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Patented Mar. 5, 1901.

G. R. FERGUSON.
HAIR CURLER.

(No Model.)

(Application filed June 16, 1900.)

2 Sheets—Sheet 1.

Fig. 1.

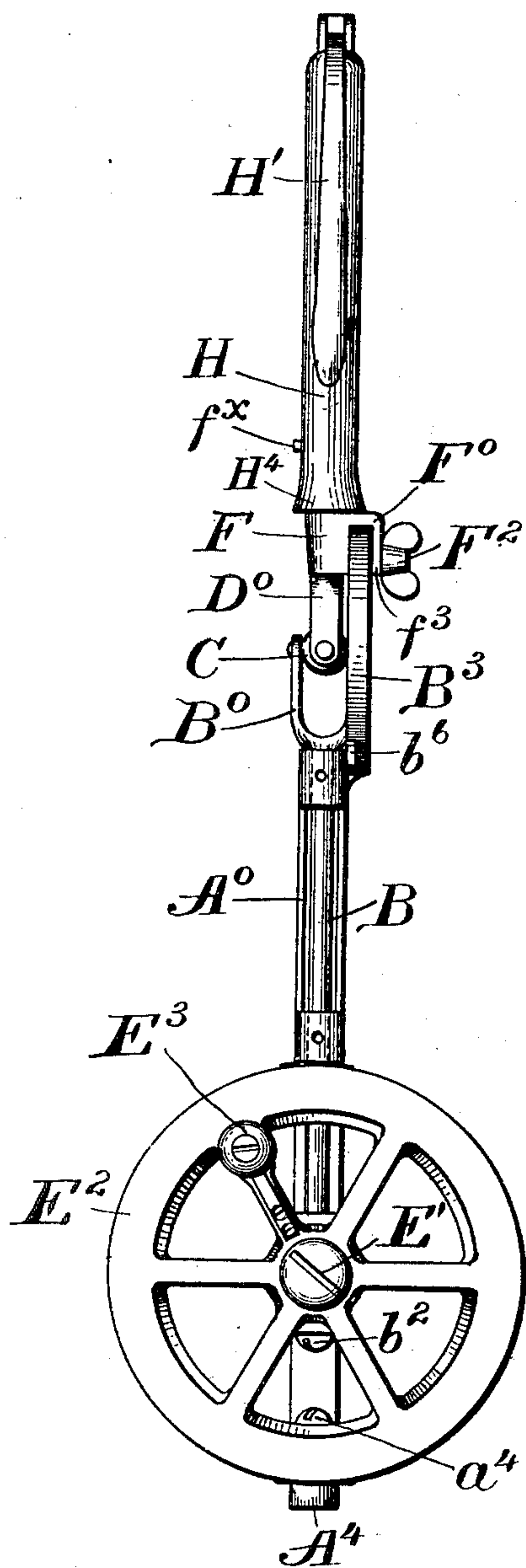
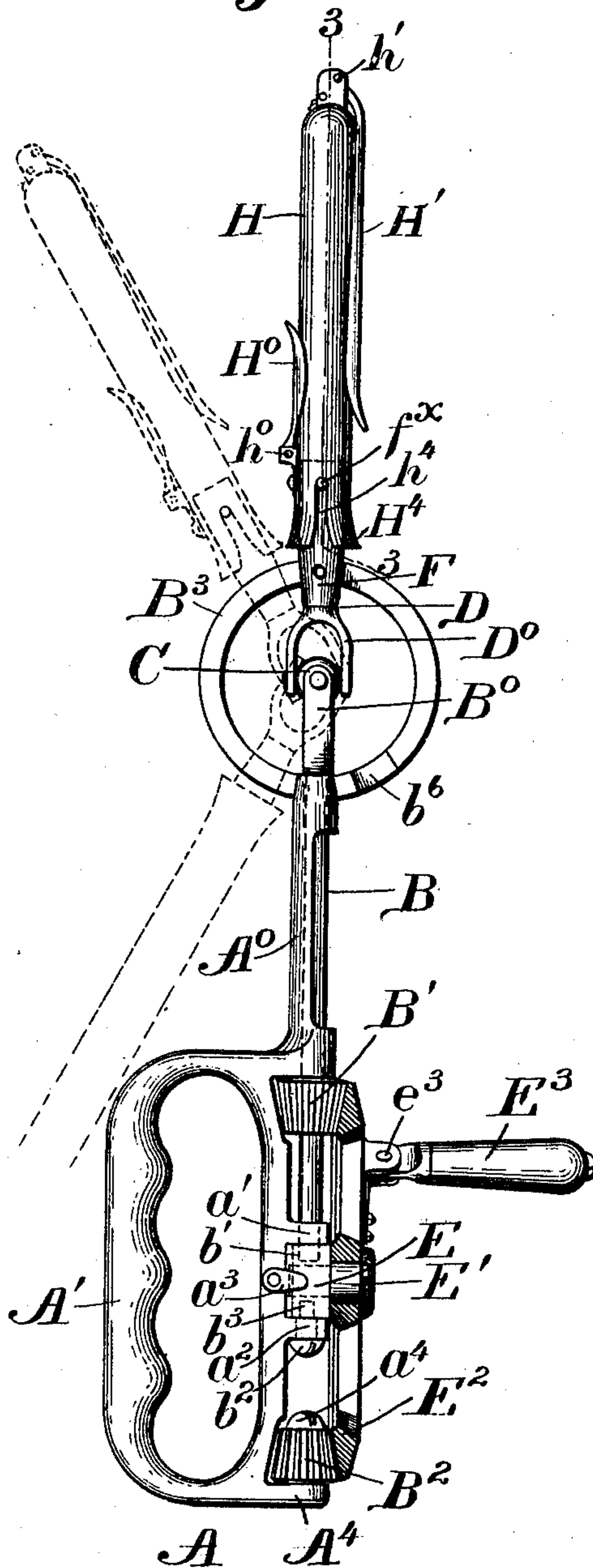


