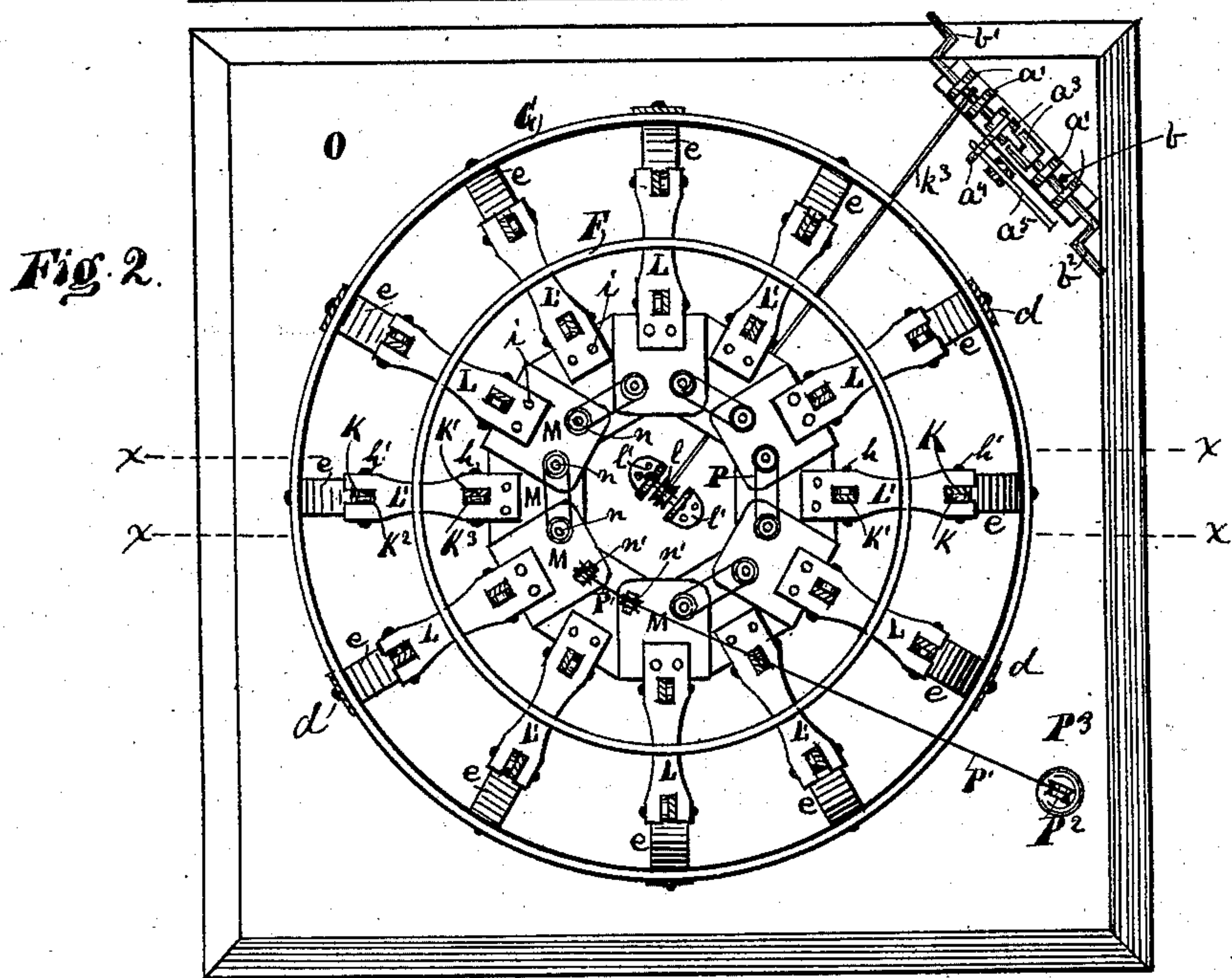
