(No Model.)

A. T. HAGEN.

NECKBAND IRONER.

No. 386,706. Patented July 24, 1888.

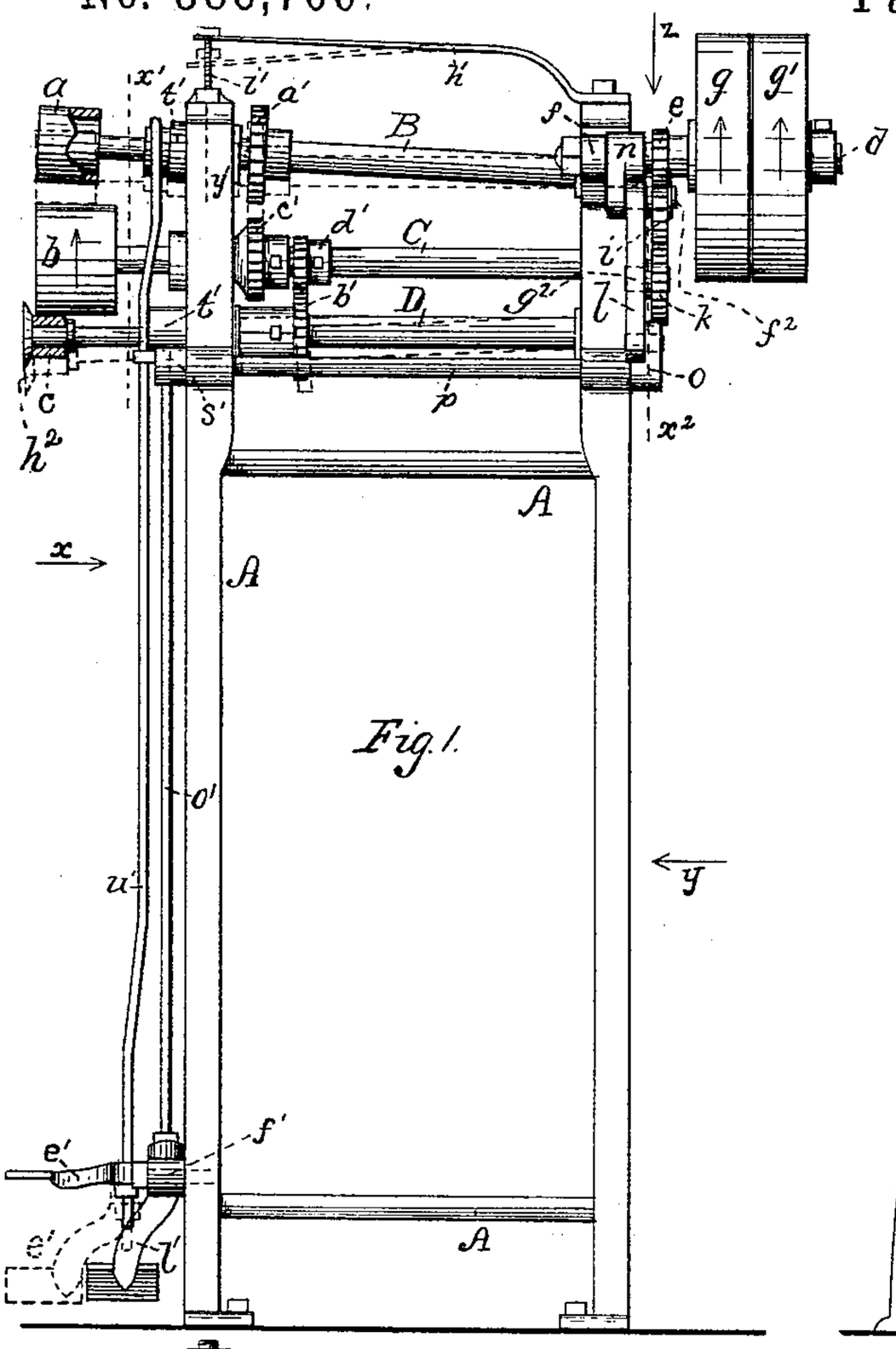

Fig. 1.