Fig. 2.



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Fig. 3.

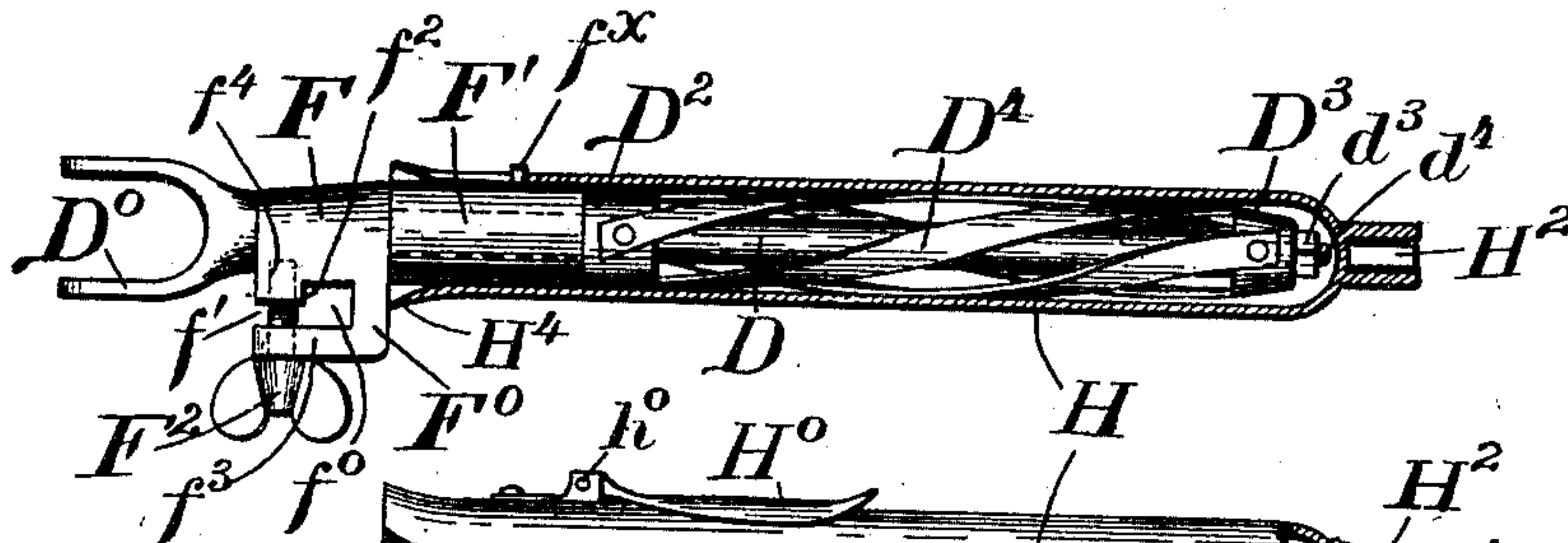


Fig. 4.

