

(No Model.)

3 Sheets—Sheet 1.

E. GESSNER.
FULLING MILL.

No. 536,279.

Patented Mar. 26, 1895.

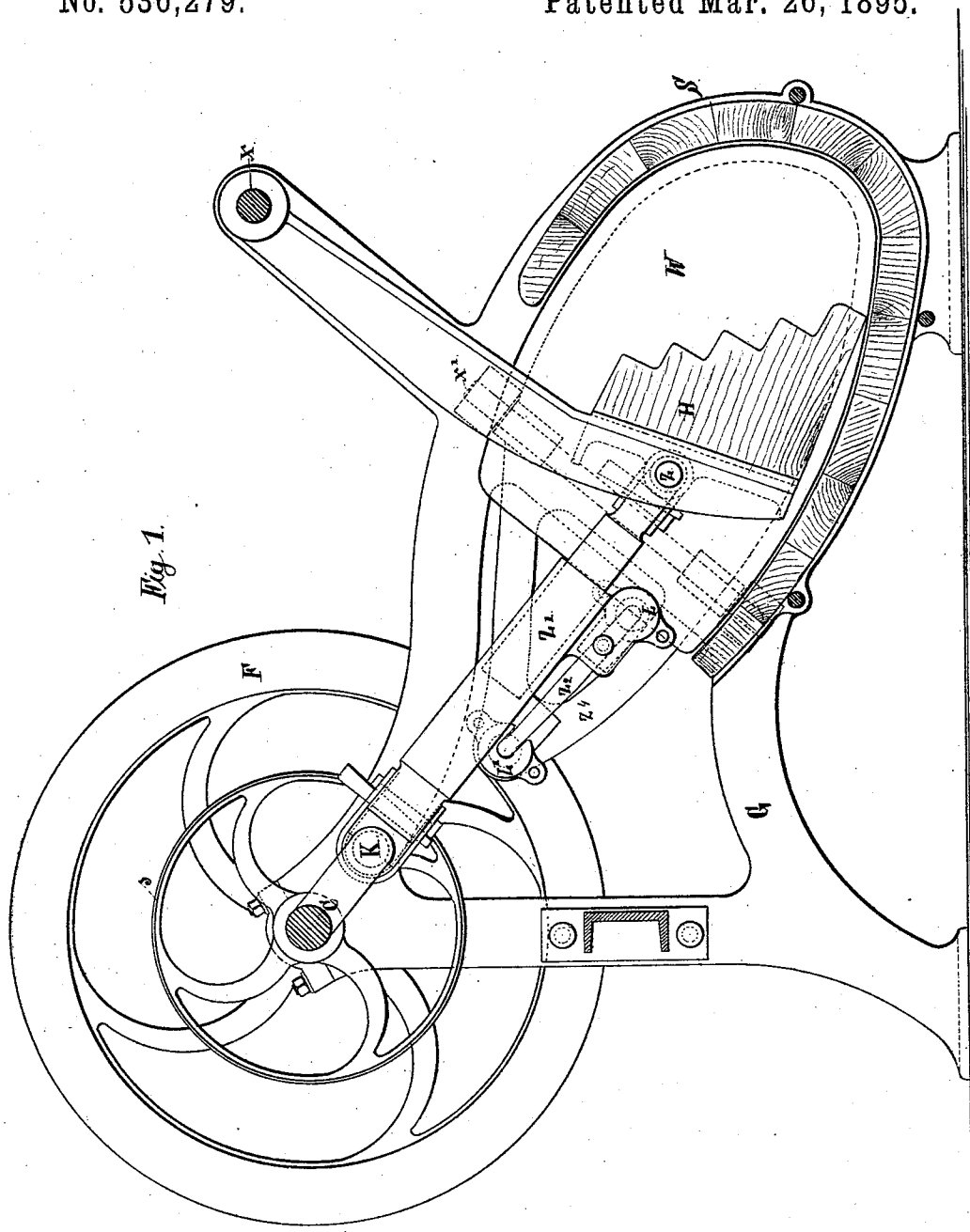


Fig. 1.

Witnesses:
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Geo. Ottmeyer,

Inventor
Ernst Gessner
By *Briesen Knauth*
his Attorneys.