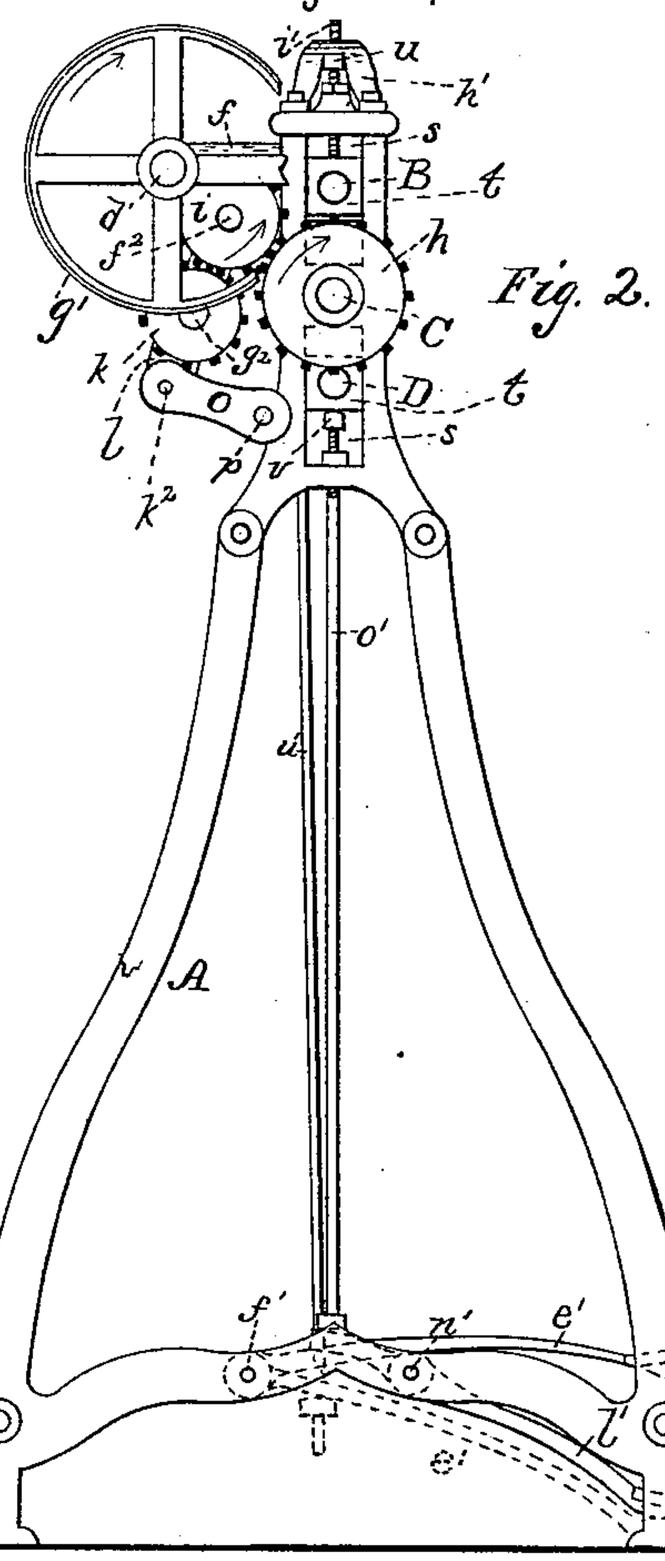

Fig. 2.

