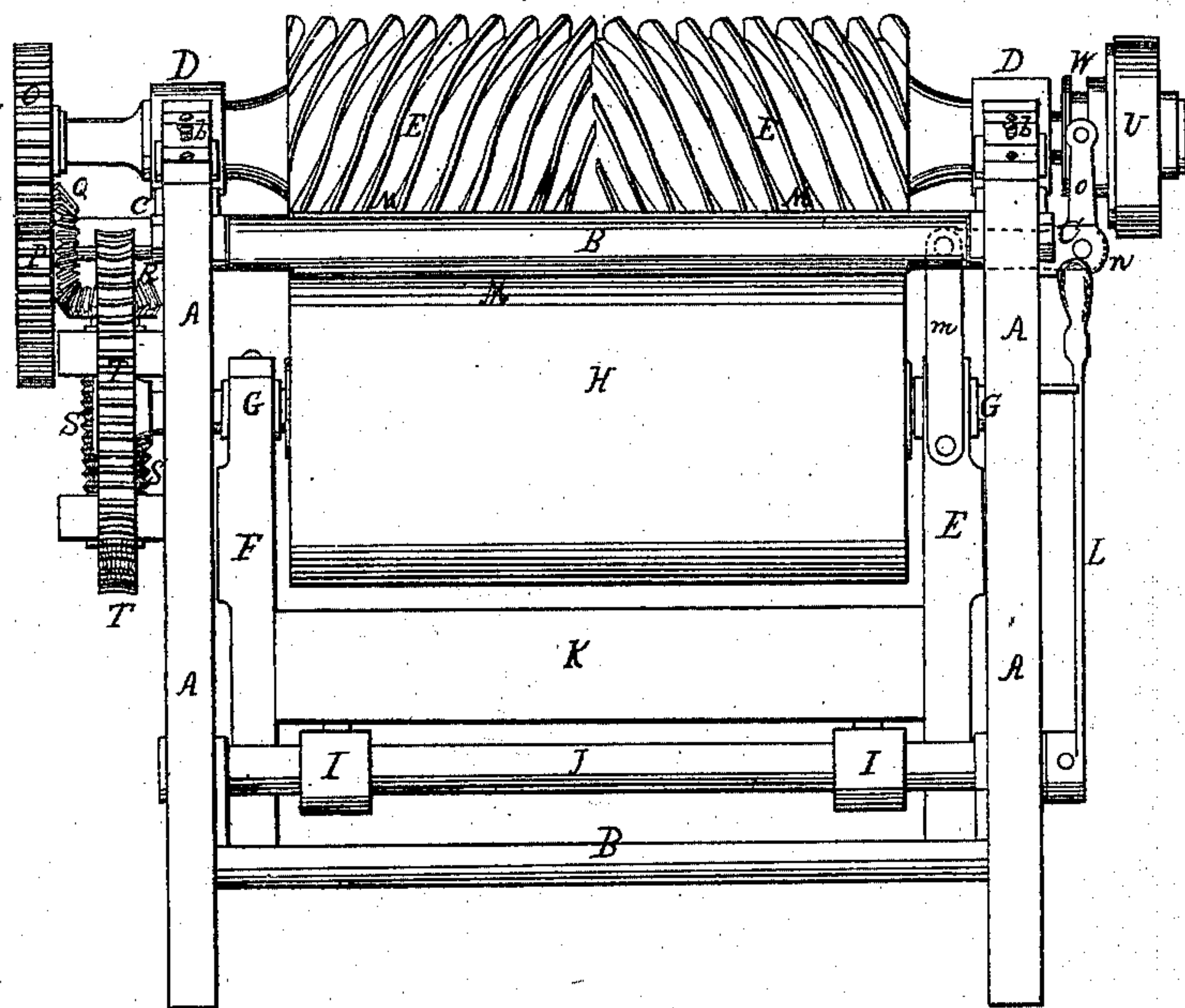
