

(No Model.)

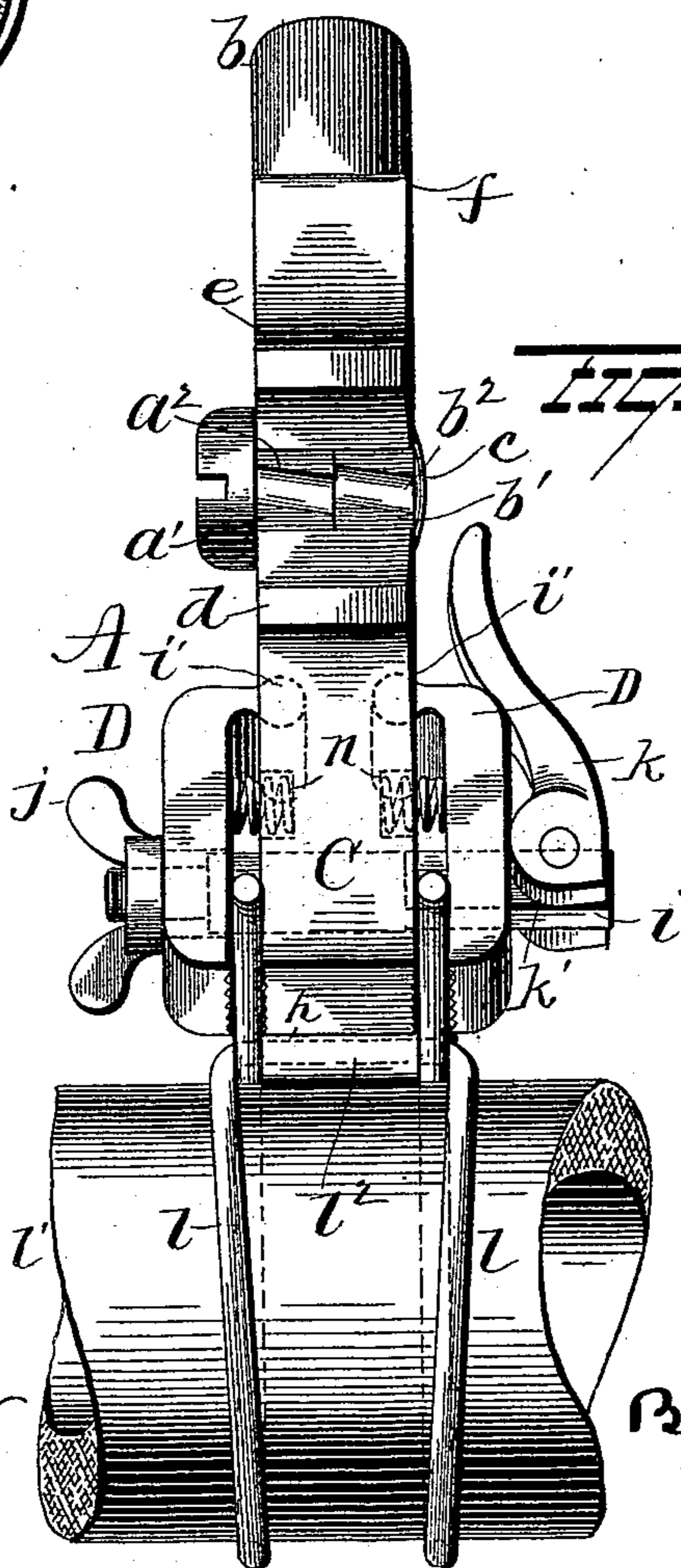