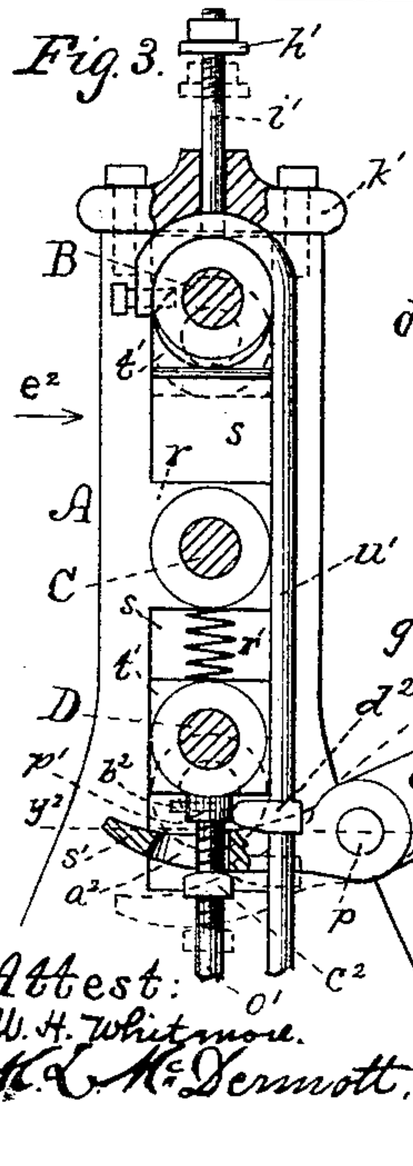

Fig. 3.

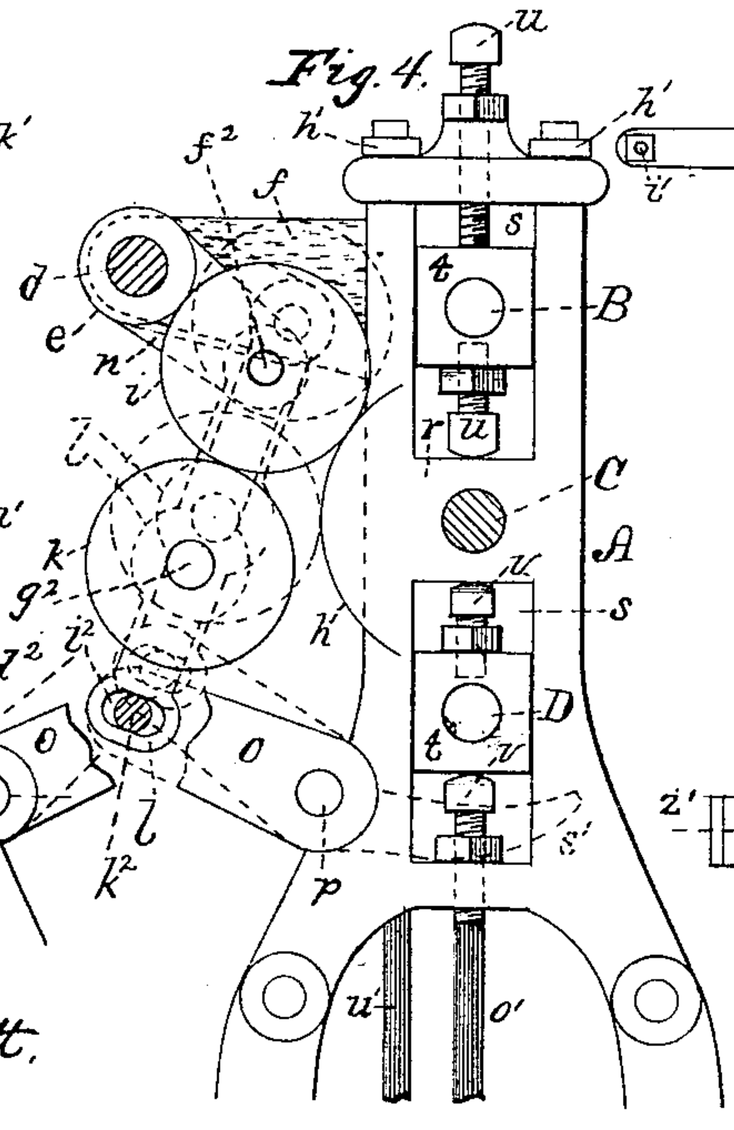

Fig. 4.

