

(No Model.)

T. C. MERZ.
CAPSULE TRIMMING MACHINE.

No. 535,804.

Patented Mar. 12, 1895.

Fig. 2.

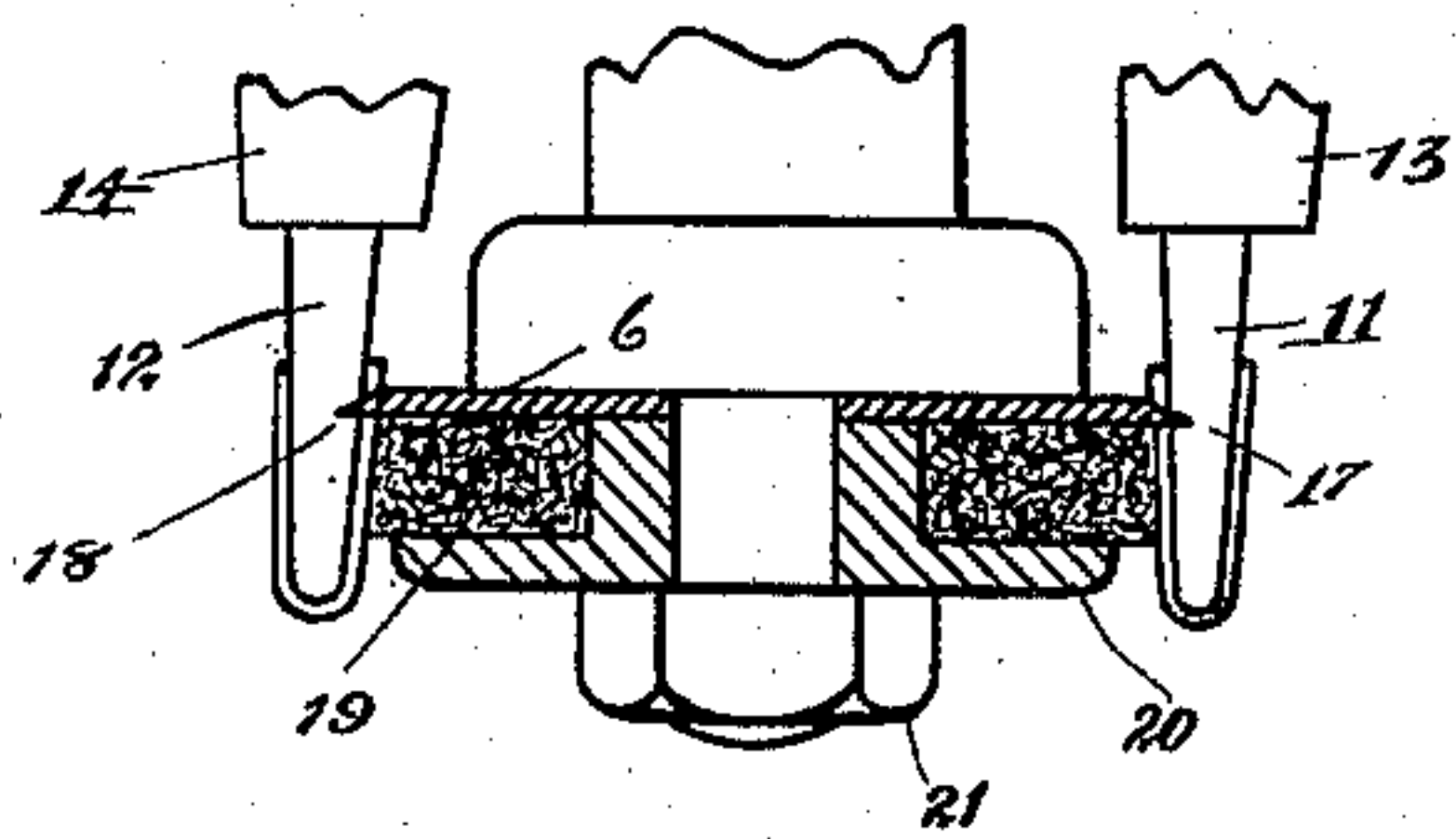


Fig. 1.

