# W. A. BUTLER & W. WELLGE.

## MACHINERY FOR SHARPENING SAFETY-PINS.

No. 195,791. Patented Oct. 2, 1877

*Fig. 1.*

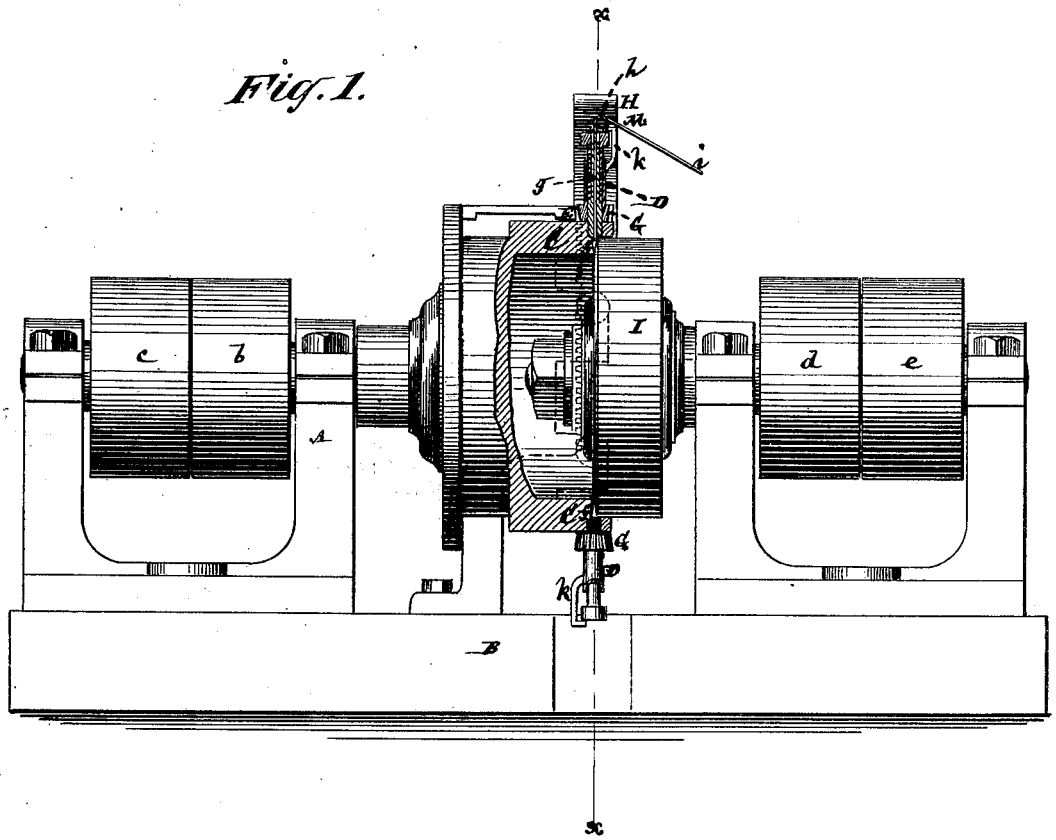
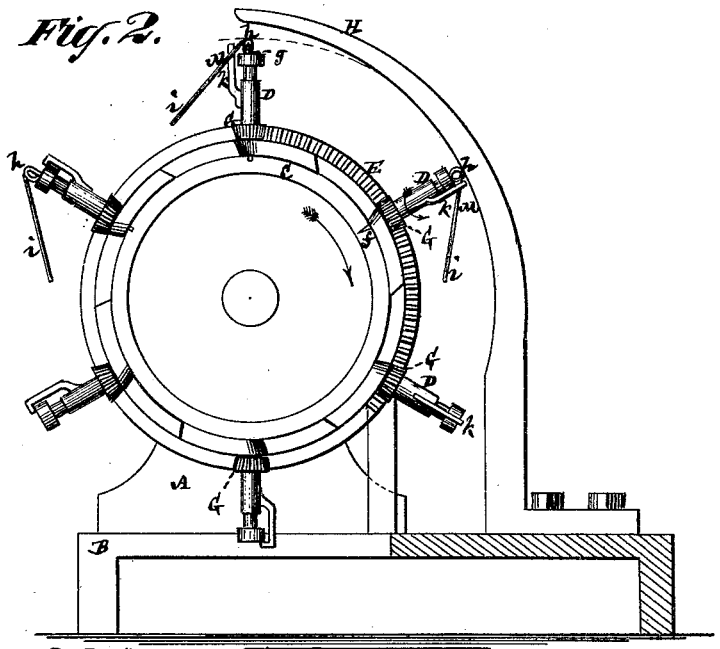



*Fig. 2.*

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# UNITED STATES PATENT OFFICE.

WILLIAM A. BUTLER AND WILLIAM WELLGE, OF NEW YORK, N. Y., ASSIGNORS TO THOMAS L. BUTLER, OF SAME PLACE.

## IMPROVEMENT IN MACHINERY FOR SHARPENING SAFETY-PINS.

Specification forming part of Letters Patent No. **195,791**, dated October 2, 1877; application filed August 24, 1877.