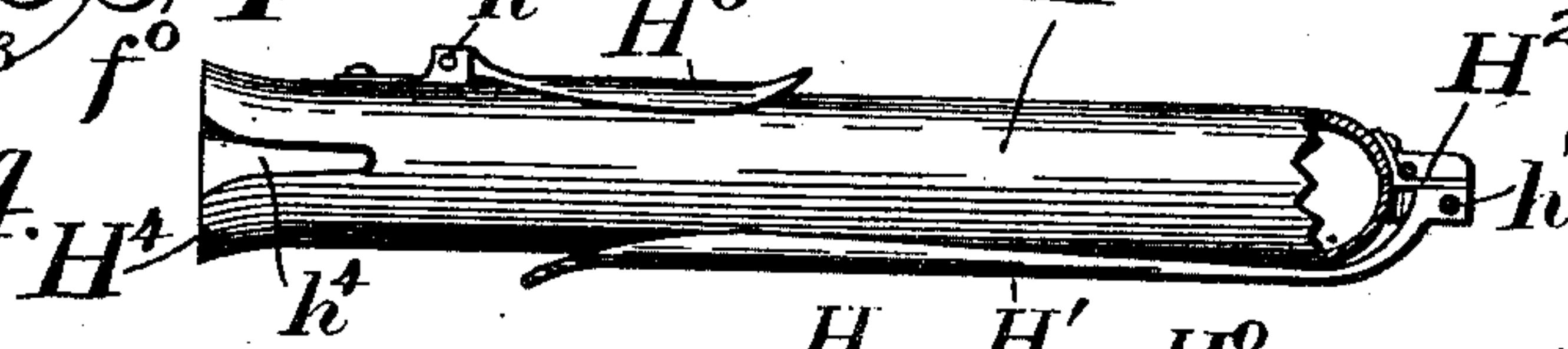


Fig. 5.