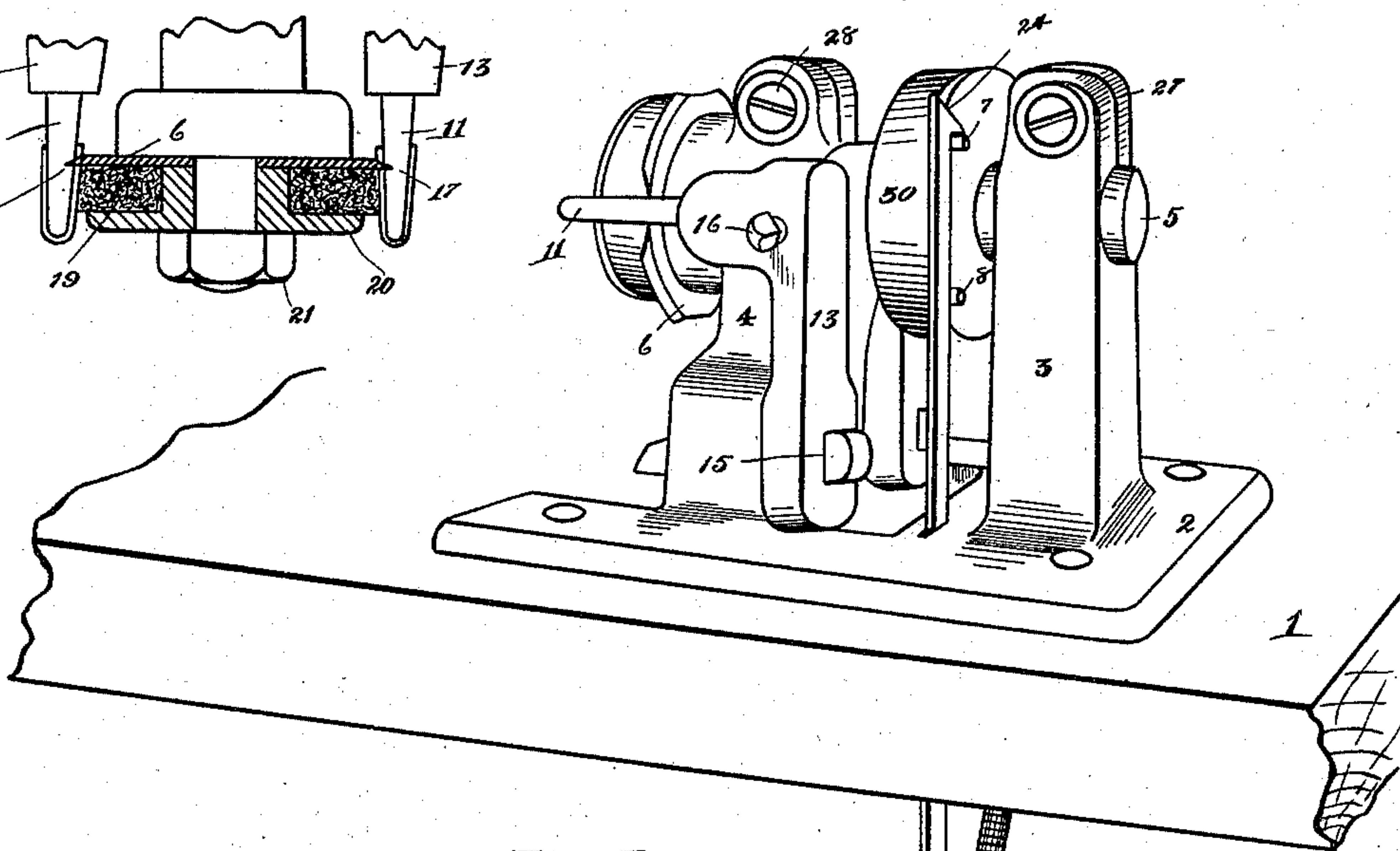
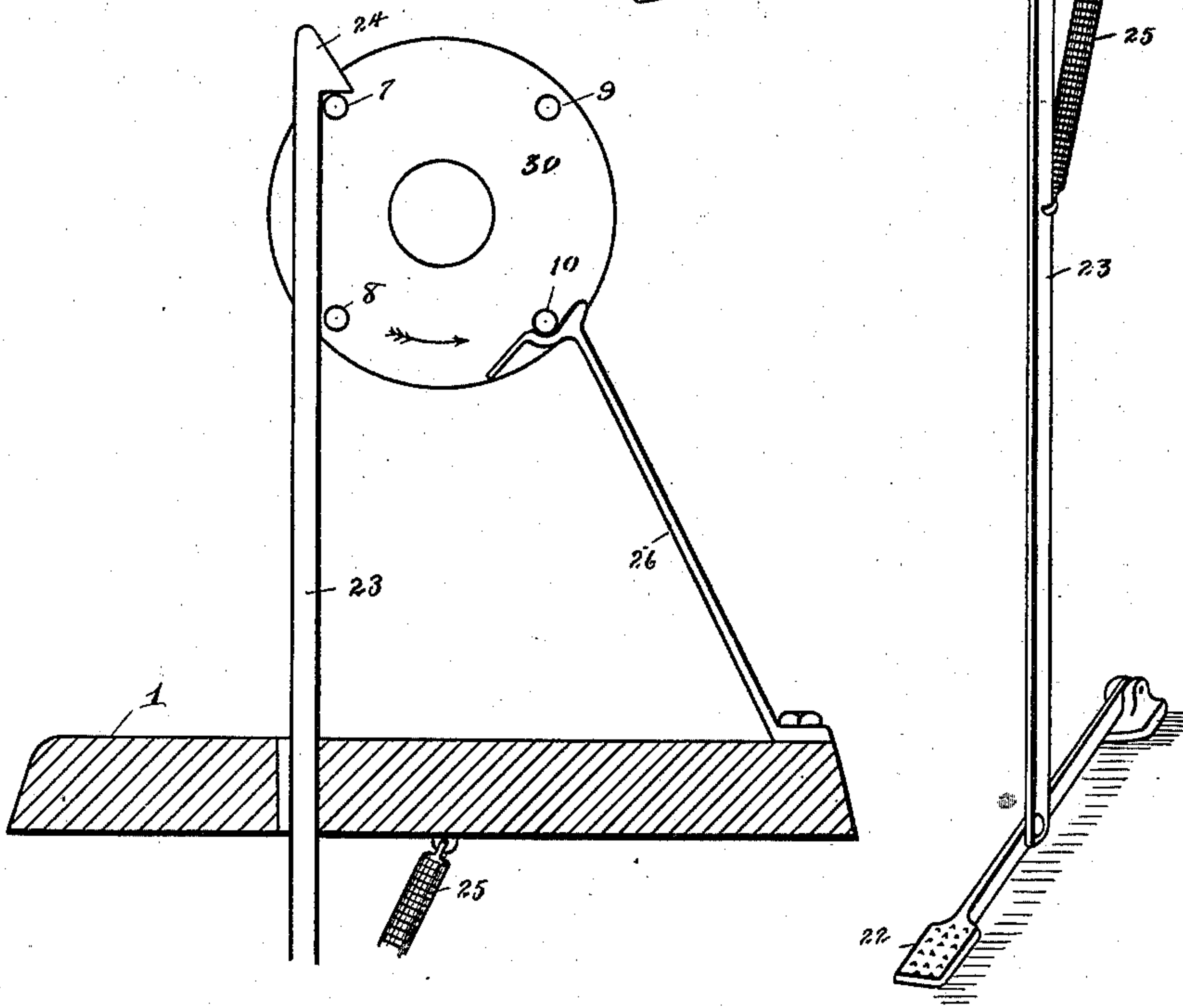


