4 Sheets—Sheet 1.

C. S. SEATON.

Bolt Heading Machine.

No. 242,229. Patented May 31, 1881.

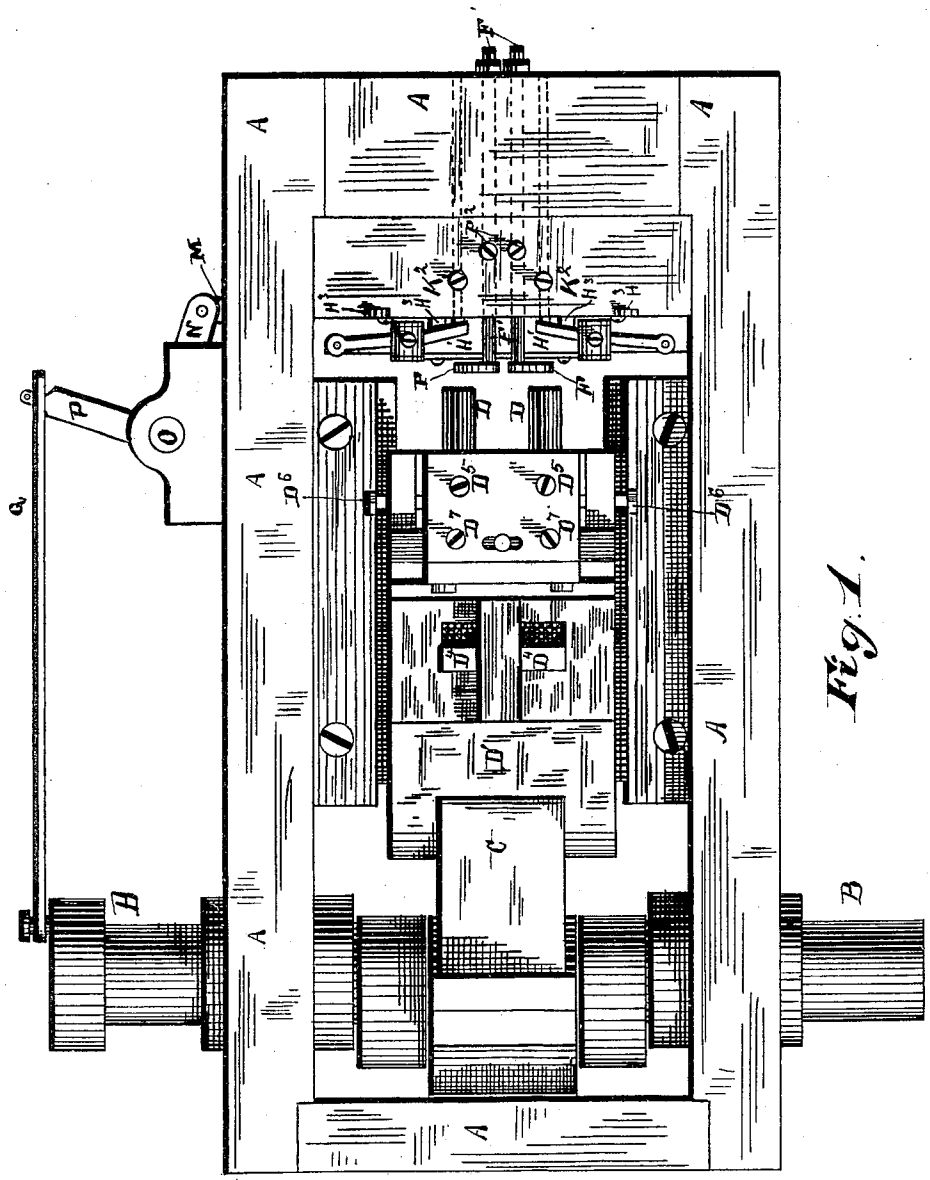


Fig. 1.

WITNESSES

Frank M. Yabsr.

Willard Fraeker.

