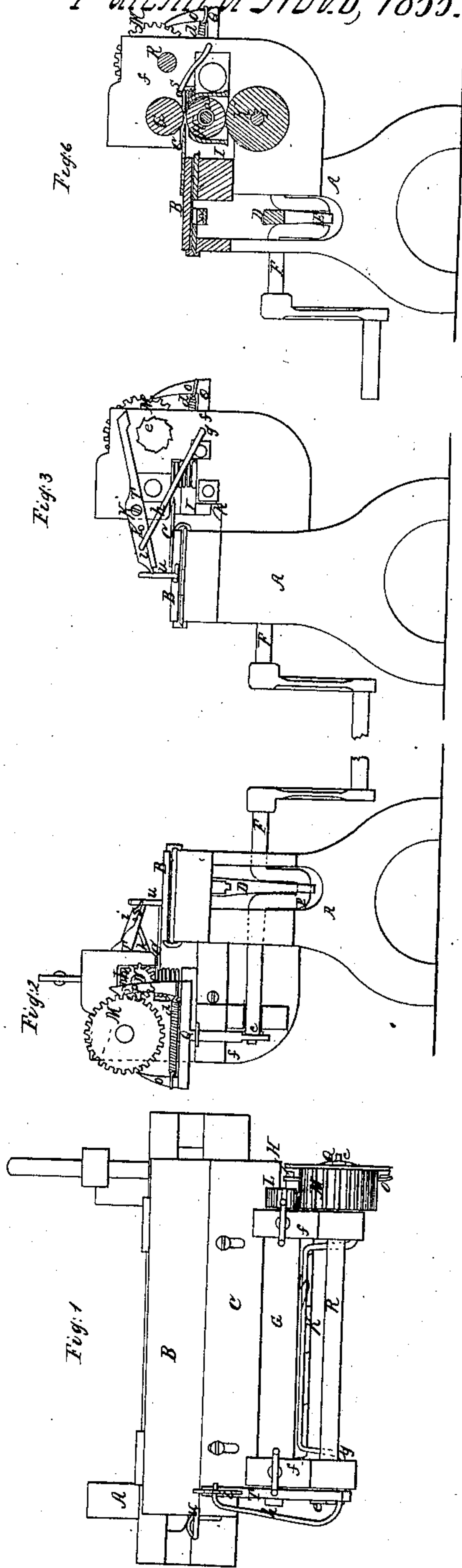
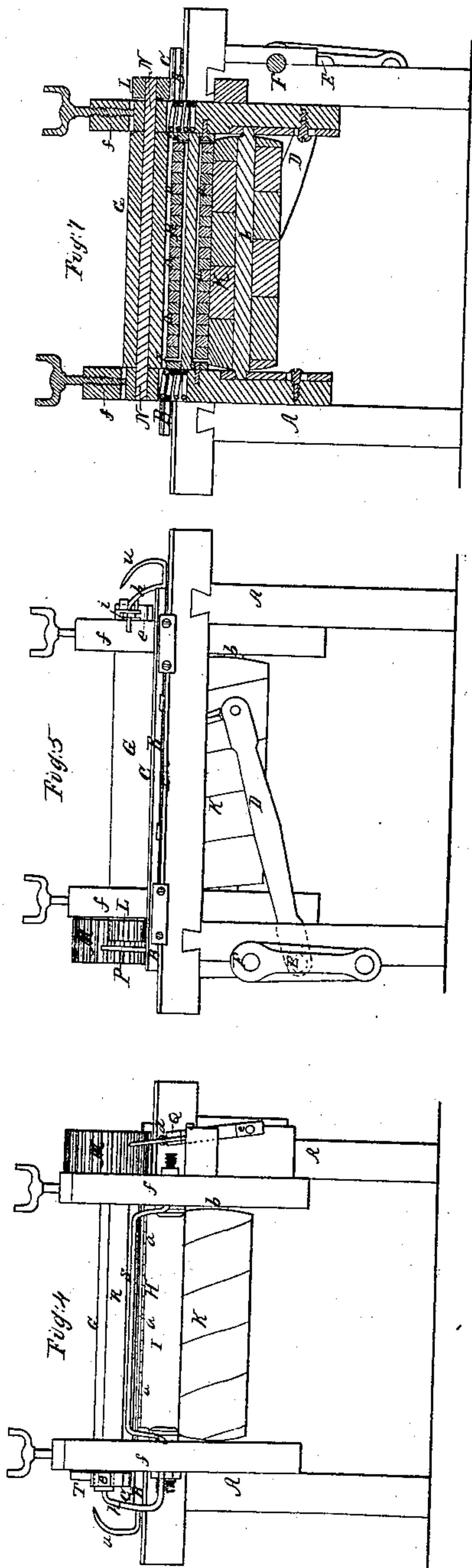


Marden & Butters,

Splitting Leather.

N^o 13,756.

Patented Nov. 6, 1855.



UNITED STATES PATENT OFFICE.

JEREMIAH A. MARDEN, OF NEWBURYPORT, AND HENRY A. BUTTERS, OF HAVERHILL,
MASSACHUSETTS.

MACHINE FOR SPLITTING LEATHER.

Specification of Letters Patent No. 13,756, dated November 6, 1855.

To all whom it may concern:

Be it known that we, JEREMIAH A. MARDEN, of Newburyport, and HENRY A. BUTTERS, of Haverhill, in the county of Essex and State of Massachusetts, have invented an Improved Leather-Splitting Machine; and we do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, letters, figures, and references thereof.

