

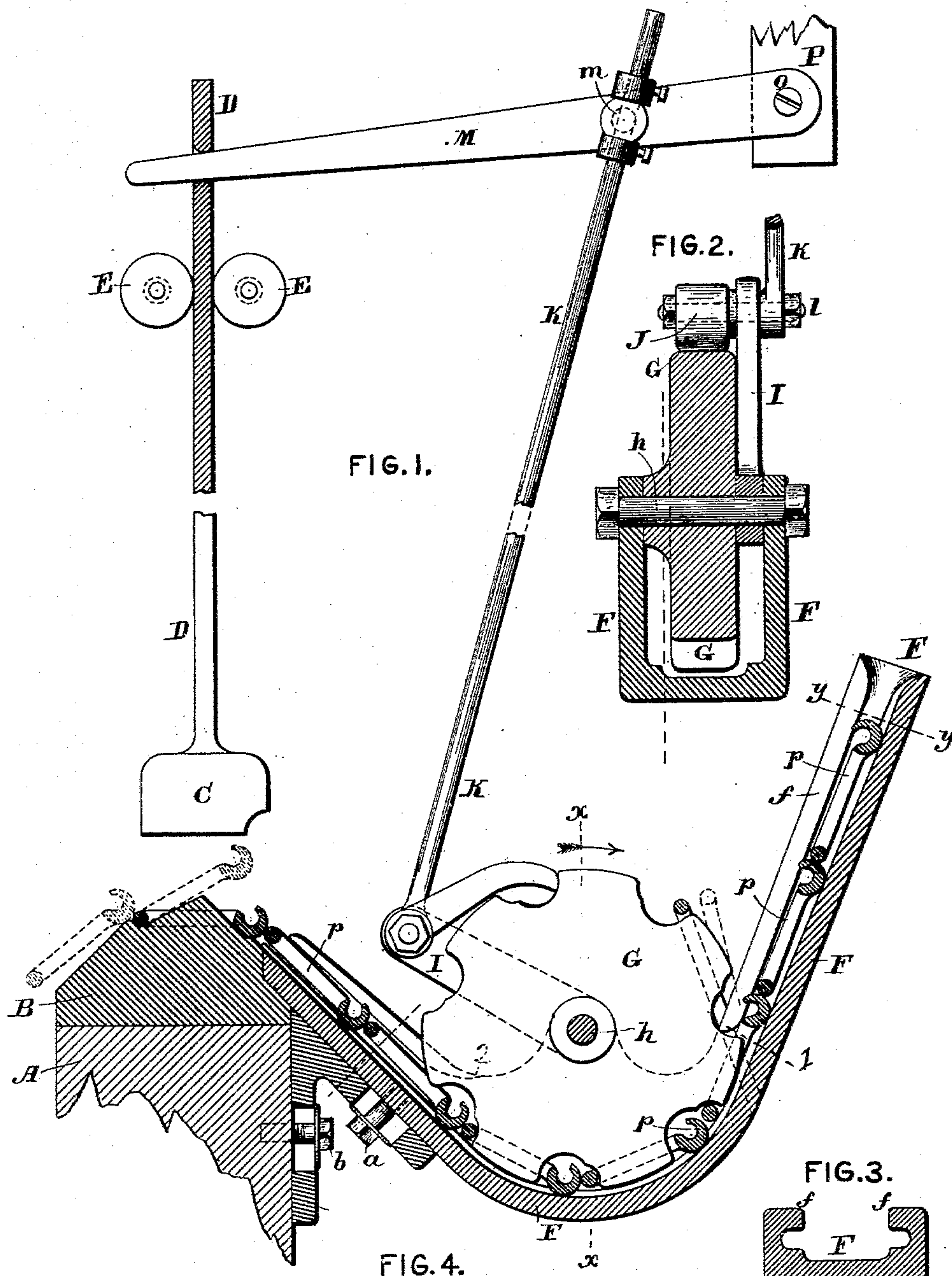
(No Model.)

E. L. HOWE.

MACHINERY FOR FEEDING DROP PRESSES.

No. 315,943.

Patented Apr. 14, 1885.



ATTEST.
J. Henry Kaiser.
Harry L. Amer.

FIG. 3.
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By Atty. J. N. McJure

UNITED STATES PATENT OFFICE.

EUGENE L. HOWE, OF CHICAGO, ILLINOIS.

MACHINERY FOR FEEDING DROP-PRESSES.

SPECIFICATION forming part of Letters Patent No. 315,943, dated April 14, 1885.

Application filed September 6, 1884. (No model.)

To all whom it may concern:

Be it known that I, EUGENE L. HOWE, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Feeding Machinery for Drop-Presses; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this application.

