably mounted on the arm is a weight 28, designed to coun-

terbalance the work carried by the holding devices.

In the operation, as before stated, by rotating the shaft 2 the work will be carried or rotated vertically to any desired and convenient position for the workmen in sieving on the enamel from a sieve or sifter. By turning the shaft 18 an axial rotation will be imparted to the work. It is obvious that if desired or found necessary both rotary movements may be simultaneous. The rod 25 may be held from rotary movement in the head 12 by any suitable means. In Fig. 5 I have indicated the rod as provided with a slot, into which a lug in the head extends.

As the work to be enameled is heated to a very high degree, it is rendered quite uncomfortable to a person turning the work in the ordinary way, while in the present device the operator can stand a considerable distance from the work.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a work-holder for enameling, two shafts arranged one within the other, a casing carried by one of said shafts, a work-engaging head carried by the casing, gear connections between said head and the other of said shafts, yielding fingers attached to the head and an expanding device for said fingers.

2. In a work-holder for enameling, two shafts arranged one within the other, a casing carried by one of said shafts, a work-engaging head carried by the casing, gear connections between said head and the other of said shafts, and a frame swinging on a horizontal axis and having bearings for the first-named shaft.

3. A work-holder for enameling, comprising a frame swinging on a horizontal axis, a tubular shaft having bearings in said frame, a casing connected to one end of said shaft, means connected to the shaft for imparting rotary motion to it, a clamping-head having rotary connection with the casing, yielding fingers carried by said head, a shaft within the first-named tubular shaft, a gear connec-

tion between said inner shaft and the said head, an expanding-rod for the yielding fingers, and means for operating said expanding-rod.

4. A work-holder for enameling, comprising a frame, a tubular shaft mounted to rotate in the frame, a casing on one end of said shaft, a work-engaging device comprising a head mounted to rotate in the casing, yielding fingers carried by the said head, a sleeve having a bearing in the casing and to which the head is removably connected, a bevel-gear on the inner end of said sleeve, a shaft extended through the tubular shaft, a gear connection between said inner shaft and said sleeve, and means for expanding the fingers.

5. A work-holder for enameling, comprising a frame, a tubular shaft mounted to rotate in the frame, a casing carried on said shaft, a work-engaging device having a head having rotary connection with the casing, yielding fingers mounted on said head, the said head having a tubular hub portion, a sleeve mounted to rotate in the casing and connected to said hub portion, a bevel-gear on the inner end of said sleeve, a tubular shaft extended through the first-named tubular shaft, a bevel-gear on said inner tubular shaft for engaging with the gear on the sleeve, a bevel-gear having a rotary bearing in the first-named gear, and also having a tapped opening, an expanding-rod having a threaded portion engaging with the thread of said opening, a tapered head on the outer end of said rod and engaging with said fingers, a shaft extending through the said inner tubular shaft, a bevel-gear on the inner end of said shaft for engaging with the expander-operating gear, and means for rotating the several shafts.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL H. FRIST.

Witnesses:

J. N. McCUTCHEON,
T. C. LATIMORE.