Of the said drawings, Figure 1 denotes a top view of our said machine. Fig. 2 is an elevation of the right end of it. Fig. 3 is an elevation of the left end of it. Fig. 4 is a front elevation; and Fig. 5 is a rear elevation of it. Fig. 6 is a transverse vertical and central section of it. Fig. 7 is a longitudinal section taken through the feeding rollers.

In these drawings A represents the form of the machine, it being made to support the carriage B of a long cutting knife C. See Figs. 1, 3, 5, and 6. The said carriage is supported on ways so as to be capable of having a vertical and longitudinal motion imparted to it by means of a connecting rod D, and a bell crank E, they being applied together and to the carriage and a driving shaft F, as seen in Figs. 2 and 5 of the drawings, said shaft being arranged as shown in the last of said figures.

The knife C works between feeding rollers (as seen at G and H in Fig. 6). The lower feed roller (H) is formed in sections or consists of a series of small rollers *a, a*, (see Figs. 6 and 7) which are arranged end to end and supported horizontally within a stationary frame I, which is open at top and bottom, so as to allow them not only to rest upon an elastic roller K, but to come into contact with the sheet of leather, when it is passed between them and the roller G. The elastic roller K, may be constructed of vulcanized india rubber or other suitable elastic material, applied to and around a horizontal shaft *b*. The roller K having an elastic surface will not only force the several rollers *a, a*, toward the roller G but permit such rollers, *a, a*, to accommodate themselves to the varying thickness of the skin or hide of leather while it is being passed between them. One of the journals of the said upper feed roller G has a pinion L affixed to it. This pinion engages with a ratchet gear

M turning on a stationary journal N', as seen in Fig. 2. With the said ratchet gear two pawls O, P operate, they being jointed to a frame Q which is applied to the main frame so as to be capable of sliding vertically, and is raised up and down by means of the driving shaft F. A spring, *d*, connects the two pawls O, P, and draws them toward their ratchet, one of them being a drawing pawl and the other an impelling pawl.

From the above it will be seen that while the movements of the knife C (by which there is imparted to such knife a drawing stroke, while a side of leather is being forced against it) are controlled by a bell crank F the movements of the frame Q and its pawls are also controlled by a crank on the same shaft with the crank E. As the two cranks are applied to one shaft, their arcs of rotation in any period of time, are always equal, and pawl carriages or frames, the motion of either carriage or frame varies during each notation of its crank, it being the least while the crank is passing what is termed the "dead centers" and greatest when at 90° therefrom. The two cranks should be so arranged on their shaft that during their rotations they may produce corresponding variable movements, both of the knife and upper or driving feed roller, the feeding of the leather toward the knife not only growing slower as the longitudinal movement of the knife decreases but increasing in proportion to the increase of motion of the knife. The pawls being caused to alternately push and draw on their ratchets will produce a rotary movement of the same in one direction. Such effecting a similar movement of the upper feed roller, but in the opposite direction. It has been found in those leather splitting machines where the feed rollers move at a regular velocity, and the knife at a variable speed, that there results what are termed by the workmen "creases" or "ridges" in the leather, or in other words, the cut is not smooth and even, its unevenness resulting from the variable pressure or condensation of the leather against the knife edge.

By making the feed rollers to operate with a variable motion in accordance with that of the knife as hereinbefore described the unevenness of cut above alluded to will be prevented from taking place.

A roller R is arranged with respect to the feed rollers G, H, as seen in Figs. 1, 4 and 6, it being made to freely revolve in its bearings and to carry on one end of it a ratchet,
 5 e. Between the roller R, and the feed rollers and close to the bite of the latter is a wire or rod, S, bent in the form of a bell crank and supported by journals extending
 10 bearings in the upright parts *f, f*, of the frame. One of the said journals, *g*, is carried through its part *f*, and has an arm *h* extended from it to and through a tilting lever *i* applied to a catch pawl or lever T,
 15 arranged and made to turn upon a fulcrum as seen at K' in Fig. 3. The fulcrum of the tilting lever is shown at 1', in Fig. 3, and said lever extends beyond its catch pawl T,
 and operates in connection with a curved arm or cam *u*, affixed to and made to rise
 20 above one end of the knife carriage, as seen in Figs. 3 and 5. When a hide or sheet of leather is passed into the machine it is carried under and against both the roller R and the wire S it being held against
 25 the roller R by an attendant should there be any "cockles" in the hide, such as would be liable to produce wrinkles under the action of the feed rollers they will be carried against the wire or rod S, and will force it
 30 upward, and so as to cause the arm *h* to be elevated so as to throw or permit the catch

pawl T to fall down upon its ratchet and thereby arrest the movement of the roller R, and in consequence of the same cause friction to be generated upon the skin so as to
 35 retain it or hold it back sufficiently to enable the feed to draw out and reduce the cockle or cockles. As soon as they are taken out the wire S will fall and cause the catch pawl to be thrown out of action upon its
 40 ratchet, (the elevation of the pawl above the ratchet being insured by the action of the cam *u* on the tilting lever, when said cam is carried against said lever by the
 45 knife carriage, which it will be when the tilting lever is depressed into the path of the cam.

We claim—

Combining with the feeding apparatus a mechanism substantially as described by
 50 which the leather may be restrained in its delivery so as to effect the reduction of "cockles," as hereinbefore specified.

In testimony whereof we have hereunto set our signatures this seventeenth day of
 55 May, A. D. 1855.

JEREMIAH A. MARDEN.
 HENRY A. BUTTERS.

Witnesses:

R. H. EDDY,
 F. P. HALE, Jr.