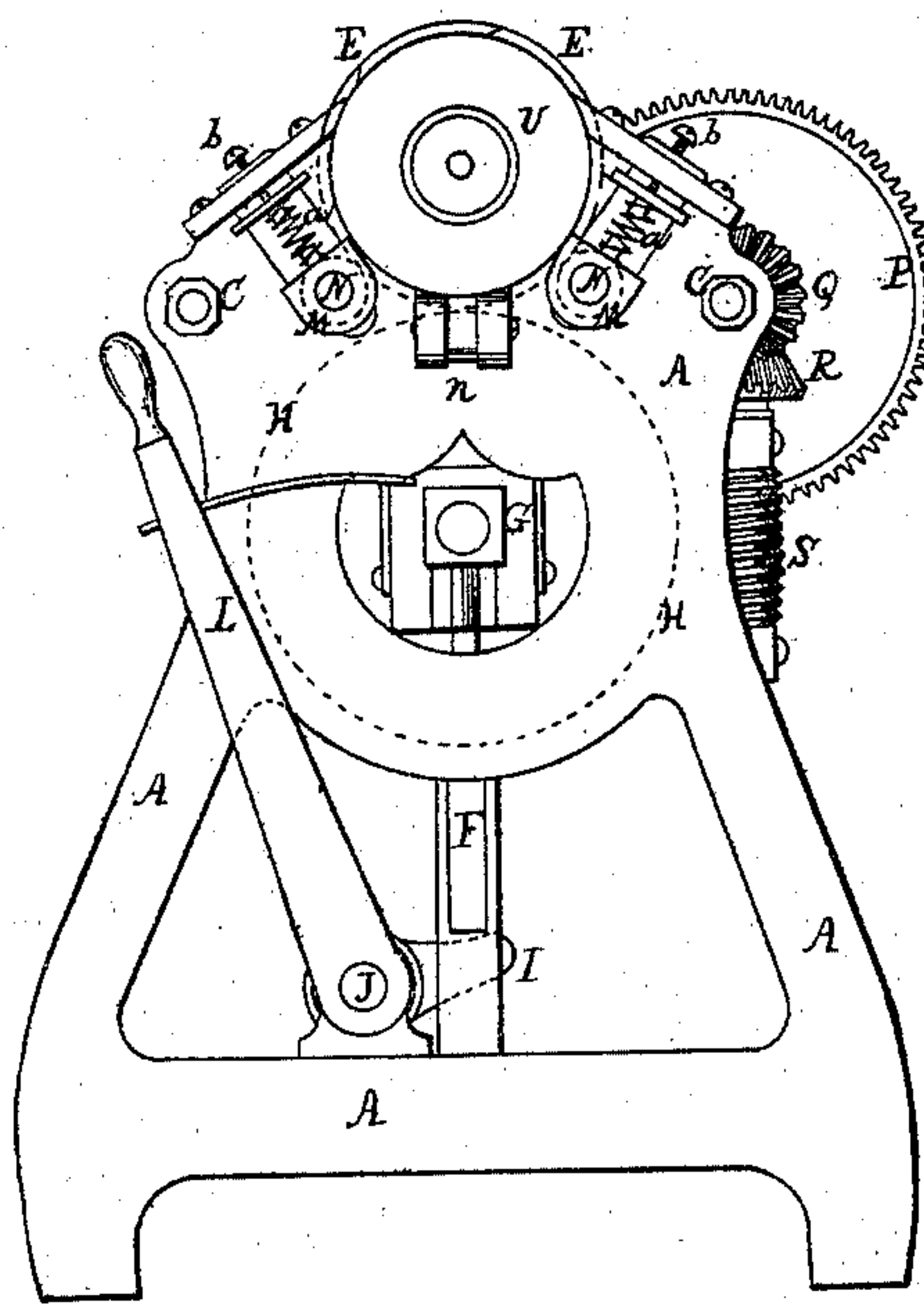