Fig. 3.



WITNESSES

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THEODORE C. MERZ, OF DETROIT, MICHIGAN, ASSIGNOR TO THE MERZ
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CAPSULE-TRIMMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 535,804, dated March 12, 1895.

Application filed December 22, 1894. Serial No. 532,680. (No model.)

To all whom it may concern:

Be it known that I, THEODORE C. MERZ, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Capsule-Trimming Machines; and I 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to capsule trimming machines, and has for its object an improved machine in which the edge or mouth of a gelatine capsule can be trimmed smoothly and accurately after the capsule is dried.

When a gelatine capsule is trimmed in the process of stripping it from the machine, and afterward left to dry and harden more thoroughly than it is at the time it leaves the stripping machine, it is liable to contract unequally, and to warp somewhat and cause the edges of the mouth or opening into the capsule to become uneven, even more uneven than such a capsule was at the time it left the cutting machine or stripping machine.

A further object of this machine is to accurately grade or gage the length of the capsule from end to end, so that all capsules trimmed upon it will be accurately graded in size and in the amount or quantity which can be contained in each of them.

In the drawings, Figure 1 shows the machine in perspective. Fig. 2 is a horizontal section through the knife and supporting pins. Fig. 3 indicates the means employed for giving to the knife by which the capsules are trimmed an intermittent rotary motion.

1 indicates a table, below which is a suitable attachment for a treadle, and on the top of which rests the machine for trimming capsules.

2 indicates the bed-plate from which rises a pair of bearing posts, 3 and 4. Within the bearing posts 3 and 4 is journaled a shaft 5, upon the forward end of which is a knife 6, circular in its general outline, but having a number of notched portions, or portions at which the cutting edge of the knife intermits.

As shown in the drawings, the number of sharp edges and intermitting portions are four each, but it is evident that any even number may be employed. On the shaft 5, between the posts 3 and 4, is a driving wheel 30, from one side of which project a number of pins, 7, 8, 9 and 10, these pins being equal in number to the cutting edges of the knife, and being so located as to engage with the mechanism by which the wheel is actuated through them during the interval of time that the cutting edge of the knife 6 is in shearing contact with the pins 11 and 12 upon which the capsules are held during the time the cutting operation is progressing.

