

(No Model.)

3 Sheets—Sheet 1.

H. O. NELSEN.

MACHINE FOR MAKING IRON PICKET FENCES.

No. 442,822.

Patented Dec. 16. 1890.

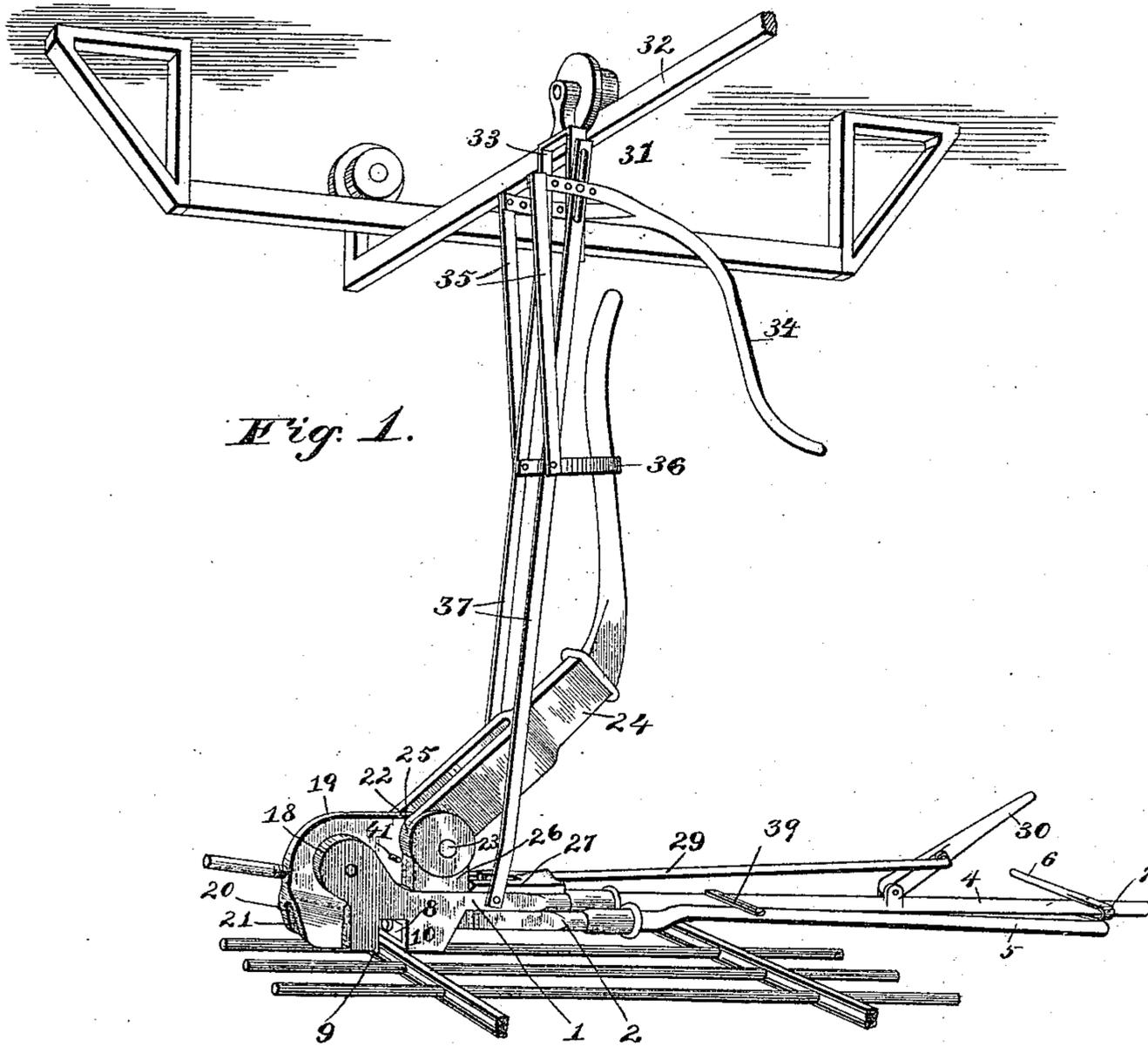


Fig. 1.