*M. Bray,*  
*Removing Hair from Hides,*  
*No 49,496,* *Patented Aug. 22, 1865.*

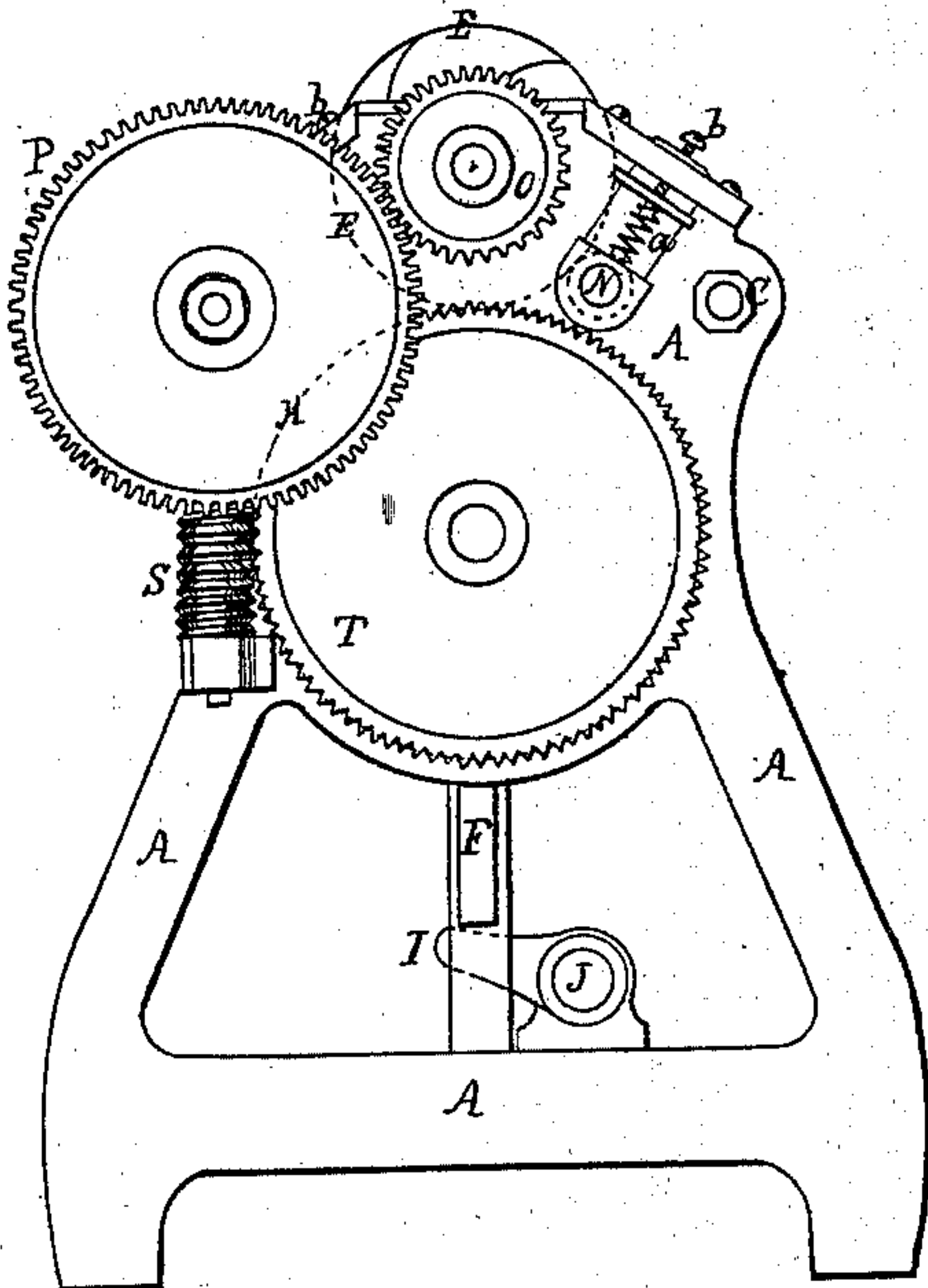
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Witnesses*  
*J. D. Jones*  
*J. L. Corcoran*

*Inventor*  
*M. Bray*  
*By J. H. H. his atty*



# UNITED STATES PATENT OFFICE.

MELLEN BRAY, OF BOSTON, MASSACHUSETTS.

