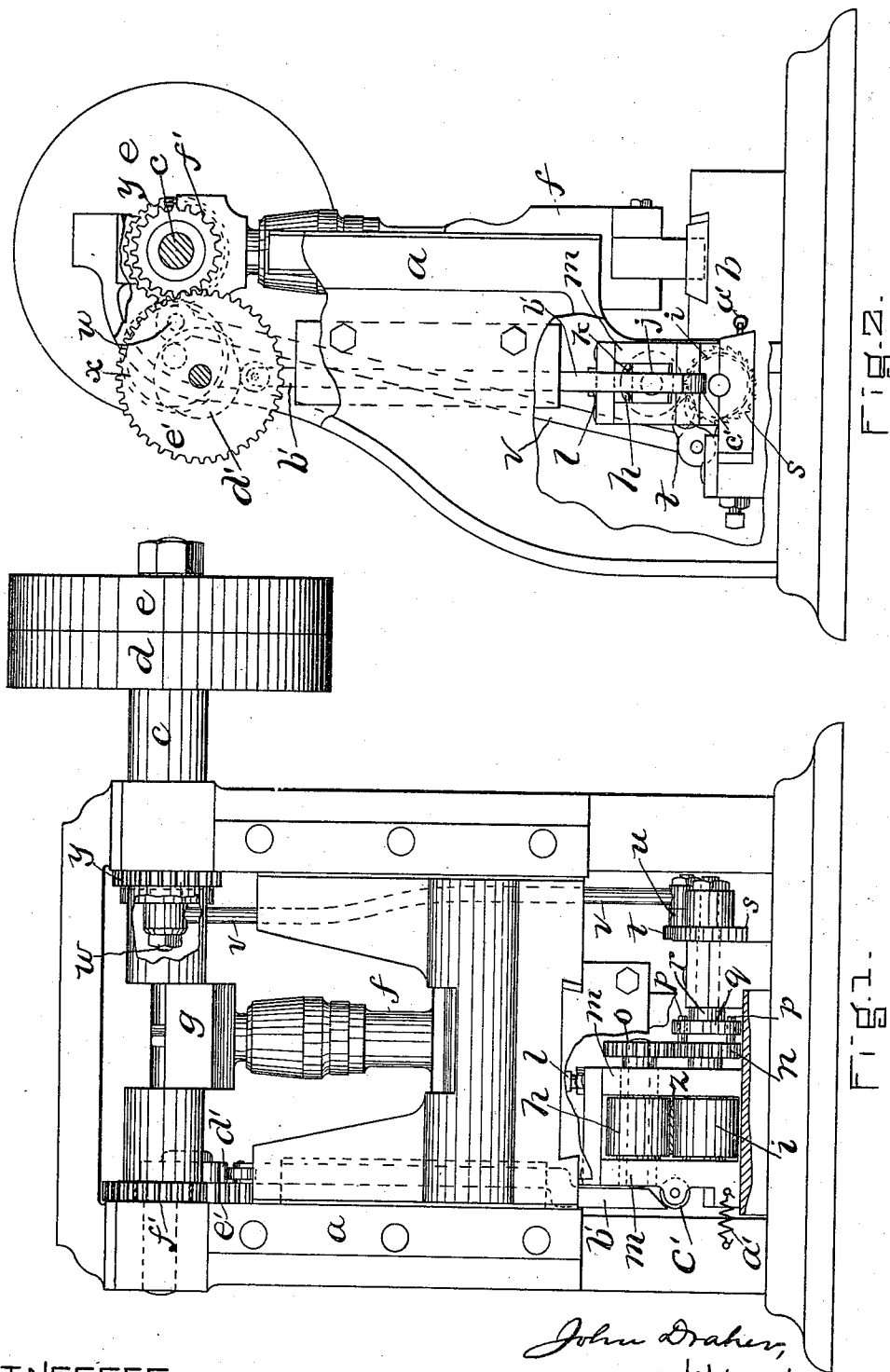


(No Model.)

J. DRAHER.
MECHANICAL FEEDING DEVICE.

No. 544,665.

Patented Aug. 20, 1895.



WITNESSES
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JOHN DRAHER, OF WATERBURY, ASSIGNOR OF ONE-HALF TO GILBERT H. BLAKESLEY, OF BRISTOL, CONNECTICUT.

MECHANICAL FEEDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 544,665, dated August 20, 1895.

Application filed January 5, 1895. Serial No. 533,976. (No model.)

To all whom it may concern:

Be it known that I, JOHN DRAHER, of Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Mechanical Feeding Devices, of which the following is a specification.

This invention has relation to mechanical contrivances for advancing and controlling the position of stock or material to be acted upon intermittently in machines in the process of transforming such material into a different state or thing.

It is the object of the invention to provide improvements in mechanical feeding devices which shall be durable and exceedingly simple in organization and mode of operation, and also so constructed as that they may by exceedingly simple means advance the material step by step and act to move it intermittently from side to side or laterally at the same time, so that the operation of the machine upon the stock may not always be in the same line of its forward movement.

To these ends the invention consists of an improved mechanical feeding device comprising in its construction intermittently-operated rolls or equivalent contrivances for holding the material in position and feeding it forward, means for operating the said rolls intermittently or step by step, and means for shifting or moving the rolls with the material held thereby from side to side intermittently, all as I will now proceed to describe in detail and particularly point out in the claims.

Reference is to be had to the annexed drawings, and to the letters and figures marked thereon, forming a part of this specification, the same letters designating the same parts or features, as the case may be, wherever they occur.