My invention relates to an automatic contrivance for feeding chain-links or other articles to the dies of an ordinary drop-press used for the purpose of straightening or perfecting the shape of such articles in a manner well known.

Previous to my invention it has been customary in performing the operation of straightening chain-links to place the links by hand one by one upon the lower die of an ordinary drop-press and remove each straightened link from the lower die by hand. I have, however, lately devised a feeding contrivance or device by the use of which the links may be more readily supplied to the drop, and by which, also, the danger to the operator encountered by the old-fashioned mode of operation is entirely avoided; but in this novel feeding contrivance, which I have made the subject of another application for Letters Patent, the periodical feeding in of the drop-press has to be done wholly by hand.

It is the object of the invention made the subject of this application to provide for use an automatic contrivance which shall only require that a sufficient supply of links or blanks shall always be maintained by the operator in the feeder trough or chute, the periodical or intermittent feeding of the contents of the feeder, chute, or trough being effected automatically by a suitable mechanism, preferably connected with or operated by some moving part of the press or drop; and to this main end and object my present invention may be said to consist in the novel devices and combinations of devices which will be found hereinafter more fully explained, and which will be more particularly defined and specifically pointed out in the claims of this specification.

To enable others skilled in the art to make

and use my invention, I will now proceed to more fully describe the construction and operation of a machine embodying the same, referring by letters of reference to the accompanying drawings, which form part of this specification, and in which I have illustrated my invention carried out in that form in which I have so far successfully practiced it.

In the drawings, Figure 1 is a vertical central section showing so much of a drop-press as is necessary with my improved automatic blank-feeding mechanism combined therewith. Fig. 2 is a detailed vertical cross-section at the line *x x* of Fig. 1. Fig. 3 is a detailed cross-section at the line *y y* of Fig. 1. Fig. 4 is a perspective view of one of the chain-links such of the kind that my automatic feeder is specially adapted to operate.

In the several figures the same part will be found designated by the same letter of reference.

A represents part of the base-frame of an ordinary drop-press, and B the lower die thereof.

C is an upper die, which is represented as being provided with the usual lifter bar or strap, D, and which is periodically raised by two friction-rollers, EE, and permitted to drop or fall in the usual manner.

Bolted to one side of the lower portion, A, of the press is an angular metallic stand or bracket, G, which preferably is secured to A by means of a bolt, *b*, passing through an oblong hole in said stand, so that the latter, by loosening and retightening said bolt *b*, may be set and fastened at slightly different elevations relatively to the top surface of the lower die, B, of the press.

To the upper oblique surface of this stand G is secured by means of a bolt, *a*, the feeder trough and chute F, preferably in such manner that by loosening and retightening the bolt *a* said feeder trough or device F may have that end which is nearer to the die B set or adjusted to a greater or less distance from the top of said die, for a purpose to be presently explained. The feeder trough or device F is formed, it will be seen, with a curved central portion, which is almost semicircular, and two straight divergent portions or legs,

the shorter one of which extends upwardly toward and into close proximity with the top of die B, while the longer one projects upward to a height convenient for the placement within this end of the feeder device by the operative of the links to be fed to the press.

As is clearly shown, the outer or receiving end of the feeder device F is made flaring or funnel-shaped, so as to facilitate the insertion of the links, one at a time, by hand, as required, while the shape of F at each of the straight or leg-like portions is such in cross-section (see Fig. 3) as that there shall be overhanging ledges *f f* at the open sides of the legs to confine the links at opposite sides within the feeder-legs, and thus compel the links to follow each other perfectly both while descending by gravity in the longer leg of the feeder F and while being pushed upwardly within the shorter leg of said feeder. As the chain-links, while traveling through the curved portion of the feeder, assume positions such as to render impracticable the presence of the retaining ledges or lips *f f* at said curved portion of the feeder, these portions *f f*, it will be observed, extend only respectively from the outer end of the feeder down to the point 1, Fig. 1, and from the inner end of the feeder down to the point 2, Fig. 1. Over the curved or dishing portion of the feeder F is mounted a feed wheel or disk, G, which is arranged to turn freely on an axle or spindle *h*, the ends of which are properly supported in the upwardly-projecting side portions of the feeder F. (See Fig. 2.) This feed-wheel G has its periphery notched or cut out crosswise at proper intervals, in a manner clearly shown at Fig. 1, for the introduction of the adjacent plane end bars and coupler-hook end bars of the links which have to pass along in the feeder F, and which are moved forward positively through the curved portion of said feeder by the feed-wheel G, in a manner to be presently explained. This feed-wheel G has a face of such width that those portions of its periphery which are farthest from its axis will easily or readily pass into the central openings of the chain-links, as shown at Fig. 1, after a fashion in which the sprockets of a chain-wheel enter the central openings of such chain-links when the latter are made up into a drive-chain.