## IMPROVED APPARATUS FOR REMOVING HAIR FROM HIDES.

Specification forming part of Letters Patent No. 49,496, dated August 22, 1865.

*To all whom it may concern:*

Be it known that I, MELLEN BRAY, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Machine for Unhairing, Scouring, and Currying Hides and Skins; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation, and Figs. 2 and 3 side elevations, of a machine constructed in accordance with my said invention.

The preparation of the skins or hides for tanning and the finishing of the tanned skins or hides involve certain operations which were heretofore most generally performed by manual labor—*i. e.*, by means of tools worked by hand. Thus the “unhairing” was heretofore effected by placing the hides upon a block (called “beam”) and by scraping the hair off with a concave blade (called “unhairing-knife”) which fitted the curvature of the beam. The striking, scouring, or currying, which are a series of mechanical operations for the purpose of transforming the tanned but rough skins or hides into a smooth, shining, and pliable skin, were also universally effected by manual labor. All these operations, which have to be carried on by men of great physical strength and endurance, and of skill only to be acquired by long and continued application, are too slow to meet the large and constant demand for leather, and consequently render leather too dear for an article of commodity of such varied and indispensable applications.

The object of my invention, therefore, is to effect the several operations before referred to and others of a similar nature by machinery, thus, while saving labor, multiply productiveness and cheapen the article produced.

By the machine subject of this patent I have successfully accomplished my said object; and in order to enable others to make and use my said invention, I shall now proceed to describe the construction and operation of a machine designed for unhairing, striking, scouring, and currying hides and skins.

The framing consists of a pair of strong parallel standards, A, of cast-iron or other suitable material, firmly united against tubular

braces or cross-timbers B by means of traversing-bolts C, or otherwise. These side standards are arranged to receive, in stationary bearings D, the journal of the screw-cylinder E, which is a metal cylinder having cast upon it a helical blade or blades. In this instance there are eight distinct equidistant screw-threads formed upon the surface of the cylinder, four of which run from the middle of the cylinder toward one extremity, while the four others run from the middle toward the other extremity, making right and left hand screws, both starting from one line which divides the cylinder into two equal parts. I would here say that this arrangement of screw-blades, cutters, or scrapers is not essential, inasmuch as a single screw running in either direction, or two or more running in either or both directions, will answer the purpose of my invention, although I prefer the arrangement shown, because the skin, under the action of a screw-cylinder constructed as described, is less liable to pucker.

The screw blades or threads I prefer to make tapering toward the circumference, and the edge should be angular or rounded, according to the work to be performed.

In brackets F, capable of a sliding motion up and down in the vertical plane passing through the axis of the screw-cylinder, and in suitable yielding boxes or bearings, G, is mounted the drum H, upon which the skin or hide is placed during the performance of the work. This drum is here shown to be of a diameter much larger than that of the screw-cylinder; but this is not important. However, I prefer that the relative dimensions of the two cylinders be according to the size of the skins or hides to be operated upon. The drum is approached to or receded from the screw-cylinder by means of lifting-cams I, acting against a cross-bar, K, extending transversely and uniting the two brackets F. The cams I are keyed on a shaft, J, on one end of which there is a lever, L, whereby the attendant is enabled to actuate the cams to elevate or depress the drum.

In the side standards and on both sides of the screw-cylinder there are mounted in bearings N, made more or less yielding by the interposition of a helical spring, *a*, regulated by a set-screw, *b*, rollers M, the office of which



is to firmly hold and stretch the hides or skins upon the drum. For this purpose the bearings are movable in the standards in slots or guides which are inclined with respect to each other so as to converge toward the center or axis of the drum when brought up into working contact with the rollers. The pressure the rollers exert upon the drum is regulated by means of the set-screws *b*, according to the pliability or thickness of the skins.