*To all whom it may concern:*

Be it known that we, WILLIAM A. BUTLER and WILLIAM WELLGE, both of the city and State of New York, have invented certain Improvements in Machines for Grinding Pins, of which the following is a description, reference being had to the accompanying drawing, forming part of this specification.

This invention is more especially intended for and will here be described more particularly with reference to the pointing, by grinding, of the one arm or leg of a bifurcated safety-pin.

The invention consists in a combination of a rotating face-plate or head, a series of rotating radial tubular work or pin holders carried by said head, a fixed cam or eccentric guide for feeding or projecting the pin or other article to be pointed through the rotating tubular holders, and a rotating circular grinding wheel or stone in like axial relation with the rotating head, and arranged to present a facial tapering grinding-surface for operation on the sides of the pins or articles to be pointed as the latter are rotated about their axes by the tubular holders, and revolve in common with the head which carries said holders.

The invention also consists in certain peculiarities of construction as regards said devices, or certain of them, whereby the efficiency of the machine is augmented.

In the accompanying drawing, Figure 1 represents a partly-broken or sectional side elevation of a machine constructed in accordance with our invention, and as employed in pointing, by grinding, the one leg or bifurcated portion of spring safety-pins. Fig. 2 is a transverse section of the same on the line *x x*.

A is a head-stock, secured to a suitable bed or base, B, and serving to carry a rotating hollow face-plate or head, C, the mandrel of which is provided with fast and loose pulleys *b c*, to actuate or arrest the motion of said head. D D are the tubular work or pin holders, of which there may be any number, arranged in radial relation with the head C on the face end of the latter, and made capable of rotation about their axes as they revolve in common with the head.

In the drawing said radial work or pin holders are represented as constructed of an outer rotating sleeve and an inner stationary tube, through which the leg of the pin to be pointed is projected; also, as provided with a tubular clearer in the outer end of the sleeve, and a spring for throwing out said clearer, to expel the pointed pin from its holder, such spring being previously compressed by the clearer during and by the passage of the pin through the holder while being pointed; but it is immaterial, as regards the operation of the radial work or pin holders as far as the present invention is concerned, whether they be constructed as represented, or be simply tubular rotating devices without any special means for expelling the pointed pin, and they will here be described accordingly, inasmuch as the pins, after being pointed, may be extracted or withdrawn in various ways. It is also proposed to feed the pins into the radial holders by devices operating automatically; but these also form no part of the present invention.

The radial work or pin holders D are only rotated on or around their axes during a portion of each rotation of the head C. The means for rotating said holders consist of a stationary segmental rack, E, arranged to encircle a portion of the head C and pinions G, fast on the pin-holders D, and gearing with said rack. On the same side of the head C as the rack E is situated, in advance of said rack, or in the same vertical plane as the pin-holders D, is a stationary outer cam or curved guide, H, which is eccentric to the head C, and has a contracting tendency toward the center of the head C from the point at which the work or pin holders D, in the rotation of the head C, enter beneath said guide H to the point at which they leave the same.

I is a grinding-stone, emery-wheel, or other grinder, driven and arrested in its motion as required by fast and loose pulleys *d e*, and arranged to rotate in the same axial relation as the head C, and, preferably, in a reverse direction to the latter. Said grinder I is beveled on the outer periphery or portion of its inner face to correspond with the requisite taper of the pin, and the head or face-plate C, within or against which the grinder I works, has semicircular taper radial grooves *f* in it, to receive the one-half of the end of the pin to be pointed within it.

The operation is as follows: The leg or arm

*g* of each bifurcated spring safety-pin M to be pointed (after the spring-coil *h* has been made in the wire of said pin, and before its two legs have been adjusted to their proper relative positions) is introduced down within the tubular holders D as or before the latter approach the entering end of the stationary eccentric guide or cam H during the rotation of the head C. The other legs or arms *i* of said pins then stand at any desired angle to clear the rack E, as the legs *g* of the safety-pins are rotated in common with the holders D, by the gear of the pinions G with the rack E, during the rotation at the head C. A dog, *k*, on each rotating tubular holder D, bearing on or against the legs *i* of the safety-pins, serves to rotate the leg *g* of either pin in common with its holder D. In this way, or by this means, the legs *g* of the safety-pins are pointed by grinding as said legs are rotated in common with the holders D of the revolving head C, in combination with the rotating action of the grinder I, the stationary cam or eccentric guide H operating during such action to feed or bear the inner leg *g* of the pin, by its contact with the coil *h*, down or inwardly within the semicircular taper grooves *f* of the head C, between the latter and the tapering face of the grinder I. This points the leg *g* of either pin, which afterward drops out, or is extracted, to provide for the insertion of a fresh pin. The shield of the safety-pin carried by the other leg *i* may either be previously or subsequently attached.

We claim—

1. The combination of the rotating face-plate or head C, a series of rotating radial tubular work or pin holders, D, carried by said head, the stationary cam or eccentric guide H, and the rotating grinding wheel or stone I, substantially as specified.

2. The combination of the dogs *k* with the rotating tubular work or pin holders D and the rotating face-plate or head C, essentially as described.

In testimony whereof we hereunto sign our names in the presence of two subscribing witnesses.

WILLIAM A. BUTLER.
WILLIAM WELLGE.

Witnesses:
JOHN JUNGERMANN,
H. C. HARDING.