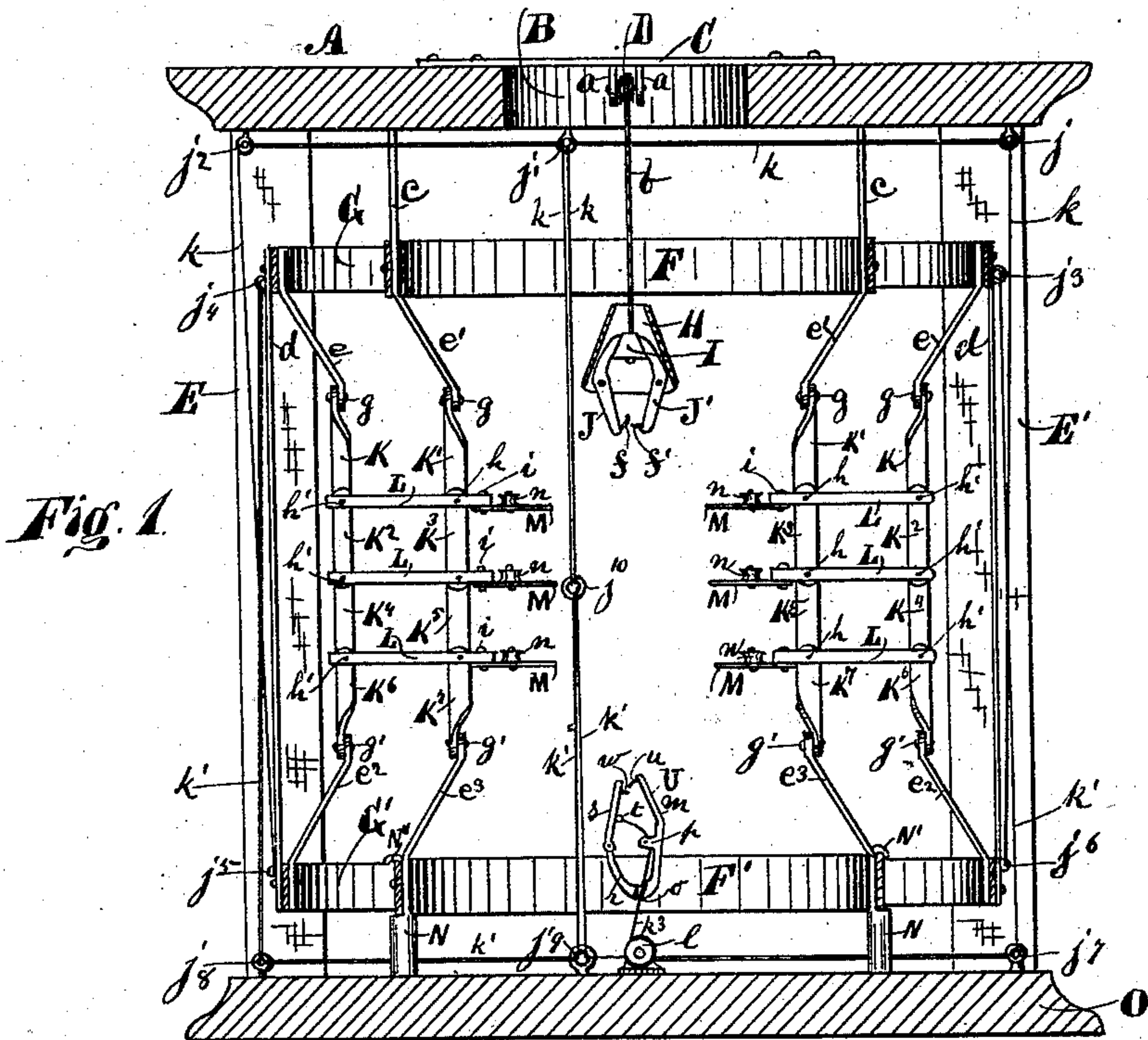


