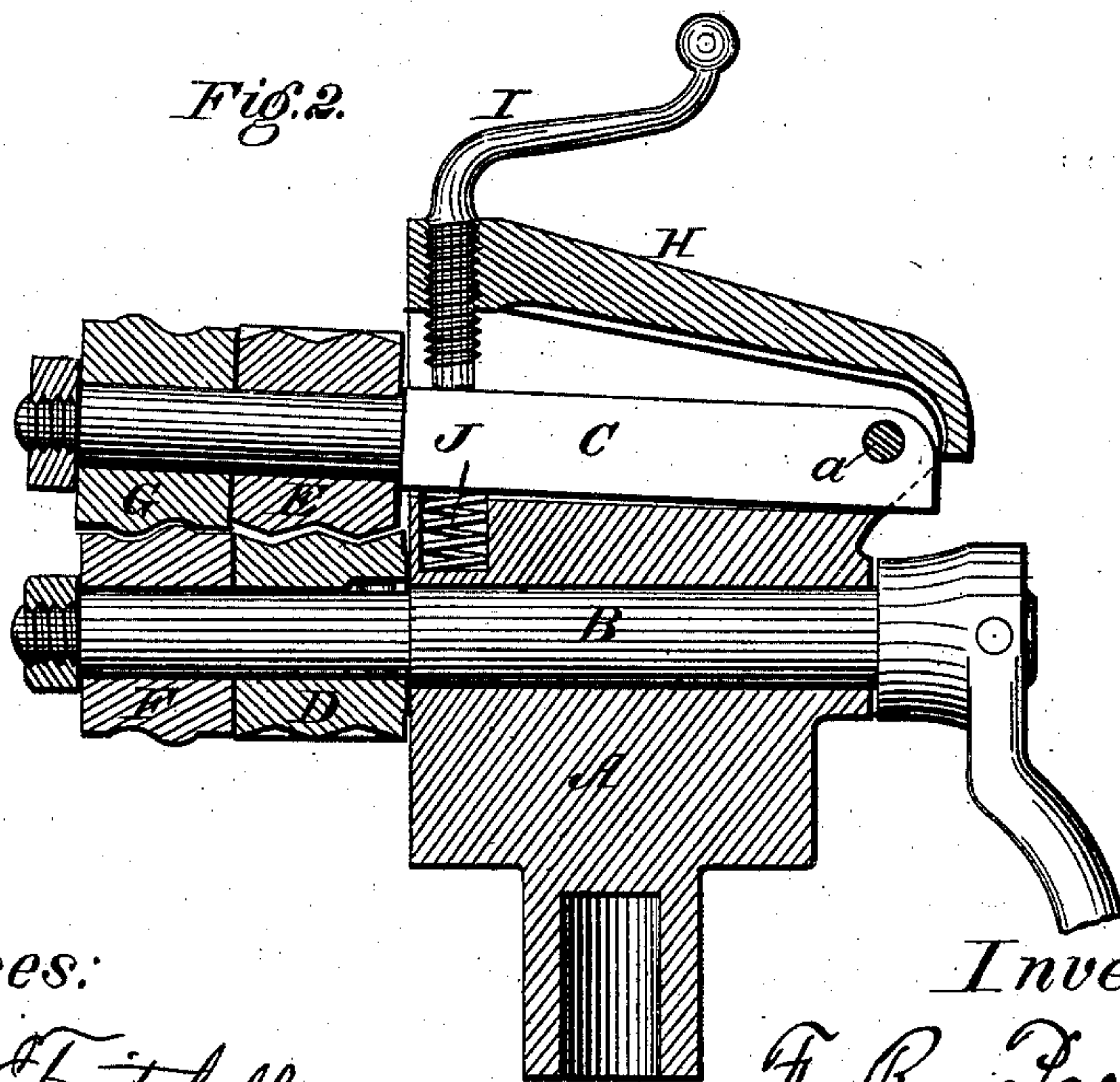
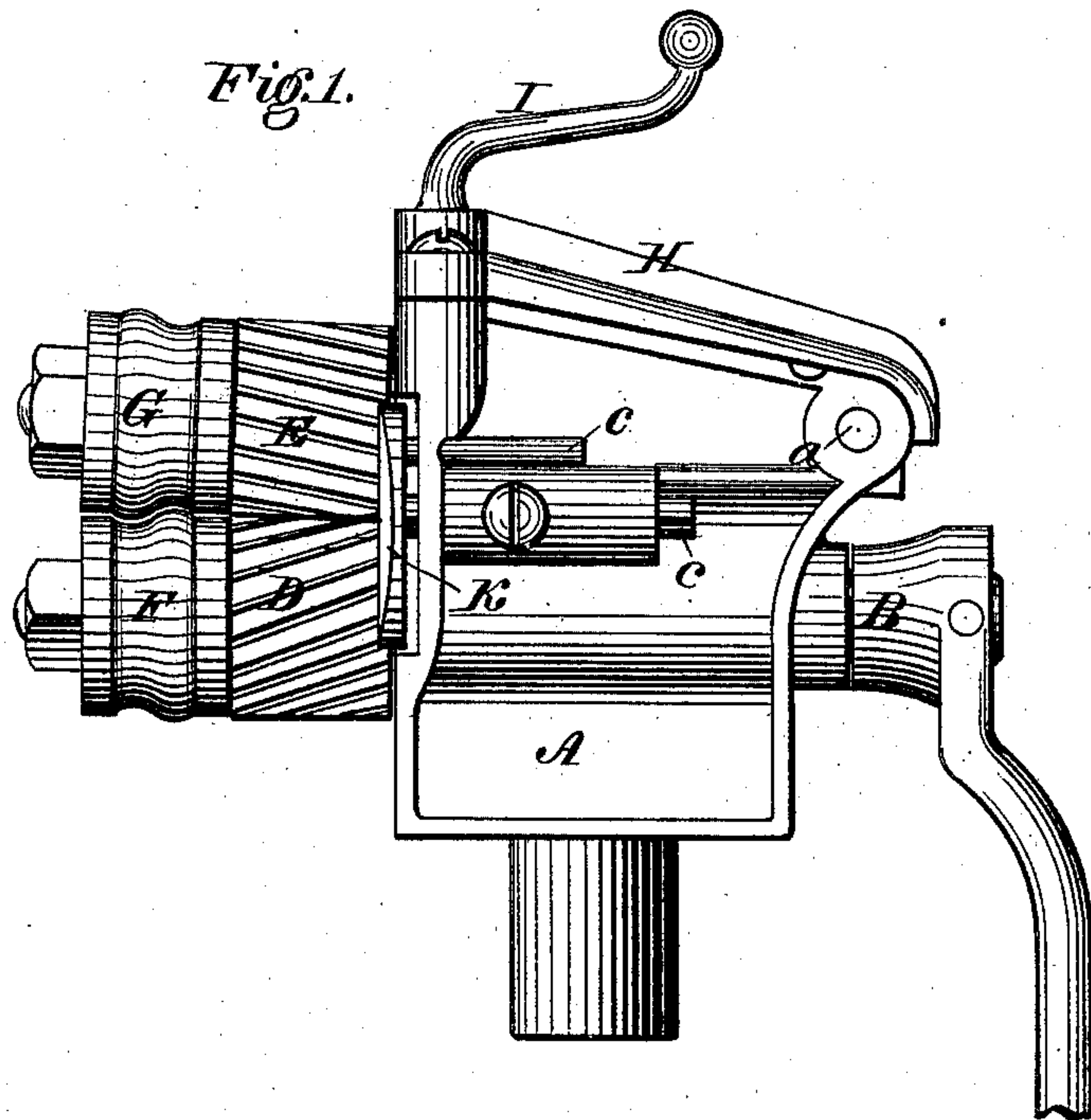