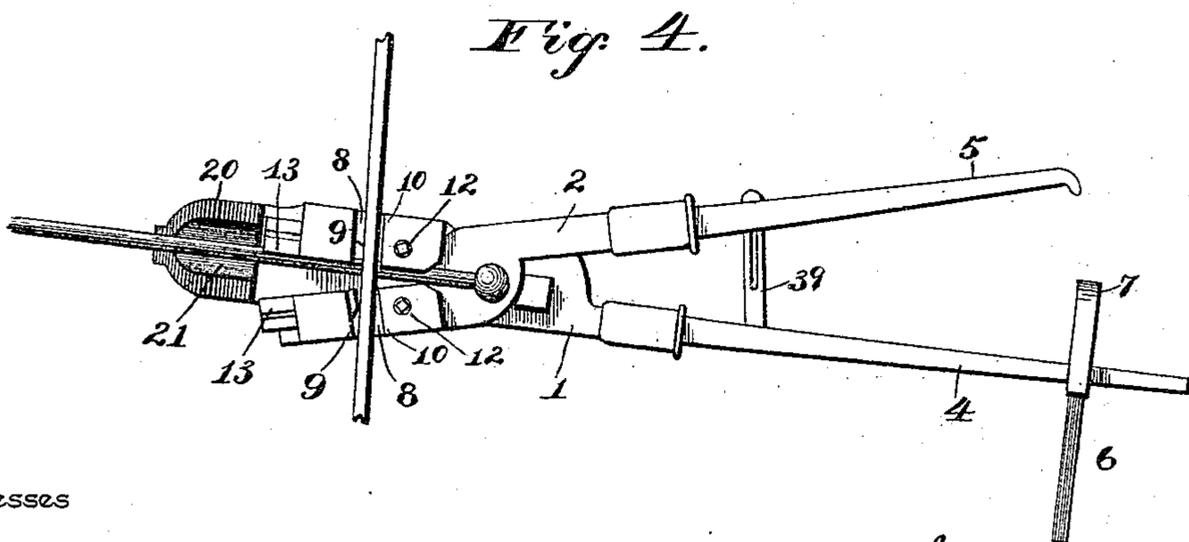


Fig. 4.

Witnesses

Inventor

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By his Attorneys,

*Herman O. Nelsen,*

*C. Snow & Co.*

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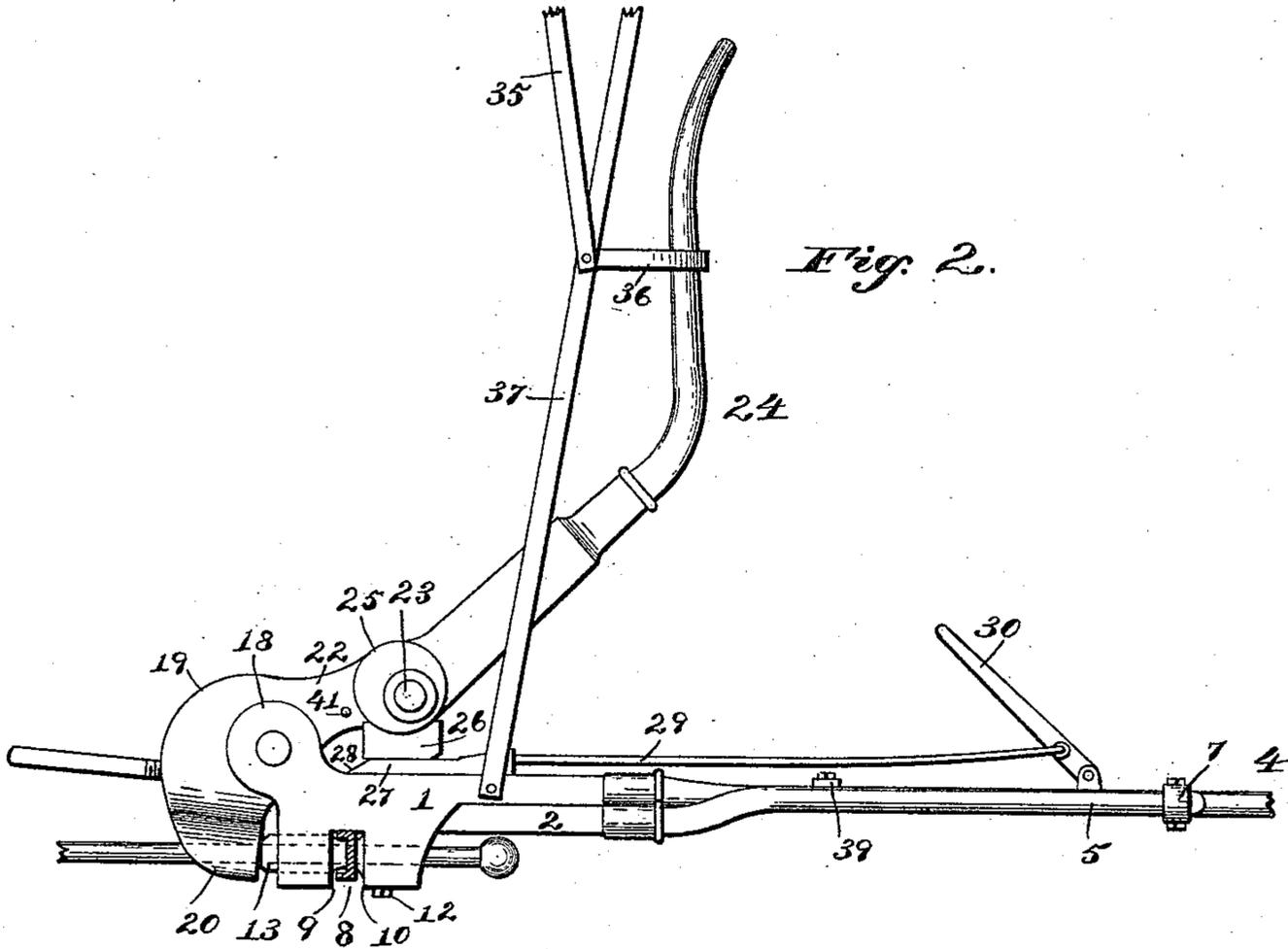