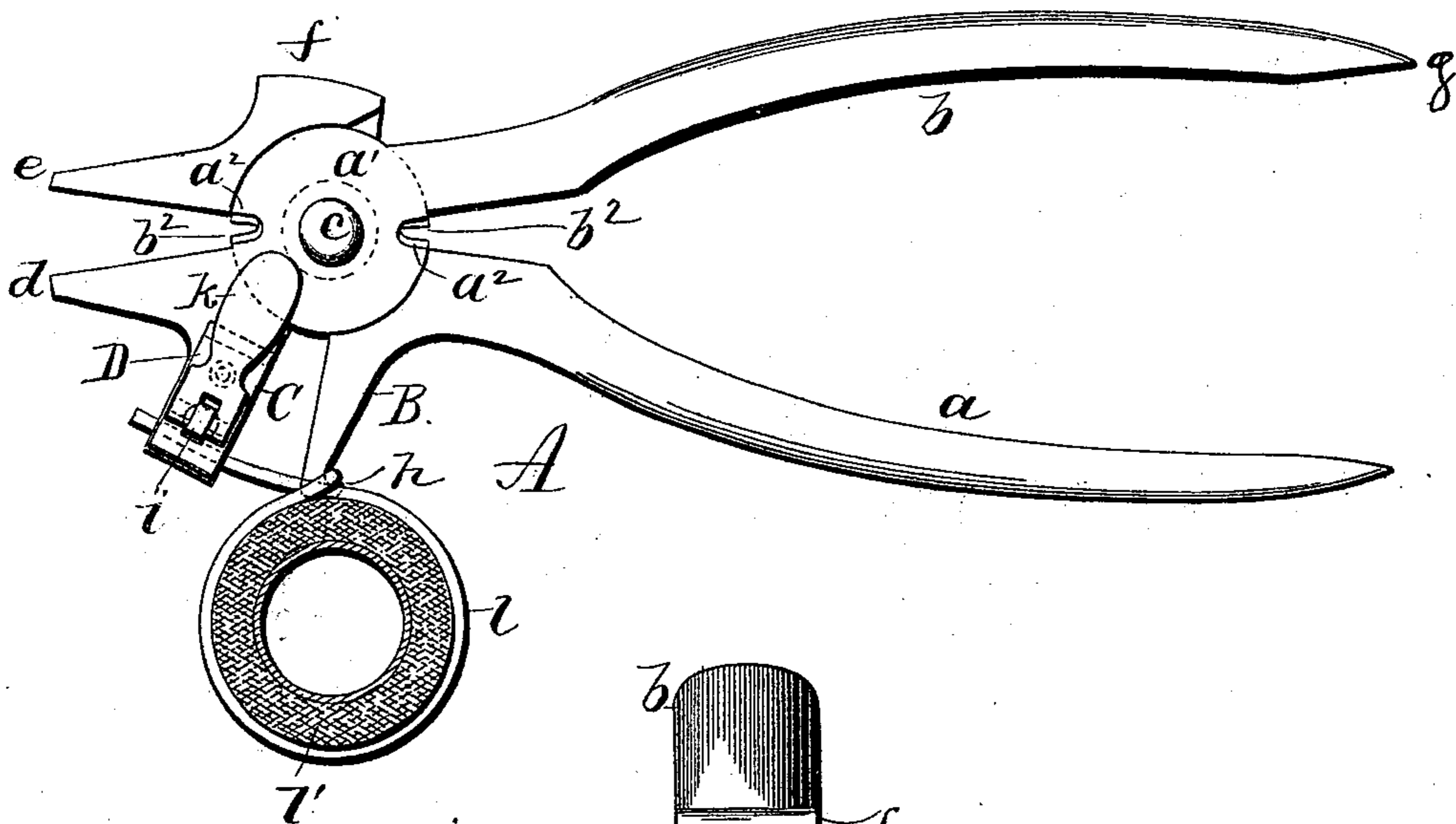
2 Sheets—Sheet 1.