To the post 4 are bolted a pair of arms, one of which, 13, is seen in Fig. 1, and both of which are indicated in Fig. 2. The arm 13 is bolted to the post 4 below the shaft 5, and is adjustable with respect to the post 4, so that its upper end can be swung on the bolt 15 as on a hinge to adjust the pin 11 properly with respect to the cutting knife. After the proper adjustment is arrived at, the bolt 15 is turned tightly into the post 4 so that the arm 13 is thereafter held in the adjustment at which it has been placed. This adjustment is required in order that the pin 11, which is a polished pin adapted to hold the capsule, may be taken out and one of different size used instead, if it be desired to arrange the capsule cutting machine to cut and trim capsules of a different size. The pin 11 fits in a socket in the upper end of the arm 13, and is held in place by a set screw 16. A number of pins similar to the pin 11, of different sizes, may be used, it only being necessary that the shanks of all of them shall be of the same size. Each pin is provided at a proper place with a nick or notch, seen at 17 in pin 11, and at 18 in pin 12. When in proper adjustment, the cutting edge of the knife 6 shears with the forward wall of the notch 17.

On the shaft 5, in front of the knife 6, is a rubber friction wheel 19, secured to the shaft by the washer 20 and clamping nut 21. The rubber tire or friction wheel 19 extends nearly to the edge of the knife 6, and nearly into contact with the pins 11 and 12,—so closely in contact with them that, when a cap-

sule is slipped on either one of the pins, the rubber friction wheel 19 presses against the capsule and causes it to revolve upon the pin contemporaneously with the revolution of the knife, thus bringing the entire circle around the capsule into contact with the edge of the knife, and allowing the knife to shear the open end of the capsule off smoothly.

As previously mentioned, the knife is divided into a number of cutting edges and non-cutting parts, and the non-cutting parts are notched toward the center of the knife, as appears in Fig. 1. At that period in the revolution of the knife when any one of the notches comes opposite the pin 11, the entire surface of the pin is free, so that the capsule can be slipped onto it, with the end to be trimmed projecting beyond, over the notch 17, and into the path of the cutting part of the knife.

Below the table is a treadle 22, from which rises a rod 23, the upper end of which terminates in a hook 24 that engages over one of the pins in the wheel 30. A spring 25 tends both to lift the hooked rod and treadle, and to pull the rod inward toward the shaft 5 so as to bring the hook into engagement with the pins on the wheel 30, and also to lift the hook upward after it has been pulled downward by the foot of the operator. From the base 2 rises a spring 26, the upper end of which terminates in a curve adapted to engage with a detent on the driving wheel 30. This is a mere holding spring, intended to hold the wheel from backward rotation, and to stop it from over-rotation in its forward movement. As the wheel rotates in the direction of the arrow shown in Fig. 3, the end of the spring 26 drops into the notch in the wheel 30, and holds the wheel from either forward or backward rotation, especially against backward rotation; and of course this tendency to hold the wheel against rotation is overcome by the actuating pull of the hook 24 when the treadle is depressed by the foot of the operator.

Each of the posts 3 and 4 are split above the bearings for the shaft 5, and are held together by screws 27 and 28, by which the frictional resistance to rotation of the shaft may

be regulated, and by which the bearings may be adjusted to compensate for wear.

What I claim is—

1. In a capsule cutting machine, the combination of a cutter, capsule holding pins provided with notches adapted to shear with the edge of the cutter, a friction device adapted to engage the capsule and rotate it on the holding pin, and means adapted to actuate the knife in shearing engagement with the notched pin, substantially as described.

2. In a capsule cutting machine, the combination of a rotary cutter, means for giving the same intermittent rotary motion, capsule holding pins provided with shearing portions adapted to shear with the cutting knife, and a friction device adapted to give to the capsules a rotary motion on pins, substantially as described.

3. In a capsule trimming machine, the combination of a notched rotary cutter, means for giving to the same intermittent rotary motion, capsule holding pins, arms adapted to hold said pins and adjustable with respect to the center of the cutter, substantially as described.

4. In a capsule trimming machine, the combination of a rotary cutter, a driving wheel provided with means for engagement between it and a rod hooked at the upper end and engaging at the lower end with the treadle and adapted itself to engage with said pins and produce a partial rotation of the wheel, substantially as described.

5. In a capsule trimming machine, the combination of a rotary notched knife, shaft bearings provided with means for regulating the friction resistance to the rotation of said shaft, means for giving intermitting rotation to the shaft, pins adapted to support the capsules, and means for giving to the capsules a rotary motion contemporaneous with the motion of the shaft, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

THEODORE C. MERZ.

Witnesses:

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