Fig. 2.

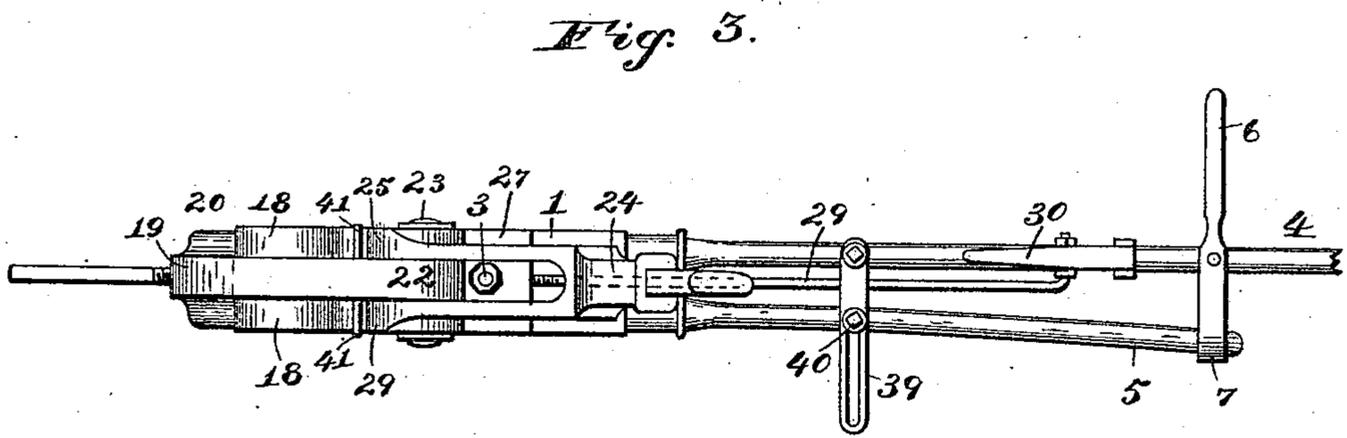
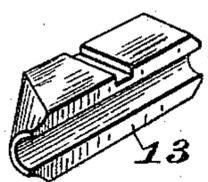


Fig. 3.

Fig. 6.



Witnesses

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*Herman O. Nelsen*  
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(No Model.)

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Fig. 7.