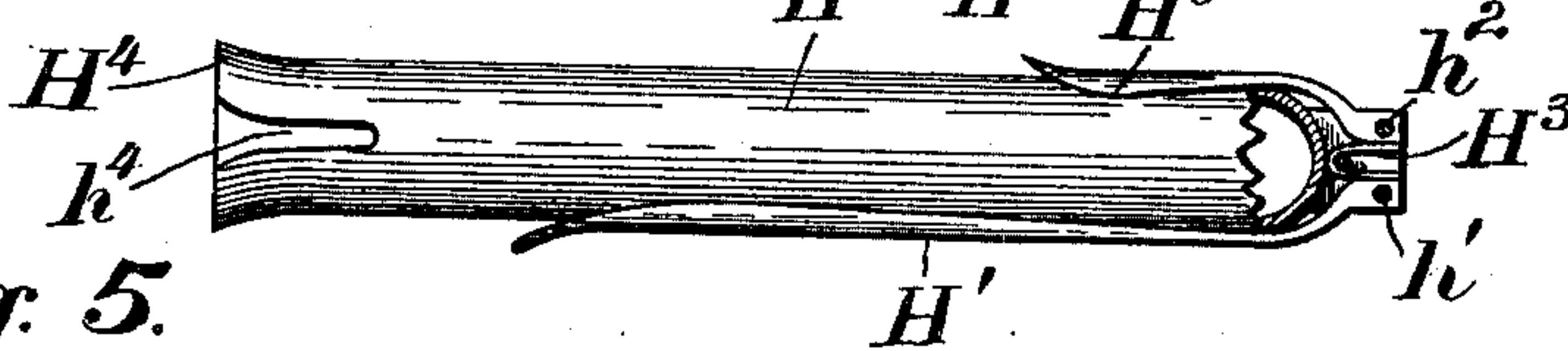
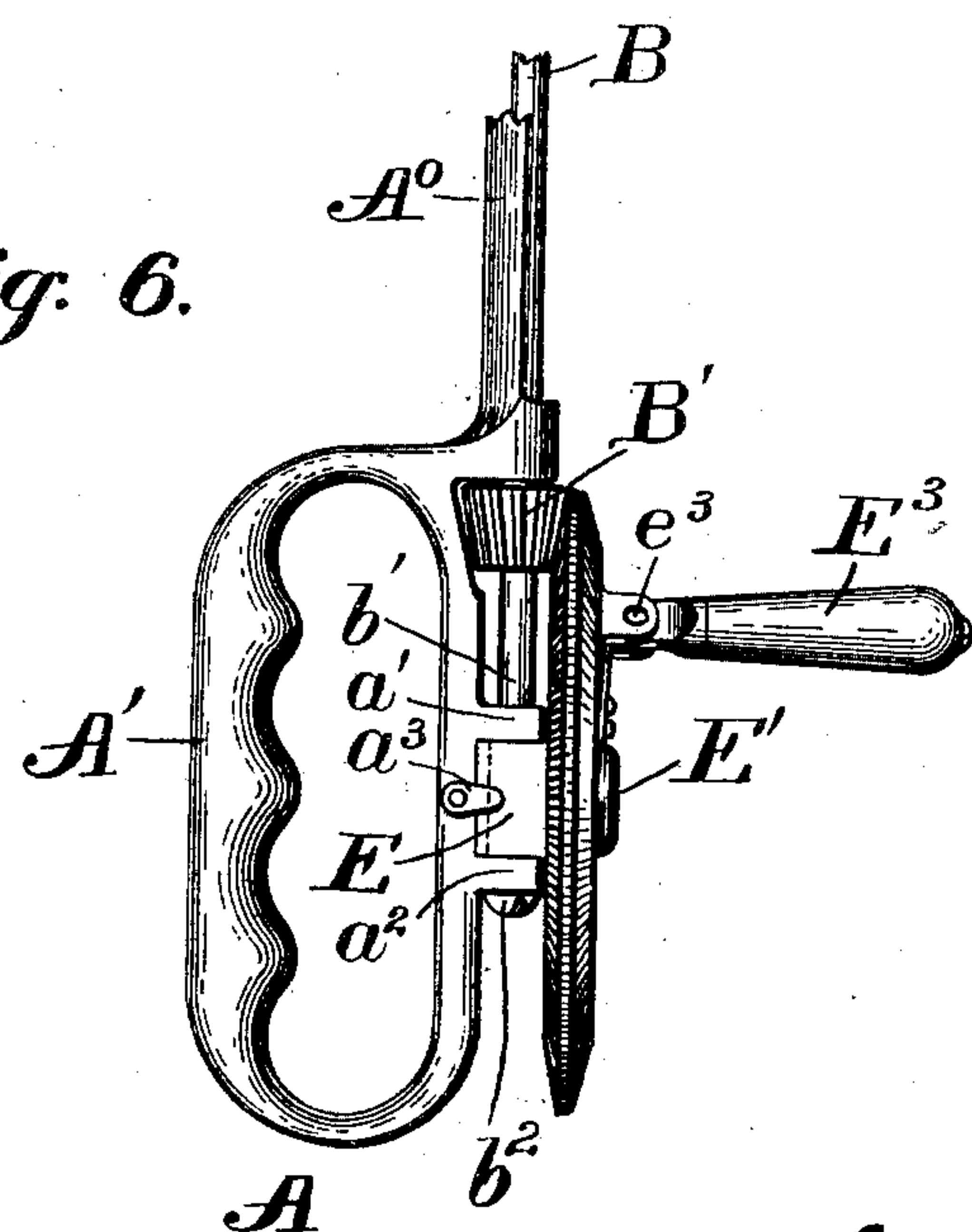


Fig. 6.



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UNITED STATES PATENT OFFICE.

GEORGE R. FERGUSON, OF AUGUSTA, GEORGIA.