It is a crank-arm, one end of which is made fast to a hub of the feed-wheel G, (or to the spindle *h*, if it be preferred to have said spindle move with the feed-wheel G,) and the other end of which has pivoted to it at *l* a pawl, J, the free end of which engages with the notches in the periphery of the feed-wheel, and also the lower end of pitman K, the upper end of which is pivoted at *m* to a vibratory arm or lever, M, the fulcrum of which is pivoted at *o* in any stationary fixture P, and the free end of which passes through a slot or hole through the lifter-bar D of the drop-press, by which lifter-bar it is periodically vibrated.

p represents chain-links such as are to make that kind of chain known as the "Ewart" detachable drive-chain, and the upper or working face of the die B and the lower face of the die C are of course shaped, respectively, so as to conform to and effect the straightening of opposite sides of such a link when the latter shall be struck between the dies in the usual manner.

In the operation of the contrivance shown in the drawings and thus far explained the operator simply inserts successively the malleable-iron links *p* at the upper flaring end of the feeder F, keeping the outer leg of said feeder amply supplied at all times. As the press or drop is continuously worked, the vibrating arm M is moved up and down at its free end by the lifter-bar D of the press, and thus the pitman K is caused to vibrate the arm L, and through the medium of the pawl J turn the feed-wheel G (in the direction indicated by the arrow, Fig. 1) to an extent equal to the distance between any two of its peripheral notches, whereby the links in the curved or dishing portion of the feeder F are positively moved along in the feeder by the wheel G a distance about equal to the length of one link. This periodical movement of the wheel G and the links upon which it operates once to each double stroke—that is, to each ascent and descent—of the lifter-bar D and upper die, C, of the press, and this periodical movement of the links thus affected by the feeder G, cause the link or links, as the case may be, which lie in the shorter leg of the feeder F to be pushed upwardly and forwardly to an extent just sufficient, first, to place the foremost one of said links properly on the die B, as shown at Fig. 1, and to thereafter periodically or intermittently remove from said die the link which has been dropped or straightened, and place thereon a fresh link to be operated upon.

I have shown in dotted lines at Fig. 1 two different positions, which fairly illustrate the successive positions or the movements of a link while being pushed up or off of and away from the die B by the incoming link.

In another application made by me and filed simultaneously with this, the mode of operation where the series of links arranged in ascending feeder is pushed by hand, is fully described, and as the operation in the present case is about the same as this part of the automatic machine, I need not further explain it here.

In the machine herein shown and described however, the supply of links in the feeder device or trough, instead of having to be pushed by hand at the proper times and to the proper extent to effect the dislodgment of the straightened link and to place a fresh link on the die B, is controlled and effected automatically and in perfect accordance with the requirements of the press, so that all the operator has to do is to simply see that the ascending leg of the

feeder F is kept always properly supplied with links. This duty, of course, can be performed by any mere boy or unskilled operative, while at the same time the machine will supply the links properly for a more rapidly operated drop-press than could be successfully effected continuously by the hand of a skilled operative.

Of course many modifications and variations in the details of construction of the contrivance shown and described may be made without departing from the spirit of my invention, so long as the machine be made to involve the same principle of construction and work in substantially the same manner. It will also be obvious that, although it is preferable to have the feeder-wheel G operated or manipulated through the medium of connections with some part of the press, it might be worked by some independent driving-power arranged to operate said feed-wheel synchronously with the movements of the upper die of the press; also, that variation may be made in the construction of the machine to adapt it for use with any other sort of blanks than chain-links.

Having now explained my invention in that form in which I have so far practiced it, and wishing to be understood that one or more of the novel features of my invention may be used with more or less advantage in a contrivance not embodying all of them, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with the ascending leg portion of a feed-trough, a descending supply-leg, a connecting or intermediate curved portion, and means for periodically moving the contents of the feeder, substantially as and for the purposes hereinbefore set forth.

2. In combination with a drop-press, the feed trough or device F and a feed-wheel, G, the periphery of which is adapted to engage with the separate blanks in the feeder, substantially as and for the purposes described.

3. In combination with the stationary die of the press, a feed-trough, F, and feed-wheel G, and means, such as described, for periodically moving said wheel through the medium of a device worked from the movable die of the press or its connections, substantially as hereinbefore set forth.

4. The combination, with a feeder device, F, having the open sides of its straight portions provided with ledges *ff*, of a feed-wheel, G, having notches across its periphery to accommodate the adjacent plain end bar and a coupler-hook end bar of each pair of links, and adapted to enter the central openings of the chain-links, so as to act positively against the plain end bars in moving forward the supply-column, substantially as set forth.

In testimony whereof I have hereunto set my hand this 1st day of September, 1884.

EUGENE L. HOWE.

In presence of—

GLENN G. HOWE,
J. H. NICKELSON.