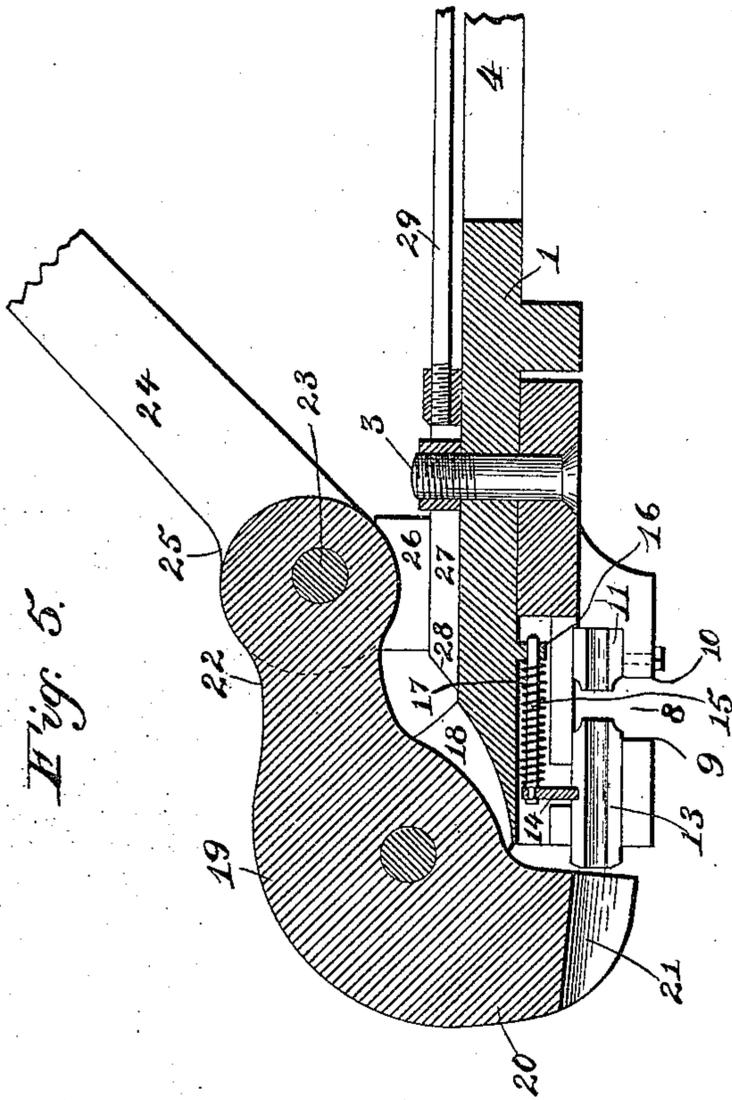
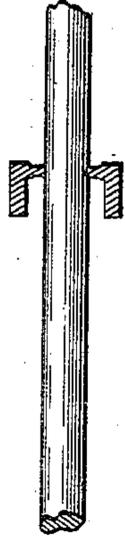


Fig. 5.

Witnesses

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# UNITED STATES PATENT OFFICE.

HERMAN O. NELSEN, OF KNOXVILLE, TENNESSEE.

## MACHINE FOR MAKING IRON PICKET FENCES.

SPECIFICATION forming part of Letters Patent No. 442,822, dated December 16, 1890.

Application filed October 1, 1890. Serial No. 366,728. (No model.)

*To all whom it may concern:*

Be it known that I, HERMAN O. NELSEN, a citizen of the United States, residing at Knoxville, in the county of Knox and State of Tennessee, have invented a new and useful Machine for Making Iron Picket Fences, of which the following is a specification.

This invention relates to machines for making iron picket fences; and it has for its object to swage or upset the metal of the rails around the pickets for the purpose of retaining the latter securely in the rails.

The machine comprises two parts or members connected pivotally with each other and each carrying a pair of dies adapted to operate against the fence-rail on opposite sides of a picket, so as to upset the metal around or into the body of the said picket.

The machine further comprises a bifurcated lever adapted to operate against and to actuate the outer dies, which are longitudinally movable in their respective bearings.

The machine further comprises an operating-lever connected with one end of the bifurcated lever, and mechanism for partially operating the said bifurcated lever independently of the operating-lever.

The machine further comprises certain parts and details of construction, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a perspective view showing my improved machine in position to be adjusted for operation upon a fence-panel. Fig. 2 is a side view showing the machine in position for swaging or upsetting the metal of a rail against a picket. Fig. 3 is a top view of the machine, as shown in Fig. 2. Fig. 4 is a bottom plan view of the machine, as shown in Fig. 1. Fig. 5 is a longitudinal sectional view. Fig. 6 is a detail view of one of the dies. Fig. 7 is a detail view of a portion of a rail in which a picket has been secured by my improved machine.