F. R. PACKHAM
Machine for Crimping Tapering Stove-Pipe.
No. 214,581. Patented April 22, 1879.



Witnesses:

Donn P. Fritchell.
William W. Dodge.

Inventor:

F. R. Packham
By his attys
Dodge & Son

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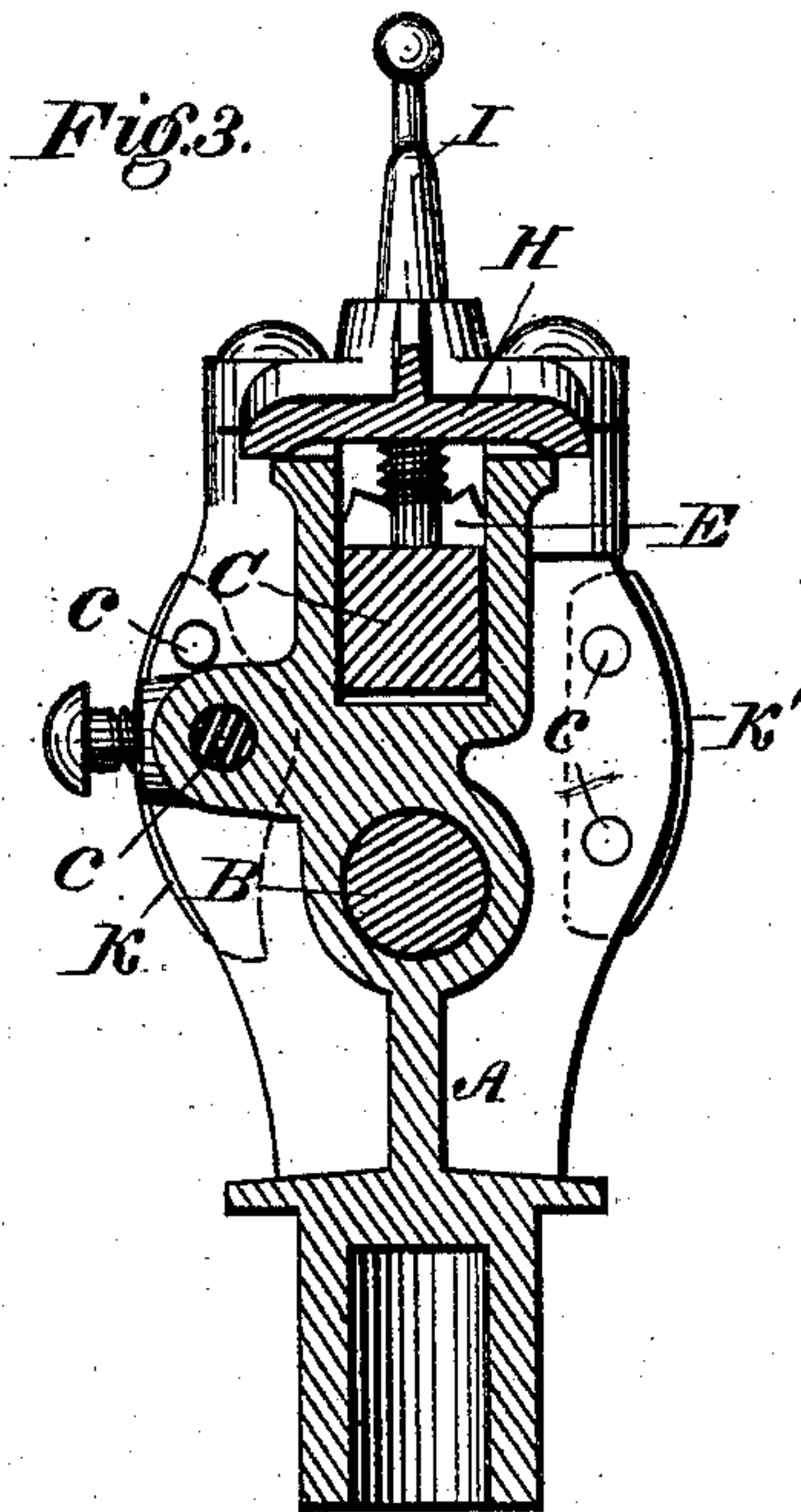
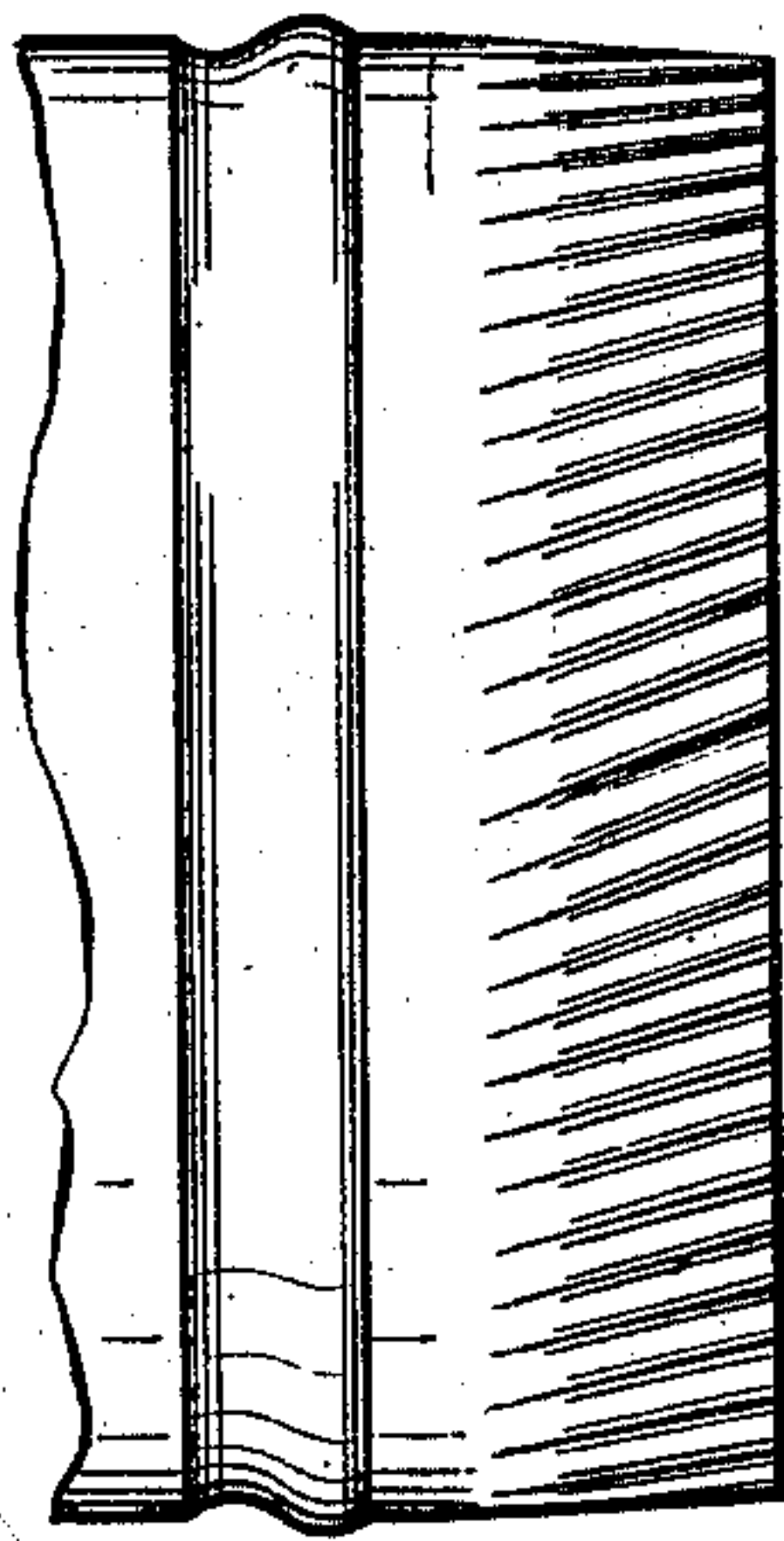