HAIR-CURLER.

SPECIFICATION forming part of Letters Patent No. 669,078, dated March 5, 1901.

Application filed June 16, 1900. Serial No. 20,590. (No model.)

To all whom it may concern:

Be it known that I, GEORGE R. FERGUSON, a citizen of the United States, residing at Augusta, in the county of Richmond and State of Georgia, have invented certain new and useful Improvements in Hair-Curlers; 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 improvements in hair-curlers; and it has for its object to provide such a device as may be adapted for curling the hair in an expeditious and satisfactory manner, the means for heating the curling-iron being embodied in the device itself.

My invention consists in the novel devices hereinafter described and claimed, and these will be understood by reference to the accompanying drawings, wherein the same parts are indicated by the same letters throughout the several views.

Figure 1 represents a view in elevation of my improved device. Fig. 2 is a view, partly in elevation and partly in section, of the same as seen at right angles to the view shown in Fig. 1, and the dotted lines in said figure indicate the angular adjustment of the device. Fig. 3 is an enlarged sectional view, taken on the line 3-3 in Fig. 2, of the curling-iron proper. Fig. 4 is a detail view in side elevation, part being broken away, of the said curling-iron proper. Fig. 5 is a view similar to Fig. 4, showing a modification of the curling-iron; and Fig. 6 is a fragmentary view showing a modification in the arrangement of the gears.

Referring particularly to Figs. 1 and 2, A represents a frame comprising a hand-grip A' and rigid extension A'', forming a journal-bearing for the shaft B. The shaft B has a bifurcated end B', which constitutes one part of the universal joint C, the other member of said universal joint being the forked end D' of a spindle D. (Seen most clearly in Fig. 3.) Upon the shaft B is mounted a beveled pinion B', the said pinion being keyed or otherwise rigidly fixed upon the said shaft and serving to retain the said shaft in its bearings in the extension A'' of the frame A.

E represents a block in which is fixed a pin E', upon which is rotatably mounted the large bevel-gear E'', which bevel-gear E'' meshes

with the pinion B'. The gear E'' is provided with a hand-grip E''' for rotating the same, and this hand-grip E''' is preferably pivoted to the said gear E'', as at e'', so that it may be folded flat against the face of the said gear out of the way when not in use. The block E is pivoted to the frame A between the lugs a' and a'', one end b' of the shaft B, which passes through the lug a', serving as a support at one side of the said block, and a screw b'', passing through the opposite lug a'', has its end b''' engaging the other side of the block and supporting the latter at that side. The block E is beveled on its interior face, as indicated by dotted line, so as to readily turn to allow the gear E'' to fold back against the rear side of the frame A, as seen in Figs. 2 and 6, and the said block is retained when the device is in use in its working position by means of a pivoted catch a'', which may be turned over one side of the said block, as shown.

The construction of the frame and driving-gear just above described is the same in both Figs. 2 and 6; but I prefer, as shown in Fig. 2, to use a second bevel-pinion B'', which is mounted upon a screw a'', engaging a lug A'' at the rear end of the frame A. The object of this pinion B'' is to make the gear E'' run more nearly true than it would without said provision.

Upon the end of the extension A'' is provided a rigid ring B'', which serves as a support for the heating and curling devices, as hereinafter more fully described.

As hereinbefore stated, the fork member D' of the spindle D (see Fig. 3) is joined at C to the forked end B' of the shaft B, forming a universal joint. Referring to Fig. 3, the spindle D is journaled in the frame F. This frame F has a lug F' at one side thereof, in which is formed a recess f'', with an opening f' leading laterally thereinto for the reception of the ring B''. The opening f', leading to the recess f'', is somewhat narrower than the said recess, so that a shoulder f'' is provided in the said recess. The ring B'' is provided with a notched or reduced portion b'', which is just thick enough to pass through the opening f', leading to the recess f'', the latter being of such a size as to easily receive the ring B'', as seen in Figs. 1 and 2. The

frame F is mounted upon the ring B³ in the manner just above indicated and may be turned about the said ring at will. A thumb-screw F², which passes freely through the arm 5 f³ on the lug F⁰ and engages a screw-threaded opening at f⁴, constitutes a means for binding the said arm f³ upon the ring B³ in the recess f⁰, and the frame F may thus be retained at any desired adjustment upon the ring B³.