In the drawings, Figure 1 is a front elevation of a stamping or punching machine equipped with my improved mechanical feed having a form which has been found serviceable for many purposes, parts of the machine and frame being shown as broken away, the better to show the construction and arrangement of parts beyond. Fig. 2 is an end view, partly in section, of what is shown in Fig. 1.

In the drawings, *a* designates the frame of a stamping, punching, or similar machine. *b* is the bed. *c* is the driving-shaft, upon which are suitably arranged the fast and loose pulleys *d e*. *f* is the plunger, having an eccentric or a crank connection *g* with the driving-shaft *c*. These parts are not features of my invention and may be of the form shown or of any other suitable for the purpose.

h and *i* designate the feed-rolls, the lower roll *i* being journaled in fixed bearings and the upper roll *h* having its bearings in a sliding journal-box *j*, pressed upon by a spring *k*, adapted to be regulated as to its stress or tension by a set-screw *l* acting thereon. The said rolls and their bearings are supported in a frame *m*, adapted to be reciprocated or moved laterally to and fro in suitable ways and controlled by suitable guides or gibs connected with the lower part of the frame.

On one end of the shaft or journal of the roller *i* is keyed or otherwise secured a gear-wheel *n*, which meshes with a like gear *o* on the shaft or journal of the roll *h*, so that the two rolls may move in unison. Connected with the outer face or side of the gear-wheel *n* are laterally-projecting pins *p*, which extend through holes in a disk or wheel *q* on the inner end of a shaft *r*, so that the rolls and their supporting-frame may be reciprocated laterally to a limited extent and yet retain the gear-wheel *n* in continuous clutch with the disk *q*. Any other suitable continuous clutch may, however, be provided instead of that described.

On the shaft *r* is secured a ratchet-wheel *s*, engaged by a pawl *t*, pivoted upon the outer end of an arm or lever *u*, the inner end of which lever is arranged to turn loosely upon the shaft *r*. To the outer end of the arm *u* is also connected the lower end of a pitman or rod *v*, the upper end of which is pivotally connected with a wrist-pin *w* on the side of a gear-wheel *x*, (see full lines in Fig. 1 and dotted lines in Fig. 2,) engaged by a gear-wheel *y* of like size on the crank-shaft *c*, so that at each revolution of the crank-shaft the latter will operate through the described intermediate means upon the pawl *t* to move the ratchet-wheel *s* and rolls *h i* one step, or to the ex-

tent of one or more teeth of said ratchet-wheel, according to the adjustment of the parts.

By the construction and operation of the parts described stock or material z introduced between the rolls will be fed forward 5 intermittently.

As has before been stated, the frame supporting the feed-rolls is adapted to be reciprocated laterally to a limited extent on its support, and to effect this movement the means 10 herein shown consist of a spring a' , which acts upon the frame to move it in one direction, and an incline or cam on the lower end of a vertically-reciprocatory slide b' , which 15 acts upon a roll c' or other suitable part on the frame, which moves it in the opposite direction.

The slide b' is acted upon by a cam d' , (see full lines in Fig. 1 and dotted lines in Fig. 2,) 20 connected or compounded with a gear-wheel e' , supported in suitable bearings and engaged and driven by a gear f' on the crank-shaft c . The gear-wheel f' has but half the number of teeth that is possessed by the gear-wheel e' . 25 Hence the latter will be given but one rotation to two of the former, and the slide b' will be actuated but once to each two movements of the pawl and feed-rolls. I have contemplated the employment of other means for reciprocating the roll-carrying frame, whereby 30 it may be operated positively in both directions as well as positively in one direction and by a spring in the other.

With the organization before described it 35 will be seen that the feed-rolls may first be actuated so as to feed the stock z forward while the rolls are in the position, say, as they are shown in Fig. 1, and after the said stock is acted upon the rolls and their frame 40 may be shifted laterally by the action of the slide b' and another forward feed take place, so that the plunger may act upon the material in a different line in the direction of its forward movement from that on which the 45 first operation took place.

A mechanical feeding device is thus pro-

vided which is useful for a variety of purposes—such, for example, as dieing out articles of manufacture from sheet metal or other material, in which, for the sake of 50 economy, projecting parts of such articles may be formed from the projecting parts of the blank material died out from the interspaces in the previous act of making such articles.

Having thus explained the nature of the invention and described a way of constructing 55 and using the same, though without attempting to set forth all of the forms in which it may be made or all of the modes of its use, it is declared that what is claimed is— 60

1. A mechanical feeding device comprising in its construction feed rolls between which the material may be fed forward, a laterally reciprocatory frame in which the feed rolls are journaled, the intermittingly rotary shaft 65 r provided with the clutch disk q , intermeshing gears on the feed rolls, and pins on one of said gears extending laterally through holes in the clutch-disk.

2. A mechanical feeding device comprising 70 in its construction feed rolls between which the material may be fed forward, a laterally reciprocatory frame in which the feed rolls are journaled, the intermittingly rotary shaft 75 r provided with the clutch disk q , intermeshing gears on the feed rolls, pins on one of said gears extending laterally through holes in the clutch-disk, the main shaft, a cam slide operatively connected with the main shaft and adapted to operate upon the reciprocatory 80 frame to move it in one direction, and means for moving said frame in the opposite direction.

In testimony whereof I have signed my name to this specification, in the presence of 85 two subscribing witnesses, this 6th day of September, A. D. 1894.

JOHN DRAHER.

Witnesses:

WILLIAM W. BRADLEY,
DANL. F. WEBSTER.