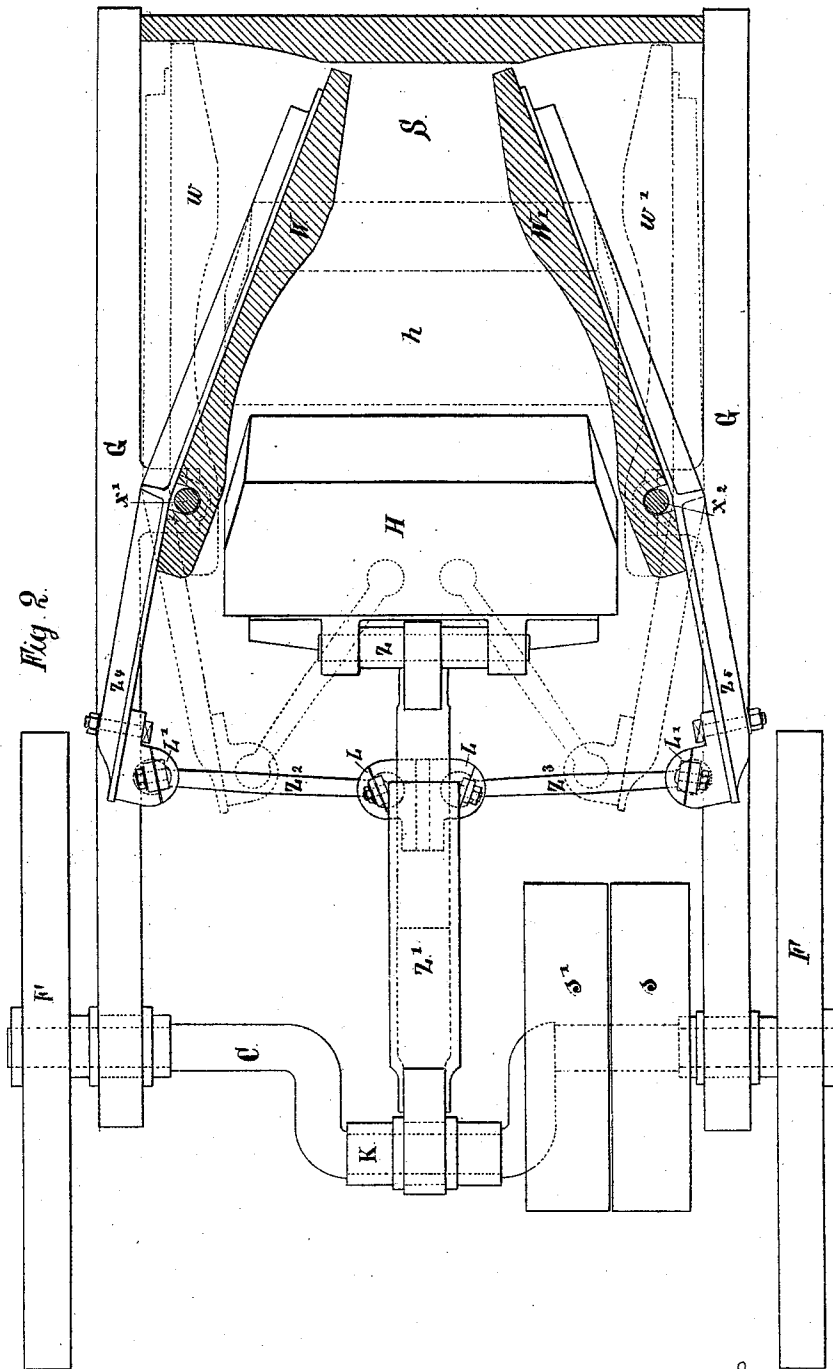
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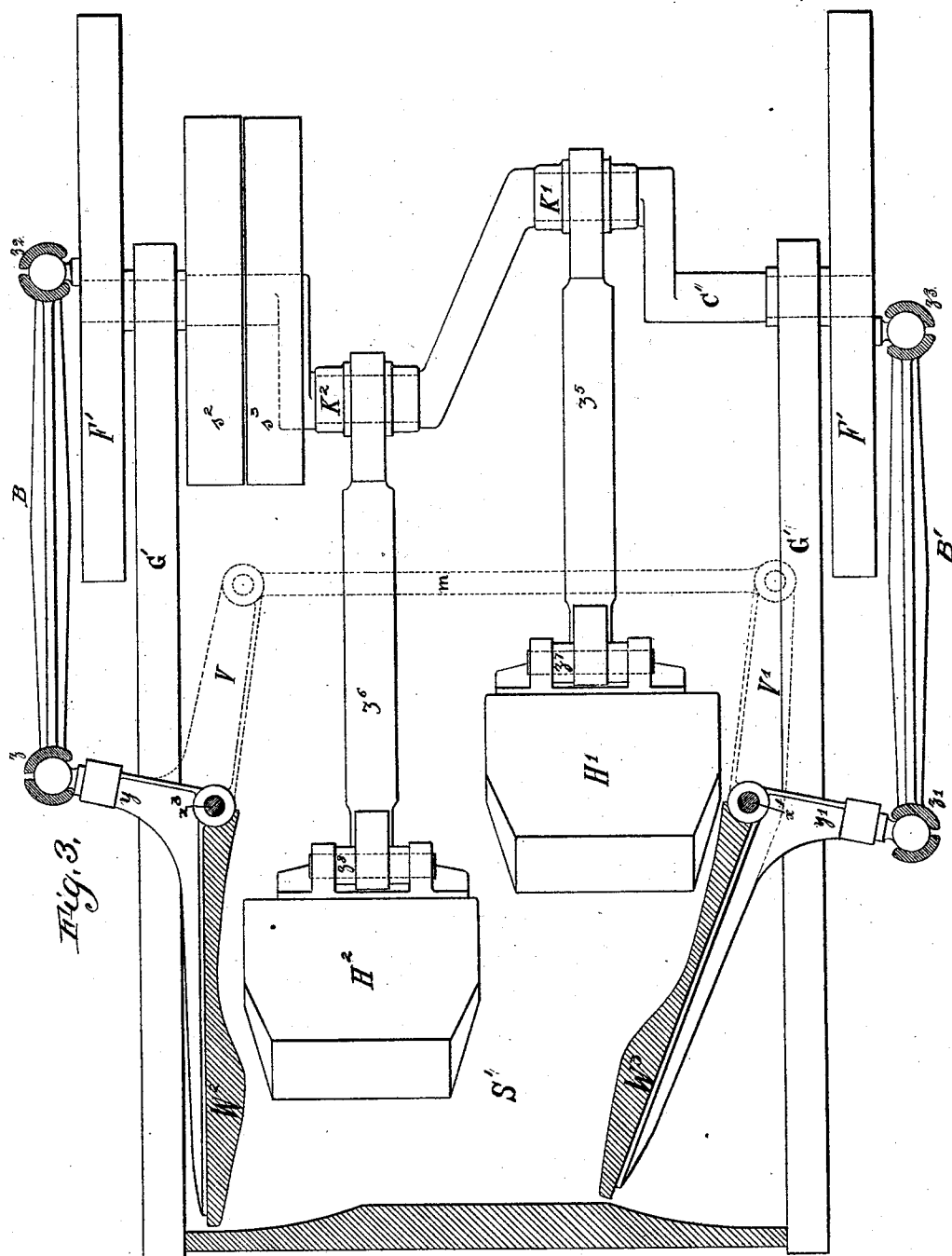
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Witnesses
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Inventor:

James G. Smith

UNITED STATES PATENT OFFICE.

ERNST GESSNER, OF AUE, GERMANY.

FULLING-MILL.

SPECIFICATION forming part of Letters Patent No. 536,279, dated March 26, 1895.

Application filed March 3, 1894. Serial No. 502,189. (No model.) Patented in Germany May 2, 1893, No. 71,723; in Belgium May 2, 1893, No. 104,500; in Austria-Hungary May 4, 1893, No. 229,847; in France May 4, 1893, No. 229,847, and in England May 10, 1893, No. 9,407.

To all whom it may concern:

Be it known that I, ERNST GESSNER, machine-builder, of Aue, in the Kingdom of Saxony, Germany, have invented new and useful
5 Improvements in Fulling-Mills, (for which I have obtained Letters Patent in the following countries, namely: Germany, dated May 2, 1893, No. 71,723; Austria-Hungary, dated May 4, 1893, No. 229,847; Belgium, dated May 2,
10 1893, No. 104,500; France, dated May 4, 1893, No. 229,847, and England, dated May 10, 1893, No. 9,407,) of which the following is a full, clear, and exact description.

This invention relates to improvements in
15 fulling mills and has for its object to improve or accelerate the fulling action and so increase the output of the machine, without correspondingly increasing the space occupied, or the power consumed, by the machine. With
20 this object the side boards of the fulling trough are made movable and operated in such manner that they are caused to act as beaters in the lateral direction, their action being supplementary to, and alternating with,
25 that of the ordinary stock, so that the fabric is worked or kneaded in two directions, in consequence of which the fulling effect is greatly augmented and the goods are worked more uniformly than hitherto. The piece is
30 also prevented from forming knots which is a great drawback to the existing fulling machine, as it necessitates the frequent removal of the goods from the trough for the purpose of stretching them.