10 H represents a hollow tubular sleeve of any suitable material, preferably of copper, and intended for use in forming the curls, the hair being wound upon the said sleeve. The said sleeve is provided with means for retaining 15 a lock of hair thereon, as shown in Figs. 1, 2, 4, and 5. The devices, as shown in Figs. 1, 2, and 4, consist of a pair of spring-controlled arms H' and H⁰, pivoted at or near opposite ends of the said sleeve. The retaining-arm 20 H' is pivoted at the outer end of the said sleeve at h' and is acted upon by a flat spring H², which tends to retain the said arm H' either flat against the surface of the cylinder H or in an extended position in line with the 25 axis thereof. The arm H' is preferably longer than the arm H⁰ and extends the greater part of the length of the said sleeve. The arm H⁰ is a short arm and is pivoted, as at h⁰, upon the surface of the sleeve when it is upon the 30 rear end. This arm is also acted upon by a spring in like manner as the arm H', above described. As stated, the arrangement of these arms for retaining a lock of hair upon the curling-sleeve, or, more properly speak- 35 ing, the curling-sleeve within a lock of hair wound thereon, is the same. In Fig. 5 the arrangement of the arm H' is the same as shown in Fig. 4; but the arm H⁰ in this form is pivoted, as at h², upon the end of the sleeve H 40 adjacent to the pivotal point h' of the arm H'. In this arrangement of the arms H⁰ and H' a single U-shaped spring H³ serves for both of said arms, as clearly shown in Fig. 5. The open end of the copper sleeve H is preferably 45 flared somewhat, as seen at H⁴, and a slot h⁴, leading from the said end, is provided in the wall of the said sleeve.

In operation the open end of the sleeve fits over the cylindrical portion F' of the frame 50 F, in which the spindle D is journaled; and the said sleeve H is held against rotation by means of the stud or pin f^x, which engages in the said slot.

Upon the spindle D is rigidly mounted a 55 pair of collars D² and D³, these collars being arranged at opposite ends of the exposed portion of the spindle D. These collars D² and D³ are of sufficiently small diameter to rotate freely within the sleeve H without coming in 60 contact with the wall thereof; but secured at opposite ends to said collars are a plurality of metal strips D⁴, of resilient metal. These strips D⁴ are arranged, preferably, in a slightly-spiral manner and they are bowed 65 out slightly, so as to rotate in contact with the inner surface of the sleeve H. The said resilient strips D⁴ may be longitudinally de-

pressed for the purpose of increasing their outward bulging, and consequently their friction upon the sleeve H, by means of a nut d³ 70 upon the screw-threaded end d⁴ of the spindle D, the said nut d³ bearing upon the outer side of the collar D³.

I utilize the friction caused by the rotation of the spindle and the strips D⁴ carried there- 75 by within the cylinder H for heating the latter. In use the sleeve H is applied to the lock of hair by the latter being wound thereon and clamped by means of the spring-controlled arms H⁰ and H', as will readily be un- 80 derstood. Thereafter the spindle D, with the strips D⁴ thereon, is inserted within the sleeve, as shown in Figs. 1 and 2, and is given rapid rotation by turning the gear E² by means of 85 the hand-grip E³ thereon. This rapid rotation of the spindle D and the strips thereon causes considerable friction within the sleeve H and the necessary heat is produced for curling the lock of hair retained upon the said 90 sleeve.

In practice a plurality of the sleeves H would be used, a convenient number of such sleeves being provided with each device, so that the desired number of sleeves would be applied to as many locks of hair; but the op- 95 eration of heating the said sleeves would be carried out. Thus the sleeves would be applied first and would be heated by the friction produced by the device, as above de- 100 scribed, each sleeve being treated in succession. After each sleeve has been heated, as described, they may be allowed to remain until cooled or until they have been retained a sufficient time upon the locks of hair to cause 105 the curl to be retained.