Fig. 4.



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UNITED STATES PATENT OFFICE.

FRANK R. PACKHAM, OF MECHANICSBURG, OHIO.

IMPROVEMENT IN MACHINES FOR CRIMPING AND TAPERING STOVE-PIPES.

Specification forming part of Letters Patent No. **214,581**, dated April 22, 1879; application filed December 20, 1878.

To all whom it may concern:

Be it known that I, FRANK R. PACKHAM, of Mechanicsburg, in the county of Champaign and State of Ohio, have invented certain Improvements in Machines for Crimping and Tapering Stove-Pipe, of which the following is a specification.

This invention relates, mainly, to improvements in the machine for which Letters Patent were granted to J. E. Hunter, bearing date June 6, 1876, No. 178,299, whereby the machine is rendered easier in action and more durable.

The improvements in the machine consist in providing the crimping or corrugating rolls with diagonal or oblique teeth or flutes, whereby they are caused to act in an easier manner upon the metal and prevented from splitting or rupturing metal of an inferior quality, in arranging the rolls to be reversible end for end, and in the special arrangement of cylindrical rolls with reference to each other, as hereinafter described.

Figure 1 represents a side elevation of my machine; Fig. 2, a vertical central section of the same; Fig. 3, a transverse vertical section; Fig. 4, a side view of the end of the pipe as it leaves the machine.

A represents a rigid cast-metal frame; B, a rotary shaft, having a fixed bearing in the lower part of the frame; and C, a shaft or spindle passing through a slot or groove in the top of the frame, and mounted at its rear end on a transverse pivot, *a*, so that its forward end may rise and fall. The parts are so arranged that when in their operative positions the two shafts diverge toward their forward ends. On the forward ends of the shafts B C there are mounted two cylindrical rolls, D E, provided with spiral ribs, flutes, or teeth, and arranged to mesh into each other, the divergence of their shafts causing them to mesh or engage more deeply with each other at the inner or rear ends than at the front ends, as clearly represented in the drawings.