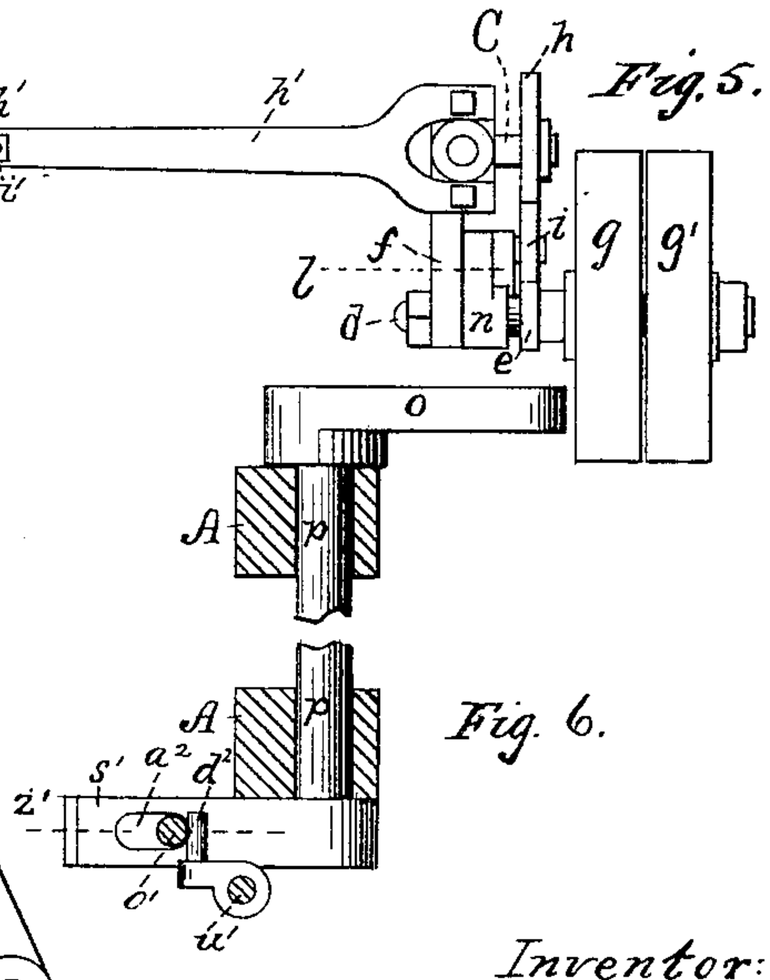

Fig. 5.

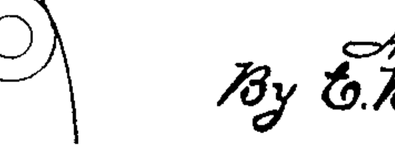

Fig. 6.

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UNITED STATES PATENT OFFICE.

ARTHUR T. HAGEN, OF ROCHESTER, NEW YORK.

NECKBAND-IRONER.

SPECIFICATION forming part of Letters Patent No. 386,706, dated July 24, 1888.

Application filed August 17, 1887. Serial No. 247,223. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR T. HAGEN, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in Neckband-Ironers, which improvement is fully set forth in the following specification, and shown in the accompanying drawings.

My invention relates to machines for ironing the neckbands of shirts and other articles; and it consists, principally, in the manner of reversing the motion of the polishing-roller when used with other rollers covered with cloth, the invention being hereinafter fully described, and more particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a rear elevation of the machine, parts being shown in various positions by full and dotted lines, and two of the rollers, in part, longitudinally sectioned by vertical planes; Fig. 2, an end elevation of the machine, seen as indicated by arrow *y* in Fig. 1; Fig. 3, a view of some of the upper parts of the machine, seen in the direction indicated by arrow *x* in Fig. 1, the roller-shafts being sectioned, as on the dotted line *x'*, the cap-piece being in part sectioned on the dotted line *y'*, and the shifting-lever sectioned, in part, as on the dotted line *z'* in Fig. 6, parts being shown in various positions by full and dotted lines; Fig. 4, an elevation of some of the parts, seen at the opposite end of the machine, or in the direction in which Fig. 2 is seen, the main roller-shaft and other parts being sectioned on the dotted line x^2, Fig. 1, parts being shown in various positions of adjustment by full and dotted lines, and the three main gears, with a part of the lower arm supporting the link, being shown in outline for convenience; Fig. 5, a plan of the upper parts of the machine near the driving-pulleys, seen as indicated by arrow *z* in Fig. 1; and Fig. 6, a plan of the reversing-shaft and associated parts of the machine, parts of the frame and the treadle-rods being horizontally sectioned, as on the dotted line y^2 in Fig. 3. Figs. 3, 4, and 6 are drawn to a scale twice that to which the other figures are drawn.

