

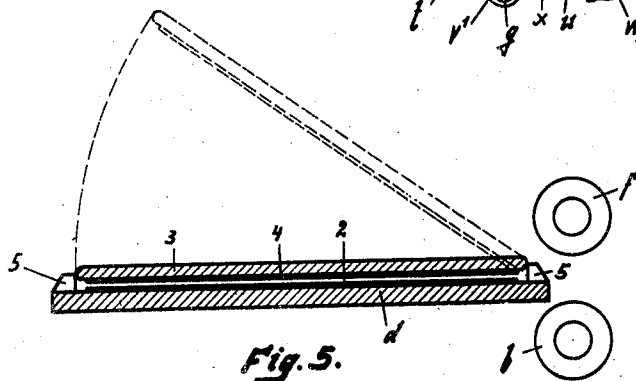
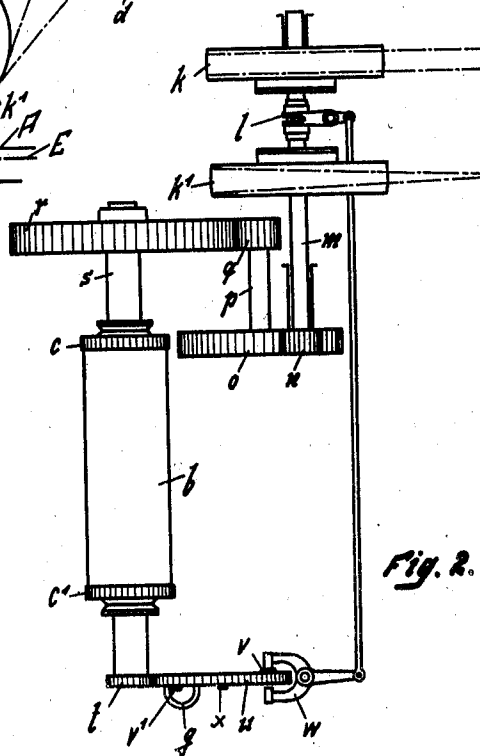
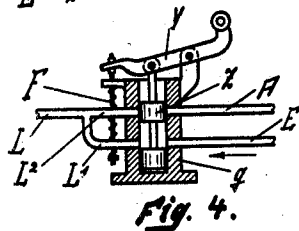
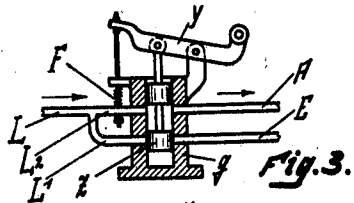
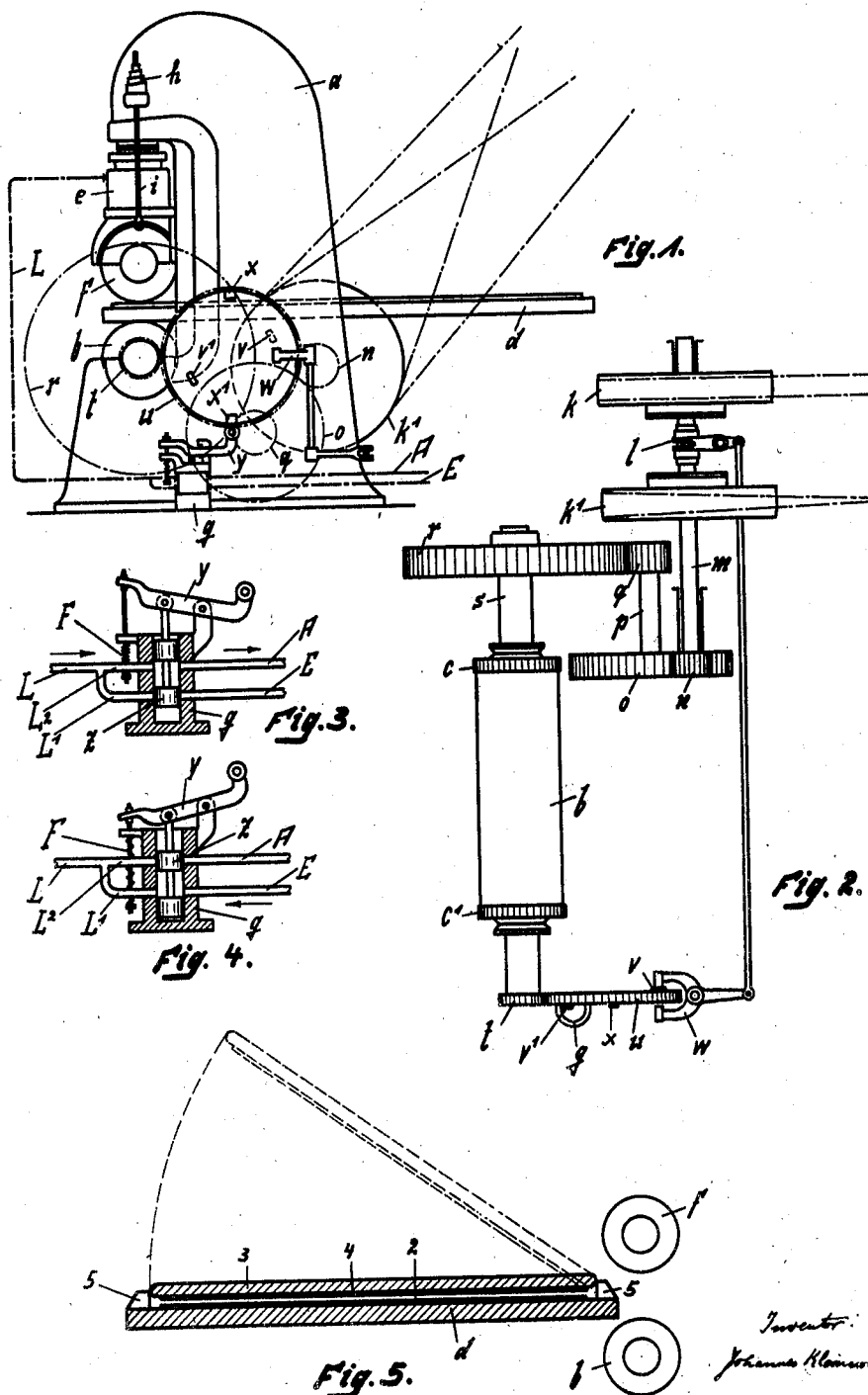
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LUSTERING AND EMBOSsing MACHINE FOR LEATHER AND THE LIKE