Like numerals of reference indicate like parts in all the figures.

The body of my improved fence-making machine is composed of the parts or members 1 and 2, which are pivotally connected by a vertical bolt 3 in the same manner as an or-

dinary pair of tongs. The parts 1 and 2 are provided with the handles 4 and 5, the former of which is provided with a lever 6, having a loop 7 to engage the handle 5, thus enabling the said handles to be locked together when desired.

The under sides of the parts or members 1 and 2 are provided with transverse recesses 8, forming the jaws 9 and 10. The inner jaws 10, or those nearest the fulcrum or pivotal point of the two parts or members, are provided with sockets in which the stationary inner dies 11 are secured by means of the set-screws 12. The outer jaws 9 are provided with bearings for the longitudinally-sliding outer dies 13, which are provided with upwardly-extending lugs 14, having horizontal pins 15, which are mounted slidingly in the ears or lugs 16, springs 17 being arranged to force the said dies 13 in an outward direction.

The part or member 1 of the machine is provided at its front end with upwardly and forwardly extending lugs 18, between which is pivoted the operating-lever 19. The latter has a downwardly-extending arm 20, the under side of which is bifurcated or provided with a longitudinal recess 21, adapted to straddle the picket which is to be operated upon. Said bifurcated arm of the lever 19 is adapted when the machine is in position for operation to bear against and to actuate the longitudinal sliding outer dies 13. The upper approximately horizontal arm 22 of the lever 19 is pivotally connected by a pin or bolt 23 with the operating-lever 24, the lower end of which is bifurcated, as shown. The lower ends of the arms of the bifurcated lever 24 terminate in the eccentric or cam-shaped heads 25, which are supported upon the bearing-block 26, which latter is adapted to rest upon the upper side of the member 1 of the body of the machine, with which, if desired, it may be connected in any suitable manner in such a manner as to be capable of moving vertically.

27 designates a plate or liner having a beveled front end, as shown at 28, and which is arranged to slide longitudinally upon the upper side of the member 1 of the body of the machine. To the rear end of said plate or liner is attached an operating-rod 29, the rear

end of which is pivotally connected with a lever 30, pivoted to the handle 4, and by means of which the said liner may be operated to push it forwardly under the bearing-block 26 or to withdraw it from under the latter. It will thus be seen that the said bearing-block may be raised or lowered, as desired, with the effect of partially swinging the lever 19 upon its fulcrum independently of the bifurcated operating-lever 24, having the eccentric or cam-shaped heads 25, and by means of which the throw of the bifurcated lever is completed.

The machine is arranged in position for operation by suspending it from a suitably-constructed car or carriage 31, arranged to travel upon a rail or track 32, which is arranged under the ceiling of the room. The carriage 31 has a downwardly-extending supporting-bail 33, to which is pivotally connected the bifurcated end of an operating-lever 34, to the outer ends of the arms of which are pivoted the depending straps 35, the lower ends of which are connected by a horizontal loop 36. The lower ends of the straps 35 are also connected by the vertical straps or connecting-rods 37 with the sides of the machine, which is in this manner suspended from the car or carriage. It will be seen that by manipulating the lever 34 the machine may be readily raised sufficiently to clear the pickets of the fence-panel, which is being operated upon, or lowered so as to engage the said pickets.

The operation of my invention and its advantages will be readily understood from the foregoing description, taken in connection with the drawings hereto annexed. The fence panel or section which is to be operated upon may be supported upon trestles, substantially as will be seen in Fig. 1 of the drawings hereto annexed, the pickets, which may be either round or square, being inserted through the perforations formed for their reception in the rails, which latter may be either ordinary flat bars or channel-bars, the latter being usually employed. Dies of suitable dimensions and shape are to be placed in the machine to fit the pickets of the fence that is to be operated upon. The lever 6 is first manipulated to unlock the handles 4 and 5, which are then grasped by one of the operators and manipulated so as to open the machine. The operating-lever 24 is meanwhile in a raised position, as shown in Fig. 1, and rests in the horizontal loop 36 of the supporting-straps. The lever 34 is next operated to lower the machine in such a manner as to straddle the picket which is to be operated upon, the heads of the members 1 and 2 being adjusted on each side of the picket, and the rail or channel bar being adjusted in the transverse recesses 8. The handles 4 and 5 are then brought together and locked by means of the lever 6, thus adjusting the two pair of dies closely against the sides of the picket. The lever 30 is now manipulated to slide the liner 27 in