S. COLLINS.
Machine for Scraping Animal Carcasses.
No. 224,816. Patented Feb. 24, 1880.



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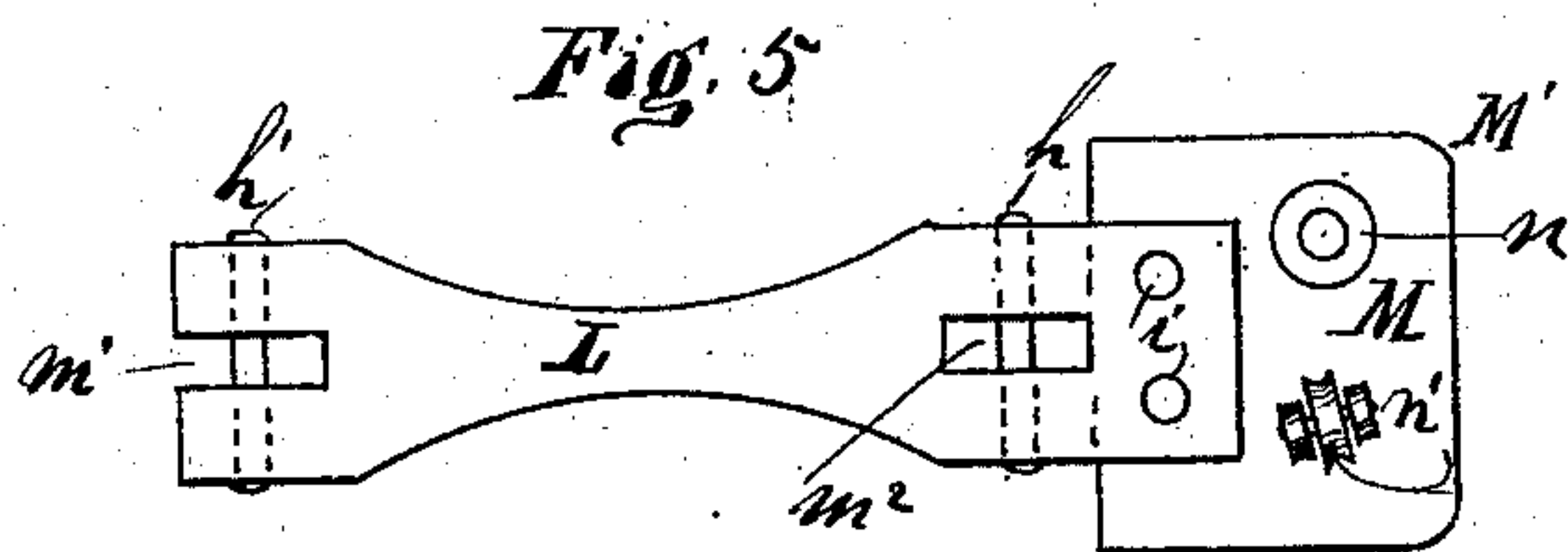
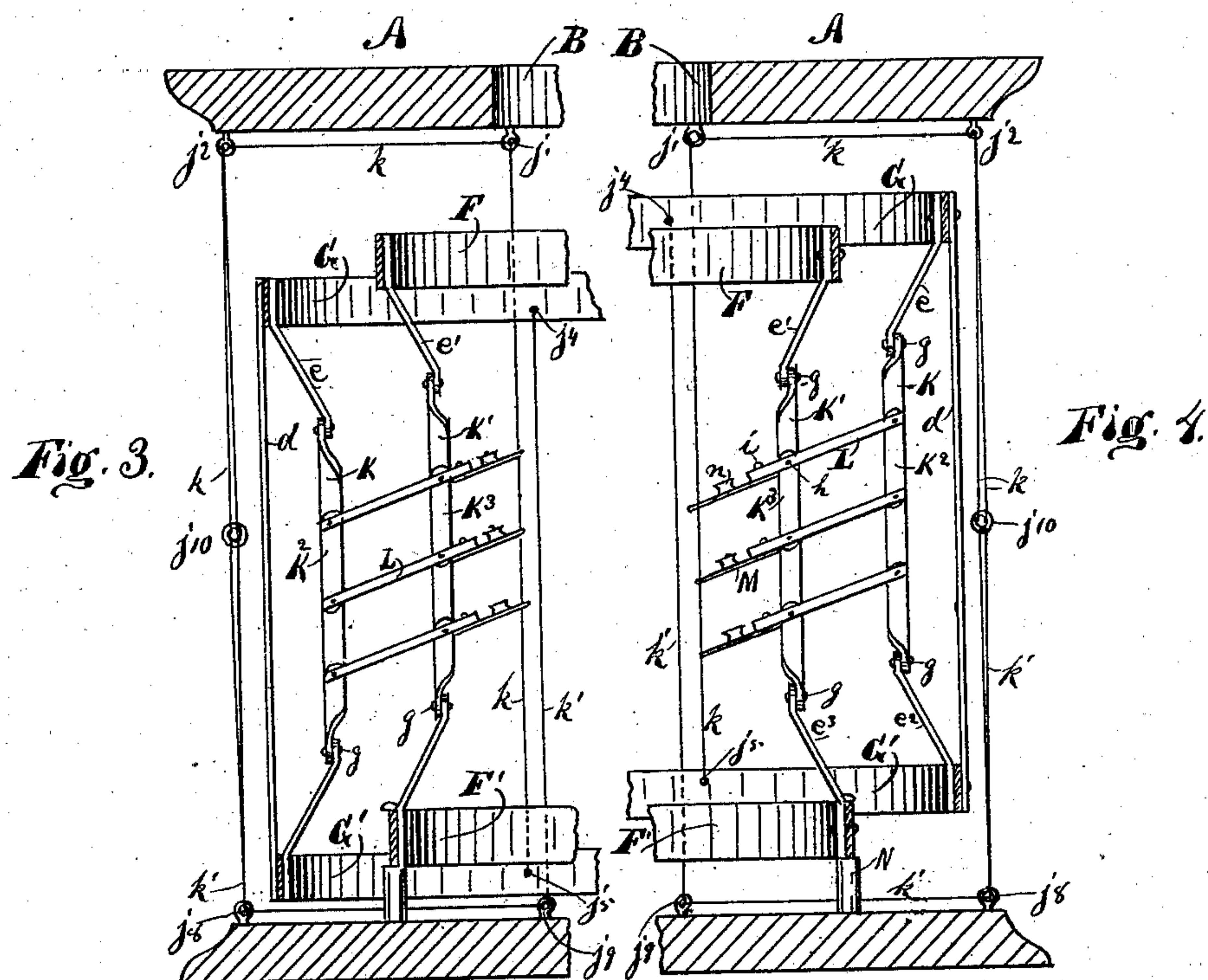
INVENTOR.
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UNITED STATES PATENT OFFICE.