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LUSTERING AND EMBOSSEING MACHINE FOR LEATHER AND THE LIKE

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Machines for lustering and embossing leather and the like have, for the purpose of working whole skins in their full width and length in a single operation, a table moving to and fro between two pressure rolls. On this table rests, when embossing, an engraved metal plate and when lustering a smooth metal plate, on which the leather to be treated is laid and covered with an elastic cover e. g. felt. Hitherto it has been usual after inserting and covering the leather to lower the upper adjustable pressure roll onto the working table by hand and impart to it the necessary pressure by nuts and bolts. In order to bring the roll into an accurately horizontal position with hand adjustment, special indicators and water levels had to be provided on the machine. Only after this lengthy preparatory work had been carried out, could the machine be set in operation. At the end of the working pass the same tedious work had to be carried out in inverse sequence in order, after inserting a fresh skin, to again adjust in the old manner described above. Thus after every operation the pressure roll had to be raised by hand and, after inserting a new skin, again to be lowered by hand. It has already been proposed to hydraulically effect the raising and lowering of the pressure roll, however this suggestion has not been solved in a practical manner, and especially not by the means according to the present invention. Further the felt cover hitherto rested either loosely on the back of the leather or travelled as an endless felt in accordance with the feed of the table. This is open to the objection that, under the effect of the pressure roll, a slipping or stretching of the felt occurred which the leather, due to the great adhesion, is compelled to follow, so that distorting of the leather takes place.

According to the invention, there is, in a leather embossing machine constructed in the usual manner the upper pressure roll of which is hydraulically operated, at the beginning and end of each working pass a valve reversed by a control disc connected with the driving mechanism, whereby, according to the working conditions, the upper

pressure roll is automatically lowered or raised. This measure results in a considerable saving of time in the carrying out of the several operations, as compared with known machines. In order to prevent displacing of the felt cover, a felt pad is preferably secured to the under side of a stiff coverplate on the working table, said plate being mounted between stops on the table so that it cannot shift. On the completion of an operation the coverplate can be raised at one edge together with the elastic pad, in order to introduce a new skin whereby shifting of the coverplate is also prevented by one of the stops.

An embodiment of the invention is illustrated by way of example in the accompanying drawing in which—

Fig. 1 shows the machine in side elevation.

Fig. 2 is a top plan view of the driving and coupling elements.

Figs. 3 and 4 show the control valve for the pressure cylinder in two different positions.

Fig. 5 shows a special form of construction of the table.

In the frame *a* of the machine a roll *b* is journaled which has at its ends spur wheels *c*, *c'*. These spurwheels *c*, *c'* mesh with two racks arranged on the underside along the two longitudinal edges of the table *d*. For shagreening or embossing an engraved plate and for lustering a smooth metal plate is fixed on the table *d*. The skin is stretched on this plate and covered with an elastic pad preferably of felt. A pressure cylinder *e* is mounted in the upper portion of the frame *a*. The piston of this cylinder bears on the upper pressure roll. The cylinder *e* is connected by a control valve *g* with the supply and discharge for water under pressure. Moreover springs *h* are arranged on the frame connected also with the upper pressure roll *f* by connecting rods *i* and opposing the lowering movement of this roll. The pressure exerted by the pressing medium, e. g. compressed water, from the cylinder *e* is however greater than the force of the springs *h*, so that when the feed valve *g* is open the pressure roll *f* overcomes the

spring force and is lowered and pressed onto the table *d* by the water pressure, whereas when the compressed water pressure ceases and when the outlet valve is open the roll *f* is lifted from the table by the springs *h*.