a forward direction, so as to raise or elevate the bearing-blocks 26, thus operating the lever 19 to force the sliding dies 13 partially in an inward direction. This mechanism is especially useful and essential when channel-bars are used as rails, in order to force the said sliding dies into the channel, which operation does not require the exercise of much power. An operator standing under the machine next grasps the handle of the lever 24 and manipulates the latter to cause its eccentric or cam-shaped heads 25 to bear against the block 26, thus actuating the lever 19 to cause its bifurcated end to press forcibly against the sliding dies 13, which latter, in conjunction with the stationary dies 11, will upset the metal of the rail around and to some extent force it into the body of the picket, which will thus be held very securely in the rail. The lever 24 is now raised, the handles 4 and 5 unlocked and separated, and the lever 34 manipulated to raise or lift the machine, when the supporting car or carriage may be caused to travel a short distance upon its track, after which the machine is adjusted upon the next picket and the operation repeated.

This machine, as will be seen, is constructed in such a manner that a very powerful pressure may be exerted upon the dies, the longitudinal movement of which is but trifling compared to the range of the movement of the handle of lever 24. By the arrangement of the longitudinally-sliding plate or liner the lever 19 may be very easily operated to adjust it prior to the beginning of the actual pressure upon the dies, thus limiting the movement of the latter to the distance which is actually necessary to upset the metal sufficiently, which is only a fraction of an inch. It is therefore obvious that although the machine may be comparatively light and easily manipulated it is capable of exerting a very great pressure.

The general construction of the machine is simple and inexpensive, and it may be very readily manipulated by two men who do not even require to be skilled mechanics. The dies of the machine are detachable, and may be readily replaced by others of a different size and shape, thus enabling the machine to be utilized for the manufacture of picket fences of various sizes and designs.

While I have herein described the preferred form of my invention, I desire it to be understood that I reserve the right to any changes and modifications which may be resorted to without departing from the spirit of my invention.

One of the handles of the machine is provided with a link 39, engaging a stud 40 upon the other handle, for the purpose of limiting the extent to which the pivoted members of the frame may be opened or spread apart. For the purpose of lubricating the bearings of the operating-lever, laterally-extending studs 41 are provided, upon which wipers or

lubricating devices of suitable construction may be mounted.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a machine of the class described, the frame or body composed of two parts or members connected together pivotally, the head of each being provided with a transverse recess in its under side, in combination with the dies arranged in pairs on opposite sides of said recess, and a bifurcated lever arranged to bear against the outer longitudinally-movable dies, substantially as and for the purpose set forth.

2. In a machine of the class described, the frame or body composed of two parts or members connected together by a vertical bolt or pivot, the head of each being provided with a transverse recess in its under side, in combination with the stationary dies mounted in the inner jaws thus formed, the longitudinally-sliding spring-actuated dies mounted in the outer jaws, and a bifurcated lever pivoted to one of the parts or members of the frame and adapted to bear against the longitudinally-movable dies, substantially as and for the purpose set forth.

3. In a machine of the class described, the combination of the frame composed of two parts or members connected by a vertical bolt or pivot, the head of each being provided with a transverse recess in its under side, the stationary and the longitudinally-movable dies arranged in pairs in the jaws thus formed, the bifurcated operating-lever, and a lever pivoted to one of the handles of the machine and having a loop adapted to engage the other handle for the purpose of locking the parts or members of the machine together, substantially as set forth.

4. In a machine of the class described, the combination of the parts or members connected by a vertical bolt or pivot and carrying the stationary and the movable dies, the bifurcated lever pivoted to one of the parts or members and adapted to bear against the movable dies, an operating-lever connected pivotally with said bifurcated lever and having cam-shaped or eccentric heads, and a block to support and form a bearing for the said cam-shaped heads, substantially as set forth.

5. In a machine of the class described, the combination of the frame composed of two parts or members connected by the vertical bolt or pivot and carrying the stationary and the movable dies, the bifurcated lever pivoted to one of said members and adapted to bear against the movable dies, an operating-lever connected pivotally with said bifurcated lever and having cam-shaped or eccentric heads, a block arranged to support and to form a bearing for said cam-shaped heads, and mechanism for effecting a vertical movement of said bearing-block to partially operate the bifurcated lever, substantially as and for the purpose set forth.