F. E. SNYDER.
COMBINATION TOOL.

No. 518,283.

Patented Apr. 17, 1894.

FIG. 1.



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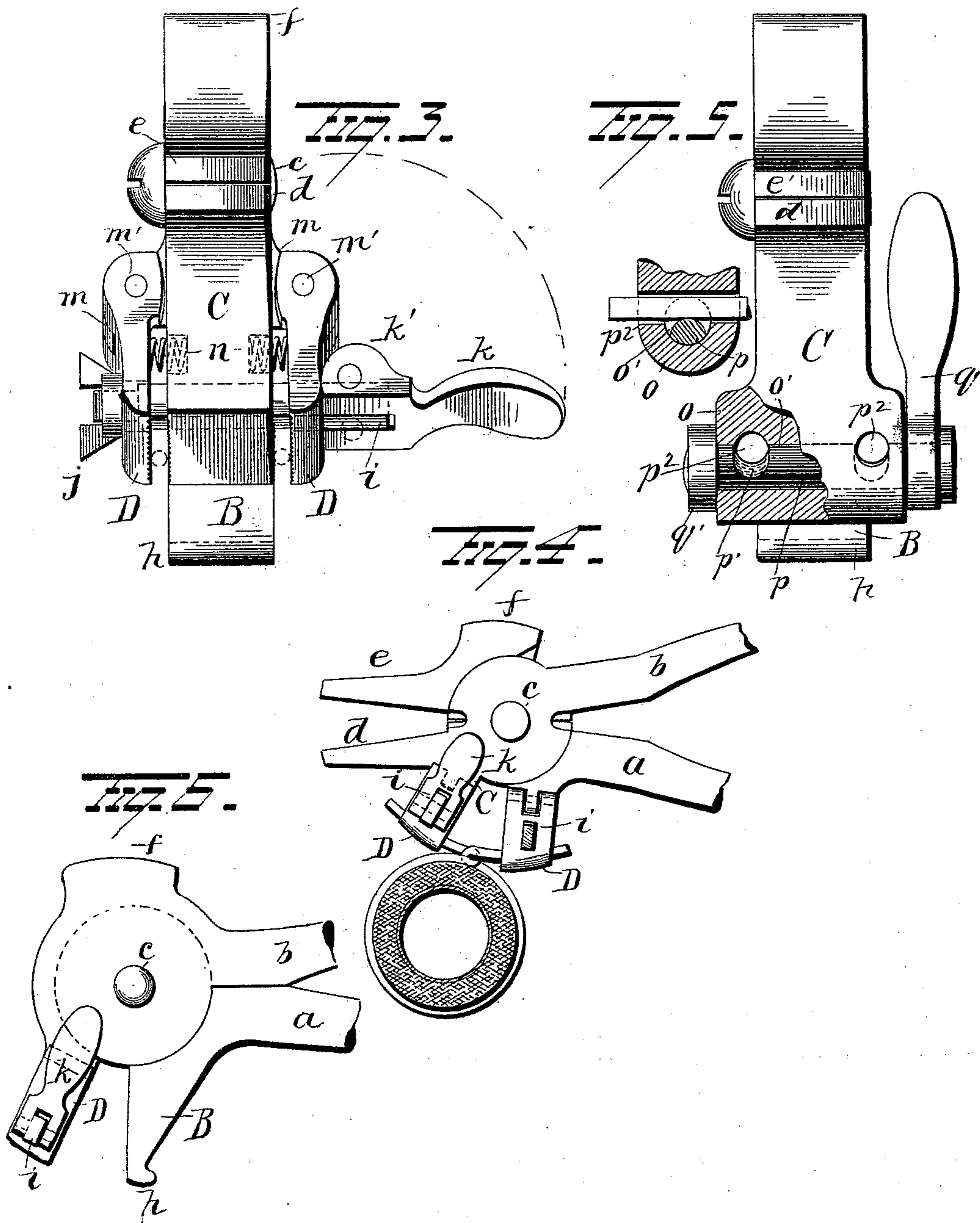
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2 Sheets—Sheet 2.

F. E. SNYDER.
COMBINATION TOOL.

No. 518,283.

Patented Apr. 17, 1894.



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UNITED STATES PATENT OFFICE.