Charles S. Seaton

INVENTOR

By Liggett & Liggett

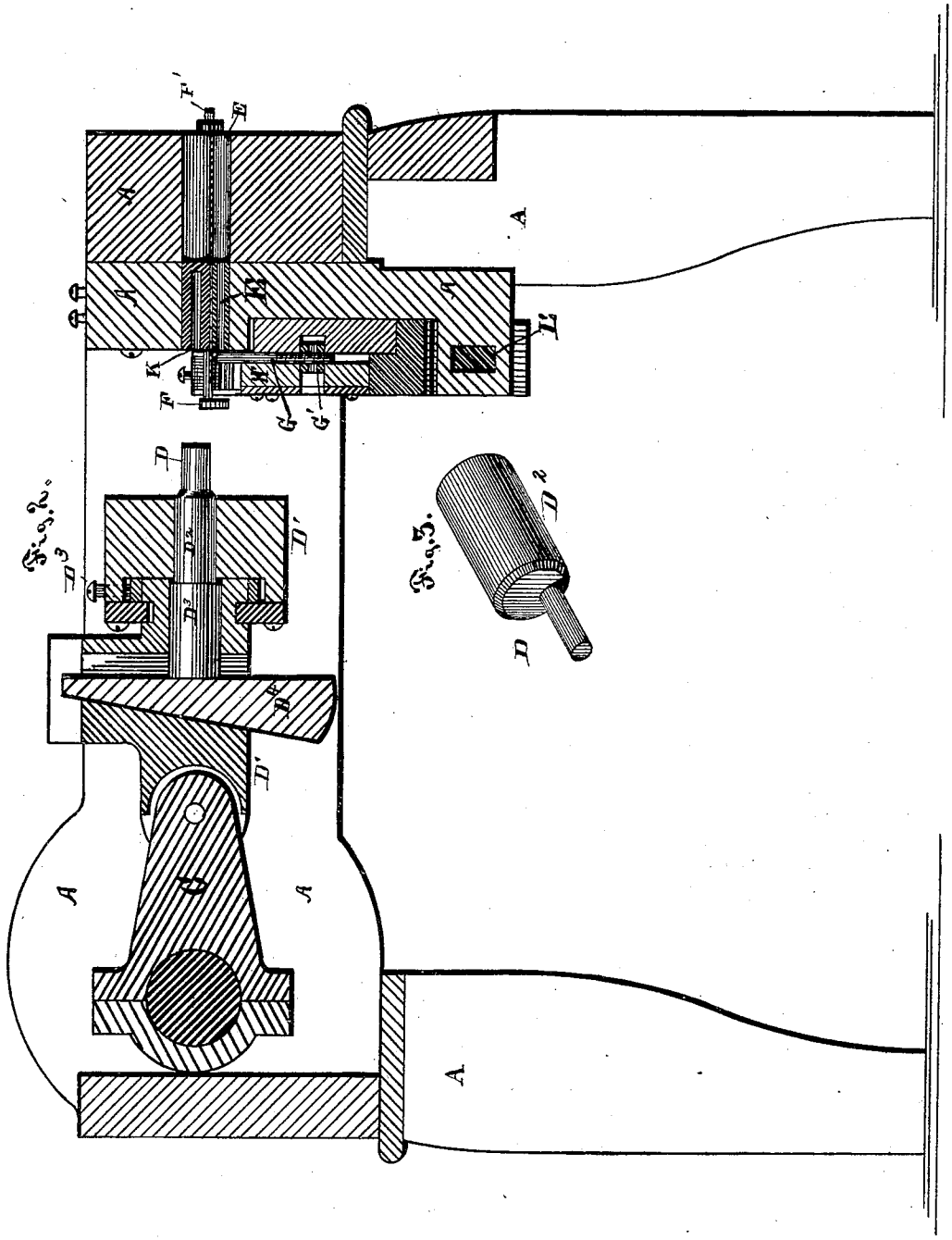
ATTORNEYS

4 Sheets—Sheet 2.

C. S. SEATON.

Bolt Heading Machine.

No. 242,229. Patented May 31, 1881.



WITNESSES:
Frank M Gaby.
Willard Fraeker.

Charles S. Seaton INVENTOR
By Liggett & Liggett
Attorneys

4 Sheets—Sheet 3.

C. S. SEATON.

Bolt Heading Machine.

No. 242,229. Patented May 31, 1881.

Fig. 4.

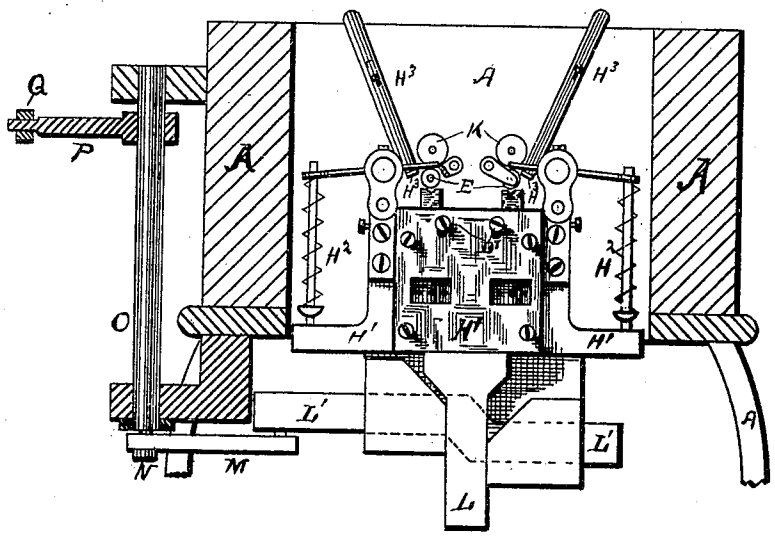


Fig. 5.

