

A. W. GUSTAFSON.
PUNCH PRESS.
APPLICATION FILED APR. 25, 1914.

1,124,893.

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Fig. 1.

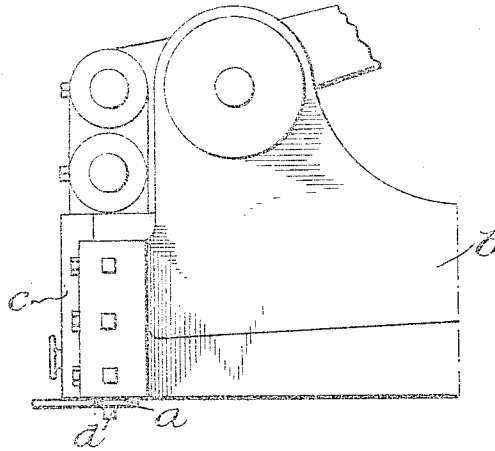


Fig. 2.

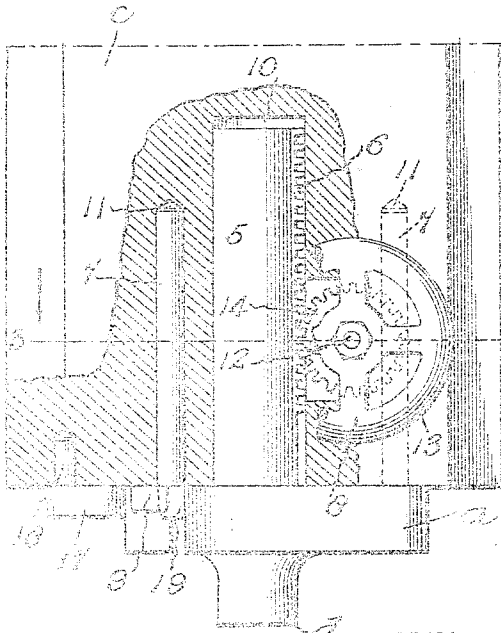
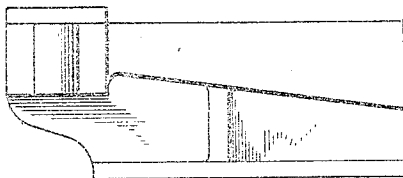
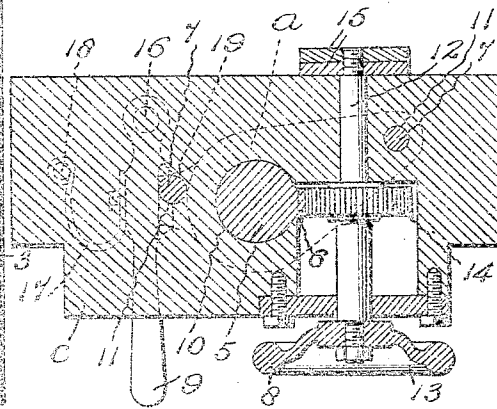


Fig. 3.



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PUNCH-PRESS.

1,124,893.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALBERT W. GUSTAFSON, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented new and useful improvements in Punch-Presses, of which the following is a specification.

The general object of this invention is to effect the correct and accurate punching by a punch press upon predetermined points in boiler-plates, structural steel and the like.

As is generally known, in modern shop-practice of mills and the like, when structural members are fabricated, as much fabrication as possible is accomplished in the shop before the parts are shipped. Now, while the shapes, such as beams, angles, channels and the like which form these members are being prepared for assembling, the parts are punched according to specification so as to provide suitable holes for the rivets which bind the parts together. By virtue of punching these holes on a press, the holes are not always punched in the correct location, that is, the holes are frequently a trifle off-center, and when the parts are assembled, the holes of adjoining elements do not always coincide, thereby inviting faulty fittings of the rivets therein.

This invention tends to correct the above imperfect punching, and consists of a movable punch holder, fitted to the sliding head of a punch press so that the punch may be adjusted in order to be centered on the point where it is desired to punch a hole.

Other objects will appear and be better understood from that embodiment of my invention of which the following is a specification, reference being had to the accompanying drawings forming part hereof, in which:—

Figure 1 is a side view of a portion of a punch-press showing my invention applied thereto. Fig. 2 is a front view of a portion of the sliding head having portions broken away for the purpose of more clearly illustrating the application of the invention thereto, and Fig. 3 is a horizontal sectional view taken on the line 3—3 in Fig. 2.

As shown in the drawings, *a* indicated my improved punch holder which is fitted into the sliding head *c* of the punch press *b*, and consists in general of a die *d* and a shank *e* which is provided with a rack *f*, whereby the punch-holder may be raised and lowered by the hand operating means *g*, and is

also adapted to be locked in a raised position by means of the lever *h*.

The punch holder *a* is preferably formed of the shape shown instead of being rigidly secured to the lower face of the sliding head *c* as on punch presses now in use.

The punch holder is adapted to be movably mounted on the sliding head as will be presently described. The shank *e* of the punch holder *a* is fitted within a suitable chamber or bore *i* provided in the sliding head *c* and, to prevent the holder when operated from moving laterally, vertical guide pins *j*—*j* are provided thereon, which are slidably fitted within suitable bores *k*—*k* provided in the head as shown.