FRANK EDWARD SNYDER, OF MASSILLON, OHIO.

COMBINATION-TOOL.

SPECIFICATION forming part of Letters Patent No. 518,283, dated April 17, 1894.

Application filed May 15, 1893. Serial No. 474,232. (No model.)

To all whom it may concern:

Be it known that I, FRANK EDWARD SNYDER, a citizen of Massillon, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Combination-Tools; and I do hereby 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 appertains to make and use the same.

My invention relates to an improvement in hose coupling tools, and more particularly to improved devices for securing a binding wire or wires around a hose or other device,—the object of the invention being to produce a simple instrument or tool which can be employed for securing a binding wire to a hose or other device.

A further object is to produce means for applying wire or wires to a hose or other device, which shall be so constructed that no special wire, strap or band need be used.

A further object is to so construct a device for securing wires to a hose or other device that it can be readily adjusted to accommodate any size of wire which it may be desired to use.

A further object is to produce a device for securing wire on a hose or other device, which shall be simple in construction, comparatively cheap to manufacture, easy to operate and which shall be effectual in the performance of its functions.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings: Figure 1 is a view of my improved tool, showing its application for securing wire to a hose. Fig. 2 is a view, illustrating the clamping jaws of the device shown in Fig. 1. Figs. 3, 4, 5, and 6 are views illustrating modifications.

A represents my improved tool, comprising, in its structure, two levers *a, b*, pivotally connected together at *c*, and their forward ends made to constitute jaws *d, e*, thus producing pliers. Projecting from the hub of one of the levers is an enlargement *f*, adapted to serve as a hammer. The end of one of the levers *a, b*, is preferably flattened so as to produce

a screw-driver *g*. The hubs *a', b'* of the levers *a, b* are provided (preferably at diametrically opposite sides) with diagonal recesses, *a², b²*, the edge of the recess in one hub being adapted to act in conjunction with the edge of the recess of the other hub to produce a wire cutter,—or, in fact, two wire cutters at diametrically opposite points of the hubs. Projecting laterally from the lever *a*, preferably at the hub thereof, is an arm or jaw *B*, provided at its free end with a hook *h*. An arm or jaw *C* also projects from the other lever *b*, preferably at the junction of the hub *b'* and the jaw *d*. At or near the base of the arm or jaw *C*, clamping jaws *D* are pivotally connected by means of knuckle joints *i'*, the inner faces of said clamping jaws and the diametrically opposite faces of the jaw *C* being milled so as to prevent the ends of a wire placed between said clamping jaws and the jaw *C* from slipping. The jaw *C* and jaws *D* are perforated for the passage of a bolt or pin *i*, the perforations in the clamping jaws *D* being preferably slightly larger than the pin or bolt *i*. One end of the pin *i* is screw-threaded for the reception of a thumb screw *j*, and to the other end a lever *k* is pivoted, said lever having cam faces *k'* adapted to bear against the face of the adjacent jaw *D*. A piece of wire *l* having been bent in the form of a staple, is placed around the hose *l'* and the free ends of the wire passed through the looped portion thereof. The free ends of the wire will be inserted between the jaws *D* and arm or jaw *C* and the lever *k* operated to clamp said ends of the wire. The hook *h* at the end of the arm *B* will be made to engage the cross bar *l²* at the looped end of the wire and the levers *a, b*, compressed or made to approach each other, thus drawing the wire tightly around the hose. When the wire shall have been drawn sufficiently tight around the hose, the free ends will be bent to engage the cross bar *l²* of the wire, by simply turning the instrument on the end of the arm *B* as a fulcrum,—after which the protruding ends of the wire will be cut off by means of the wire cutter hereinbefore described.

It will be seen that by adjusting the thumb screw *j* the clamping jaws can be adjusted to receive a wire of any desired size.