At the outer ends of the respective fluted rolls there are mounted on the same shafts two molded or ogee rolls, F G, to form a mold or beading upon the pipe. These rolls are made separate and detachable from the fluted rolls, so that they may be replaced by plain collars when desired; and in order that they may prop-

erly act upon the pipe, notwithstanding the divergence of the shafts, they are made of increased diameter at the outer ends.

The fluted rolls are made detachable and reversible upon their shafts, so that when one end becomes worn down and dulled from use they may be turned end for end.

In practice the greater portion of the wear is upon the inner ends of the rolls, and by thus making them reversible upon the diverging shafts they are made to do service double the length of time that the original tapering rolls could be used. The shaft carrying the lower roll is arranged to revolve, and is provided with a hand-crank by which to turn it; but the upper shaft, which does not rotate, has its body portion within the frame made of a square form, and fitted closely within a slot or groove therein, as shown in Figs. 2 and 3. The slot or groove to receive the shaft is cast in the top of the frame, and is covered and closed by means of a cap-plate, H, which serves to close the top of the machine and exclude dirt, chips, &c., and also to form a seat or bearing for a hand-screw, I, which bears upon the top of the shaft to depress the upper roll. The upper roll is elevated, when the screw is turned backward, by means of a spring, J, as shown. At the front of the frame, on opposite sides, there are mounted two hardened-steel guides and shields, K K', each consisting of a plate provided with two supporting stems or shanks, *c*, sliding into holes in the frame. These plates may be forced back out of the way into recesses in the front of the frame, or moved forward to any desired point, and then fastened by means of screws tapped into the frame and bearing against the stems *c*.

If desired, one of the shields or guides may be fixed permanently and rigidly on the frame, and the other made adjustable, as the adjustability is ordinarily required only when operating upon leaden pipe or tin water-spouting. When both guides are back against or within the frame, which is the position in which they are generally used, they serve to prevent the edge of the stove-pipe from cutting and wearing into the front of the frame, as it would otherwise do.

In operating the machine the end of the

pipe to be crimped and tapered is introduced between the fluted rolls, the upper roll depressed by the screw, and the rolls set in motion by the crank, whereupon the pipe is rotated between the rolls and its end beaded, provided with spiral corrugations or crimps, and tapered down.

In practice it is found that the spiral ribs, acting as they do with a shearing and rolling action across the grain of the metal, and producing each corrugation gradually from one end to the other, instead of throughout its entire length at once, cause the machine to work with much greater ease and smoothness than the original machine, and that the spiral ribs or corrugations do not weaken and rupture the metal, as was frequently the case in the use of the straight ribs.

The fact that the beading-rolls are separate from the others admits of their being readily removed when the machine is to be used for leading pipe or for spouting, in which the beading is not required. While it is preferred to use the cylindrical fluted rolls, as described, it is manifest that the spiral ribs may be used on rolls, such as shown in the original machine.

Two points in the construction of my machine are to be particularly noted—first, that the crimping-rolls are made of such length and so arranged that they mesh or interlock at their inner ends at all times when in operation, so that, although of cylindrical form and at an inclination to each other, one is driven by the other without the employment of gearing; and, second, that the rolls are cylindrical and reversible end for end upon their journals, so that when one end is worn the other may be used.

I am aware that a machine has hitherto been made in which the crimping-rolls were nearly

cylindrical; but their arrangement was such that gearing was required to transmit motion from one to the other, and the construction of parts such, the rolls being short and their journals tapered, that they could not be reversed.

In order that the rolls may always drive each other, and that they may have when reversed a sufficient amount of unworn surfaces, they are made, by preference, of greater length than would otherwise be required—that is to say, of greater length than the width of the crimping. The rolls thus extended I designate as elongated.

I do not in this patent claim the pipe, as that will constitute subject-matter of another patent.

Having thus described my invention, what I claim is—

1. The two cylindrical ribbed rolls arranged on diverging axes, with their inner ends gearing together at all times and driving one another, whereby the use of gearing is avoided and a taper end produced on the pipe by cylindrical rolls.

2. In a pipe-crimper, the combination of two ribbed rolls arranged with their surfaces at an inclination to each other, and made reversible end for end upon the supporting-shaft, whereby one end may be brought into action after the other is worn away.

3. In a machine for crimping and tapering stove-pipe, two spirally-fluted rolls arranged with their surfaces nearer together at one end than at the other.

FRANK RUSSELL PACKHAM.

Witnesses:

E. D. MORGAN,
WILL V. CHURCH.