The device may be easily folded up and placed into a convenient box or receptacle by reason of the provisions hereinbefore de- 110 scribed for folding the gear-wheel E², the hand-grip E³ thereon, and for adjusting the frame F and the ring B³.

I do not wish to limit myself to the precise details of construction herein described and shown, as many modifications thereof might be made which could be used without depart- 115 ing from the spirit of my invention. Thus, for example, instead of operating the device by hand, as shown, any other desirable form of power may be used, quite a desirable form being the well-known driving mechanism for 120 operating dentists' drills, this form of driving mechanism being especially adapted for use in hair-dressing establishments, barber-shops, &c.

Having thus described my invention, what I claim, and desire to secure by Letters Pat- 125 ent of the United States, is—

1. In a device for curling hair, a sleeve upon which the hair may be wound, and a frictional device within said sleeve for heat- 130 ing the latter; substantially as described.

2. In a device for curling hair, a sleeve upon which the hair may be wound, spring-arms upon said sleeve to retain the hair there-

on, and a frictional device for heating the said sleeve; substantially as described.

3. In a device for curling hair, the combination with a sleeve upon which the hair may be wound, and means for holding the hair on the said sleeve; of a core in contact with the inner side of said sleeve, and means for turning said core within said sleeve to heat the latter by friction; substantially as described.

4. In a device for curling hair, the combination with a sleeve upon which the hair may be wound, spring-arms for retaining the hair on the said sleeve, of a core formed of resilient material, means for expanding the said core against the inside of said sleeve, and means for rotating said core within said sleeve; substantially as described.

5. In a device for curling hair, the combination with a sleeve upon which the hair may be wound, and means for retaining the hair on the said sleeve, of a core formed of strips of resilient material, means for expanding the said strips against the inside of said sleeve, and means for rotating the said core within said sleeve; substantially as described.

6. In a device for curling hair, the combination with a sleeve upon which the hair may be wound, and means for retaining the hair on the said sleeve; of a frame having a tubular extension adapted to enter and hold the said sleeve, a spindle extending through said tubular extension, a resilient core on the said spindle, and means for rotating the said spindle and core within the said sleeve; substantially as described.

7. In a device for curling hair, the combination with a sleeve upon which the hair may be wound, and means for retaining the hair on the said sleeve, of a frame F having a tubular extension adapted to enter and hold the said sleeve, a spindle extending through the said tubular extension, a resilient core upon said spindle, adapted to enter said sleeve, a frame A adjustably secured to said frame F, and means carried by the frame A for rotating said spindle and core; substantially as described.

8. In a device for curling hair, the combination with a sleeve upon which the hair may be wound, and means for retaining the hair

on the said sleeve, of a frame F having a tubular extension adapted to enter and hold the said sleeve, a spindle extending through the said tubular extension, a resilient cone upon said spindle, adapted to enter said sleeve, a frame A adjustably secured to said frame F, a shaft journaled in the frame A, a universal connection between said shaft and spindle, and gearing carried by the frame A for rotating said shaft; substantially as described.

9. In a device for curling hair, the combination with a frame, a block pivoted in the said frame, a gear-wheel mounted on the said block, a shaft journaled in the said frame and having a pinion gearing with the said gear-wheel, a spindle universally connected with the said shaft, a core on the said spindle, a sleeve, and means for holding the said sleeve over the said core; substantially as described.

10. In a device for curling hair, the combination with a frame, a gear-wheel mounted in the said frame, a shaft also mounted in the frame, and having a pinion gearing with the said gear-wheel, and an extension on the said frame; of a second frame mounted to turn about the end of said extension, a spindle in the second frame universally connected with the said shaft, a core on the said spindle, a sleeve, and means for holding said sleeve over said core, substantially as described.

11. In a device for curling hair, the combination with a frame, a block pivoted in said frame, means for holding said block at the proper adjustment, a gear-wheel mounted on said block, a shaft journaled in said frame and having a pinion gearing with the said gear-wheel, and an extension on said frame; of a second frame mounted to turn about the end of the said extension, a spindle in the said second frame universally connected with the said shaft, a core on the said spindle, a sleeve, and means for holding said core on said spindle, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

GEO. R. FERGUSON.

Witnesses:

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C. M. MILLER.