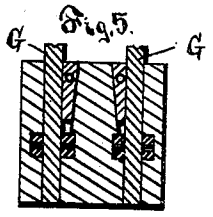
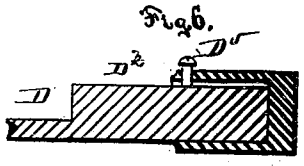


Fig. 6.



Charles S. Seaton

INVENTOR

WITNESSES

Frank M. Gabor

Willard Fracker.

By Leggett & Leggett.

ATTORNEYS.

4 Sheets—Sheet 4.

C. S. SEATON.

Bolt Heading Machine.

No. 242,229. Patented May 31, 1881.

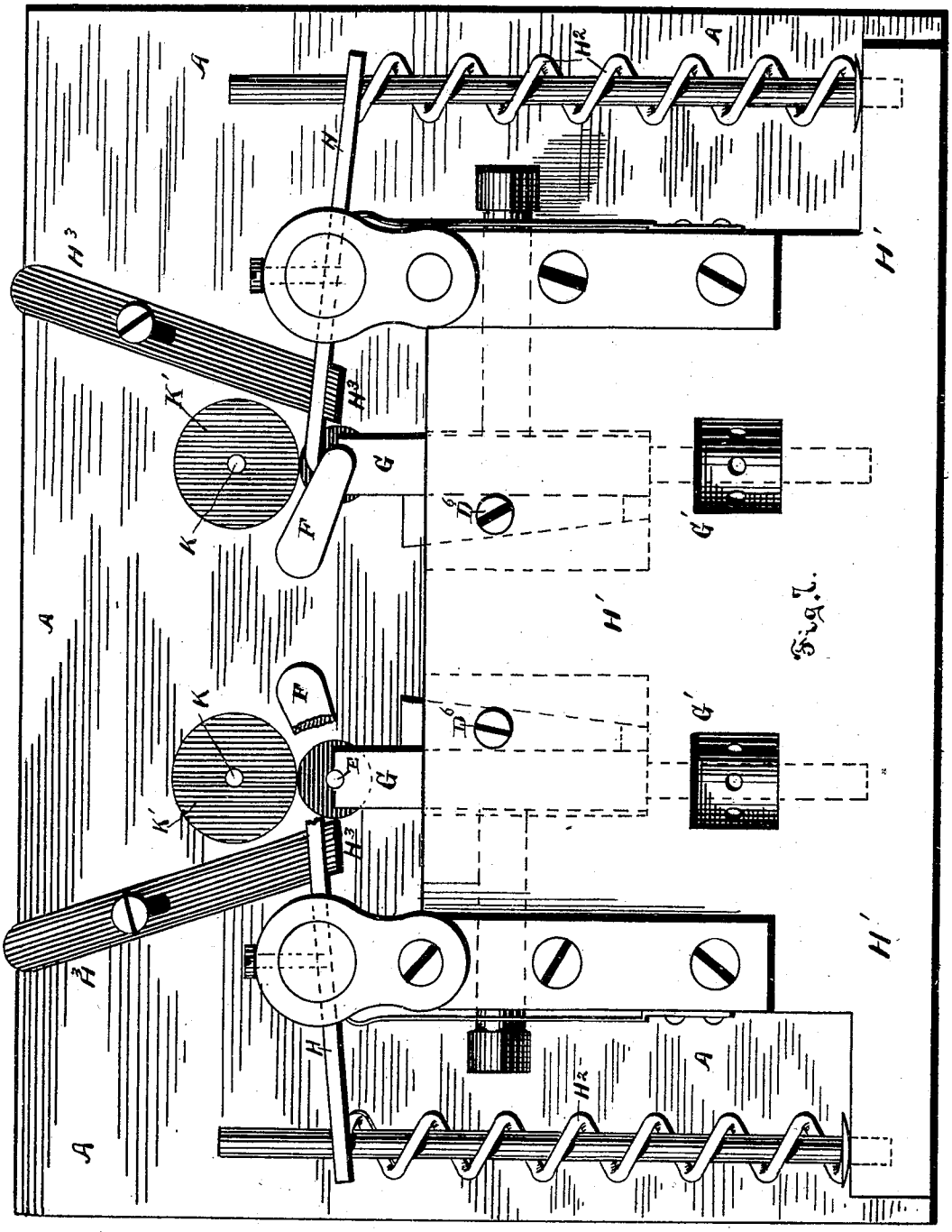


Fig. 1.