STEPHEN COLLINS, OF INDIANAPOLIS, INDIANA.

MACHINE FOR SCRAPING ANIMAL CARCASSES.

SPECIFICATION forming part of Letters Patent No. 224,816, dated February 24, 1880.

Application filed October 30, 1879

To all whom it may concern :

Be it known that I, STEPHEN COLLINS, of Indianapolis, county of Marion, and State of Indiana, have invented an Improved Machine for Scraping Animal Carcasses, of which the following is a specification, reference being had to the accompanying drawings.

The object of my invention is to provide a device that will remove the hair and bristles from the hide of animals.

My invention consists, mainly, in a new machine for removing hair and bristles from the hide of animals; also, in the new arrangement and construction of parts and combination of elements as will be hereinafter fully described in the specification, and set forth in the claims.

In the accompanying drawings, of which there are two sheets, in which like letters of reference in the different figures indicate similar parts, Figure 1 represents a vertical section, showing the parts between the lines $x x$ of Fig. 2. Fig. 2 is a plan view of the machine with the top removed. Figs. 3 and 4 are vertical sections, same as Fig. 1, showing the scraper-knives in two different positions; and Fig. 5 is a plan view of one of the scrapers and its operating mechanism.

Referring, now, to the drawings, A represents the top of the machine or one floor of the building in which the machine is operated, and O is the base of the machine, or the floor on which the apparatus rests.

To the floor O are attached two or more uprights, N N, to which is permanently secured the inner lower ring, F', of the apparatus. The upper inner ring, F, is of the same size as the lower one, and is permanently secured to the top A by hangers $c c$. Around the rings F and F' are secured a large number of springs, e' and e^3 , as shown in Figs. 1 and 2. Each set of these springs—that is, each spring e' and the spring e^3 , immediately below—are connected together by a series of links, K' K³ K⁵ K⁷, the upper link, K', being attached to the spring e' by the pivot-stud g' . The other joints of the links are pivoted together by the pivots h , the joints being formed in the holes m^2 , Fig. 5, of the levers L, as shown.