The screw-cylinder and drum are geared together in such manner that the former revolves much more rapidly than the latter. In this instance the gearing is arranged for one hundred revolutions of the screw-cylinder for every one of the drum. To effect this the shaft of the cylinder *E* is provided with a cog-wheel, *O*, meshing in with another larger cog-wheel, *P*, upon the shaft of which is mounted a pinion, *Q*, gearing with the pinion-wheel *R*, which in its turn is mounted upon a vertical screw, *S*, with the thread of which is geared the toothed wheel *T* fast on the shaft of the drum.

Motion is imparted to this machine by means of a band or belt passing over a loose pulley, *U*, on the end of the shaft of the screw-cylinder.

In order to bring simultaneously all the operative parts of the machine into working order and to impart motion by thus bringing them into operative condition, I have combined with the sliding bracket *F* a friction-clutch, *W*, in such manner that by lifting the drum the clutch shall engage the loose pulley and bring the several parts into gear; and this is effected in the following manner: To the upper end of the right-hand bracket is attached the forked end of a link, *m*, whose upper end is jointed to a lever or rocker, *n*, moving on a fixed fulcrum in the side bracket, *A*. On the outside this lever carries a forked arm, *o*, which, engaging in the collar of the clutch, gives it a sliding motion on the shaft of the screw-cylinder.

To maintain the machine in or out of gear I provide the frame on the side of the lever *L* with a guard-plate, notched or indented to correspond with either position of the lever.

The operation of this machine will be readily understood from the foregoing description. The hide or skin is placed on the drum and held thereupon by means of the roller as soon as the drum is raised to come in contact with them. The raising of the drum, however, brings the clutch into frictional contact with the loose pulley, which throws the working parts into gear. The screw-cylinder, thus started, revolves at a rapid rate over and in contact with the slowly-revolving drum, and by so doing rubs or scrapes off the hair. Currying and other similar operations are effected in like manner,

although in some cases the pressure must be regulated to bear with greater force upon the leather.

The rollers may be dispensed with by using in lieu thereof hooks or other fastenings, whereby the skins or hides are securely held stretched upon the drum, or other modifications may be introduced without departure from the principle of my invention. For instance, I propose to use a brush running in contact with the screw, for the purpose of cleaning the same of the hair or other impurities that may adhere to it. Another or second brush may be used to run in contact with the leather as it passes from under the screw.

Having now fully described my invention, and the manner in which the same is or may be carried into effect, I claim—

1. A machine, organized for operation substantially as described, for the automatic un-hairing, striking, scouring, and currying of hides or skins in the manner herein set forth, the same consisting substantially of the combination of a revolving cylinder and helical blades with a support for the hide or skin, substantially as set forth.

2. The construction of the revolving cylinder, substantially as and for operation hereinbefore described—that is to say, providing the same with a right and left hand screw—substantially as set forth.

3. The combination of a revolving screw-cylinder with a revolving drum, when the two are geared to move at relative velocities, in the manner and for the purpose substantially as set forth.

4. In combination with a revolving screw-cylinder and a revolving feed-drum, the pressure-rollers or their equivalents for holding the skins or hides to the drum, substantially as herein described.

5. In combination with the revolving screw-cylinder and revolving feed-drum, the arrangement for elevating and depressing the drum at pleasure, substantially as set forth.

6. Combining with the arrangement for elevating the drum to and depressing it from the screw-cylinder a friction-clutch or other coupling device, in such manner that by lifting the drum the operative parts shall be thrown into gear, while by lowering it they shall be thrown out of gear, substantially as set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

MELLEN BRAY.

Witnesses:

HOWARD L. HAYFORD,  
PHILIP BRAY.