Referring to the parts, A is the frame of the machine, which is substantially of common form.

B, C, and D are shafts mounted in the frame, respectively carrying overhanging rollers *a b c*, of the usual kind.

d is a stud rigid with an arm, *f*, extending out from the frame A, said stud carrying driving band-pulleys *g g'* and a driving-pinion, *e*, all of which turn freely upon said stud, said pinion and pulley *g* being joined and turning together.

h is a gear without the frame, rigid with the roller-shaft C, and *i k* are alternate intermediate gears between the driving-pinion *e* and the gear *h*. The intermediate gears, *i* and *k*, are held, respectively, upon projections f^2 and g^2 from a link-bar, *l*, which latter is supported at its ends upon arms *n* and *o*, the former held to turn upon the stud *d* and the latter rigid with a reversing-shaft, *p*, extending across the frame. The projection f^2 is a continuation of the arm *n* through the link-bar. By turning this shaft *p* one way or the other in its bearings in the frame the intermediate gears, *i* and *k*, will be alternately brought in contact with the gear *h*, causing the direction of motion of the roller *b* to be reversed at each change.

The shaft C rests at each end in solid parts *r* of the frame, and has no motion other than rotary. Above and below the parts *r* the frame is formed with rectangular openings *s*, in which the respective bearings *t t'* of the roller-shafts B and D are held movably. The secondary roller-shafts B and D, which are in the same vertical plane with the main roller-shaft C, are held to be swung vertically toward or from the shaft C, carrying the covered rollers *a* and *c*, respectively, against or away from the polishing-roller *b*, as may be desired. The centers of these swinging motions of the shafts B and D are respectively in the rear bearings, *t*, which bearings are permitted to slightly rock between vertical adjusting-screws *u* and *v*. As either of said shafts are swung as stated, its forward box or bearing, *t'*, slides in the opening *s* in the frame.

The shaft B is provided with a rigid gear, *a'*, within the frame, and the shaft D with a rigid gear, *b'*, and the shaft C with gears *c'* and *d'*, to co-operate with the gears *a'* and *b'*, respectively, as the rollers *a* and *c* are alternately brought to bear against the roller *b*.

e' is a treadle of common form pivoted to the frame at *f'*, acting as a lever of the second order, from which treadle a rod, *u'*, extends

upward and is secured to the box t' of the shaft B, as shown in Fig. 3. This shaft is held up by a spring, h', secured to the top of the frame, being connected to said box t' by a threaded bolt, i', extending down through the cap-piece k'. When it is wished to bring the covered roller a down upon the polishing roller b, as indicated by dotted lines in Fig. 1, the treadle e' is pressed downward to the dotted position shown. When the foot is taken from the treadle, the spring h' again raises said roller to the position shown in full lines. l' is a similar treadle, pivoted to the frame at n', acting as a lever of the first order, from which a rod, o', extends upward to and enters a socket, p', of the box t' of the shaft D. The weight of the shaft D, with the adjoined parts, tends to keep the roller c down away from the roller b, which may be assisted, if found necessary, by a spring, r'. When it is wished to bring the roller c into action, the treadle l' is pressed by the foot, which throws said roller up against the roller b, as stated.

s' is a reverse-lever secured rigidly to the shaft p, formed with an opening, a^2, through which the rod o' passes. This treadle-rod is secured to the box t' of the shaft D by a pin, b^2, and is threaded for a distance from its end and provided with a nut, c^2, just beneath and in contact with the lever s'. By this means, when the rod o' is carried upward by the treadle, said lever will be swung upward and cause the shaft p to turn in its bearings and shift the intermediate gears, k and i, as above stated. The treadle-rod u', which passes near the lever s', is provided with a clip, d^2, reaching over on top of said lever, as shown in Fig. 6, which serves to carry said lever down to again shift the gears k and i, when the treadle e' is forced down, as stated.