Outside of the rings F F' are another set of

rings, G', below, and G above. These two rings are united together by bars d , and are provided with springs e above and e^2 below, with links K K² K⁴ K⁶ arranged and united together and to the levers L in the same manner as before described. The levers L are pivoted to the outer links at h' , and to the inner links at h , the links being held in the recesses m' and holes m^2 of the levers L, as shown.

The rings G G', with their mechanism, as before described, are arranged to move bodily up and down. In order to do this I employ two sets of ropes, cords, or chains, k and k' , and a set of rings and eyebolts or pulleys, as follows, to wit:

One end of the rope k , Fig. 3, is attached to the lower ring, G', at j^5 , and extends upward through the eyebolt or around a sheave, j' , attached to the top A at one side of the machine. The rope k then leads to another pulley or eyebolt, j^2 , thence downward and through the ring j^{10} , thence upward to the eyebolt or pulley j^2 again, from which it extends to a pulley on the opposite side of the top A from that of the pulley j' , and then extends downward, and is made fast to the ring G' opposite to the fastening j^5 . One end of the other rope, k' , is attached to one side of the upper ring, G, at j^4 , passes downward to pulley j^9 , thence to pulley j^8 , thence up to the ring j^{10} , thence back to pulley j^8 , thence to a pulley opposite j^9 , thence upward, and is secured to the ring G at the opposite side from that of the fastening j^4 . Thus it will be seen that the outer rings, G G', and their operating mechanism are suspended by cords, ropes, or chains, and are susceptible of being raised, as in Fig. 4, and thus depress the scrapers M, which are attached to the levers L, or to be lowered, as in Fig. 3, and thus elevate the said scrapers, the use of which will be hereinafter described.

Instead of the ropes $k k'$ any ordinary form of lever may be attached to the device for raising and lowering the outer rings, G G', and their operative mechanism, and I therefore do not confine myself to the precise method shown for producing the above-mentioned result.

The levers L are constructed similar to that shown in Fig. 5—that is, with the hole m^2 near

the front end and a notch, m' , in its rear end, to receive the end of the links, which are secured therein by the pivot-bolts h h' .

The scrapers M are flat plates of metal with rounded corners M' , and are secured to the levers L by the bolts or rivets i . On the scraper-blades, or on the front end of the levers L , are secured pulleys n or n' —whichever form may be most convenient, as shown. If the horizontal pulleys n are used the one at the right of one scraper is connected to the one at the left of the next scraper by rubber bands P , so that each set of scrapers may yield outward or be drawn toward each other. If the vertical pulleys n' are used they are connected together by a rope, P' , which passes over each alternate pulley, and then upward over a pulley, P^2 , attached to the top A , thence downward, and is provided with a weight, P^3 , thus giving to the scrapers a yielding motion similar to that produced by the rubber bands P .

Several sets of the adjustable scrapers M and levers L are arranged around the rings F F' G G' , and some are arranged higher than others, so as to present the inner edges of the scrapers at various heights and have their inner edges all pointing toward one common center, as shown in Fig. 2.

The top A is provided with an opening, B , across which is a bar, C , having in its center a pulley, D , mounted in hangers a a , over which the rope b operates. Said rope passes along the top A to another pulley, (not shown,) and thence downward to the windlass b^2 . This windlass may be of any ordinary construction, having a double crank, b' b^2 , and a clutch-coupling, a^3 , in the center, each crank being adapted to operate independent of the other, or in connection with each other, as will be hereinafter described. The other end of the rope b is attached to the plug I of the tongs.

The tongs are of peculiar construction, to wit: The outer case, H , is hollow, and has a form similar to that shown in Fig. 1, in which is pivoted, as shown, the two jaws J J' . The lower end of the jaw J' is provided with a straight spur or point, f' , and the jaw J is also provided with a curved spur, f , as shown. The central tapering plug, I , operates between the upper ends of the jaws and forces the lower ends of said jaws together when they are attached to an animal's snout. The lower tongs, U , consist of the frame or case r , having an inner pulley, p , attached to the arm m , which extends upward, and is provided with a spur, u . On the other side of the tongs is a hinged arm, s , also provided with a hooked spur, w . The cord or rope k^3 passes through a hole in the bottom of the tongs U , over the pulley p , and is made fast to the hinged arm s , as shown. The rope k^3 then passes under the pulley l to the other windlass b' , as shown in Figs. 1 and 2.