WITNESSES

Frank M. Gabor.

Willard Fracker.

Charles S. Seaton INVENTOR

By Leggett & Leggett

ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES S. SEATON, OF CUYAHOGA FALLS, ASSIGNOR OF ONE-HALF TO JOHN A. SEATON, OF CLEVELAND, OHIO.

BOLT-HEADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 242,229, dated May 31, 1881.

Application filed November 4, 1879.

To all whom it may concern:

Be it known that I, CHARLES S. SEATON, of Cuyahoga Falls, in the county of Summit and State of Ohio, have invented certain new and useful Improvements in Heading-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to machines for heading the blanks of bolts or screws; and it consists in the following parts and combination of parts, as hereinafter specified and claimed.

In the drawings, Figure 1 is a plan view of a device according to my invention. Fig. 2 is a view in longitudinal vertical section thereof. Fig. 3 is a detached view, showing the manner of adjusting the heading-die. Fig. 4 is a view, part in longitudinal transverse section, part in face elevation, of said device. Fig. 5 is a detached view, showing two heading-dies and the manner of fixing them within their holder or head-block. Fig. 6 is a detached section view, illustrating a single heading-die and a manner of attaching it to its holder. Fig. 7 is an enlarged view, showing more in detail a portion of the mechanism appearing in Fig. 4.

In the said drawings, A is a frame, of any suitable construction, dimensions, and material, for holding and accommodating the operative elements of my device.

B is the main shaft, driven by any suitable application of power. This shaft is journaled in the frame A, and has provided upon its body a crank or cam, which, through the medium of the pitman or connection C, imparts reciprocating motion to the heading-dies D. The heading-dies D are placed in the head-block D′, which slides within suitable groove-connection between it and the frame A. The heading-dies D have their operating or die ends shaped in counterpart for any desired fashion of head to be produced upon the blank to which they are applied. I therefore do not limit myself narrowly to any specific fashion of die, as in this respect an indefinite variation may be had to suit the requirements of any desired product. The dies D may be one, two, or more in number and all carried in the same head-block, D′. The dies D are provided with an enlarged shank portion, D^2, which abuts against an independent back piece, D^3. In the rear of the back piece, D^3, is placed an adjusting-wedge, D^4. By the adjustment of the wedge D^4 up or down the die D will be longitudinally adjusted in a manner too apparent to need specific explanation. This adjustment determines the distance of the extreme forward throw of the die, and this adjustment is made according to the degree of movement required by the blank.

As shown by Fig. 3, which illustrates the face of a single die, D, the die portion proper is located eccentrically to the axis of its enlarged shank D^2. By this eccentric construction the turning of the enlarged shank D^2 within its head-block will slightly shift the position of the heading-die D, and thus assist in its proper and exact adjustment. When placed in suitable adjustment the die is held in its place by any suitable locking or set-screw arrangement, D^5.

It will be observed that the head-block D′ is formed in two parts, the forward portion directly retaining the heading-dies. This forward portion is united by any suitable tongue-and-groove or other connection with the main portion of the head-block, and is constructed to be laterally adjustable by means of adjusting-screws D^6 or their equivalent, and when suitably adjusted in lateral position the forward portion of the head-block D′ may be fixed in position by set-screws D^7. The adjusting-wedges D^4 are also held in proper position by set-screws D^8 or their equivalent.

The mechanism thus far specified is that by which the heading-dies are given their motion and adjustment.

Proceeding now to a description of the mechanism for feeding, holding, and managing the blanks, it will be seen that said mechanism is located so as to face the parts already described.

Opposite and on a line with the axis of the heading-die proper, D, is a pocket, K, and below this pocket is a channel or feeding-aperture, E, and through this channel the metallic rod (which may be in the form of wire from a spool or coil) is passed and fed to the machine. As it is passed through it is checked by the

adjustable stops F. The stops F, by being adjusted, determine the length of the blank to be cut. The wire or rod, as it is fed through the channel E, is grasped between the bar G and the pinching-finger H. It is then carried up, and by being thus carried up the blank is severed from the rod by a shearing cut between the bar G and the mouth of the channel E. Thus severed and carried up, it is made to face a pocket, K, which in its function might be compared to a female die, although it mainly serves to hold the body of the blank while its head is being upset by the die D. The depth of the pocket corresponds to the length of the blank, and therefore said pocket should be formed in a removable block or body, K′, for sake of convenience in removal for the use of other pockets of different depths, this pocket-body K′ to be placed within the frame A, held in position by a suitable set-screw, K^2. The blank is driven to the bottom of the pocket by the forward motion of the die D, and, when driven to the bottom of the pocket, then for the first time the die D begins its function in upsetting a head upon said blank, which it does by continuing to press forward upon the head of the blank, thus forming a head upon said blank of a fashion corresponding to the conformation of the heading-die.