6. In a machine of the class described, the combination of a frame, stationary and longitudinally-movable dies mounted in the said frame, a bifurcated lever adapted to bear against the longitudinally-movable dies, an operating-lever connected pivotally with and adapted to actuate the said bifurcated lever, and mechanism for partially operating the latter irrespective of the operating-lever, substantially as set forth.

7. In a machine of the class described, the combination of a frame composed of two parts or members connected pivotally together, the heads of said members being provided with transverse recesses in their under sides, the stationary and the longitudinally-movable spring-actuated dies mounted in pairs in the jaws thus formed, a bifurcated lever pivoted to one of the members of the frame and adapted to bear against the movable dies, the operating-lever connected pivotally with said bifurcated lever and having eccentric or cam-shaped heads, a vertically-movable bearing-block for the latter, and a longitudinally-movable plate or liner adapted to be adjusted under the said bearing-block, substantially as and for the purpose set forth.

8. In a machine of the class described, the frame composed of two parts or members connected pivotally and carrying the stationary and the movable dies, in combination with a bifurcated lever pivoted to one of said members and adapted to bear against the movable dies, an operating-lever connected pivotally with said bifurcated lever, mechanism for partially manipulating the latter irrespective of the operating-lever, and mechanism for locking the parts or members of the machine together, for operation substantially as set forth.

9. In a machine of the class described, the combination of the frame composed of two parts or members connected pivotally together and carrying the stationary and the movable dies, a bifurcated lever pivoted to one of said parts or members and adapted to bear against the movable dies, an operating-lever connected pivotally with said bifurcated lever and having eccentric or cam-shaped heads, the vertically-movable bearing-block supporting the latter, the longitudinally-movable plate or liner having a beveled front edge and adapted to engage and to effect the vertical adjustment of said bearing-block, a lever pivoted to one of the handles of the machine, and a rod connecting the said lever with the said plate or liner, substantially as set forth.

10. In a machine of the class described, the combination of stationary dies, movable spring-actuated dies, a lever bearing against the latter, an operating-lever connected pivotally with the latter, and mechanism for partially actuating said lever independently of the operating-lever, substantially as set forth.

11. In a machine of the class described, the combination of a rail or track, a car or carriage mounted upon the same, lever connected

5 pivotally with said car, the straps depending from the free end of said lever and having a horizontal loop at their lower ends, the supporting-straps connecting said depending straps with the body of the machine, and the operating-lever forming a part of said machine and adapted to rest in the horizontal loop, substantially as and for the purpose set forth.

10 12. The combination, with the herein-described machine for securing the pickets in iron fences, of a supporting car or carriage arranged to travel upon a suitable rail or track, mechanism for lifting or elevating the body of the machine so as to enable it to clear the pickets while being moved laterally over the panel that is being operated upon, and a horizontal loop forming a part of the supporting mechanism and adapted to support the operating-lever while not in operation, substantially as and for the purpose set forth.

15 13. In a machine of the class described, the die-operating mechanism comprising a bifurcated lever and an operating-lever pivoted to the latter and having eccentric heads working in suitable bearings, substantially as set forth.

20 14. In a machine of the class described, the vertically-movable bearing-block or fulcrum for the eccentric or cam-shaped heads of the operating-lever, substantially as set forth.

15. In a machine of the class described, the sliding liner adapted to engage and to effect a vertical adjustment of the bearing-block for the cam-shaped heads of the operating-lever, substantially as set forth. 35

16. In a machine of the class described, the stationary and the longitudinally-movable dies mounted in pairs in the pivotally-connected members of the frame, said members being provided with transverse recesses to enable the dies to be adjusted on opposite sides of a pivot in front and in rear of the rail, substantially as set forth. 40

17. A machine of the class described having two stationary and two longitudinally-movable dies adapted to be adjusted on opposite sides of a pivot in front and in rear of the rail, in combination with mechanism for partially operating the movable dies independently of the operating-lever, by means of which they are eventually actuated to upset the metal of the rail around a picket, substantially as described. 45 50

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses. 55

HERMAN O. NELSEN.

Witnesses:

C. AEBLI,  
CHAS. DENDER.