In the form of the invention shown in Fig. 3, instead of connecting the clamping jaws by means of knuckle joints as above explained, laterally projecting lugs *m* will be provided at the base of the arm C, and the inner ends of the jaws D bifurcated for the reception of said lugs, said jaws being pivotally connected to the lugs by means of pins *m'* passing through the same and the bifurcated end of the jaws, thus producing a hinged connection of the jaws with the arm C.

Instead of providing a jaw D at each side of the arm C, a single jaw may be pivotally connected at one side of said arm C, as shown in Fig. 4. In all three of the arrangements above described, springs *n* will be located between the jaws D and arm C, so that when the levers *k* are operated to release the wire, the clamping jaws will spring away from the arm C and thus insure the ready release of the wire.

In the form of the invention shown in Fig. 5, the clamping jaws D are dispensed with entirely, and the free end of the arm C is provided with a boss *o* having an opening *o'* for the accommodation of a shaft *p*, which latter is provided with eccentric serrated or roughened grooves or recesses *p'*, and the boss *o* is provided with a perforations *p²* adapted to align with said eccentric grooves or recesses. One end of the shaft *p* is provided with a lever *q* by means of which to operate it and at the other end, a nut *q'* is placed on said shaft to retain it in place. In operating the device thus constructed, the ends of the wire are passed through the perforations *p²* and the eccentric grooves or recesses *p'*, and the lever *q* operated to clamp the ends of the wire in place.

It may sometimes be desired to apply a single wire to a hose, and for this purpose the modified form of construction shown in Fig. 4 will be employed. The arm C will be provided with a clamping device as above described, employing a single clamping jaw. The hooked end of the arm B will be displaced by a clamping device identical with that on the arm C. The respective ends of the wire will be held by the clamping devices carried by the respective jaws, and after the wire shall have been drawn sufficiently tight, the instrument will be turned to twist the wire, after which the protruding ends will be cut off.

If desired the instrument shown in Fig. 5 may be modified to operate on a single wire, by providing the arm B with the clamping device shown at the end of arm C.

In the form of the invention shown in Fig. 6 the jaws *d*, *e*, which produce the pliers, are dispensed with, as are also the wire cutters.

With my improved tool no special size of wire, strap or band need be used, as the wire

needs no special preparation, only to cut from a roll the required length, holding same with pliers and bending in the form of a staple. In this manner any wire that is long enough to encircle the hose and be gripped by the device can be put on perfectly tight, whereas, heretofore wires have been made specially for putting on hose and of various sizes to accommodate different sized hose. The fact of no special preparation of wire being required, same can be bought in the roll or bulk, making the cost about one-tenth as much as other wires.

Wires applied by means of my improved device are not liable to break, and a wire that is not long enough for a double one can be applied singly.

My improvements are very simple in construction, cheap to manufacture and effectual in the performance of their functions.

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

1. The combination with two levers pivotally connected together, of an arm projecting from one of said levers, a clamp connected adjustably with said arm, and a hook-shaped arm projecting from the other lever, substantially as set forth.

2. The combination with two levers pivotally connected together, of an arm projecting from one of said levers, a clamping jaw pivotally connected adjacent to said arm, a pin passing through said arm and jaw and a cam lever pivotally connected to one end of said pin, and an arm projecting from the other lever, substantially as set forth.

3. The combination with two levers pivotally connected together, of an arm projecting from one of said levers, clamping jaws pivotally connected at diametrically opposite sides of said arm, springs between said jaws and the arm, a pin passing through said jaws and the arm and a cam lever pivotally connected to said pin, substantially as set forth.

4. The combination with two levers pivotally connected together, of an arm projecting from one of said levers, a jaw pivotally connected to said arm, a pin passing through said jaw and arm and screwthreaded on one end, a thumb nut adapted to screw on said screwthreaded end, and a cam lever pivotally connected to the other end of said pin and an arm projecting from the other lever, substantially as set forth.

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

FRANK EDWARD SNYDER.

Witnesses:

J. A. D. BURROWS,
JACOB PINKLE.