The drive of the lower roll *b* and therefore of the table *d* is effected through the intermediary of back gearing by two loose pulleys *k, k'* connected the one by a straight belt and the other by a crossed belt with the driving pulley (not shown).

For the purpose of changing the direction of the table movement the pulleys *k, k'* are alternately coupled with a shaft *m* by a clutch *l*. In the central position the clutch *l* is not in engagement with either of the two pulleys *k, k'*.

On the shaft *m* a spurwheel *n* is keyed which drives a spurwheel *r* arranged on the shaft *s* of the lower roll by means of a back gear comprising a spurwheel *o*, a shaft *p* and a spurwheel *g*. The opposite end of the shaft *s* carries a spurwheel *t* meshing with a control disc *u* in the form of a spurwheel. The disc *u* is provided with two stops *v, v'* which are diametrically opposite to each other and of which only one is arranged on each side of the disc. These stops *v, v'* at the end of each working pass disengage the clutch *l* from the pulley *k* or *k'* respectively, by means of a fork *w* and a number of links connected therewith. The re-engagement of the machine is effected after the insertion of a fresh skin by throwing in the clutch *l* by hand, whereby the table *d* is moved in the opposite direction.

Further on the control disc *u* two cams *x, x'* are arranged both on the same side. At the beginning and end of the working pass these cams actuate a lever *y* of the control valve *g* and cause the opening of the admission conduit *E* for the pressure water at the same time closing the exhaust conduit *A* or vice versa as can be seen from the two positions of the control valve *g* which is similar to a piston valve, shown in Figs. 3 and 4. The position according to Fig. 3 corresponds to the stopped position of the machine and that shown in Fig. 4 corresponds to the operative state of the machine. The discharge conduit *A* and the admission conduit *E* end in the valve body *g* and they are connected on the other side of the valve through the conduits *L'* and *L²* to a common pipe *L* ending in the cylinder *e*. A lever *y* pivoted to one side of the valve body is under the action of a pressure spring *F*, which opposes the pressing down of the free end of the lever by the cams *x, x'*. A control piston *z* is linked to the lever *y* between its fulcrum and the bearing point of the spring *F*. The middle portion of the piston *z* is of smaller diameter than the bore of the valve casing *g*. This piston, when the machine is inoperative (Fig. 3), interrupts the feed of

the pressure water and establishes at the same time a communication between the conduit *L* through the conduit *L²* with the discharge conduit *A*, so that the pressure roll *f* is raised from the table *d* under the action of the spring *h*. After throwing in the machine by hand the control lever *y* is released by the cams *x* or *x'*; the piston *z* under the action of the spring *F* consequently assumes the position shown in Fig. 4, whereby pressure water is fed to the cylinder *e* from the conduit *E* through the conduits *L'* and *L*. The roll *f* is therefore automatically lowered at the beginning of the working pass, whereas the exhaust conduit *A* is at the same time shut off.

In order to prevent slipping of the felt pad covering the leather whilst passing through the machine the heated table plate *d* shown in Fig. 5 may advantageously be used, and on which the lustering plate 2 rests. On the plate 2 the work is laid with the flesh side uppermost. A stiff plate 3 having fastened to its underside an elastic pad 4, e. g. of felt is used as a cover. The plate 3 is held between stops 5 on the table *d*. The whole arrangement moves to and fro between the pressure rolls *b* and *f*. With this arrangement slipping or stretching of the felt pad and consequent distortion of the work can not occur. The plate 3 may be lifted on one side together with the felt pad e. g. to the position shown in dotted lines in the drawing, without slipping of the felt pad occurring.

I claim:—

1. A lustering and embossing machine for leather or the like in which whole skins are worked on the full width and length in a single working pass on a reciprocating table between pressure rolls, of which the upper one is hydraulically moved, comprising in combination with said table and said upper pressure roll, means for automatically pressing said pressure roll onto said table at the beginning of each working pass, and means for automatically raising said roll from said table at the end of each working pass.

2. A lustering and embossing machine as specified in claim 1, comprising in combination with said upper pressure roll, a pressure cylinder, a driving gear, a control disc connected with said driving gear, a valve actuated by said control disc at the beginning and at the end of each working pass thereby admitting the pressure medium to and shutting the same off from said pressure cylinder.

3. A lustering and embossing machine as specified in claim 1, comprising in combination with said upper pressure roll, a piston, springs adapted to draw back said piston when not under pressure the pressure of said spring being inferior to the pressure of the pressing medium on said piston.

4. A lustering and embossing machine as specified in claim 1, comprising in combination with the reciprocating work table, a driving gear, and a control disc connected with said driving gear adapted to effect also the reversing movement of said work table.

5. A lustering and embossing machine as specified in claim 1, comprising in combination with said table, a stiff coverplate, a felt pad secured to the underside of said coverplate, and stops on said table between which said coverplate is adapted to slide.

6. A lustering and embossing machine as specified in claim 1, comprising in combination with the work table a stiff cover plate and a felt pad said coverplate adapted to be raised on one side together with said felt pad.

In testimony whereof I affix my signature.

JOHANNES KLEINWEFERS.