35 The invention will be described with reference to the accompanying drawings, forming part of this specification, in which—

Figure 1 shows a vertical longitudinal section and Fig. 2 a plan of a crank fulling mill
40 provided with a single stock or beater, and Fig. 3 shows a similar view of a mill provided with two stocks or beaters acting reciprocally.

H is the stock, of the ordinary stepped form, hung by arms on a shaft X mounted in the
45 frame G of the machine and oscillated within the trough S by a crank K on shaft C to which it is coupled by a rod Z', the shaft C being provided with fast and loose pulleys s s' and a fly-wheel F' at each end.

50 W W' are the movable side boards of the

said trough mounted to turn about shafts x' x'', these side boards W W' being secured to lever arms Z⁴ Z⁵ the tail ends of which are coupled by toggle links Z² Z³ provided with ball and socket joints L, L', L'', with the
55 connecting rod Z' which thus operates both the stock and the side boards W W' so that the side boards are moved inward when the stock is drawn back, as shown in full lines in the drawings, and outward when the stock
60 is moved forward, as shown in dotted lines in Fig. 2. By this means the goods are kneaded, worked and turned alternately by the stock in the ordinary way and by the side boards
65 in the lateral direction whereby the fulling effect is increased and rendered uniform. The axes X' X'' about which the side boards swing, are inclined in a plane at right angles to the connecting rod Z' when the crank K is
70 at the dead point and the side boards are curved or hollowed out, as shown, so as to give free play to the stock in its to and fro motion.

I do not limit myself to a single stock, as a pair of stocks or beaters may be employed working backward and forward alternately.
75 Such arrangement is shown in Fig. 3, in which a double-stock fulling mill in plan is represented, which is constructed substantially like the single machine.

G' G' is the frame work, S' the trough, and
80 C' the double cranked shaft with fly wheels F' F' on each side and the fast and loose pulleys s² s³ fixed to it.

H' H'' are the two stocks which, by rods z⁵ z⁶, are coupled to the cranks K' K'' of the shaft
85 C', and W² W³ are the two movable side-boards of the machine, having their fulcrums in, and turning about shafts x³, x⁴. The said side boards have lever arms y y' at their upper ends, the tail ends of the lever arms being
90 coupled by toggle links with ball and toggle joints z z' and secured to rods B B' which rods are attached in the same manner with their opposite ends, by toggle links z² z³, to the fly wheels F' F' eccentrically, thus im-
95 parting motion in an oscillating manner to the side boards. This motion of the side boards in lateral direction is of course always in correspondence to the alternate movement of the two stocks, so that the two side boards
100

do not act simultaneously in the same direction but alternately to and fro, corresponding to the reciprocal movement of the two stocks.

The reciprocal movement of the two side-boards can be performed as well in another way, as shown for instance in dotted lines. In such case only one rod B is required to impart motion in the before described manner from the fly wheel F' to the side board W², the latter being connected with the side board W² by arms l' and connecting rod m from which the side board W' is forced to go along with the oscillating movement of W². In such case the lever arm y', and rod B' with toggle links z' z³ should be omitted.

I claim—

1. In a fulling mill, the combination of a trough, a stock and mechanism for reciprocating the stock longitudinally of the trough, movable side boards disposed adjacent to the stock, and mechanism for moving the side boards laterally of the trough, the same consisting of link connections between the side boards and the mechanism for reciprocating the stock, substantially as described.

2. In a crank fulling mill, the combination of a trough, a stock, a crank-operated con-

necting rod for moving the stock longitudinally of the trough, side boards provided with tail pieces and mounted on axes, and mechanism for oscillating the side boards laterally of the trough, the same consisting of coupling links coupling said tail pieces with the connecting rod which operates the stock, whereby the movement of the connecting rod will actuate both the stock and the side boards, substantially as described.

3. In a fulling mill, the combination with the trough, the stock and a connecting rod for operating the same longitudinally of the trough, of movable side boards mounted within the trough on vertical axes and provided with tail pieces or lever arms, and toggle links forming connections between the tail pieces of the side boards and the connecting rod which operates the stock, whereby the connecting rod operates both the stock and the side boards, substantially as described.

ERNST GESSNER.

In presence of—

J. ENGLER,

Consular Secretary, Chemnitz, Saxony.

JOH. SCHMIDT,

Architect, Chemnitz, Sachsen.