Having thus described the construction and arrangement of parts, I will now describe the mode of operating my machine as follows, to wit: The animal from which the hair or bris-

cles are to be removed is first introduced into a vat of scalding water in the usual manner, after which the tongs H are attached to its snout and the tongs U to its hind legs, after which the windlass b' is operated, and the animal is drawn upward between the scrapers M . Then the windlass b^2 is operated, and the lines b and k^3 drawn taut, thus stretching the animal between the two sets of tongs. When in this position the rings G G' are raised, as in Fig. 4, and the two windlasses are connected by the coupling a^3 . The animal is then drawn upward between the scrapers M , which, by their inclined position and yielding nature, adapt themselves to all parts of the body of the animal, and scrape off the hair and bristles as the animal is moved up. When the animal is drawn downward the windlass is reversed, and the rings G G' also are moved down, thus giving the scrapers M an upward inclination as the animal descends; the remaining portions of hair or bristles are removed, after which the animal, thus deprived of its hair or bristles, is removed and another substituted, and the operation again repeated.

It will be observed that the springs e e' e^2 e^3 , links K K' K^2 K^3 K^4 K^5 K^6 K^7 , and rubber bands P or cord P' , permit each scraper to operate independent of its neighbor, and that each scraper will follow each and every irregularity of form in the animal in line with said scraper, as the animal passes either up or down, and by the number of said scrapers, each of which performs its own work in the same manner, as just described, it is impossible for an animal to be drawn between them without having its hair or bristles most completely removed in the most rapid and economical manner.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for scraping hair and bristles from animals, the stationary rings F F' , with springs e' e^3 , and links K' K^3 K^5 K^7 , combined with the movable rings G G' , also provided with springs e e^2 , and links K K^2 K^4 K^6 , and the levers L , with scrapers M , all pointing to one common center, as and for the purpose specified.

2. In a machine for scraping hair and bristles from animals, the levers L and scrapers M , arranged to point to one common center, and adapted to be inclined upward or downward, as and for the purpose specified.

3. The adjustable scrapers M , combined with the levers L , the links K K^2 K^4 K^6 , the springs e and P , whereby the edges of the scrapers are permitted to move and adjust themselves to any irregularity of form of the animal under treatment, as and for the purpose specified.

4. In a machine for removing hair or bristles from animals, a series of scrapers, M , having their inner edges all pointing to one common center and adapted to be inclined upward or downward and to adjust themselves to the irregularity of form of the animal as it

passes between them, substantially as specified.

5 5. The lever L, with recess m' in its rear end, and hole m^2 near its front end, to receive the pivoted end of the link K, combined with the scraper M and pulleys n , as and for the purpose specified.

10 6. The scrapers M, with pulleys n , combined with the springs P, as and for the purpose specified.

7. The rings G G', with springs $e e^2$, and links K K² K⁴ K⁶, united together by the bars $d d$, as and for the purpose specified.

15 8. The rings F F', with springs $e' e^3$, and links K' K³ K⁵ K⁷, combined with the standards N N and hangers $c c$, as and for the purpose specified.

20 9. In combination with the stationary rings F F', the adjustable rings G G' and their mechanism, as described, whereby the scrapers M are inclined upward or downward or held horizontal, as specified.

10. In an apparatus for removing hair or bristles from animals, the tongs U, composed

of the frame or case r , pulley p , arm m , with spur u , and hinged arm s , with spur w , combined with the rope k^3 and windlass b^2 , as and for the purpose specified.

11. The scrapers M, levers L, and links K K² K⁴ K⁶, arranged and combined with the springs $e e^2$, whereby an independent motion to and fro is permitted of the scrapers M and levers L, substantially as described.

12. The springs $e' e^3$, combined with stationary rings F F', and links K' K³ K⁵ K⁷, whereby the said links are kept under tension and permit the scrapers M and levers L to have an independent motion to and from the central line, substantially as specified.

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

STEPHEN COLLINS.

Witnesses:

E. O. FRINK,
C. B. HITCHCOCK.