The means *g* for raising and lowering the punch holder comprises a shaft *l*, a wheel handle *m*, and a pinion *n* which is securely mounted on the shaft so as to mesh with the rack *f*. The shaft is positioned transversely in the sliding head *c* and is arranged so that its pinion is normally in engagement with the rack at all times. The hand wheel *m* which is mounted on the front end of the shaft *l*, is provided for rotating the pinion *n*, to lower and raise the shanks *e* as desired. The rear of the shaft is capped with suitable retaining nuts *o* as shown.

A lever *h* is provided for retaining the punch holder in a normal raised position. This lever *h* is pivoted on the lower face of the head *c*, as indicated at *p*, and a leaf spring *q*, suitably secured as by a pin *r* to the slide is provided for normally holding the lever in engagement with the punch holder as shown. By referring to Figs. 2 and 3 it will be seen that the punch holder is provided with an extending lug portion *s* upon which one of the pins *j* is mounted. This lug *s* is notched at the lower end of the attached pin *j* and the edge portion of the lever *h* is received in the said notch as best shown in Fig. 2 of the drawing.

In operation, the work to be punched is placed in the mouth of the press under the punch holder, in the usual manner and the lever *h* is then moved away from the lug *s* and out of engagement with the notch therein. The wheel *m* is next rotated, in the event that the shank *e* sticks in the bore *i*, so as to lower the punch holder until the latter contacts with the work. The operator of the press may then adjust the work so that the punch *d* is centered on the same at a point where it is desired to punch a

hole, whereupon the power is then applied to the press and the sliding head *c* moves downwardly. It will be seen by virtue of the punch holder being already in its lower position, the same does not move to effect the punching of a hole until the sliding head *c* is brought in contact with the punch holder *a*, whereupon the punch or die is then forced through the work in the usual manner. When the punch holder *a* is in the lowered position in the slide *c* the pin 7 which is adjacent the lever 9 retains the latter out of engagement with the shank 5, but upon the slide *c* descending and contacting with the punch holder, the lever 9 springs into engagement with the punch holder, and then as the slide *c* is directed upwardly, the punch holder is also carried upwardly therewith where it may again be adjusted for a subsequent operation.

It is obvious that those skilled in the art may vary the details of construction and arrangements of parts without departing from the spirit of my invention and therefore I do not wish to be limited to such features except as may be required by the claims.

What is claimed as new is:

1. In a punch press, the combination of a sliding head provided with an adjustable punch holder, a spring actuated lock mounted on the sliding head for locking the punch holder thereto, and a means mounted on the sliding head and carried thereby for adjusting the punch holder upon the disengagement of the lock.
2. In a punch press, the combination of a sliding head provided with a vertically adjustable punch holder, a spring actuated lever mounted on the sliding head and engaging the punch holder for locking the same to the sliding head, and means for adjusting the punch holder upon the disengagement of the lever from the punch holder.
3. In a punch press, the combination of a sliding head provided with a vertically adjustable punch holder, a spring actuated lever mounted on the sliding head and engaging the punch holder for locking the same to the sliding head, and a means mounted on the sliding head and carried thereby for adjusting the punch holder upon the disengagement of the spring actuated lever.
4. In a punch press, the combination of a sliding head provided with an adjustable punch holder, means for locking the punch holder to the sliding head, and a means including a rack and pinion for adjusting the punch holder upon the disengagement of the lock.
5. In a punch press, the combination of a

sliding head, provided with an adjustable punch holder, spring actuated means mounted on the sliding head for locking the punch holder thereto, means including a rack and pinion carried by the sliding head for adjusting the punch holder upon the disengagement of the lock.

6. In a punch press, the combination of a sliding head provided with an adjustable punch holder, a means for locking the punch holder to the sliding head, a rack mounted on the punch holder, a pinion mounted within the sliding head and engaging the rack, and means for rotating the pinion for adjusting the punch holder.

7. In a punch press, the combination of a sliding head provided with an adjustable punch holder, a rack vertically arranged on the punch holder, a pinion positioned transversely within the sliding head and engaging the rack, and a means mounted on the sliding head for rotating the pinion.

8. In a punch press, the combination of a sliding head provided with an adjustable punch holder, a rack vertically arranged on the punch holder, a pinion positioned transversely within the sliding head and engaging the rack, a means mounted on the sliding head for rotating the pinion, and a spring-actuated lock mounted on the sliding head for locking the punch holder in a fixed position on the sliding head.

9. In a punch press, the combination of a sliding head provided with an adjustable punch holder, a means mounted on the sliding head for locking the punch holder thereto, a rack vertically arranged on the punch holder and projecting within the sliding head, a pinion mounted within the sliding head and engaging the rack, and a means mounted on the sliding head and carried thereby for adjusting the punch holder upon the disengagement of the lock.

10. In a punch press, the combination of a sliding head provided with an adjustable punch holder, a spring actuated lever mounted on the sliding head and engaging the punch holder for locking the same to the sliding head, a rack vertically arranged on the punch holder and projecting within the sliding head, a pinion mounted within the sliding head and engaging the rack, and a means mounted on the sliding head and carried thereby for adjusting the punch holder upon the disengagement of the lock.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT W. GUSTAFSON,

Witnesses:

M. E. LAUGHLIN,
WM. C. WOLF.