The attendant using this machine stands partly at the left of and beyond the rollers as they appear in Fig. 1, and it is always desirable to have the work as it passes between either pair of rollers move in a direction from the attendant or toward the observer of Fig. 1, the direction being indicated by arrow e^2 in Fig. 3. To effect this, the parts of either pair of rollers in contact with the work must move from the attendant. Now, as work is done above and below the roller b, said roller must have its direction of rotation reversed at each change of the work from either side to the other. If work is done, for instance, between the rollers b and c, the treadle l' is pressed, which brings said rollers together, and simultaneously, by carrying the reverse-lever s' upward, brings the gear i in contact with the gear h, giving to said rollers a proper direction of motion, the position of the parts being shown in full lines in the various figures. Should it be required to use the rollers a b, the treadle e' is pressed, which brings said rollers together and throws the gear k, instead of the gear i, in contact with the gear h, giving, in this instance, a proper direction of motion to said rollers a and b, the direction of motion of the roller b being, however, contrary to that in the first case mentioned. The inside of the neckband of a shirt, for instance, is ironed between the rollers a and b, while the outside of the band is ironed between the rollers c and b; and it is intended to have the surface of the polishing-roller b move more rapidly than that of either of the covered rollers a or c, for the purpose of giving a polish to the work, the latter in each case moving with the covered roller on account of the greater friction between it and said covered roller than between the work and the polishing-roller. It will be observed from the gears a' and c' and the gears b' and d' that the difference between the speeds of the surfaces of the rollers c and b is greater than the difference between the speeds of the surfaces of the rollers a and b. This is for the purpose of giving the outside of the neckband a higher polish than that of the inside. The flange h^2 on the roller c is for the purpose of holding the body of the shirt inclined at an angle from the neckband while the latter is being ironed on the outside. There is nothing claimed with reference to this flange or the rollers by themselves, which are of common kind. The intermediate gear, i, is always in contact with the pinion e and the other intermediate gear, k.

The lower end of the link-bar l is formed with a transverse elongated opening, i^2, Fig. 4, by means of which it may be adjusted in its connection with the arm o, for the purpose of adjusting the gear k with reference to the gear h. The pin k^2, joining the link-bar to the arm o, is held rigid in the link-bar and turns freely in the arm, while said link-bar turns freely on the pin f^2, which is rigid with the arm n.

I do not claim as my invention an iron arranged between a pair of rollers and a treadle mechanism for effecting separately a co-operative contact between said iron and either one of the two said rollers without other parts.

What I claim as my invention is—

1. In combination with the frame of a neckband-ironer, three parallel rotatory shafts, each carrying a roller at its end, the middle shaft resting in rigid bearings in the frame and having rotatory motion in either direction, the outer shafts resting in movable bearings in the frame, each having a rotatory motion in one direction and opposite to each other, said outer shafts being also held to swing toward or from said middle shaft, said outer shafts being each provided with a rigid gear, and said middle shaft having two gears to alternately engage said respective gears of the outer shafts.

2. In combination with the frame of a neckband-ironer, a roller-shaft provided with a gear outside the frame, a stud rigid with the the frame, an arm turning on said stud, a reversing-shaft provided with a rigid arm, a link-bar joining said arms, a driving-pinion

on said stud, a gear held by said arm first mentioned, and a second gear held by said link-bar, said pinion and gears all being in the same plane, with means, substantially as shown and described, to turn said reversing-shaft, for the purpose set forth.

3. In combination with the frame of a neck-band-ironing machine, a main roller-shaft provided with a gear within and a gear without said frame, a secondary roller-shaft provided with a gear to co-operate with said gear within the frame of said main roller-shaft, a reversing-shaft provided with an arm and a reverse-lever, a rigid stud holding an arm and driving-pinion, a link-bar joining said arms, intermediate alternate gears for said driving-pinion and said outer gear of said main shaft, a treadle, and a treadle-rod connected with said secondary shaft and said reverse-lever, to operate both, substantially as shown and described.

ARTHUR T. HAGEN.

Witnesses:
E. B. WHITMORE,
M. L. MCDERMOTT.