A. Dawes,

Splitting Leather,

No. 70,175. Patented Oct. 29, 1867.

Fig: 1

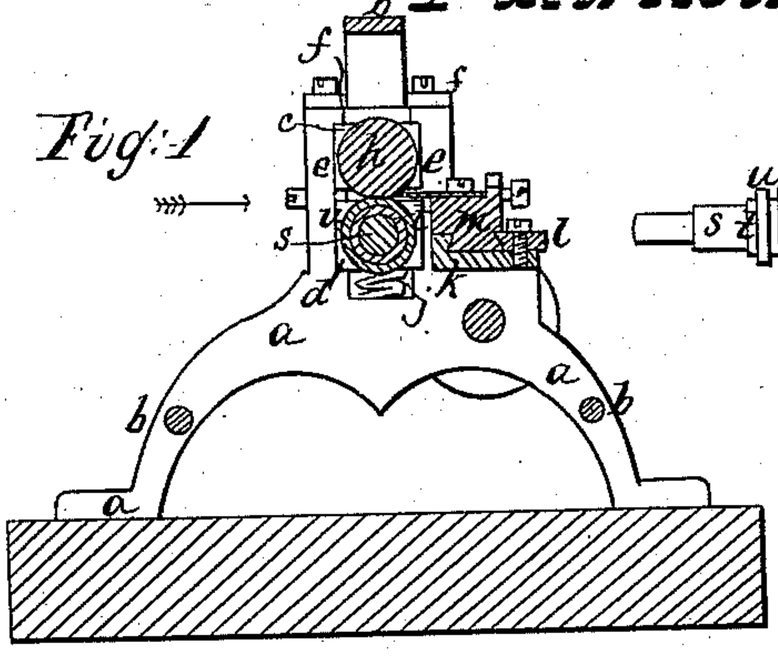

Fig: 4

Fig: 2

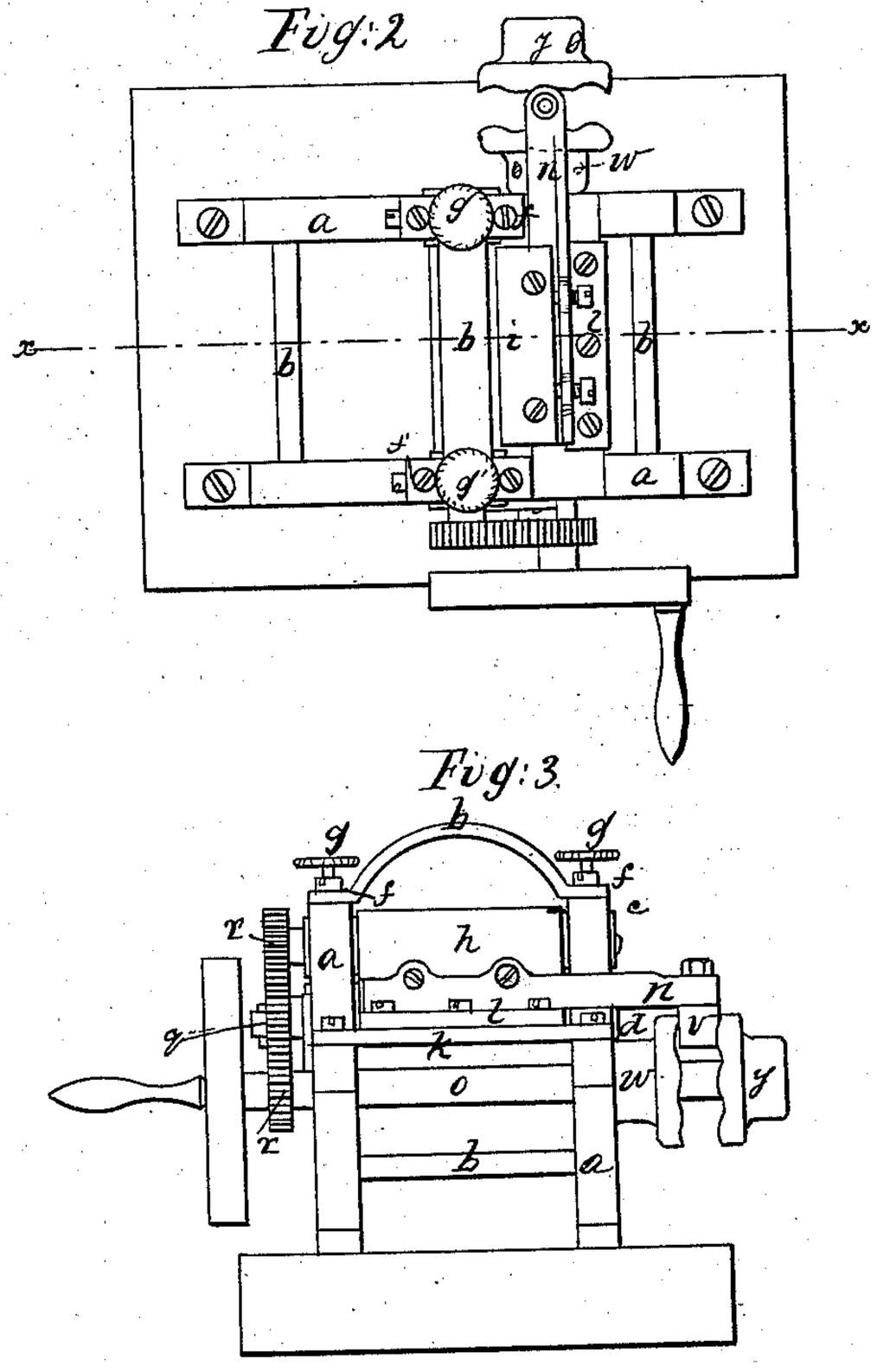

Fig: 3.