Any suitable retracting or ejecting mechanism may be employed for removing the finished blank from the pocket K.

I have not shown any mechanism for ejecting or retracting the finished blanks from the pocket, inasmuch as my invention has no reference to such mechanism. Any of the many common and well-known ejecting or retracting methods may be applied.

Coming now to a more specific description of the mechanism for performing the functions just pointed out, it will be seen that the pinching-finger H is pivoted at its middle portion to a frame, H′, which frame is given a vertical reciprocating motion. A spring, H^2, operates to keep the finger in pinching contact with its bar G. As the finger is carried down by the movements of the frame H′ it is caused to impinge against an adjustable stop, H^3, which operates to open the finger from its bar G so as to release the blank held by it. The opening-stop is adjustably attached to the frame A, as shown, and by being moved up or down the finger will be opened sooner or later in its downward passage. This arrangement is manifestly necessary in a machine designed to operate upon blanks of different diameters. The adjustable stops are fixed upon shanks F′ entering the frame A, and these shanks are adapted to be longitudinally adjusted within said frame, and they are fixed in any adjusted position by set-screws F^2. The bars G are made vertically adjustable by screw-blocks G′.

Vertical reciprocating motion is imparted to the frame H′ in the following manner: A stem, L, (which, if desired, may be adjustably attached,) proceeds from the lower portion of said frame H′. Through this stem is made a slot, and through this slot passes a cam-bar, L′. To the cam-bar is imparted a lateral or horizontal reciprocating motion through suitable link-and-lever connection, M N O P Q, with the main shaft B. L′, by its shape, as indicated in the drawings, will, when lateral motion is imparted to it, as already described, give the aforesaid up-and-down reciprocating motion to the frame H′.

The operation of my device is as follows: Rod or wire fed through the channel E is checked by the adjustable stop F, is then cut off by the forward movement of the bar G and carried between said bar and pinching-finger H opposite the pocket K. The heading-die now moves forward, driving the blank to the bottom of the pocket, where it is stopped, and the further movement of the die D operates to upset a head on the blank. During the swaging or upsetting operation, however, the bar G and pinching-finger H have traveled downward to receive the next succeeding blank. After the head has been formed the completed blank is retracted or ejected from the pocket by any suitable means.

What I claim is—

1. The heading-die D, placed eccentrically to the axis of its cylindrical shank D^2, in combination with the recessed head-block D′, within which said shank may be held and turned and adjusted, substantially as set forth.

2. In a heading-machine, the combination, with a vertically-reciprocating frame and a blank-grasping bar carried by the latter, of a pinching-finger mounted on said frame and a stop adapted to be maintained at different vertical points, said stop adapted by engagement with the pinching-finger to cause the latter to release the blank on the downstroke of the reciprocating frame, substantially as set forth.

3. In a heading-machine, the combination, with the heading-die formed eccentrically upon the end of the shank D^2, the independent block D^3, and wedge D^4, of the two-part head-block and devices for adjusting one part transversely to the length of the frame, substantially as set forth.

4. In a heading-machine, the combination, with a rear head-block connected to the driving mechanism and provided with a front opening, of a forward head-block fitted in the latter and adapted to be laterally moved therein in a right line, and set-screws respectively secured in opposite side walls of the opening, and having end bearing against the sides of the forward head-block, substantially as set forth.

5. The combination, with a pocket, K, and with a horizontally-reciprocating heading-die, D, of a vertically-reciprocating frame, H′, said frame H′ constructed to carry pinching-finger H and bar G, substantially as and for the purpose shown.

6. The combination, with the vertically-reciprocating frame H′, of the horizontally and

transversely reciprocating cam-bar L′, substantially as and for the purpose shown.

7. In a heading-machine, the combination, with a frame adapted to have vertical reciprocation, a blank-grasping bar secured to said frame, and a pinching-finger pivoted to the latter, of a horizontal cam-bar adapted to engage with a depending shank of said frame, a main driving-shaft, and mechanism connecting the latter with said cam-bar, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES S. SEATON.

Witnesses:

JNO. CROWELL, Jr.,

WILLARD FRACKER.