Witnesses.
L. B. Kidder.
M. W. Frothingham

Inventor
Alfred Dawes
By his Attys
Cowdy Halstead & Mould

United States Patent Office.

ALFRED DAWES, OF HUDSON, MASSACHUSETTS.

Letters Patent No. 70,175, *dated October* 29, 1867.

IMPROVED LEATHER-SPLITTING MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, ALFRED DAWES, of Hudson, in the county of Middlesex, and State of Massachusetts, have invented certain new and useful Improvements in Leather-Splitting Machines; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practise it.

This machine operates by the action of two feeding-rolls to push or feed the skin to be split upon or against the edge of a knife, to which are imparted rapid but short reciprocations, the organization being such as to adapt the machine to the splitting of sheep and other skins, which have not sufficient tenacity to admit of their being drawn or pulled against the edge of a stationary knife. The drawings, in which is illustrated an embodiment of my invention, show in—

Figure 1, a sectional elevation of my machine, the section being taken on the line *x x*, seen in

Figure 2, which is a plan of said machine, of which

Figure 3 is an end elevation,

Figure 4 being an elevation in detail of the lower roll, which is peculiar in its construction.

The cheeks or sides of the frame which supports the mechanism are marked *a a*, connected and sustained in relative position by braces and ties *b*. The boxes *c* and *d*, which receive the journals of the upper and lower rolls, are fitted so that they may slide freely within suitable ways or guides *e e*, forming part of the side frames. In the cross-pieces or caps *f f*, which connect the guides *e e*, are screws *g g*, by the manipulation of which the upper roll *h* is adjusted with reference to the knife *i*. The boxes *d*, of the lower roll, are supported on springs *j*, so as to allow the lower roll to yield with reference to the knife-edge, and with reference to the upper roll to admit the passage of leather or skins or varying thickness between the two rolls while feeding to the knife-edge. *k* is a bed secured to the side frames, its purpose being to form, with the adjustable strip *l*, a suitable way in which the carriage *m* may be reciprocated, said carriage being dove-tailed into its seat, as clearly shown in fig. 1. This carriage has a continuation marked *n*, provided at its end with a friction-roll, *v*, which enters a cylinder-cam, made with any desired number of throws, so that as the cam is rotated the carriage *m* is directly reciprocated therefrom. The knife *i* is mounted on this carriage *m* so that it can be adjusted towards and from the plane passing through the axes of both rolls, the holes in the knife, through which the screws pass to hold it down upon the carriage, being slotted, and set-screws being provided in a ledge or ears forming part of the carriage, which act upon the back of the knife to force it forward to keep it from yielding back from the rolls.

To operate the machine, power is applied directly to the cam-shaft *o*, this shaft bearing a gear, *p*, which meshes into an intermediate gear, *q*, which drives a gear on the lower roll, which in turn drives the upper roll *h* through the gear *r* on its shaft. In practice with machines for splitting skins I so proportion the gearing and the cam that for each double reciprocation of the knife the skin is fed but about an eighth of an inch towards the knife-edge, and I find that very short reciprocations, say from one-eighth to a quarter of an inch, enable me to make a great number of them per minute, and consequently to have a rapid advance of the skin. While this machine is quite effective for use in splitting some kinds of leather, when organized with a smooth or fluted solid lower roll, I have found that for some kinds of skins or leather a compound roll, such as is shown in the drawings, increases the efficiency of the machine. This compound roll is made up of a roll or shaft, *s*, a sleeve, *t*, of elastic, yielding material, vulcanized rubber, for example, and rings *u*, of metal or other suitable hard material. A compound roll so made acts by allowing one or more of the rings or sections, *u*, to yield to permit passage of small inequalities, such as are apt to be found on the flesh side of skins, which yielding is effected by the compression of the sleeve *t* at and near the places of greatest pressure. While this compound roll is shown as so mounted that the whole roll can yield as a unit by compression of springs *j*, it is capable of operating effectively, in connection with the other parts of the machine, upon some kinds of skins, when the springs *j* are omitted. When the length of the reciprocations of the knife are as small as I find it advantageous to make them, then any loss of the motion which ought to be imparted by the cam to the knife bears a large proportion to the entire stroke of the knife; therefore, to provide against lost motion consequent upon the wear of the cam, or the periphery of the roll *v*, in the continuation *n* of the carriage *m*, I make the cam in two parts, *w* and *y*, each provided with a set-screw, operative on shaft *o*, so that either part of the cam can be adjusted

with respect to the other part and with respect to the roll *v*. The direction of motion imparted to the rolls i such as to cause a skin, hide, or side of leather to be drawn in between them, in the direction of the arrow seen in fig. 1, pushing the material to be split against the edge of the knife, causing the severed part of uniform thickness to pass over the knife, and the part of irregular thickness to pass below the knife, the thickness of the upper split being determined by the relation of the edge of the knife to the upper roll, which relation may be modified by adjustment of the upper roll by the screws *g*, or by the adjustment of the knife on its carriage, or by both adjustments combined.

I claim the leather-splitting machine, constructed, arranged, and operating substantially as described.

Also the compound roll, consisting of the central roll or shaft, the sleeve of yielding elastic material covering said roll or shaft, and the outer rings of hard material, arranged to operate as set forth.

Also the construction of a cylinder cam in two separate pieces, adjustable with respect to each other substantially as and for the purpose specified.

ALFRED DAWES.

Witnesses:

E. F. HODGES,

JAMES STANDISH.